IEEE International Conference on Acoustics, Speech and Signal Processing 2020

On-demand Session Index

4-8 May, 2020

Contents

List of Sessions 10
Tuesday, 5 May 11
Tuesday, 5 May, 11:30 - 13:30 11
Tuesday, 5 May, 16:30 - 18:30 11
Wednesday, 6 May 12
Wednesday, 6 May, 09:00 - 11:00 12
Wednesday, 6 May, 11:30 - 13:30 12
Wednesday, 6 May, 16:30 - 18:30 13
Thursday, 7 May 14
Thursday, 7 May, 09:00 - 11:00 14
Thursday, 7 May, 11:30 - 13:30 14
Thursday, 7 May, 16:30 - 18:30 15
Friday, 8 May 16
Friday, 8 May, 08:00 - 10:00 16
Friday, 8 May, 11:45 - 13:45 16
Friday, 8 May, 15:15 - 17:15 17
Paper Index per Session 18
Audio and Acoustic Signal Processing 19
AUD-L1 - Music Information Retrieval I 19
AUD-L2 - Deep Learning for Source Separation 20
AUD-L3 - Acoustic Event Detection 21
AUD-L4 - Audio and Speech Source Separation 22
AUD-L5 - Classification of Acoustic Scenes and Events 23
AUD-L6 - Acoustic Environments and Spatial Audio II 25
AUD-L7 - Signal Enhancement and Restoration I 26
AUD-L8 - Acoustic Sensor Array Signal Processing II 27
AUD-L9 - Music Signal Processing II 28
AUD-P1 - Deep Learning for Audio Classification 29
AUD-P2 - Deep Learning for Speech and Audio 31
AUD-P3 - Acoustic Environments and Spatial Audio I 33

AUD-P4 - Feedback, Noise, and Reverberation 35
AUD-P5 - Music Information Retrieval II 37
AUD-P6 - Acoustic Sensor Array Signal Processing I 39
AUD-P7 - Audio Classification 41
AUD-P8 - Source Separation and Array Processing 44
AUD-P9 - Topics in Audio Analysis and Classification 46
AUD-P10 - Music Signal Processing I 48
AUD-P11 - Signal Enhancement and Restoration II 50
AUD-P12 - Audio, Speech and Music Analysis 52
Biomedical Imaging and Signal Processing 55
BIO-L1 - Bioelectrical Signal Processing 55
BIO-L2 - Biological Image Analysis 57
BIO-L3 - Signal Processing in Biometrics 58
BIO-L4 - Biomedical Signal Processing 60
BIO-L5 - Medical Image Analysis 62
BIO-P1 - Biomedical Imaging and Analysis 64
BIO-P2 - Biomedical Signal Analysis 66
BIO-P3 - Neuro Image and Signal Processing 68
BIO-P4 - Physiological Signal Processing 70
BIO-P5 - Bio Image and Signal Processing 73
BIO-P6 - Biomedical Image Segmentation 75
Computational Imaging 77
CI-L1 - Computational Imaging 77
CI-L2 - Computational Optics 79
CI-P1 - Computational Imaging Method and Applications 80
Collaborative Sessions 82
COLL-L1 - Session 3H: Processing of Highly complex, Heterogeneous, High-dimension data 82
COLL-L2 - Session 3R: Robustness Reproducibility Replicability 84
Design and Implementation of Signal Processing Systems 85
DIS-L1 - Array-based Architectures for Energy-efficient Signal Processing Systems 85

DIS-P1 - Signal Processing for Emerging Applications: Machine Learning 87
DIS-P2 - Algorithm and Architecture Co-optimization 90
DIS-P3 - Design and Implementation of Signal Processing Systems for Wireless Communication Systems 92
DIS-P4 - Design and Implementation of Emerging Signal Processing Systems 94
Human Language Technology 96
HLT-L1 - Spoken Language Translation 96
HLT-L2 - Language Modeling 98
HLT-L3 - Spoken Language Understanding and Dialogue II 100
HLT-P1 - Spoken Language Understanding and Dialogue I 101
HLT-P2 - Speech and Language Analysis 103
HLT-P3 - Language Understanding and Modeling 105
HLT-P4 - Machine Learning for Language Processing II 107
HLT-P5 - Multilingual Processing of Language 109
Industry DSP 112
IDSP-L1 - Signal Processing for Emerging Industry Applications 112
IDSP-L2 - Industry Session on Large-Scale Distributed Learning Strategies 114
IDSP-P1 - Emerging Signal Processing Applications 115
Information Forensics and Security 117
IFS-L1 - Multimedia Forensics 117
IFS-L2 - Privacy, Biometrics and Information Security 118
IFS-P1 - Information Hiding, Biometrics and Security 119
IFS-P2 - Anonymization, Security and Privacy 121
IFS-P3 - Multimedia Forensics and Biometrics 123
Signal Processing for Internet of Things 125
IOT-P1 - Internet of Things 125
Image, Video, and Multidimensional Signal Processing 127
IVMSP-L1 - Inverse Problems in Image/Video Processing I 127
IVMSP-L2 - Image/Video Analysis II 129
IVMSP-L3 - Image Emerging Topics 130
IVMSP-L4 - Machine Learning For Image/Video Processing III 131

IVMSP-L5 - Image/Video Storage, and Retrieval 133
IVMSP-L6 - Image/Video Synthesis, Rendering and Visualization 134
IVMSP-L7 - Point Cloud and Depth Processing 135
IVMSP-L8 - Multi-scale and Wavelet Processing 136
IVMSP-L9 - Image/Video Coding II 138
IVMSP-L10 - Image/Video Processing III 140
IVMSP-P1 - Image/Video Representation 141
IVMSP-P2 - Image/Video Coding I 143
IVMSP-P3 - Machine Learning For Image/Video Processing I 145
IVMSP-P4 - Image/Video Analysis I 147
IVMSP-P5 - Image/Video Interpretation and Understanding 149
IVMSP-P6 - Machine Learning For Image/Video Processing II 152
IVMSP-P7 - Image/Video Processing I 154
IVMSP-P8 - Inverse Problems in Image/Video Processing II 156
IVMSP-P9 - Image/Video Analysis III 158
IVMSP-P10 - Inverse Problems in Image/Video Processing III 160
IVMSP-P11 - Image/Video Processing II 162
IVMSP-P12 - Perception and Quality Models 164
Machine Learning Signal Processing 166
MLSP-L1 - Adversarial Machine Learning 166
MLSP-L2 - Optimization Algorithms I 168
MLSP-L3 - Optimization Algorithms II 169
MLSP-L4 - Generative Adversarial Networks 170
MLSP-L5 - Neural Networks Applications I 171
MLSP-L6 - Sparsity Aware Processing and Learning 172
MLSP-L7 - Machine Learning Applications III 173
MLSP-L8 - Tensor-based Signal Processing 174
MLSP-L9 - Autoencoders 175
MLSP-L10 - Deep Neural Network Structures 176
MLSP-L11 - Attention Networks 177
MLSP-L12 - Sequential Learning 178

MLSP-P1 - Dictionary Learning, Representation Learning and Matrix Completion 179
MLSP-P2 - Applications in Speech and Audio 181
MLSP-P3 - Reinforcement and Sequential Learning 183
MLSP-P4 - Adversarial Attacks and Fast Algorithms 185
MLSP-P5 - Applications in Video and Image Processing I 187
MLSP-P6 - Pattern Recognition and Machine Learning 189
MLSP-P7 - Machine Learning Applications I 191
MLSP-P8 - Machine Learning Applications II 193
MLSP-P9 - Graphical, Kernel and Tensor Methods 195
MLSP-P10 - Learning Methods 197
MLSP-P11 - Neural Networks and Pattern Recognition 199
MLSP-P12 - Applications in Video and Image Processing II 201
MLSP-P13 - Neural Networks Applications II 203
MLSP-P14 - Topics in Machine Learning 205
MLSP-P15 - Neural Network Algorithms 207
MLSP-P16 - Neural Networks Applications III 209
Multimedia Signal Processing 212
MMSP-L1 - Signal Processing for Multimedia Applications II 212
MMSP-L2 - Deep Learning for Multimedia Processing and Analysis II 214
MMSP-P1 - Signal Processing for Multimedia Applications I 216
MMSP-P2 - Deep Learning for Multimedia Processing and Analysis I 218
MMSP-P3 - Multimedia Signal Processing 220
Show and Tell Demonstrations 222
S&T-P1 - Show and Tell 1 222
S&T-P2 - Show and Tell 2 225
S&T-P3 - Show and Tell 3 228
S&T-P4 - Show and Tell 4 231
S&T-P5 - Show and Tell 5 235
S&T-P6 - Show and Tell 6 239
S&T-P7 - Show and Tell 7 241

S&T-P8 - Show and Tell 8 244
S&T-P9 - Show and Tell 9 248
Sensor Array and Multichannel Signal Processing 250
SAM-L1 - Direction of Arrival Estimation 250
SAM-L2 - MIMO Systems and MIMO Radar 251
SAM-L3 - Sparse Arrays and Sparse Sensing 252
SAM-L4 - Learning Models and Methods for Multi-sensor Systems 254
SAM-P1 - Radar and Acoustic Array Processing 255
SAM-P2 - Beamforming, Relaying and Source Separation 257
SAM-P3 - Sparsity, Super-Resolution and Imaging 259
SAM-P4 - Robustness, Decompositions, Calibration and Bounds 261
SAM-P5 - Localisation and Tracking 263
SAM-P6 - Detection, Estimation and Classification 265
Signal Processing for Communications and Networking 267
SPCOM-L1 - Networks and Resource Allocation 267
SPCOM-L2 - Channel Estimation 269
SPCOM-P1 - Machine Learning for Communcations I 270
SPCOM-P2 - Modulation, Detection and Decoding 272
SPCOM-P3 - MIMO and Multi-antenna Systems 274
SPCOM-P4 - Design and Implementation of Communication Systems 276
SPCOM-P5 - Communication Signal Analysis and Optimization 278
Speech and Language Processing 280
SPE-L1 - End-to-end Speech Recognition I: Streaming 280
SPE-L2 - Language Disorders 282
SPE-L3 - End-to-end Speech Recognition II: New Models 283
SPE-L4 - Machine Learning for Language Processing I 284
SPE-L5 - Speech Synthesis and Voice Conversion I 285
SPE-L6 - Speech Enhancement II: Single Channel 286
SPE-L7 - Speech Perception and Psychoacoustics 287
SPE-L8 - Speech Synthesis and Voice Conversion II 288
SPE-L9 - Multimodal Processing of Language 290

SPE-L10 - Speech Recognition: Confidence, Errors and OOVs 291
SPE-L11 - Speech Separation and Extraction I: Single Channel 293
SPE-L12 - Speech Separation and Extraction II: Multi-channel 294
SPE-L13 - Speech Recognition: Representations and Embeddings 296
SPE-L14 - Speaker Recognition/Identification/Verification 297
SPE-L15 - Emotion Recognition 298
SPE-L16 - Speaker Diarization 300
SPE-L17 - Paralinguistics Modeling 302
SPE-P1 - Adversarial/Discriminative Training and Spoofing for Speaker Recognition 304
SPE-P2 - Speech Enhancement I: Network Architectures 306
SPE-P3 - Machine Learning for Speech Synthesis I 308
SPE-P4 - Speech Analysis and Coding 311
SPE-P5 - Deep Speaker Recognition Models 313
SPE-P6 - Speech Recognition: Acoustic Modelling I 315
SPE-P7 - Speech Enhancement III: Hearing Aids and other Applications 317
SPE-P8 - Robust Speech Recognition 319
SPE-P9 - End-to-end Speech Recognition III: General Topics 321
SPE-P10 - Speaker Diarization and Characterization 323
SPE-P11 - Emotion 325
SPE-P12 - Machine Learning for Speech Synthesis II 328
SPE-P13 - Speech Separation and Extraction III 330
SPE-P14 - Speech Production 332
SPE-P15 - Speech Recognition: Adaptation 334
SPE-P16 - Word Spotting 336
SPE-P17 - Speech Enhancement IV 338
SPE-P18 - Speaker Recognition Systems, Data and Features 340
SPE-P19 - Machine Learning for Speech Synthesis III 342
SPE-P20 - Speech Recognition: Acoustic Modelling II 344
SPE-P21 - Voice Conversion 346
SPE-P22 - Large Vocabulary Continuous Speech Recognition and Search 349

SPE-P23 - Speech Recognition: General Topics 351
Signal Processing Theory and Methods 354
SPTM-L1 - Estimation Theory and Methods I 354
SPTM-L2 - Graph Representations and Analysis 355
SPTM-L3 - Estimation and Detection 356
SPTM-L4 - Optimization Techniques I 357
SPTM-L5 - Signal Processing Emerging Topics 358
SPTM-L6 - Tracking and Adaptive Signal Processing 359
SPTM-L7 - Bayesian Signal Processing II 360
SPTM-L8 - Sparsity-Aware Processing II 361
SPTM-P1 - Adaptation and Learning over Graphs 362
SPTM-P2 - Sampling Theory, Analysis and Methods 364
SPTM-P3 - Signal and Information Processing over Graphs 366
SPTM-P4 - Sparsity-Aware Processing I 368
SPTM-P5 - Optimization Techniques II 370
SPTM-P6 - Sampling, Multirate Signal Processing and Digital Signal Processing . 372
SPTM-P7 - Bayesian Signal Processing I 374
SPTM-P8 - Signal Processing over Networks 376
SPTM-P9 - Estimation Theory and Methods II 378
SPTM-P10 - Detection and Classification 380
Special Sessions 382
SS-L1 - Active Control of Acoustic Noise over Spatial Regions 382
SS-L2 - Signal Processing Methods for Finance Applications 384
SS-L3 - A Signal-Processing View of Graph Neural Networks 386
SS-L4 - End-to-End Approaches for Spoken Language Understanding 387
SS-L5 - Spike-based Neuromorphic Information Representation, Processing and Learning 388
SS-L6 - Machine Learning for Communications II 390
SS-L7 - Learning and Optimization in Non-Convex Environments 391
SS-L8 - Recent Advances in Automotive Radar Systems 392
SS-L9 - Learning Based Inversion 393

SS-L10 - Signal Processing for Emerging Wireless Hardware Architectures 394

SS-L11 - Neural and Audio Signal Processing for Hearing Devices..... 396

SS-L12 - Machine Learning for Physical Layer Security and Privacy 397

SS-L13 - Random Matrix Theory and High-Dimensional Statistical Signal Processing 399

SS-L14 - Signal Processing and Machine Learning for Satellite and Space Communications 400

SS-L15 - Signal Processing and Coding for Macromolecular Storage and Computing 401

SS-L16 - Distributed Machine Learning on Wireless Networks..... 403

SS-L17 - Model Based Deep Learning 404

SS-L18 - Anomaly Detection and Intent Inference in Object Tracking..... 405

SS-L19 - Hardware-Efficient Large-Scale Antenna Arrays: The Stage for Symbol-Level Precoding 406

SS-L20 - Sustainable Networking and Computing through Machine Learning..... 407

SS-L21 - Advances in Signal Processing for Environmental Studies..... 409

SS-L22 - Signal Processing for IoT..... 410

SS-L23 - Deep Graph Learning..... 412

SS-L24 - AMP and other Approximate Bayesian Inference Techniques..... 413

SS-L25 - Advances in Low-Resolution Sampling and Signal Processing..... 414

SS-L26 - Signal Processing for Beyond 5G Communications 415

SS-L27 - Signal Processing for Sensing, Information Fusion, and Situational Awareness in Autonomous Systems 416

SS-P1 - Signal Processing Education: Trends and Innovations..... 418

SS-P2 - Unconventional Sensing 420

List of Sessions

Tuesday, 5 May

Tuesday, 5 May, 11:30 - 13:30

AUD-L1 - Music Information Retrieval I
AUD-P2 - Deep Learning for Speech and Audio
AUD-P1 - Deep Learning for Audio Classification
BIO-L1 - Bioelectrical Signal Processing
IVMSP-L1 - Inverse Problems in Image/Video Processing I
IVMSP-P1 - Image/Video Representation
MLSP-P1 - Dictionary Learning, Representation Learning and Matrix Completion
MLSP-P2 - Applications in Speech and Audio
SAM-P1 - Radar and Acoustic Array Processing
SAM-P2 - Beamforming, Relaying and Source Separation
SPCOM-P1 - Machine Learning for Communcations I
SPTM-L1 - Estimation Theory and Methods I
SPTM-L2 - Graph Representations and Analysis
SS-L2 - Signal Processing Methods for Finance Applications
S&T-P1 - Show and Tell 1
SS-L3 - A Signal-Processing View of Graph Neural Networks
SPE-L1 - End-to-end Speech Recognition I: Streaming
SPE-L2 - Language Disorders
SPE-P2 - Speech Enhancement I: Network Architectures
SPE-P1 - Adversarial/Discriminative Training and Spoofing for Speaker Recognition
SS-L1 - Active Control of Acoustic Noise over Spatial Regions

Tuesday, 5 May, 16:30 - 18:30

SPE-P4 - Speech Analysis and Coding
SPE-P3 - Machine Learning for Speech Synthesis I
SPE-L3 - End-to-end Speech Recognition II: New Models
SS-L6 - Machine Learning for Communications II
S&T-P2 - Show and Tell 2
SS-L5 - Spike-based Neuromorphic Information Representation, Processing and Learning
SPTM-P1 - Adaptation and Learning over Graphs
SS-L7 - Learning and Optimization in Non-Convex Environments
SPTM-P2 - Sampling Theory, Analysis and Methods
SS-L4 - End-to-End Approaches for Spoken Language Understanding

MLSP-L1 - Adversarial Machine Learning
MLSP-P3 - Reinforcement and Sequential Learning
MLSP-P4 - Adversarial Attacks and Fast Algorithms
IVMSP-P2 - Image/Video Coding I
DIS-P1 - Signal Processing for Emerging Applications: Machine Learning
IVMSP-P3 - Machine Learning For Image/Video Processing I
SPE-L4 - Machine Learning for Language Processing I
IFS-L1 - Multimedia Forensics
BIO-L2 - Biological Image Analysis
AUD-P3 - Acoustic Environments and Spatial Audio I
AUD-L2 - Deep Learning for Source Separation

Wednesday, 6 May

Wednesday, 6 May, 09:00 - 11:00

AUD-L3 - Acoustic Event Detection
AUD-P4 - Feedback, Noise, and Reverberation
AUD-P5 - Music Information Retrieval II
IVMSP-P5 - Image/Video Interpretation and Understanding
IVMSP-P6 - Machine Learning For Image/Video Processing II
IVMSP-P4 - Image/Video Analysis I
MLSP-P5 - Applications in Video and Image Processing I
SS-L9 - Learning Based Inversion
SAM-L1 - Direction of Arrival Estimation
MLSP-P6 - Pattern Recognition and Machine Learning
SPTM-L4 - Optimization Techniques I
SPTM-L3 - Estimation and Detection
SPE-L5 - Speech Synthesis and Voice Conversion I
SPTM-P3 - Signal and Information Processing over Graphs
SS-L8 - Recent Advances in Automotive Radar Systems
SPE-L7 - Speech Perception and Psychoacoustics
SPE-L6 - Speech Enhancement II: Single Channel
S&T-P3 - Show and Tell 3
SPE-P5 - Deep Speaker Recognition Models
SPE-P6 - Speech Recognition: Acoustic Modelling I
BIO-L3 - Signal Processing in Biometrics

Wednesday, 6 May, 11:30 - 13:30

BIO-P1 - Biomedical Imaging and Analysis
CI-P1 - Computational Imaging Method and Applications
DIS-L1 - Array-based Architectures for Energy-efficient Signal Processing Systems
AUD-L4 - Audio and Speech Source Separation
AUD-P6 - Acoustic Sensor Array Signal Processing I
AUD-P7 - Audio Classification
IVMSP-L2 - Image/Video Analysis II
MLSP-L2 - Optimization Algorithms I
SAM-P3 - Sparsity, Super-Resolution and Imaging
SAM-P4 - Robustness, Decompositions, Calibration and Bounds
SS-L11 - Neural and Audio Signal Processing for Hearing Devices
SS-L13 - Random Matrix Theory and High-Dimensional Statistical Signal Processing
SPTM-P5 - Optimization Techniques II
SPTM-P4 - Sparsity-Aware Processing I
SS-L10 - Signal Processing for Emerging Wireless Hardware Architectures
S&T-P4 - Show and Tell 4
SPE-L8 - Speech Synthesis and Voice Conversion II
SS-L12 - Machine Learning for Physical Layer Security and Privacy
SPE-P8 - Robust Speech Recognition
SPE-P7 - Speech Enhancement III: Hearing Aids and other Applications
SPE-L9 - Multimodal Processing of Language

Wednesday, 6 May, 16:30 - 18:30

HLT-P1 - Spoken Language Understanding and Dialogue I
SPE-P9 - End-to-end Speech Recognition III: General Topics
IVMSP-L3 - Image Emerging Topics
S&T-P5 - Show and Tell 5
SS-L14 - Signal Processing and Machine Learning for Satellite and Space Communications
SPTM-P7 - Bayesian Signal Processing I
SPTM-P6 - Sampling, Multirate Signal Processing and Digital Signal Processing
SS-L15 - Signal Processing and Coding for Macromolecular Storage and Computing
SPCOM-L1 - Networks and Resource Allocation
MLSP-P8 - Machine Learning Applications II
MLSP-P7 - Machine Learning Applications I
MLSP-L3 - Optimization Algorithms II
SAM-L2 - MIMO Systems and MIMO Radar

MMSP-P1 - Signal Processing for Multimedia Applications I
IVMSP-L4 - Machine Learning For Image/Video Processing III
IDSP-L1 - Signal Processing for Emerging Industry Applications
IFS-L2 - Privacy, Biometrics and Information Security
AUD-L5 - Classification of Acoustic Scenes and Events
AUD-P9 - Topics in Audio Analysis and Classification
AUD-P8 - Source Separation and Array Processing
BIO-P2 - Biomedical Signal Analysis

Thursday, 7 May

Thursday, 7 May, 09:00 - 11:00

SPE-P10 - Speaker Diarization and Characterization
SPE-P11 - Emotion
SPE-L10 - Speech Recognition: Confidence, Errors and OOVs
SPE-L11 - Speech Separation and Extraction I: Single Channel
SS-L16 - Distributed Machine Learning on Wireless Networks
S&T-P6 - Show and Tell 6
SPTM-L5 - Signal Processing Emerging Topics
HLT-L1 - Spoken Language Translation
HLT-P2 - Speech and Language Analysis
SPTM-L6 - Tracking and Adaptive Signal Processing
IVMSP-P7 - Image/Video Processing I
MLSP-P10 - Learning Methods
MLSP-P9 - Graphical, Kernel and Tensor Methods
SAM-L3 - Sparse Arrays and Sparse Sensing
IVMSP-P9 - Image/Video Analysis III
IVMSP-P8 - Inverse Problems in Image/Video Processing II
CI-L1 - Computational Imaging
SPCOM-P2 - Modulation, Detection and Decoding
AUD-L6 - Acoustic Environments and Spatial Audio II
BIO-P3 - Neuro Image and Signal Processing

Thursday, 7 May, 11:30 - 13:30

SPE-L12 - Speech Separation and Extraction II: Multi-channel
SPE-P12 - Machine Learning for Speech Synthesis II
SS-L17 - Model Based Deep Learning

SPE-P13 - Speech Separation and Extraction III
S&T-P7 - Show and Tell 7
SS-L18 - Anomaly Detection and Intent Inference in Object Tracking
IOT-P1 - Internet of Things
HLT-P3 - Language Understanding and Modeling
SPTM-P8 - Signal Processing over Networks
SPTM-P9 - Estimation Theory and Methods II
SPCOM-P3 - MIMO and Multi-antenna Systems
MLSP-L5 - Neural Networks Applications I
SAM-L4 - Learning Models and Methods for Multi-sensor Systems
MMSP-P2 - Deep Learning for Multimedia Processing and Analysis I
MLSP-P12 - Applications in Video and Image Processing II
MLSP-P11 - Neural Networks and Pattern Recognition
IVMSP-L5 - Image/Video Storage, and Retrieval
MLSP-L4 - Generative Adversarial Networks
MLSP-L6 - Sparsity Aware Processing and Learning
AUD-L7 - Signal Enhancement and Restoration I
BIO-L4 - Biomedical Signal Processing

Thursday, 7 May, 16:30 - 18:30

BIO-P4 - Physiological Signal Processing
AUD-L8 - Acoustic Sensor Array Signal Processing II
CI-L2 - Computational Optics
IVMSP-P11 - Image/Video Processing II
IVMSP-P10 - Inverse Problems in Image/Video Processing III
DIS-P2 - Algorithm and Architecture Co-optimization
IVMSP-P12 - Perception and Quality Models
MLSP-L7 - Machine Learning Applications III
MLSP-L8 - Tensor-based Signal Processing
MMSP-P3 - Multimedia Signal Processing
SS-L21 - Advances in Signal Processing for Environmental Studies
SS-L20 - Sustainable Networking and Computing through Machine Learning
HLT-P4 - Machine Learning for Language Processing II
SS-L19 - Hardware-Efficient Large-Scale Antenna Arrays: The Stage for Symbol-Level Precoding
SS-P1 - Signal Processing Education: Trends and Innovations
S&T-P8 - Show and Tell 8
IDSP-L2 - Industry Session on Large-Scale Distributed Learning Strategies
SPE-L13 - Speech Recognition: Representations and Embeddings

COLL-L1 - Session 3H: Processing of Highly complex, Heterogeneous, High-dimension data
SPE-P15 - Speech Recognition: Adaptation
SPE-P14 - Speech Production
SPE-L14 - Speaker Recognition/Identification/Verification

Friday, 8 May

Friday, 8 May, 08:00 - 10:00

BIO-P5 - Bio Image and Signal Processing
AUD-P10 - Music Signal Processing I
MLSP-L10 - Deep Neural Network Structures
IFS-P1 - Information Hiding, Biometrics and Security
IVMSP-L7 - Point Cloud and Depth Processing
IVMSP-L6 - Image/Video Synthesis, Rendering and Visualization
MMSP-L1 - Signal Processing for Multimedia Applications II
MLSP-L9 - Autoencoders
SPCOM-P4 - Design and Implementation of Communication Systems
SAM-P5 - Localisation and Tracking
SAM-P6 - Detection, Estimation and Classification
SPTM-P10 - Detection and Classification
SS-L24 - AMP and other Approximate Bayesian Inference Techniques
HLT-L2 - Language Modeling
COLL-L2 - Session 3R: Robustness Reproducibility Replicability
SS-L22 - Signal Processing for IoT
SS-L23 - Deep Graph Learning
SPE-P18 - Speaker Recognition Systems, Data and Features
SPE-P17 - Speech Enhancement IV
SPE-P16 - Word Spotting

Friday, 8 May, 11:45 - 13:45

BIO-L5 - Medical Image Analysis
AUD-P11 - Signal Enhancement and Restoration II
AUD-L9 - Music Signal Processing II
IFS-P2 - Anonymization, Security and Privacy

DIS-P3 - Design and Implementation of Signal Processing Systems for Wireless Communication Systems
IVMSP-L8 - Multi-scale and Wavelet Processing
MMSP-L2 - Deep Learning for Multimedia Processing and Analysis II
MLSP-P14 - Topics in Machine Learning
SS-P2 - Unconventional Sensing
MLSP-P13 - Neural Networks Applications II
SPTM-L7 - Bayesian Signal Processing II
SPCOM-P5 - Communication Signal Analysis and Optimization
SS-L25 - Advances in Low-Resolution Sampling and Signal Processing
SPTM-L8 - Sparsity-Aware Processing II
SPE-P20 - Speech Recognition: Acoustic Modelling II
HLT-L3 - Spoken Language Understanding and Dialogue II
SPE-P19 - Machine Learning for Speech Synthesis III
SPE-L16 - Speaker Diarization
SPE-L15 - Emotion Recognition
S&T-P9 - Show and Tell 9
HLT-P5 - Multilingual Processing of Language

Friday, 8 May, 15:15 - 17:15

SPE-P23 - Speech Recognition: General Topics
SPE-L17 - Paralinguistics Modeling
SPE-P21 - Voice Conversion
MLSP-L12 - Sequential Learning
SPE-P22 - Large Vocabulary Continuous Speech Recognition and Search
SS-L26 - Signal Processing for Beyond 5G Communications
SS-L27 - Signal Processing for Sensing, Information Fusion, and Situational Awareness in Autonomous Systems
SPCOM-L2 - Channel Estimation
DIS-P4 - Design and Implementation of Emerging Signal Processing Systems
MLSP-L11 - Attention Networks
MLSP-P15 - Neural Network Algorithms
MLSP-P16 - Neural Networks Applications III
IVMSP-L9 - Image/Video Coding II
IVMSP-L10 - Image/Video Processing III
IDSP-P1 - Emerging Signal Processing Applications
IFS-P3 - Multimedia Forensics and Biometrics
AUD-P12 - Audio, Speech and Music Analysis
BIO-P6 - Biomedical Image Segmentation

Paper Index per Session

Audio and Acoustic Signal Processing

Tuesday, 5 May, 11:30 - 13:30

AUD-L1 - Music Information Retrieval I

AUD-L1.1: ADDRESSING THE CONFOUNDS OF ACCOMPANIMENTS IN SINGER IDENTIFICATION

Hsieh, Tsung-Han, Academia Sinica, Taiwan Cheng, Kai-Hsiang, Academia Sinica, Taiwan Fan, Zhe-Cheng, Academia Sinica, Taiwan Yang, Yu-Ching, KKBOX Inc., Taiwan Yang, Yi-Hsuan, Academia Sinica, Taiwan

AUD-L1.2: DISENTANGLED MULTIDIMENSIONAL METRIC LEARNING FOR MUSIC SIMILARITY

Lee, Jongpil, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Bryan, Nicholas J., Adobe, United States Salamon, Justin, Adobe, United States Jin, Zeyu, Adobe, United States Nam, Juhan, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

AUD-L1.3: LEARNING THE HELIX TOPOLOGY OF MUSICAL PITCH

Lostanlen, Vincent, Cornell Lab of Ornithology, France Sridhar, Sripathi, New York University, France McFee, Brian, New York University, United States Farnsworth, Andrew, Cornell Lab of Ornithology, United States Bello, Juan Pablo, New York University, United States

AUD-L1.4: AUDIO-BASED AUTO-TAGGING WITH CONTEXTUAL TAGS FOR MUSIC

Ibrahim, Karim M., Telecom Paris, France Royo-Letelier, Jimena, Deezer, France Epure, Elena, Deezer, France Peeters, Geoffroy, Telecom Paris, France Richard, Gaël, Telecom Paris, France

AUD-L1.5: ACCURATE AND SCALABLE VERSION IDENTIFICATION USING MUSICALLY-MOTIVATED EMBEDDINGS

Yesiler, Furkan, Universitat Pompeu Fabra, Spain Serrà, Joan, Dolby Laboratories, Spain Gómez, Emilia, Universitat Pompeu Fabra, Spain

AUD-L1.6: SIMILARITY LEARNING FOR COVER SONG IDENTIFICATION USING CROSS-SIMILARITY MATRICES OF MULTI-LEVEL DEEP SEQUENCES

Jiang, Chaoya, Peking University, China Yang, Deshun, Peking University, China Chen, Xiaoou, Peking University, China

Tuesday, 5 May, 16:30 - 18:30

AUD-L2 - Deep Learning for Source Separation

AUD-L2.1: TWO-STEP SOUND SOURCE SEPARATION: TRAINING ON LEARNED LATENT TARGETS

Tzinis, Efthymios, University of Illinois at Urbana-Champaign, United States Venkataramani, Shrikant, University of Illinois at Urbana-Champaign, United States Wang, Zhepei, University of Illinois at Urbana-Champaign, United States Subakan, Cem, Mila-Quebec Artificial Intelligence Institute, Canada Smaragdis, Paris, University of Illinois at Urbana-Champaign, Adobe Research, United States

AUD-L2.2: A MULTI-PHASE GAMMATONE FILTERBANK FOR SPEECH SEPARATION VIA TASNET

Ditter, David, Universität Hamburg, Germany Gerkmann, Timo, Universität Hamburg, Germany

AUD-L2.3: IMPROVING VOICE SEPARATION BY INCORPORATING END-TO-END SPEECH RECOGNITION

Takahashi, Naoya, Sony Corporation, Japan Singh, Mayank, Indian Institute of Technology Bombay, India Basak, Sakya, Indian Institute of Science, India Sudarsanam, Parthasaarathy, Sony India Software Centre, India Ganapathy, Sriram, Indian Institute of Science, India Mitsufuji, Yuki, Sony Corporation, Japan

AUD-L2.4: DUAL-PATH RNN: EFFICIENT LONG SEQUENCE MODELING FOR TIME-DOMAIN SINGLE-CHANNEL SPEECH SEPARATION

Luo, Yi, Columbia University, United States Chen, Zhuo, Microsoft, United States Yoshioka, Takuya, Microsoft, United States

AUD-L2.5: CONTROLLING THE PERCEIVED SOUND QUALITY FOR DIALOGUE ENHANCEMENT WITH DEEP LEARNING

Uhle, Christian, Fraunhofer Institute for Integrated Circuits IIS, Germany Torcoli, Matteo, Fraunhofer Institute for Integrated Circuits IIS, Germany Paulus, Jouni, Fraunhofer Institute for Integrated Circuits IIS, Germany

AUD-L2.6: UNSUPERVISED TRAINING FOR DEEP SPEECH SOURCE SEPARATION WITH KULLBACK-LEIBLER DIVERGENCE BASED PROBABILISTIC LOSS FUNCTION

Togami, Masahito, LINE Corporation, Japan Masuyama, Yoshiki, Waseda University, Japan Komatsu, Tatsuya, LINE Corporation, Japan Nakagome, Yu, Waseda University, Japan

Wednesday, 6 May, 09:00 - 11:00

AUD-L3 - Acoustic Event Detection

AUD-L3.1: A FRAMEWORK FOR THE ROBUST EVALUATION OF SOUND EVENT DETECTION

Bilen, Cagdas, AudioAnalytic, United Kingdom Ferroni, Giacomo, AudioAnalytic, United Kingdom Tuveri, Francesco, AudioAnalytic, United Kingdom Azcarreta, Juan, AudioAnalytic, United Kingdom Krstulovic, Sacha, AudioAnalytic, United Kingdom

AUD-L3.2: WEAKLY-SUPERVISED SOUND EVENT DETECTION WITH SELF-ATTENTION

Miyazaki, Koichi, LINE Corporation, Japan Komatsu, Tatsuya, LINE Corporation, Japan Hayashi, Tomoki, Nagoya University, Japan Watanabe, Shinji, Johns Hopkins University, United States Toda, Tomoki, Nagoya University, Japan Takeda, Kazuya, Nagoya University, Japan

AUD-L3.3: A SEQUENCE MATCHING NETWORK FOR POLYPHONIC SOUND EVENT LOCALIZATION AND DETECTION

Nguyen, Thi Ngoc Tho, Nanyang Technological University, Singapore Jones, Douglas L., University of Illinois at Urbana-Champaign, United States Gan, Woon-Seng, Nanyang Technological University, Singapore

AUD-L3.4: FEW-SHOT ACOUSTIC EVENT DETECTION VIA META LEARNING

Shi, Bowen, Toyota Technological Institute at Chicago, United States Sun, Ming, Amazon, Inc., United States Puvvada, Krishna, Amazon, Inc., United States Kao, Chieh-Chi, Amazon, Inc., United States Matsoukas, Spyros, Amazon, Inc., United States Wang, Chao, Amazon, Inc., United States

AUD-L3.5: FEW-SHOT SOUND EVENT DETECTION

Wang, Yu, New York University, United States Salamon, Justin, Adobe, United States Bryan, Nicholas J., Adobe, United States Bello, Juan Pablo, New York University, United States

AUD-L3.6: SOUND EVENT DETECTION IN SYNTHETIC DOMESTIC ENVIRONMENTS

Serizel, Romain, Université de Lorraine, CNRS, Inria, Loria, France Turpault, Nicolas, Université de Lorraine, CNRS, Inria, Loria, France Shah, Ankit, Carnegie Mellon University, United States Salamon, Justin, Adobe Research, United States

Wednesday, 6 May, 11:30 - 13:30

AUD-L4 - Audio and Speech Source Separation

AUD-L4.1: LEARNING TO SEPARATE SOUNDS FROM WEAKLY LABELED SCENES

Pishdadian, Fatemeh, Northwestern University, United States Wichern, Gordon, Mitsubishi Electric Research Laboratories (MERL), United States Le Roux, Jonathan, Mitsubishi Electric Research Laboratories (MERL), United States

AUD-L4.2: IMPROVING UNIVERSAL SOUND SEPARATION USING SOUND CLASSIFICATION

Tzinis, Efthymios, University of Illinois at Urbana-Champaign, United States Wisdom, Scott, Google, United States Hershey, John R., Google, United States Jansen, Aren, Google, United States Ellis, Daniel P. W., Google Research, United States

AUD-L4.3: SOURCE SEPARATION WITH WEAKLY LABELLED DATA: AN APPROACH TO COMPUTATIONAL AUDITORY SCENE ANALYSIS

Kong, Qiuqiang, ByteDance, United States Wang, Yuxuan, ByteDance, United States Song, Xuchen, ByteDance, United States Cao, Yin, University of Surrey, United Kingdom Wang, Wenwu, University of Surrey, United Kingdom Plumbley, Mark D., University of Surrey, United Kingdom

AUD-L4.4: BOOSTED LOCALITY SENSITIVE HASHING: DISCRIMINATIVE BINARY CODES FOR SOURCE SEPARATION

Kim, Sunwoo, Indiana University Bloomington, United States Yang, Haici, Indiana University Bloomington, United States Kim, Minje, Indiana University Bloomington, United States

AUD-L4.5: A FREQUENCY-DOMAIN BSS METHOD BASED ON L1 NORM, UNITARY CONSTRAINT, AND CAYLEY TRANSFORM

Emura, Satoru, NTT, Japan Sawada, Hiroshi, NTT, Japan Araki, Shoko, NTT, Japan Harada, Noboru, NTT, Japan

AUD-L4.6: END-TO-END NON-NEGATIVE AUTOENCODERS FOR SOUND SOURCE SEPARATION

Venkataramani, Shrikant, University of Illinois at Urbana-Champaign, United States Tzinis, Efthymios, University of Illinois at Urbana-Champaign, United States Smaragdis, Paris, University of Illinois at Urbana-Champaign, Adobe Research, United States

Wednesday, 6 May, 16:30 - 18:30

AUD-L5 - Classification of Acoustic Scenes and Events

AUD-L5.1: COINCIDENCE, CATEGORIZATION, AND CONSOLIDATION: LEARNING TO RECOGNIZE SOUNDS WITH MINIMAL SUPERVISION

Jansen, Aren, Google Research, United States Ellis, Daniel P. W., Google Research, United States Hershey, Shawn, Google Research, United States Moore, R. Channing, Google Research, United States Plakal, Manoj, Google Research, United States Popat, Ashok, Google Research, United States Saurous, Rif A., Google Research, United States

AUD-L5.2: ACOUSTIC SCENE CLASSIFICATION FOR MISMATCHED RECORDING DEVICES USING HEATED-UP SOFTMAX AND SPECTRUM CORRECTION

Nguyen, Truc, Graz University of Technology, Austria Pernkopf, Franz, Graz University of Technology, Austria Kosmider, Michal, Samsung R&D Institute, Poland

AUD-L5.3: LIMITATIONS OF WEAK LABELS FOR EMBEDDING AND TAGGING

Turpault, Nicolas, Université de Lorraine, CNRS, Inria, Loria, France Serizel, Romain, Université de Lorraine, CNRS, Inria, Loria, France Vincent, Emmanuel, Université de Lorraine, CNRS, Inria, Loria, France

AUD-L5.4: MT-GCN FOR MULTI-LABEL AUDIO TAGGING WITH NOISY LABELS

Shrivastava, Harsh, National University of Singapore and MIDAS Lab, IIIT-D, India Yin, Yifang, National University of Singapore, Singapore Shah, Rajiv Ratn, MIDAS Labs, IIIT Delhi, India Zimmermann, Roger, National University of Singapore, Singapore

AUD-L5.5: ACOUSTIC SCENE CLASSIFICATION USING DEEP RESIDUAL NETWORKS WITH LATE FUSION OF SEPARATED HIGH AND LOW FREQUENCY PATHS

McDonnell, Mark D., University of South Australia, Australia Gao, Wei, University of South Australia, Australia

AUD-L5.6: END-TO-END AUDITORY OBJECT RECOGNITION VIA INCEPTION NUCLEUS

Ebrahimpour, Mohammad, University of California, Merced, United States Shea, Timothy, Accenture Technology Labs, United States Danielescu, Andreea,

Accenture Technology Labs, United States Noelle, David, University of California, Merced, United States Kello, Chris, University of California, Merced, United States

Thursday, 7 May, 09:00 - 11:00

AUD-L6 - Acoustic Environments and Spatial Audio II

AUD-L6.1: TRANSLATION OF A HIGHER ORDER AMBISONICS SOUND SCENE BASED ON PARAMETRIC DECOMPOSITION

Kentgens, Maximilian, RWTH Aachen University, Germany Behler, Andreas, RWTH Aachen University, Germany Jax, Peter, RWTH Aachen University, Germany

AUD-L6.2: BLASTER: AN OFF-GRID METHOD FOR BLIND AND REGULARIZED ACOUSTIC ECHOES RETRIEVAL

Di Carlo, Diego, Inria Rennes - Bretagne Atlantique, France Elvira, Clément, Inria Rennes - Bretagne Atlantique, France Deleforge, Antoine, Inria Nancy - Grand Est, France Bertin, Nancy, CNRS IRISA, France Gribonval, Rémi, Univ Lyon - Inria, France

AUD-L6.3: EVALUATION OF SENSOR SELF-NOISE IN BINAURAL RENDERING OF SPHERICAL MICROPHONE ARRAY SIGNALS

Helmholz, Hannes, Chalmers University of Technology, Sweden Ahrens, Jens, Chalmers University of Technology, Sweden Alon, David L., Facebook Reality Labs, United States Garí, Sebastià V. Amengual, Facebook Reality Labs, United States Mehra, Ravish, Facebook Reality Labs, United States

AUD-L6.4: MUTUAL-INFORMATION-BASED SENSOR PLACEMENT FOR SPATIAL SOUND FIELD RECORDING

Ariga, Kentaro, University of Tokyo, Japan Nishida, Tomoya, University of Tokyo, Japan Koyama, Shoichi, University of Tokyo, Japan Ueno, Natsuki, University of Tokyo, Japan Saruwatari, Hiroshi, University of Tokyo, Japan

AUD-L6.5: FAST ACOUSTIC SCATTERING USING CONVOLUTIONAL NEURAL NETWORKS

Fan, Ziqi, University of Florida, United States Vineet, Vibhav, Microsoft Research, United States Gamper, Hannes, Microsoft Research, United States Raghuvanshi, Nikunj, Microsoft Research, United States

AUD-L6.6: FREQUENCY-DEPENDENT DIRECTIONAL FEEDBACK DELAY NETWORK

Alary, Benoit, Aalto University, Finland Politis, Archontis, Tampere University, Finland

Thursday, 7 May, 11:30 - 13:30

AUD-L7 - Signal Enhancement and Restoration I

AUD-L7.1: SPEECH ENHANCEMENT USING SELF-ADAPTATION AND MULTI-HEAD SELF-ATTENTION

Koizumi, Yuma, NTT Corporation, Japan Yatabe, Kohei, Waseda University, Japan Delcroix, Marc, NTT Corporation, Japan Masuyama, Yoshiki, Waseda University, Japan Takeuchi, Daiki, Waseda University, Japan

AUD-L7.2: PEVD-BASED SPEECH ENHANCEMENT IN REVERBERANT ENVIRONMENTS

Neo, Vincent W., Imperial College London, United Kingdom Evers, Christine, Imperial College London, United Kingdom Naylor, Patrick A., Imperial College London, United Kingdom

AUD-L7.3: DNN-BASED SPEECH PRESENCE PROBABILITY ESTIMATION FOR MULTI-FRAME SINGLE-MICROPHONE SPEECH ENHANCEMENT

Tammen, Marvin, University of Oldenburg, Germany Fischer, Dörte, University of Oldenburg, Germany Meyer, Bernd T., University of Oldenburg, Germany Doclo, Simon, University of Oldenburg, Germany

AUD-L7.4: NONLINEAR SPATIAL FILTERING FOR MULTICHANNEL SPEECH ENHANCEMENT IN INHOMOGENEOUS NOISE FIELDS

Tesch, Kristina, Universität Hamburg, Germany Gerkmann, Timo, Universität Hamburg, Germany

AUD-L7.5: GENERALIZED COHERENCE-BASED SIGNAL ENHANCEMENT

Loellmann, Heinrich, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Brendel, Andreas, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Kellermann, Walter, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

AUD-L7.6: SPEAKER INDEPENDENCE OF NEURAL VOCODERS AND THEIR EFFECT ON PARAMETRIC RESYNTHESIS SPEECH ENHANCEMENT

Maiti, Soumi, Graduate Center, City University of New York, United States Mandel, Michael I, Brooklyn College, City University of New York, United States

Thursday, 7 May, 16:30 - 18:30

AUD-L8 - Acoustic Sensor Array Signal Processing II

AUD-L8.1: ROBUST AND STEERABLE KRONECKER PRODUCT DIFFERENTIAL BEAMFORMING WITH RECTANGULAR MICROPHONE ARRAYS

Huang, Gongping, Technion - Israel Institute of Technology, Israel Benesty, Jacob, University of Quebec, Canada Chen, Jingdong, Northwestern Polytechnical University, China Cohen, Israel, Technion - Israel Institute of Technology, Israel

AUD-L8.2: JOINTLY OPTIMAL DEREVERBERATION AND BEAMFORMING

Boeddeker, Christoph, Paderborn University, Germany Nakatani, Tomohiro, NTT Corporation, Germany Kinoshita, Keisuke, NTT Corporation, Germany Haeb-Umbach, Reinhold, Paderborn University, Germany

AUD-L8.3: EXPLOITING RAYS IN BLIND LOCALIZATION OF DISTRIBUTED SENSOR ARRAYS

Woźniak, Szymon, AGH University of Science and Technology, Poland Kowalczyk, Konrad, AGH University of Science and Technology, Poland

AUD-L8.4: A NOVEL METHOD FOR OBTAINING DIFFUSE FIELD MEASUREMENTS FOR MICROPHONE CALIBRATION

Akbar, Noman, Australian National University, Australia Dickins, Glenn, Australian National University, Australia Thomas, Mark R. P., Dolby Laboratories USA, United States Samarasinghe, Prasanga N., Australian National University, Australia Abhayapala, Thushara D., Australian National University, Australia

AUD-L8.5: MULTI-CHANNEL SPEECH SOURCE SEPARATION AND DEREVERBERATION WITH SEQUENTIAL INTEGRATION OF DETERMINED AND UNDERDETERMINED MODELS

Togami, Masahito, LINE Corporation, Japan

AUD-L8.6: FAST AND STABLE BLIND SOURCE SEPARATION WITH RANK-1 UPDATES

Scheibler, Robin, Tokyo Metropolitan University, Japan Ono, Nobutaka, Tokyo Metropolitan University, Japan

Friday, 8 May, 11:45 - 13:45

AUD-L9 - Music Signal Processing II

AUD-L9.1: MODELING PLATE AND SPRING REVERBERATION USING A DSP-INFORMED DEEP NEURAL NETWORK

Martínez Ramírez, Marco A., Queen Mary University of London, United Kingdom Benetos, Emmanouil, Queen Mary University of London, United Kingdom Reiss, Joshua D., Queen Mary University of London, United Kingdom

AUD-L9.2: DEEP AUTOTUNER: A PITCH CORRECTING NETWORK FOR SINGING PERFORMANCES

Wager, Sanna, Indiana University Bloomington, United States Tzanetakis, George, University of Victoria, Canada Wang, Cheng-i, Smule, Inc, United States Kim, Minje, Indiana University Bloomington, United States

AUD-L9.3: PERCEPTUAL LOSS FUNCTION FOR NEURAL MODELLING OF AUDIO SYSTEMS

Wright, Alec, Aalto University, Finland Välimäki, Vesa, Aalto University, Finland

AUD-L9.4: ONE-SHOT PARAMETRIC AUDIO PRODUCTION STYLE TRANSFER WITH APPLICATION TO FREQUENCY EQUALIZATION

Mimilakis, Stylianos I., Fraunhofer-IDMT, Germany Bryan, Nicholas J., Adobe, United States Smaragdis, Paris, Adobe and University of Illinois at Urbana-Champaign, United States

AUD-L9.5: SPEECH-TO-SINGING CONVERSION IN AN ENCODER-DECODER FRAMEWORK

Parekh, Jayneel, Telecom Paris, Institut Polytechnique de Paris, France Rao, Preeti, Indian Institute of Technology Bombay, India Yang, Yi-Hsuan, Academia Sinica, Taiwan

AUD-L9.6: TENSORFLOW AUDIO MODELS IN ESSENTIA

Alonso-Jiménez, Pablo, Universitat Pompeu Fabra, Spain Bogdanov, Dmitry, Universitat Pompeu Fabra, Spain Pons, Jordi, Dolby Laboratories, Spain Serra, Xavier, Universitat Pompeu Fabra, Spain

Tuesday, 5 May, 11:30 - 13:30

AUD-P1 - Deep Learning for Audio Classification

AUD-P1.1: ANOMALOUS SOUND DETECTION BASED ON INTERPOLATION DEEP NEURAL NETWORK

Suefusa, Kaori, Hitachi, Ltd., Japan Nishida, Tomoya, University of Tokyo, Japan Harsh, Purohit, Hitachi, Ltd., Japan Tanabe, Ryo, Hitachi, Ltd., Japan Endo, Takashi, Hitachi, Ltd., Japan Kawaguchi, Yohei, Hitachi, Ltd., Japan

AUD-P1.2: A-CRNN: A DOMAIN ADAPTATION MODEL FOR SOUND EVENT DETECTION

Wei, Wei, National University of Singapore, Singapore Zhu, Hongning, Fudan University, China Benetos, Emmanouil, Queen Mary University of London, United Kingdom Wang, Ye, National University of Singapore, Singapore

AUD-P1.3: SPIDERNET: ATTENTION NETWORK FOR ONE-SHOT ANOMALY DETECTION IN SOUNDS

Koizumi, Yuma, NTT Corporation, Japan Yasuda, Masahiro, NTT Corporation, Japan Murata, Shin, NTT Corporation, Japan Saito, Shoichiro, NTT Corporation, Japan Uematsu, Hisashi, NTT Corporation, Japan Harada, Noboru, NTT Corporation, Japan

AUD-P1.4: SOUND EVENT DETECTION VIA DILATED CONVOLUTIONAL RECURRENT NEURAL NETWORKS

Li, Yanxiong, South China University of Technology, China Liu, Mingle, South China University of Technology, China Drossos, Konstantinos, Tampere University, Finland Virtanen, Tuomas, Tampere University, Finland

AUD-P1.5: A DEEP NEURAL NETWORK-DRIVEN FEATURE LEARNING METHOD FOR POLYPHONIC ACOUSTIC EVENT DETECTION FROM REAL-LIFE RECORDINGS

Mulimani, Manjunath, Manipal Institute of Technology Manipal, India Kademani, Akash B, Symbiosis Institute of Technology, India Koolagudi, Shashidhar G, National Institute of Technology Karnataka, India

AUD-P1.6: WEAKLY LABELLED AUDIO TAGGING VIA CONVOLUTIONAL NETWORKS WITH SPATIAL AND CHANNEL-WISE ATTENTION

Hong, Sixin, Peking University, China Zou, Yuexian, Peking University, China Wang, Wenwu, University of Surrey, United Kingdom Cao, Meng, Peking University, China

AUD-P1.7: A STUDY ON THE TRANSFERABILITY OF ADVERSARIAL ATTACKS IN SOUND EVENT CLASSIFICATION

Subramanian, Vinod, Queen Mary University of London, United Kingdom Pankajakshan, Arjun, Queen Mary University of London, United Kingdom Benetos, Emmanouil, Queen Mary University of London, United Kingdom Xu, Ning, ROLI Ltd., United Kingdom McDonald, SKoT, ROLI Ltd., United Kingdom Sandler, Mark, Queen Mary University of London, United Kingdom

AUD-P1.8: PROPELLER NOISE DETECTION WITH DEEP LEARNING

Mahiout, Thomas, Thales, France Fillatre, Lionel, UCA, France Deruaz-Pepin, Laurent, Thales, France

AUD-P1.9: DURATION ROBUST WEAKLY SUPERVISED SOUND EVENT DETECTION

Dinkel, Heinrich, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

AUD-P1.10: A COMPARISON OF POOLING METHODS ON LSTM MODELS FOR RARE ACOUSTIC EVENT CLASSIFICATION

Kao, Chieh-Chi, Amazon, Inc., United States Sun, Ming, Amazon, Inc., United States Wang, Weiran, Salesforce Research, United States Wang, Chao, Amazon, Inc., United States

AUD-P1.11: AN ONTOLOGY-AWARE FRAMEWORK FOR AUDIO EVENT CLASSIFICATION

Sun, Yiwei, Pennsylvania State University, United States Ghaffarzadegan, Shabnam, Bosch Research and Technology Center, United States

AUD-P1.12: TASK-AWARE MEAN TEACHER METHOD FOR LARGE SCALE WEAKLY LABELED SEMI-SUPERVISED SOUND EVENT DETECTION

Yan, Jie, University of Science and Technology of China, China Song, Yan, University of Science and Technology of China, China Dai, Li-Rong, University of Science and Technology of China, China McLoughlin, Ian, University of Kent, United Kingdom

Tuesday, 5 May, 11:30 - 13:30

AUD-P2 - Deep Learning for Speech and Audio

AUD-P2.1: WAWENETS: A NO-REFERENCE CONVOLUTIONAL WAVEFORM-BASED APPROACH TO ESTIMATING NARROWBAND AND WIDEBAND SPEECH QUALITY

Catellier, Andrew, Institute for Telecommunication Sciences, United States Voran, Stephen, Institute for Telecommunication Sciences, United States

AUD-P2.2: A NEURAL NETWORK FOR MONAURAL INTRUSIVE SPEECH INTELLIGIBILITY PREDICTION

Pedersen, Mathias Bach, Aalborg University, Denmark Andersen, Asger Heidemann, Oticon A/S, Denmark Jensen, Søren Holdt, Aalborg University, Denmark Jensen, Jesper, Aalborg University, Denmark

AUD-P2.3: SOURCE CODING OF AUDIO SIGNALS WITH A GENERATIVE MODEL

Fejgin, Roy, Dolby Laboratories, United States Klejsa, Janusz, Dolby Sweden AB, Sweden Villemoes, Lars, Dolby Sweden AB, Sweden Zhou, Cong, Dolby Laboratories, United States

AUD-P2.4: FULL-REFERENCE SPEECH QUALITY ESTIMATION WITH ATTENTIONAL SIAMESE NEURAL NETWORKS

Mittag, Gabriel, Technische Universität Berlin, Germany Möller, Sebastian, Technische Universität Berlin, Germany

AUD-P2.5: ENHANCED METHOD OF AUDIO CODING USING CNN-BASED SPECTRAL RECOVERY WITH ADAPTIVE STRUCTURE

Shin, Seong-Hyeon, Kwangwoon University, Korea (South) Beack, Seung Kwon, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Lim, Wootaek, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Park, Hochong, Kwangwoon University, Korea (South)

AUD-P2.6: AUDIO CODEC ENHANCEMENT WITH GENERATIVE ADVERSARIAL NETWORKS

Biswas, Arijit, Dolby Germany GmbH, Germany Jia, Dai, Dolby Laboratories, China

AUD-P2.7: EFFICIENT AND SCALABLE NEURAL RESIDUAL WAVEFORM CODING WITH COLLABORATIVE QUANTIZATION

Zhen, Kai, Indiana University, United States Lee, Mi Suk, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Sung, Jongmo, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Beack, Seungkwon, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Kim, Minje, Indiana University, United States

AUD-P2.8: A DUAL-STAGED CONTEXT AGGREGATION METHOD TOWARDS EFFICIENT END-TO-END SPEECH ENHANCEMENT

Zhen, Kai, Indiana University, United States Lee, Mi Suk, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Kim, Minje, Indiana University, United States

AUD-P2.9: A RECURRENT VARIATIONAL AUTOENCODER FOR SPEECH ENHANCEMENT

Leglaive, Simon, CentraleSupélec, IETR, France Alameda-Pineda, Xavier, Inria Grenoble Rhone-Alpes, France Girin, Laurent, Univ. Grenoble Alpes, Grenoble INP, GIPSA-lab, France Horaud, Radu, Inria Grenoble Rhone-Alpes, France

AUD-P2.10: SPEAKERFILTER: DEEP LEARNING-BASED TARGET SPEAKER EXTRACTION USING ANCHOR SPEECH

He, ShuLin, Inner Mongolia University, China Li, Hao, Inner Mongolia University, China Zhang, XueLiang, Inner Mongolia University, China

AUD-P2.11: TACKLING REAL NOISY REVERBERANT MEETINGS WITH ALL-NEURAL SOURCE SEPARATION, COUNTING, AND DIARIZATION SYSTEM

Kinoshita, Keisuke, NTT Corporation, Japan Delcroix, Marc, NTT Corporation, Japan Araki, Shoko, NTT Corporation, Japan Nakatani, Tomohiro, NTT Corporation, Japan

AUD-P2.12: TIME-DOMAIN AUDIO SOURCE SEPARATION BASED ON WAVE-U-NET COMBINED WITH DISCRETE WAVELET TRANSFORM

Nakamura, Tomohiko, University of Tokyo, Japan Saruwatari, Hiroshi, University of Tokyo, Japan

Tuesday, 5 May, 16:30 - 18:30

AUD-P3 - Acoustic Environments and Spatial Audio I

AUD-P3.1: AUDITORY MODEL BASED SUBSETTING OF HEAD-RELATED TRANSFER FUNCTION DATASETS

Spagnol, Simone, Aalborg University, Denmark

AUD-P3.2: IMPULSE RESPONSE DATA AUGMENTATION AND DEEP NEURAL NETWORKS FOR BLIND ROOM ACOUSTIC PARAMETER ESTIMATION

Bryan, Nicholas J., Adobe, United States

AUD-P3.4: INDIVIDUAL DISTANCE-DEPENDENT HRTFS MODELING THROUGH A FEW ANTHROPOMETRIC MEASUREMENTS

Zhang, Mengfan, Peking University, China Wu, Xihong, Peking University, China Qu, Tianshu, Peking University, China

AUD-P3.5: EFFICIENT REPRESENTATION AND SPARSE SAMPLING OF HEAD-RELATED TRANSFER FUNCTIONS USING PHASE-CORRECTION BASED ON EAR ALIGNMENT

Ben-Hur, Zamir, Ben-Gurion University of the Negev, Israel Alon, David L., Facebook Inc, United States Mehra, Ravish, Facebook Inc, United States Rafaely, Boaz, Ben-Gurion University of the Negev, Israel

AUD-P3.6: EVALUATION OF DEEP-LEARNING-BASED VOICE ACTIVITY DETECTORS AND ROOM IMPULSE RESPONSE MODELS IN REVERBERANT ENVIRONMENTS

Ivry, Amir, Technion - Israel Institute of Technology, Israel Cohen, Israel, Technion - Israel Institute of Technology, Israel Berdugo, Baruch, Technion - Israel Institute of Technology, Israel

AUD-P3.7: A MINIMAL PERSONALIZATION OF DYNAMIC BINAURAL SYNTHESIS WITH MIXED STRUCTURAL MODELING AND SCATTERING DELAY NETWORKS

Geronazzo, Michele, Aalborg University, Denmark Tissières, Jason, GN Group, Denmark Serafin, Stefania, Aalborg University, Denmark

AUD-P3.8: SOUND TEXTURE SYNTHESIS USING RI SPECTROGRAMS

Caracalla, Hugo, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), France Roebel, Axel, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), France

AUD-P3.9: TIME DOMAIN VELOCITY VECTOR FOR RETRACING THE MULTIPATH PROPAGATION

Daniel, Jérôme, Orange, France Kitić, Srđan, Orange, France

AUD-P3.10: ACOUSTIC MATCHING BY EMBEDDING IMPULSE RESPONSES

Su, Jiaqi, Princeton University, United States Jin, Zeyu, Adobe Research, United States Finkelstein, Adam, Princeton University, United States

AUD-P3.11: JOINT ESTIMATION OF ACOUSTIC PARAMETERS FROM SINGLE-MICROPHONE SPEECH OBSERVATIONS

Looney, David, Pindrop, United Kingdom Gaubitch, Nikolay D., Pindrop, United Kingdom

AUD-P3.12: A FAST REDUCED-RANK SOUND ZONE CONTROL ALGORITHM USING THE CONJUGATE GRADIENT METHOD

Shi, Liming, Aalborg University, Denmark Lee, Taewoong, Aalborg University, Denmark Zhang, Lijun, Northwestern Polytechnical University, China Nielsen, Jesper Kjær, Aalborg University, Denmark Christensen, Mads Græsbøll, Aalborg University, Denmark

Wednesday, 6 May, 09:00 - 11:00

AUD-P4 - Feedback, Noise, and Reverberation

AUD-P4.1: AN EMPIRICAL STUDY ON ACOUSTIC FEEDBACK PATH ACROSS HEARING AID USERS

Guo, Meng, Demant, Denmark

AUD-P4.2: LOW COMPLEXITY NLMS FOR MULTIPLE LOUDSPEAKER ACOUSTIC ECHO CANCELLER USING RELATIVE LOUDSPEAKER TRANSFER FUNCTIONS

Schwartz, Ofer, CEVA-DSP, Israel Habets, Emanuël A. P., International Audio Laboratories Erlangen, Germany Gannot, Sharon, Bar-Ilan University, Israel

AUD-P4.3: A MULTICHANNEL KALMAN-BASED WIENER FILTER APPROACH FOR SPEAKER INTERFERENCE REDUCTION IN MEETINGS

Meyer, Patrick, Technische Universität Braunschweig, Germany Elshamy, Samy, Technische Universität Braunschweig, Germany Fingscheidt, Tim, Technische Universität Braunschweig, Germany

AUD-P4.4: PRIMARY PATH ESTIMATOR BASED ON INDIVIDUAL SECONDARY PATH FOR ANC HEADPHONES

Fabry, Johannes, RWTH Aachen University, Germany Jax, Peter, RWTH Aachen University, Germany

AUD-P4.5: EFFICIENT MULTICHANNEL NONLINEAR ACOUSTIC ECHO CANCELLATION BASED ON A COOPERATIVE STRATEGY

Halimeh, Mhd Modar, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Kellermann, Walter, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

AUD-P4.6: ACTIVE CONTROL OF LINE SPECTRAL NOISE WITH SIMULTANEOUS SECONDARY PATH MODELING WITHOUT AUXILIARY NOISE

Hu, Meiling, Nanjing University, China Lu, Jing, Nanjing University, China

AUD-P4.7: ROBUST FREQUENCY-DOMAIN RECURSIVE LEAST M-ESTIMATE ADAPTIVE FILTER FOR ACOUSTIC SYSTEM IDENTIFICATION

He, Hongsen, Southwest University of Science and Technology, China Chen, Jingdong, Northwestern Polytechnical University, China Benesty, Jacob, University of Quebec, Canada Yu, Yi, Southwest University of Science and Technology, China

AUD-P4.8: NEAREST KRONECKER PRODUCT DECOMPOSITION BASED NORMALIZED LEAST MEAN SQUARE ALGORITHM

Bhattacharjee, Sankha Subhra, Indian Institute of Technology Gandhinagar, India George, Nithin, Indian Institute of Technology Gandhinagar, India

AUD-P4.9: JOINT BEAMFORMING AND REVERBERATION CANCELLATION USING A CONSTRAINED KALMAN FILTER WITH MULTICHANNEL LINEAR PREDICTION

Hashemgeloogerdi, Sahar, University of Rochester, United States Braun, Sebastian, Microsoft Research, United States

AUD-P4.10: OPTIMAL LEAK FACTOR SELECTION FOR THE OUTPUT-CONSTRAINED LEAKY FILTERED-INPUT LEAST MEAN SQUARE ALGORITHM

Shi, Dongyuan, Digital Signal Processing Lab, Nanyang Technological University, Singapore Lam, Bhan, Nanyang Technological University, Singapore Gan, Woon-Seng, Nanyang Technological University, Singapore Wen, Shulin, Digital Signal Processing Lab, Nanyang Technological University, Singapore

AUD-P4.11: MULTI-MICROPHONE COMPLEX SPECTRAL MAPPING FOR SPEECH DEREVERBERATION

Wang, Zhong-Qiu, Ohio State University, United States Wang, Deliang, Ohio State University, United States

AUD-P4.12: PREDICTING WORD ERROR RATE FOR REVERBERANT SPEECH

Gamper, Hannes, Microsoft Research, United States Emmanouilidou, Dimitra, Microsoft Research, United States Braun, Sebastian, Microsoft Research, United States Tashev, Ivan, Microsoft Research, United States

Wednesday, 6 May, 09:00 - 11:00

AUD-P5 - Music Information Retrieval II

AUD-P5.1: AUTOMATIC LYRICS ALIGNMENT AND TRANSCRIPTION IN POLYPHONIC MUSIC: DOES BACKGROUND MUSIC HELP?

Gupta, Chitralekha, National University of Singapore, Singapore Yilmaz, Emre, National University of Singapore, Singapore Li, Haizhou, National University of Singapore, Singapore

AUD-P5.2: LOCAL KEY ESTIMATION IN CLASSICAL MUSIC RECORDINGS: A CROSS-VERSION STUDY ON SCHUBERT'S WINTERREISE

Schreiber, Hendrik, International Audio Laboratories Erlangen, Germany Weiß, Christof, International Audio Laboratories Erlangen, Germany Müller, Meinard, International Audio Laboratories Erlangen, Germany

AUD-P5.3: IMPROVING MUSIC TRANSCRIPTION BY PRE-STACKING A U-NET

Pedersoli, Fabrizio, University of Victoria, Canada Tzanetakis, George, University of Victoria, Canada Yi, Kwang Moo, University of Victoria, Canada

AUD-P5.4: LEARNING TO RANK MUSIC TRACKS USING TRIPLET LOSS

Prétet, Laure, Creaminal, France Richard, Gaël, LTCI, Télécom Paris, France Peeters, Geoffroy, LTCI, Télécom Paris, France

AUD-P5.5: TRANSFORMER VAE: A HIERARCHICAL MODEL FOR STRUCTURE-AWARE AND INTERPRETABLE MUSIC REPRESENTATION LEARNING

Jiang, Junyan, Carnegie Mellon University, United States Xia, Gus, New York University Shanghai, China Carlton, Dave, Hooktheory, LLC, United States Anderson, Chris, Hooktheory, LLC, United States Miyakawa, Ryan, Hooktheory, LLC, United States

AUD-P5.6: A COMPARATIVE STUDY OF WESTERN AND CHINESE CLASSICAL MUSIC BASED ON SOUNDSCAPE MODELS

Fan, Jianyu, Simon Fraser University, Canada Yang, Yi-Hsuan, Academia Sinica, Taiwan Dong, Kui, Dartmouth College, United States Pasquier, Philippe, Simon Fraser University, Canada

AUD-P5.7: AUDIO-BASED DETECTION OF EXPLICIT CONTENT IN MUSIC

Vaglio, Andrea, Deezer Research & Development / LTCI, Télécom Paris, Institut Polytechnique de Paris, France Hennequin, Romain, Deezer Research &

Development, France Moussallam, Manuel, Deezer Research & Development, France Richard, Gaël, LTCI, Télécom Paris, Institut Polytechnique de Paris, France d'Alché-Buc, Florence, LTCI, Télécom Paris, Institut Polytechnique de Paris, France

AUD-P5.8: NEW METRICS FOR EVALUATING THE ACCURACY OF FUNDAMENTAL FREQUENCY ESTIMATION APPROACHES IN MUSICAL SIGNALS

Devaney, Johanna, Brooklyn College, City University of New York, United States

AUD-P5.9: DATA-DRIVEN HARMONIC FILTERS FOR AUDIO REPRESENTATION LEARNING

Won, Minz, Universitat Pompeu Fabra, Spain Chun, Sanghyuk, Naver Corporation, Korea (South) Nieto, Oriol, Pandora Media Inc., United States Serra, Xavier, Universitat Pompeu Fabra, Spain

AUD-P5.10: LEARNING A REPRESENTATION FOR COVER SONG IDENTIFICATION USING CONVOLUTIONAL NEURAL NETWORK

Yu, Zhesong, Peking University, China Xu, Xiaoshuo, Peking University, China Chen, Xiaoou, Peking University, China Yang, Deshun, Peking University, China

AUD-P5.11: TOWARDS LINKING THE LAKH AND IMSLP DATASETS

Tsai, TJ, Harvey Mudd College, United States

AUD-P5.12: A MULTI-DILATION AND MULTI-RESOLUTION FULLY CONVOLUTIONAL NETWORK FOR SINGING MELODY EXTRACTION

Gao, Ping, National Chiao Tung University, Taiwan You, Cheng-You, National Chiao Tung University, Taiwan Chi, Tai-Shih, National Chiao Tung University, Taiwan

Wednesday, 6 May, 11:30 - 13:30

AUD-P6 - Acoustic Sensor Array Signal Processing I

AUD-P6.1: AN IMPROVED SOLUTION TO THE FREQUENCY-INVARIANT BEAMFORMING WITH CONCENTRIC CIRCULAR MICROPHONE ARRAYS

Zhao, Xudong, Northwestern Polytechnical University, China Huang, Gongping, Israel Institute of Technology, Israel Chen, Jingdong, Northwestern Polytechnical University, China Benesty, Jacob, University of Quebec, Canada

AUD-P6.2: BINAURAL AUDIO SOURCE REMIXING WITH MICROPHONE ARRAY LISTENING DEVICES

Corey, Ryan, University of Illinois at Urbana-Champaign, United States Singer, Andrew, University of Illinois at Urbana-Champaign, United States

AUD-P6.3: EXPLOITING PERIODICITY FEATURES FOR JOINT DETECTION AND DOA ESTIMATION OF SPEECH SOURCES USING CONVOLUTIONAL NEURAL NETWORKS

Varzandeh, Reza, HoerTech gGmbH, Germany Adiloğlu, Kamil, HörTech gGmbH, Germany Doclo, Simon, University of Oldenburg, Germany Hohmann, Volker, University of Oldenburg, Germany

AUD-P6.4: UNSUPERVISED MULTIPLE SOURCE LOCALIZATION USING RELATIVE HARMONIC COEFFICIENTS

Hu, Yonggang, Australian National University, Australia Samarasinghe, Prasanga N., Australian National University, Australia Abhayapala, Thushara D., Australian National University, Australia Gannot, Sharon, Bar-Ilan University, Israel

AUD-P6.5: DATA-DRIVEN WIND SPEED ESTIMATION USING MULTIPLE MICROPHONES

Mirabilii, Daniele, International Audio Laboratories Erlangen, Germany Kayyar Lakshminarayana, Kishor, International Audio Laboratories Erlangen, Germany Mack, Wolfgang, International Audio Laboratories Erlangen, Germany Habets, Emanuël A. P., International Audio Laboratories Erlangen, Germany

AUD-P6.7: A DYNAMIC STREAM WEIGHT BACKPROP KALMAN FILTER FOR AUDIOVISUAL SPEAKER TRACKING

Schymura, Christopher, Ruhr-Universität Bochum, Germany Ochiai, Tsubasa, NTT Corporation, Japan Delcroix, Marc, NTT Corporation, Japan Kinoshita, Keisuke, NTT Corporation, Japan Nakatani, Tomohiro, NTT Corporation, Japan Araki, Shoko, NTT Corporation, Japan Kolossa, Dorothea, Ruhr-Universität Bochum, Germany

AUD-P6.8: MAXIMUM LIKELIHOOD MULTI-SPEAKER DIRECTION OF ARRIVAL ESTIMATION UTILIZING A WEIGHTED HISTOGRAM

Hadad, Elior, Bar-Ilan University, Israel Gannot, Sharon, Bar-Ilan University, Israel

AUD-P6.9: OVERDETERMINED INDEPENDENT VECTOR ANALYSIS

Ikeshita, Rintaro, NTT Corporation, Japan Nakatani, Tomohiro, NTT Corporation, Japan Araki, Shoko, NTT Corporation, Japan

AUD-P6.10: SPATIALLY GUIDED INDEPENDENT VECTOR ANALYSIS

Brendel, Andreas, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Haubner, Thomas, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Kellermann, Walter, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

AUD-P6.11: FAST INDEPENDENT VECTOR EXTRACTION BY ITERATIVE SINR MAXIMIZATION

Scheibler, Robin, Tokyo Metropolitan University, Japan Ono, Nobutaka, Tokyo Metropolitan University, Japan

AUD-P6.12: REGULARIZED FAST MULTICHANNEL NONNEGATIVE MATRIX FACTORIZATION WITH ILRMA-BASED PRIOR DISTRIBUTION OF JOINT-DIAGONALIZATION PROCESS

Kamo, Keigo, University of Tokyo, Japan Kubo, Yuki, University of Tokyo, Japan Takamune, Norihiro, University of Tokyo, Japan Kitamura, Daichi, National Institute of Technology, Kagawa College, Japan Saruwatari, Hiroshi, University of Tokyo, Japan Takahashi, Yu, Yamaha Corporation, Japan Kondo, Kazunobu, Yamaha Corporation, Japan

Wednesday, 6 May, 11:30 - 13:30

AUD-P7 - Audio Classification

AUD-P7.1: BEYOND THE DCASE 2017 CHALLENGE ON RARE SOUND EVENT DETECTION: A PROPOSAL FOR A MORE REALISTIC TRAINING AND TEST FRAMEWORK

Baumann, Jan, Technische Universität Braunschweig, Germany Lohrenz, Timo, Technische Universität Braunschweig, Germany Roy, Alexander, IAV GmbH, Germany Fingscheidt, Tim, Technische Universität Braunschweig, Germany

AUD-P7.2: METRIC LEARNING WITH BACKGROUND NOISE CLASS FOR FEW-SHOT DETECTION OF RARE SOUND EVENTS

Shimada, Kazuki, Sony Corporation, Japan Koyama, Yuichiro, Sony Corporation, Japan Inoue, Akira, Sony Corporation, Japan

AUD-P7.3: SOUND EVENT DETECTION BY MULTITASK LEARNING OF SOUND EVENTS AND SCENES WITH SOFT SCENE LABELS

Imoto, Keisuke, Ritsumeikan University, Japan Tonami, Noriyuki, Ritsumeikan University, Japan Koizumi, Yuma, Nippon Telegraph and Telephone Corporation, Japan Yasuda, Masahiro, Nippon Telegraph and Telephone Corporation, Japan Yamanishi, Ryosuke, Ritsumeikan University, Japan Yamashita, Yoichi, Ritsumeikan University, Japan

AUD-P7.4: GUIDED LEARNING FOR WEAKLY-LABELED SEMI-SUPERVISED SOUND EVENT DETECTION

Lin, Liwei, Institute of Computing Technology, Chinese Academy of Sciences, China Wang, Xiangdong, Institute of Computing Technology, Chinese Academy of Sciences, China Liu, Hong, Institute of Computing Technology, Chinese Academy of Sciences, China Qian, Yueliang, Institute of Computing Technology, Chinese Academy of Sciences, China

AUD-P7.5: STAGED TRAINING STRATEGY AND MULTI-ACTIVATION FOR AUDIO TAGGING WITH NOISY AND SPARSE MULTI-LABEL DATA

He, Kexin, Tsinghua University, China Shen, Yuhan, Northeastern University, United States Zhang, Wei-Qiang, Tsinghua University, China Liu, Jia, Tsinghua University, China

AUD-P7.6: LEARNING WITH OUT-OF-DISTRIBUTION DATA FOR AUDIO CLASSIFICATION

Iqbal, Turab, University of Surrey, United Kingdom Cao, Yin, University of Surrey, United Kingdom Kong, Qiuqiang, University of Surrey, United Kingdom

Plumbley, Mark D., University of Surrey, United Kingdom Wang, Wenwu, University of Surrey, United Kingdom

AUD-P7.7: MULTI-BRANCH LEARNING FOR WEAKLY-LABELED SOUND EVENT DETECTION

Huang, Yuxin, Institute of Computing Technology, Chinese Academy of Sciences, China Wang, Xiangdong, Institute of Computing Technology, Chinese Academy of Sciences, China Lin, Liwei, Institute of Computing Technology, Chinese Academy of Sciences, China Liu, Hong, Institute of Computing Technology, Chinese Academy of Sciences, China Qian, Yueliang, Institute of Computing Technology, Chinese Academy of Sciences, China

AUD-P7.8: SCENE-DEPENDENT ACOUSTIC EVENT DETECTION WITH SCENE CONDITIONING AND FAKE-SCENE-CONDITIONED LOSS

Komatsu, Tatsuya, LINE Corporation, Japan Imoto, Keisuke, Ritsumeikan University, Japan Togami, Masahito, LINE Corporation, Japan

AUD-P7.9: SOUND EVENT LOCALIZATION BASED ON SOUND INTENSITY VECTOR REFINED BY DNN-BASED DENOISING AND SOURCE SEPARATION

Yasuda, Masahiro, NTT Corporation, Japan Koizumi, Yuma, NTT Corporation, Japan Saito, Shoichiro, NTT Corporation, Japan Uematsu, Hisashi, NTT Corporation, Japan Imoto, Keisuke, Ritsumeikan University, Japan

AUD-P7.10: HIGH-RESOLUTION ATTENTION NETWORK WITH ACOUSTIC SEGMENT MODEL FOR ACOUSTIC SCENE CLASSIFICATION

Bai, Xue, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China Pan, Jia, University of Science and Technology of China, China Zhou, Heng-Shun, University of Science and Technology of China, China Tu, Yan-Hui, University of Science and Technology of China, China Lee, Chin-Hui, Georgia Institute of Technology, United States

AUD-P7.11: POLYPHONIC SOUND EVENT DETECTION USING TRANSPOSED CONVOLUTIONAL RECURRENT NEURAL NETWORK

Chatterjee, Chandra Churh, Jalpaiguri Government Engineering College, India Mulimani, Manjunath, Manipal Institute of Technology Manipal, India Koolagudi, Shashidhar G, National Institute of Technology Karnataka, India

AUD-P7.12: SECOST: SEQUENTIAL CO-SUPERVISION FOR LARGE SCALE WEAKLY LABELED AUDIO EVENT DETECTION

Kumar, Anurag, Facebook Inc, United States Ithapu, Vamsi Krishna, Facebook, United States

Wednesday, 6 May, 16:30 - 18:30

AUD-P8 - Source Separation and Array Processing

AUD-P8.1: DEEP SPEECH EXTRACTION WITH TIME-VARYING SPATIAL FILTERING GUIDED BY DESIRED DIRECTION ATTRACTOR

Nakagome, Yu, Waseda University, Japan Togami, Masahito, LINE Corporation, Japan Ogawa, Tetsuji, Waseda University, Japan Kobayashi, Tetsunori, Waseda University, Japan

AUD-P8.2: ADAPTIVE BLIND AUDIO SOURCE EXTRACTION SUPERVISED BY DOMINANT SPEAKER IDENTIFICATION USING X-VECTORS

Janský, Jakub, Technical University of Liberec, Czech Republic Málek, Jiří, Technical University of Liberec, Czech Republic Čmejla, Jaroslav, Technical University of Liberec, Czech Republic Kounovský, Tomáš, Technical University of Liberec, Czech Republic Koldovský, Zbyněk, Technical University of Liberec, Czech Republic Žďánský, Jindřich, Technical University of Liberec, Czech Republic

AUD-P8.3: PASSIVE JOINT LOCALIZATION AND SYNCHRONIZATION OF DISTRIBUTED MICROPHONE ARRAYS

Woźniak, Szymon, AGH University of Science and Technology, Poland Kowalczyk, Konrad, AGH University of Science and Technology, Poland

AUD-P8.4: CONVERGENCE-GUARANTEED INDEPENDENT POSITIVE SEMIDEFINITE TENSOR ANALYSIS BASED ON STUDENT'S T DISTRIBUTION

Kondo, Tatsuki, University of Tokyo, Japan Fukushige, Kanta, University of Tokyo, Japan Takamune, Norihiro, University of Tokyo, Japan Kitamura, Daichi, National Institute of Technology, Kagawa College, Japan Saruwatari, Hiroshi, University of Tokyo, Japan Ikeshita, Rintaro, NTT Corporation, Japan Nakatani, Tomohiro, NTT Corporation, Japan

AUD-P8.5: DETERMINED SOURCE SEPARATION USING THE SPARSITY OF IMPULSE RESPONSES

Takahashi, Yuki, Ritsumeikan University, Japan Kitahara, Daichi, Ritsumeikan University, Japan Matsuura, Koichiro, Ritsumeikan University, Japan Hirabayashi, Akira, Ritsumeikan University, Japan

AUD-P8.6: IMPROVING SPEAKER DISCRIMINATION OF TARGET SPEECH EXTRACTION WITH TIME-DOMAIN SPEAKERBEAM

Delcroix, Marc, NTT Corporation, Japan Ochiai, Tsubasa, NTT Corporation, Japan Žmolíková, Kateřina, Brno University of Technology, Czech Republic Kinoshita,

Keisuke, NTT Corporation, Japan Tawara, Naohiro, NTT Corporation, Japan Nakatani, Tomohiro, NTT Corporation, Japan Araki, Shoko, NTT Corporation, Japan

AUD-P8.7: WHAMR!: NOISY AND REVERBERANT SINGLE-CHANNEL SPEECH SEPARATION

Maciejewski, Matthew, Johns Hopkins University, United States Wichern, Gordon, Mitsubishi Electric Research Laboratories (MERL), United States McQuinn, Emmett, Whisper AI, United States Le Roux, Jonathan, Mitsubishi Electric Research Laboratories (MERL), United States

AUD-P8.8: EIGENBEAM-ESPRIT FOR DOA-VECTOR ESTIMATION

Herzog, Adrian, Friedrich-Alexander Universität Erlangen, Germany Habets, Emanuël A. P., Friedrich-Alexander Universität Erlangen, Germany

AUD-P8.12: BILEVEL OPTIMIZATION USING STATIONARY POINT OF LOWER-LEVEL OBJECTIVE FUNCTION

Nakajima, Hiroaki, University of Tokyo, Japan Kitamura, Daichi, National Institute of Technology, Kagawa College, Japan Takamune, Norihiro, University of Tokyo, Japan Saruwatari, Hiroshi, University of Tokyo, Japan Ono, Nobutaka, Tokyo Metropolitan University, Japan

Wednesday, 6 May, 16:30 - 18:30

AUD-P9 - Topics in Audio Analysis and Classification

AUD-P9.1: IMPACT OF A SHIFT-INVARIANT HARMONIC PHASE MODEL IN FULLY PARAMETRIC HARMONIC VOICE REPRESENTATION AND TIME/FREQUENCY SYNTHESIS

Ferreira, Aníbal, University of Porto, Portugal Silva, João, University of Porto, Portugal Brito, Francisca, University of Porto, Portugal Sinha, Deepen, ATC Labs, United States

AUD-P9.2: HEARING AID RESEARCH DATA SET FOR ACOUSTIC ENVIRONMENT RECOGNITION

Hüwel, Andreas, HoerTech gGmbH, Germany Adiloğlu, Kamil, HörTech gGmbH, Germany Bach, Jörg-Hendrik, HoerTech gGmbH, Germany

AUD-P9.3: AUDIO FEATURE EXTRACTION FOR VEHICLE ENGINE NOISE CLASSIFICATION

Becker, Luca, Ruhr-Universität Bochum, Germany Nelus, Alexandru, Ruhr-Universität Bochum, Germany Gauer, Johannes, Ruhr-Universität Bochum, Germany Rudolph, Lars, Ruhr-Universität Bochum, Germany Martin, Rainer, Ruhr-Universität Bochum, Germany

AUD-P9.4: TIME-FREQUENCY FEATURE DECOMPOSITION BASED ON SOUND DURATION FOR ACOUSTIC SCENE CLASSIFICATION

Wu, Yuzhong, Chinese University of Hong Kong, Hong Kong SAR of China Lee, Tan, Chinese University of Hong Kong, Hong Kong SAR of China

AUD-P9.5: VGGSOUND: A LARGE-SCALE AUDIO-VISUAL DATASET

Chen, Honglie, University of Oxford, United Kingdom Xie, Weidi, University of Oxford, United Kingdom Vedaldi, Andrea, University of Oxford, United Kingdom Zisserman, Andrew, University of Oxford, United Kingdom

AUD-P9.6: TRANSFER LEARNING FROM YOUTUBE SOUNDTRACKS TO TAG ARCTIC ECOACOUSTIC RECORDINGS

Çoban, Enis Berk, Graduate Center, City University of New York, United States Pir, Dara, Guttman Community College, CUNY, United States So, Richard, Staten Island Technical High School, United States Mandel, Michael I, Brooklyn College, City University of New York, United States

AUD-P9.7: DATA AUGMENTATION USING EMPIRICAL MODE DECOMPOSITION ON NEURAL NETWORKS TO CLASSIFY IMPACT NOISE IN VEHICLE

Nam, Gue-Hwan, Hyundai Mobis, Korea (South) Bu, Seok-Jun, Yonsei University, Korea (South) Park, Na-Mu, Yonsei University, Korea (South) Seo, Jae-Yong, Hyundai Mobis, Korea (South) Jo, Hyeon-Cheol, Hyundai Mobis, Korea (South) Jeong, Won-Tae, Hyundai Mobis, Korea (South)

AUD-P9.8: CLOTHO: AN AUDIO CAPTIONING DATASET

Drossos, Konstantinos, Tampere University, Finland Lipping, Samuel, Tampere University, Finland Virtanen, Tuomas, Tampere University, Finland

AUD-P9.9: ROBUST FUNDAMENTAL FREQUENCY ESTIMATION IN COLOURED NOISE

Esquivel Jaramillo, Alfredo, Aalborg University, Denmark Jakobsson, Andreas, Lund Universitity, Sweden Nielsen, Jesper Kjær, Aalborg University, Denmark Christensen, Mads Græsbøll, Aalborg University, Denmark

AUD-P9.10: EFFICIENT BIRD SOUND DETECTION ON THE BELA EMBEDDED SYSTEM

Solomes, Alexandru-Marius, Queen Mary University of London, United Kingdom Stowell, Dan, Queen Mary University of London, United Kingdom

AUD-P9.11: IMPROVING AUTOMATED SEGMENTATION OF RADIO SHOWS WITH AUDIO EMBEDDINGS

Berlage, Oberon, University of Amsterdam, Netherlands Lux, Klaus-Michael, Radboud Universiteit Nijmegen, Netherlands Graus, David, FD Mediagroep, Netherlands

AUD-P9.12: SECL-UMONS DATABASE FOR SOUND EVENT CLASSIFICATION AND LOCALIZATION

Brousmiche, Mathilde, Université de Mons, Belgium Rouat, Jean, Université de Sherbrooke, Canada Dupont, Stéphane, Université de Mons, Belgium

Friday, 8 May, 08:00 - 10:00

AUD-P10 - Music Signal Processing I

AUD-P10.1: SYNTHESIZING ENGAGING MUSIC USING DYNAMIC MODELS OF STATISTICAL SURPRISAL

Kothinti, Sandeep Reddy, Johns Hopkins University, United States Skerritt-Davis, Benjamin, Johns Hopkins University, United States Nair, Aditya, University of Washington, United States Elhilali, Mounya, Johns Hopkins University, United States

AUD-P10.2: HARMONICS BASED REPRESENTATION IN CLARINET TONE QUALITY EVALUATION

Wang, Yixin, Xi'an Jiaotong University, China Guan, Xiaohong, Xi'an Jiaotong University, China Du, Youtian, Xi'an Jiaotong University, China Nan, Nan, Xi'an Jiaotong University, China

AUD-P10.3: SIMULTANEOUS SEPARATION AND TRANSCRIPTION OF MIXTURES WITH MULTIPLE POLYPHONIC AND PERCUSSIVE INSTRUMENTS

Manilow, Ethan, Northwestern University, United States Seetharaman, Prem, Northwestern University, United States Pardo, Bryan, Northwestern University, United States

AUD-P10.4: THE ROLE OF ANNOTATION FUSION METHODS IN THE STUDY OF HUMAN-REPORTED EMOTION EXPERIENCE DURING MUSIC LISTENING

Greer, Timothy, University of Southern California, United States Mundnich, Karel, University of Southern California, United States Sachs, Matthew, Columbia University, United States Narayanan, Shrikanth, University of Southern California, United States

AUD-P10.5: CONTENT BASED SINGING VOICE EXTRACTION FROM A MUSICAL MIXTURE

Chandna, Pritish, Universitat Pompeu Fabra, Spain Blaauw, Merlijn, Universitat Pompeu Fabra, Spain Bonada, Jordi, Universitat Pompeu Fabra, Spain Gómez, Emilia, Universitat Pompeu Fabra, Spain

AUD-P10.6: NEURAL PERCUSSIVE SYNTHESIS PARAMETERISED BY HIGH-LEVEL TIMBRAL FEATURES

Ramires, António, Universitat Pompeu Fabra, Spain Chandna, Pritish, Universitat Pompeu Fabra, Spain Favory, Xavier, Universitat Pompeu Fabra, Spain Gómez,

Emilia, Universitat Pompeu Fabra; Joint Research Centre, European Commission, Spain Serra, Xavier, Universitat Pompeu Fabra, Spain

AUD-P10.7: NON-GRIFFIN–LIM TYPE SIGNAL RECOVERY FROM MAGNITUDE SPECTROGRAM

Nakatsu, Ryusei, Ritsumeikan University, Japan Kitahara, Daichi, Ritsumeikan University, Japan Hirabayashi, Akira, Ritsumeikan University, Japan

AUD-P10.8: VAPAR SYNTH - A VARIATIONAL PARAMETRIC MODEL FOR AUDIO SYNTHESIS

Subramani, Krishna, Indian Institute of Technology Bombay, India Rao, Preeti, Indian Institute of Technology Bombay, India D'Hooge, Alexandre, ENS Paris-Saclay, France

AUD-P10.9: BANDWIDTH EXTENSION OF MUSICAL AUDIO SIGNALS WITH NO SIDE INFORMATION USING DILATED CONVOLUTIONAL NEURAL NETWORKS

Lagrange, Mathieu, LS2N, France Gontier, Félix, LS2N, France

AUD-P10.10: TOWARDS REAL-TIME SINGLE-CHANNEL SINGING-VOICE SEPARATION WITH PRUNED MULTI-SCALED DENSENETS

Huber, Markus, Graz University of Technology, Austria Schindler, Günther, Heidelberg University, Germany Roth, Wolfgang, Graz University of Technology, Austria Fröning, Holger, Heidelberg University, Germany Schörkhuber, Christian, sonible GmbH, Austria Pernkopf, Franz, Graz University of Technology, Austria

AUD-P10.11: STATE-BASED TRANSCRIPTION OF COMPONENTS OF CARNATIC MUSIC

Viraraghavan, Venkata, Tata Consultancy Services, India Pal, Arpan, Tata Consultancy Services, India Murthy, Hema, Indian Institute of Technology Madras, India Aravind, R, Indian Institute of Technology Madras, India

AUD-P10.12: META-LEARNING EXTRACTORS FOR MUSIC SOURCE SEPARATION

Samuel, David, Charles University, Czech Republic Ganeshan, Aditya, Preferred Networks, Japan Naradowsky, Jason, Preferred Networks, Japan

Friday, 8 May, 11:45 - 13:45

AUD-P11 - Signal Enhancement and Restoration II

AUD-P11.1: CONSISTENCY-AWARE MULTI-CHANNEL SPEECH ENHANCEMENT USING DEEP NEURAL NETWORKS

Masuyama, Yoshiki, Waseda University, Japan Togami, Masahito, LINE Corporation, Japan Komatsu, Tatsuya, LINE Corporation, Japan

AUD-P11.2: PHASE RECONSTRUCTION BASED ON RECURRENT PHASE UNWRAPPING WITH DEEP NEURAL NETWORKS

Masuyama, Yoshiki, Waseda University, Japan Yatabe, Kohei, Waseda University, Japan Koizumi, Yuma, NTT Corporation, Japan Oikawa, Yasuhiro, Waseda University, Japan Harada, Noboru, NTT Corporation, Japan

AUD-P11.3: PERFORMANCE STUDY OF A CONVOLUTIONAL TIME-DOMAIN AUDIO SEPARATION NETWORK FOR REAL-TIME SPEECH DENOISING

Sonning, Samuel, Google, Sweden Schüldt, Christian, Google, Sweden Erdogan, Hakan, Google, United States Wisdom, Scott, Google, United States

AUD-P11.4: CHANNEL-ATTENTION DENSE U-NET FOR MULTICHANNEL SPEECH ENHANCEMENT

Tolooshams, Bahareh, Harvard University, United States Giri, Ritwik, Amazon Web Services, United States Song, Andrew, Massachusetts Institute of Technology, United States Isik, Umut, Amazon Web Services, United States Krishnaswamy, Arvindh, Amazon Web Services, United States

AUD-P11.5: A COMPOSITE DNN ARCHITECTURE FOR SPEECH ENHANCEMENT

Yemini, Yochai, Bar-Ilan University, Israel Chazan, Shlomo E., Bar-Ilan University, Israel Goldberger, Jacob, Bar-Ilan University, Israel Gannot, Sharon, Bar-Ilan University, Israel

AUD-P11.6: GEOMETRICALLY CONSTRAINED INDEPENDENT VECTOR ANALYSIS FOR DIRECTIONAL SPEECH ENHANCEMENT

Li, Li, University of Tsukuba, Japan Koishida, Kazuhito, Microsoft Corporation, United States

AUD-P11.7: REAL-TIME SPEECH ENHANCEMENT USING EQUILIBRIATED RNN

Takeuchi, Daiki, Waseda University, Japan Yatabe, Kohei, Waseda University, Japan Koizumi, Yuma, NTT Corporation, Japan Oikawa, Yasuhiro, Waseda University, Japan Harada, Noboru, NTT Corporation, Japan

AUD-P11.8: SUBSPACE-BASED SPEECH CORRELATION VECTOR ESTIMATION FOR SINGLE-MICROPHONE MULTI-FRAME MVDR FILTERING

Fischer, Dörte, University of Oldenburg, Germany Doclo, Simon, University of Oldenburg, Germany

AUD-P11.9: SPEECH ENHANCEMENT USING A TWO-STAGE NETWORK FOR AN EFFICIENT BOOSTING STRATEGY

Kim, Juntae, KaKao, Korea (South)

AUD-P11.10: TIME-FREQUENCY LOSS FOR CNN BASED SPEECH SUPER-RESOLUTION

Wang, Heming, Ohio State University, United States Wang, Deliang, Ohio State University, United States

AUD-P11.11: TIME-DOMAIN NEURAL NETWORK APPROACH FOR SPEECH BANDWIDTH EXTENSION

Hao, Xiang, Northwestern Polytechnical University, China Xu, Chenglin, Nanyang Technological University, Singapore Hou, Nana, Nanyang Technological University, Singapore Xie, Lei, Northwestern Polytechnical University, China Chng, Eng Siong, Nanyang Technological University, Singapore Li, Haizhou, National University of Singapore, Singapore

AUD-P11.12: WEIGHTED SPEECH DISTORTION LOSSES FOR NEURAL-NETWORK-BASED REAL-TIME SPEECH ENHANCEMENT

Xia, Yangyang, Carnegie Mellon University, United States Braun, Sebastian, Microsoft Research, United States Reddy, Chandan, Microsoft Corporation, United States Dubey, Harishchandra, Microsoft Corporation, United States Cutler, Ross, Microsoft Corporation, United States Tashev, Ivan, Microsoft Research, United States

Friday, 8 May, 15:15 - 17:15

AUD-P12 - Audio, Speech and Music Analysis

AUD-P12.1: SNORER DIARISATION BASED ON DEEP NEURAL NETWORK EMBEDDINGS

Romero, Hector E., University of Sheffield, United Kingdom Ma, Ning, University of Sheffield, United Kingdom Brown, Guy J., University of Sheffield, United Kingdom

AUD-P12.2: PLAYING TECHNIQUE RECOGNITION BY JOINT TIME–FREQUENCY SCATTERING

Wang, Changhong, Queen Mary University of London, United Kingdom Lostanlen, Vincent, New York University, United States Benetos, Emmanouil, Queen Mary University of London, United Kingdom Chew, Elaine, IRCAM, France

AUD-P12.3: PRIVACY AWARE ACOUSTIC SCENE SYNTHESIS USING DEEP SPECTRAL FEATURE INVERSION

Gontier, Félix, LS2N, France Lagrange, Mathieu, LS2N, France Lavandier, Catherine, Etis, Université de Cergy-Pontoise, France Petiot, Jean-François, LS2N, France

AUD-P12.4: ROBUSTNESS ASSESSMENT OF AUTOMATIC REINKE'S EDEMA DIAGNOSIS SYSTEMS

Madruga, Mario, Universidad de Extremadura, Spain Campos-Roca, Yolanda, Universidad de Extremadura, Spain Pérez, Carlos J., Universidad de Extremadura, Spain

AUD-P12.5: WHOSECOUGH: IN-THE-WILD COUGHER VERIFICATION USING MULTITASK LEARNING

Whitehill, Matt, University of Washington, United States Garrison, Jake, Google, Inc., United States Patel, Shwetak, University of Washington, United States

AUD-P12.6: CHIRPING UP THE RIGHT TREE: INCORPORATING BIOLOGICAL TAXONOMIES INTO DEEP BIOACOUSTIC CLASSIFIERS

Cramer, Jason, New York University, United States Lostanlen, Vincent, Cornell Lab of Ornithology, United States Farnsworth, Andrew, Cornell University, United States Salamon, Justin, Adobe, United States Bello, Juan Pablo, New York University, United States

AUD-P12.7: BEAMFORMING DESIGN FOR HIGH-RESOLUTION LOW-INTENSITY FOCUSED ULTRASOUND NEUROMODULATION

Fan, Boqiang, Rice University, United States Goodman, Wayne, Baylor College of Medicine, United States Cho, Raymond, Baylor College of Medicine, United States Sheth, Sameer, Baylor College of Medicine, United States Bouchard, Richard, University of Texas MD Anderson Cancer Center, United States Aazhang, Behnaam, Rice University, United States

AUD-P12.8: AN ATTENTION ENHANCED MULTI-TASK MODEL FOR OBJECTIVE SPEECH ASSESSMENT IN REAL-WORLD ENVIRONMENTS

Dong, Xuan, Indiana University, United States Williamson, Donald S., Indiana University, United States

AUD-P12.9: HUMBUG ZOONIVERSE: A CROWD-SOURCED ACOUSTIC MOSQUITO DATASET

Kiskin, Ivan, University of Oxford, United Kingdom Cobb, Adam, University of Oxford, United Kingdom Wang, Lawrence, University of Oxford, United Kingdom Roberts, Stephen, University of Oxford, United Kingdom

AUD-P12.10: SUBJECTIVE QUALITY ESTIMATION USING PESQ FOR HANDS-FREE TERMINALS

Kurihara, Sachiko, NTT Corporation, Japan Fukui, Masahiro, NTT Corporation, Japan Shimauchi, Suehiro, Kanazawa Institute of Technology, Japan Harada, Noboru, NTT Corporation, Japan

AUD-P12.11: VOICE ACTIVITY DETECTION FOR TRANSIENT NOISY ENVIRONMENT BASED ON DIFFUSION NETS

Ivry, Amir, Technion - Israel Institute of Technology, Israel Berdugo, Baruch, Technion - Israel Institute of Technology, Israel Cohen, Israel, Technion - Israel Institute of Technology, Israel

AUD-P12.12: GRIFFIN–LIM LIKE PHASE RECOVERY VIA ALTERNATING DIRECTION METHOD OF MULTIPLIERS

Masuyama, Yoshiki, Waseda University, Japan Yatabe, Kohei, Waseda University, Japan Oikawa, Yasuhiro, Waseda University, Japan

Biomedical Imaging and Signal Processing

Tuesday, 5 May, 11:30 - 13:30

BIO-L1 - Bioelectrical Signal Processing

BIO-L1.1: CLASSIFICATION OF EPILEPTIC IEEG SIGNALS BY CNN AND DATA AUGMENTATION

Zhao, Xuyang, Saitama Institute of Technology, Japan Sole ́-Casals, Jordi, University of Vic–Central University of Catalonia, Spain Li, Binghua, Nankai University, China Huang, Zihao, Nankai University, China Wang, Andong, Nanjing University of Science and Technology, China Cao, Jianting, Saitama Institute of Technology, China Tanaka, Toshihisa, Tokyo University of Agriculture and Technology, Japan Zhao, Qibin, RIKEN Center for Advanced Intelligence Project, Japan

BIO-L1.2: FRACTIONAL FOURIER TRANSFORM BASED QRS COMPLEX DETECTION IN ECG SIGNAL

Yaqoob, Touseef, Information Technology University Lahore, Pakistan Aziz, Saira, Information Technology University Lahore, Pakistan Ahmed, Sajid, Information Technology University Lahore, Pakistan Amin, Osama, Information Technology University Lahore, Pakistan Alouini, Mohamed-Slim, King Abdullah University of Science and Technology (KAUST), United Kingdom

BIO-L1.3: CROSS-DOMAIN JOINT DICTIONARY LEARNING FOR ECG RECONSTRUCTION FROM PPG

Tian, Xin, University of Maryland, College Park, United States Zhu, Qiang, University of Maryland, College Park, United States Li, Yuenan, University of Maryland, College Park, United States Wu, Min, University of Maryland, College Park, United States

BIO-L1.4: AN LSTM BASED ARCHITECTURE TO RELATE SPEECH STIMULUS TO EEG

Jalilpour Monesi, Mohammad, Katholieke Universiteit Leuven, Belgium Accou, Bernd, Katholieke Universiteit Leuven, Belgium Montoya-Martinez, Jair, Katholieke Universiteit Leuven, Belgium Francart, Tom, Katholieke Universiteit Leuven, Belgium Van Hamme, Hugo, Katholieke Universiteit Leuven, Belgium

BIO-L1.5: JOINT SEMI-SUPERVISED FEATURE AUTO-WEIGHTING AND CLASSIFICATION MODEL FOR EEG-BASED CROSS-SUBJECT SLEEP QUALITY EVALUATION

Peng, Yong, Hangzhou Dianzi University, China Li, Qingxi, Hangzhou Dianzi University, China Kong, Wanzeng, Hangzhou Dianzi University, China Zhang, Jianhai, Hangzhou Dianzi University, China Lu, Bao-Liang, Shanghai Jiao Tong University, China Cichocki, Andrzej, Skolkovo Institute of Science and Technology (Skoltech), Russia

BIO-L1.6: REVERSAL NO LONGER MATTERS: ATTENTION-BASED ARRHYTHMIA DETECTION WITH LEAD-REVERSAL ECG DATA

Cao, Zheng, Tsinghua University, China Shi, Jialin, Tsinghua University, China Wu, Ji, Tsinghua University, China

Tuesday, 5 May, 16:30 - 18:30

BIO-L2 - Biological Image Analysis

BIO-L2.1: AUGMENTING MOLECULAR IMAGES WITH VECTOR REPRESENTATIONS AS A FEATURIZATION TECHNIQUE FOR DRUG CLASSIFICATION

de Marchi, Daniel, University of North Carolina, United States Budhiraja, Amarjit, University of North Carolina - Chapel Hill, United States

BIO-L2.2: MULTI-MODAL SELF-SUPERVISED PRE-TRAINING FOR JOINT OPTIC DISC AND CUP SEGMENTATION IN EYE FUNDUS IMAGES

Hervella, Álvaro S., Universidade da Coruña, Spain Ramos, Lucía, Universidade da Coruña, Spain Rouco, José, Universidade da Coruña, Spain Novo, Jorge, Universidade da Coruña, Spain Ortega, Marcos, Universidade da Coruña, Spain

BIO-L2.3: DENSE MAPPING OF INTRACELLULAR DIFFUSION AND DRIFT FROM SINGLE-PARTICLE TRACKING DATA ANALYSIS

Salomon, Antoine, Inria, France Augusto Valades-Cruz, Cesar, Inria, France Leconte, Ludovic, CNRS/Institut Curie, France Kervrann, Charles, Inria, France

BIO-L2.4: A DEEP GRADIENT BOOSTING NETWORK FOR OPTIC DISC AND CUP SEGMENTATION

Liu, Qing, Central South University, China Zou, Beiji, Central South University, China Zhao, Yang, Central South University, China Liang, Yixiong, Central South University, China

BIO-L2.5: ADAPTIVE ELASTIC LOSS BASED ON PROGRESSIVE INTER-CLASS ASSOCIATION FOR CERVICAL HISTOLOGY IMAGE SEGMENTATION

Meng, Zhu, Beijing University of Posts and Telecommunications, China Zhao, Zhicheng, Beijing University of Posts and Telecommunications, China Su, Fei, Beijing University of Posts and Telecommunications, China Wang, Weibao, Singularity.AI Technology Co., Ltd, China

BIO-L2.6: A BIDIRECTIONAL CONTEXT PROPAGATION NETWORK FOR URINE SEDIMENT PARTICLE DETECTION IN MICROSCOPIC IMAGES

Yan, Meng, Central South University, China Liu, Qing, Central South University, China Yin, Zhihua, Central South University, China Wang, Du, Central South University, China Liang, Yixiong, Central South University, China

Wednesday, 6 May, 09:00 - 11:00

BIO-L3 - Signal Processing in Biometrics

BIO-L3.1: THE SWAX BENCHMARK: ATTACKING BIOMETRIC SYSTEMS WITH WAX FIGURES

Vareto, Rafael Henrique, Universidade Federal de Minas Gerais, Brazil Saldanha, Araceli Marcia, Universidade Federal de Minas Gerais, Brazil Schwartz, William Robson, Universidade Federal de Minas Gerais, Brazil

BIO-L3.2: RESTING-STATE EEG-BASED BIOMETRICS WITH SIGNALS FEATURES EXTRACTED BY MULTIVARIATE EMPIRICAL MODE DECOMPOSITION

Ma, Matthew King-Hang, Chinese University of Hong Kong, Hong Kong SAR of China Lee, Tan, Chinese University of Hong Kong, Hong Kong SAR of China Fong, Manson Cheuk-Man, Hong Kong Polytechnic University, Hong Kong SAR of China Wang, William Shiyuan, Hong Kong Polytechnic University, Hong Kong SAR of China

BIO-L3.3: AUTO-FAS: SEARCHING LIGHTWEIGHT NETWORKS FOR FACE ANTI-SPOOFING

Yu, Zitong, University of Oulu, Finland Qin, Yunxiao, Northwestern Polytechnical University, China Xu, Xiaqing, Aibee, China Zhao, Chenxu, Aibee, China Wang, Zezheng, Aibee, China Lei, Zhen, Institute of Automation, Chinese Academy of Sciences, China Zhao, Guoying, University of Oulu, Finland

BIO-L3.4: CHRONOLOGICAL AGE ESTIMATION UNDER THE GUIDANCE OF AGE-RELATED FACIAL ATTRIBUTES

Xie, Jiu-Cheng, University of Macau, Macao SAR of China Pun, Chi-Man, University of Macau, Macao SAR of China

BIO-L3.5: DOMAIN ADAPTATION FOR GENERALIZATION OF FACE PRESENTATION ATTACK DETECTION IN MOBILE SETTINGS WITH MINIMAL INFORMATION

Mohammadi, Amir, Idiap Research Institue, Switzerland Bhattacharjee, Sushil, Idiap Research Institue, Switzerland Marcel, Sebastien, Idiap Research Institue, Switzerland

BIO-L3.6: A LIGHTWEIGHT MULTI-LABEL SEGMENTATION NETWORK FOR MOBILE IRIS BIOMETRICS

Wang, Caiyong, University of Chinese Academy of Sciences, China Wang, Yunlong, Institute of Automation, Chinese Academy of Sciences, China Xu,

Boqiang, University of Chinese Academy of Sciences, China He, Yong, Institute of Automation, Chinese Academy of Sciences, China Dong, Zhiwei, University of Science and Technology Beijing, China Sun, Zhenan, Institute of Automation, Chinese Academy of Sciences, China

Thursday, 7 May, 11:30 - 13:30

BIO-L4 - Biomedical Signal Processing

BIO-L4.1: MODELING BEHAVIORAL CONSISTENCY IN LARGE-SCALE WEARABLE RECORDINGS OF HUMAN BIO-BEHAVIORAL SIGNALS

Feng, Tiantian, Signal Analysis and Interpretation Lab, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

BIO-L4.2: MODELING BEHAVIOR AS MUTUAL DEPENDENCY BETWEEN PHYSIOLOGICAL SIGNALS AND INDOOR LOCATION IN LARGE-SCALE WEARABLE SENSOR STUDY

Feng, Tiantian, Signal Analysis and Interpretation Lab, University of Southern California, United States Booth, Brandon, Signal Analysis and Interpretation Lab, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

BIO-L4.3: MULTICHANNEL SIGNAL CLASSIFICATION USING VECTOR AUTOREGRESSION

Haboub, Amine, Hamad Bin Khalifa University, Qatar Baali, Hamza, Hamad Bin Khalifa University, Qatar Bouzerdoum, Abdesselam, Hamad Bin Khalifa University, Qatar

BIO-L4.4: EFFICIENT ALGORITHM TO IMPLEMENT SLIDING SINGULAR SPECTRUM ANALYSIS WITH APPLICATION TO BIOMEDICAL SIGNAL DENOISING

Saeed, Muzammil, Royal Holloway, University of London, United Kingdom Took, Clive Cheong, Royal Holloway, University of London, United Kingdom Alty, Stephen, Royal Holloway, University of London, United Kingdom

BIO-L4.5: STRATEGIC ATTENTION LEARNING FOR MODALITY TRANSLATION

Martinez, Jonathan, Texas A&M University, United States Akbari, Ali, Texas A&M University, United States Sel, Kaan, Texas A&M University, United States Jafari, Roozbeh, Texas A&M University, United States

BIO-L4.6: SPARSE CSP ALGORITHM VIA JOINT SPATIO-TEMPORAL FILTERING

Jiang, Aimin, Hohai University, China Shang, Jing, Hohai University, China Cheng, Weigao, Hohai University, China Liu, Xiaofeng, Hohai University, China Kwan,

Hon Keung, University of Windsor, Canada Zhu, Yanping, Changzhou University, China

Friday, 8 May, 11:45 - 13:45

BIO-L5 - Medical Image Analysis

BIO-L5.1: HUMAN-MACHINE COLLABORATION FOR MEDICAL IMAGE SEGMENTATION

Ravanbakhsh, Mahdyar, University of Genova, Italy Tschernezki, Vadim, SAP ML Research Berlin, Germany Last, Felix, SAP ML Research Berlin, Germany Klein, Tassilo, SAP ML Research Berlin, Germany Batmanghelich, Kayhan, University of Pittsburgh, United States Tresp, Volker, Ludwig Maximilian University, Germany Nabi, Moin, SAP ML Research Berlin, Germany

BIO-L5.2: MIXUP MULTI-ATTENTION MULTI-TASKING MODEL FOR EARLY-STAGE LEUKEMIA IDENTIFICATION

Mathur, Puneet, University of Maryland, College Park, United States Piplani, Mehak, MIDAS Labs, IIIT Delhi, India Sawhney, Ramit, MIDAS Labs, IIIT Delhi, India Jindal, Amit, MIDAS Labs, IIIT Delhi, India Shah, Rajiv Ratn, MIDAS Labs, IIIT Delhi, India

BIO-L5.3: CROSS-VIEW ATTENTION NETWORK FOR BREAST CANCER SCREENING FROM MULTI-VIEW MAMMOGRAMS

Zhao, Xuran, Zhejiang Gongshang University, China Yu, Luyang, Zhejiang Gongshang University, China Wang, Xun, Zhejiang Gongshang University, China

BIO-L5.4: UNET 3+: A FULL-SCALE CONNECTED UNET FOR MEDICAL IMAGE SEGMENTATION

Huang, Huimin, Zhejiang University, China Lin, Lanfen, Zhejiang University, China Tong, Ruofeng, Zhejiang University, China Hu, Hongjie, Sir Run Run Shaw Hospital, China Zhang, Qiaowei, Sir Run Run Shaw Hospital, China Iwamoto, Yutaro, Ritsumeikan University, Japan Han, Xianhua, Ritsumeikan University, China Chen, Yen-Wei, Ritsumeikan University, China Wu, Jian, Zhejiang University, China

BIO-L5.5: UNSUPERVISED CONTENT-PRESERVED ADAPTATION NETWORK FOR CLASSIFICATION OF PULMONARY TEXTURES FROM DIFFERENT CT SCANNERS

Xu, Rui, Dalian University of Technology, China Cong, Zhen, Dalian University of Technology, China Ye, Xinchen, Dalian University of Technology, China Kido, Shoji, Osaka University, Japan Tomiyama, Noriyuki, Osaka University, Japan

BIO-L5.6: CLASSIFY AND EXPLAIN: AN INTERPRETABLE CONVOLUTIONAL NEURAL NETWORK FOR LUNG CANCER DIAGNOSIS

Li, Yaowei, Harbin Institute of Technology, China Gu, Donghao, Harbin Institute of Technology, China Wen, Zhaojing, Harbin Institute of Technology, China Jiang, Feng, Harbin Institute of Technology, China Liu, Shaohui, Harbin Institute of Technology, China

Wednesday, 6 May, 11:30 - 13:30

BIO-P1 - Biomedical Imaging and Analysis

BIO-P1.1: ROBUST GLOBAL OPTIMIZED AFFINE REGISTRATION METHOD FOR MICROSCOPIC IMAGES OF BIOLOGICAL TISSUE

Lv, Yanan, University of Chinese Academy of Sciences, China Chen, Xi, Chinese Academy of Sciences, China Shu, Chang, University of Chinese Academy of Sciences, China Han, Hua, Chinese Academy of Sciences, China

BIO-P1.2: EMPIRICAL SURE-GUIDED MICROSCOPY SUPER-RESOLUTION IMAGE RECONSTRUCTION FROM CONFOCAL MULTI-ARRAY DETECTORS

Prigent, Sylvain, France-BioImaging, France Dutertre, Stéphanie, University of Rennes 1, UMS Biosit, MRic, France Kervrann, Charles, Inria Centre Rennes-Bretagne Atlantique, France

BIO-P1.3: ENCODING TEMPORAL INFORMATION FOR AUTOMATIC DEPRESSION RECOGNITION FROM FACIAL ANALYSIS

Carneiro de Melo, Wheidima, University of Oulu, Finland Granger, Eric, École de Technologie Supérieure, Canada Bordallo Lopez, Miguel, VTT Technical Research Centre of Finland, Finland

BIO-P1.4: RETINAL VESSEL SEGMENTATION VIA A SEMANTICS AND MULTI-SCALE AGGREGATION NETWORK

Xu, Rui, Dalian University of Techonology, China Ye, Xinchen, Dalian University of Techonology, China Jiang, Guiliang, Dalian University of Techonology, China Liu, Tiantian, Dalian University of Techonology, China Li, Liang, Ritsumeikan University, Japan Tanaka, Satoshi, Ritsumeikan University, Japan

BIO-P1.5: ADAPTIVE MATCHED FILTER USING NON-TARGET FREE TRAINING DATA

Miri Rekavandi, Aref, University of Melbourne, Australia Seghouane, Abd-Krim, University of Melbourne, Australia Evans, Robin, University of Melbourne, Australia

BIO-P1.6: FEATURE DRIFT RESILIENT TRACKING OF THE CAROTID ARTERY WALL USING UNSCENTED KALMAN FILTERING WITH DATA FUSION

Dorazil, Jan, Technische Universität Wien, Czech Republic Repp, Rene, Technische Universität Wien, Austria Kropfreiter, Thomas, Technische Universität Wien, Austria Prüller, Richard, Technische Universität Wien, Austria Říha, Kamil, Brno University of Technology, Czech Republic Hlawatsch, Franz, Technische Universität Wien, Austria

BIO-P1.7: TRACING NETWORK EVOLUTION USING THE PARAFAC2 MODEL

Roald, Marie, Simula Metropolitan Center for Digital Engineering, Norway Bhinge, Suchita, University of Maryland, Baltimore County, United States Jia, Chunying, University of Maryland, Baltimore County, United States Calhoun, Vince, Georgia State University, United States Adalı, Tülay, University of Maryland, Baltimore County, United States Acar, Evrim, Simula Metropolitan Center for Digital Engineering, Norway

BIO-P1.8: A MODEL-BASED DEEP NETWORK FOR MRI RECONSTRUCTION USING APPROXIMATE MESSAGE PASSING ALGORITHM

Qiao, Xiaoyu, Chongqing University, China Du, Jinglong, Chongqing University, China Wang, Lulu, Chongqing University, China He, Zhongshi, Chongqing University, China Jia, Yuanyuan, Chongqing Medical University, China

BIO-P1.9: ONLINE POSITRON EMISSION TOMOGRAPHY BY ONLINE PORTFOLIO SELECTION

Li, Yen-Huan, National Taiwan University, Taiwan

BIO-P1.10: SPACE FILLING CURVES FOR MRI SAMPLING

Sharma, Shubham, Indian Institute of Science, India K.V.S., Hari, Indian Institute of Science, India Leus, Geert, Delft University of Technology, Netherlands

BIO-P1.11: K-SPACE TRAJECTORY DESIGN FOR REDUCED MRI SCAN TIME

Sharma, Shubham, Indian Institute of Science, India K.V.S., Hari, Indian Institute of Science, India Leus, Geert, Delft University of Technology, Netherlands

BIO-P1.12: RETHINKING RETINAL LANDMARK LOCALIZATION AS POSE ESTIMATION: NAIVE SINGLE STACKED NETWORK FOR OPTIC DISK AND FOVEA DETECTION

R. Maiya, Shishira, University of Maryland, College Park, United States Mathur, Puneet, University of Maryland, College Park, United States

Wednesday, 6 May, 16:30 - 18:30

BIO-P2 - Biomedical Signal Analysis

BIO-P2.1: HIDDEN MARKOV MODELS FOR SEPSIS DETECTION IN PRETERM INFANTS

Honoré, Antoine, KTH Royal Institute of Technology, Sweden Liu, Dong, KTH Royal Institute of Technology, Sweden Forsberg, David, Karolinska Institutet, Sweden Coste, Karen, Karolinska Institutet, Sweden Herlenius, Eric, Karolinska Institutet, Sweden Chatterjee, Saikat, KTH Royal Institute of Technology, Sweden Skoglund, Mikael, KTH Royal Institute of Technology, Sweden

BIO-P2.2: BLOOD PRESSURE ESTIMATION FROM PPG SIGNALS USING CONVOLUTIONAL NEURAL NETWORKS AND SIAMESE NETWORK

Schlesinger, Oded, Technion - Israel Institute of Technology, Israel Vigderhouse, Nitai, Technion - Israel Institute of Technology, Israel Eytan, Danny, Technion - Israel Institute of Technology, Israel Moshe, Yair, Technion - Israel Institute of Technology, Israel

BIO-P2.3: SPEECH BREATHING ESTIMATION USING DEEP LEARNING METHODS

Nallanthighal, Venkata Srikanth, Philips Research, Eindhoven and Radboud University, Nijmegen, Netherlands Härmä, Aki, Philips Research, Eindhoven, Netherlands Strik, Helmer, Radboud University, Netherlands

BIO-P2.4: A FAST NON-CONTACT VITAL SIGNS DETECTION METHOD BASED ON REGIONAL HIDDEN MARKOV MODEL IN A 77GHZ LFMCW RADAR SYSTEM

Mei, Zengyang, Southeast University, China Wu, Qisong, Southeast University, China Hu, Zhengyu, Southeast University, China Tao, Jun, Southeast University, China

BIO-P2.5: ROBUST LIKELIHOOD RATIO TEST USING ALPHA-DIVERGENCE

Miri Rekavandi, Aref, University of Melbourne, Australia Seghouane, Abd-Krim, University of Melbourne, Australia Evans, Robin, University of Melbourne, Australia

BIO-P2.6: USING X-VECTORS TO AUTOMATICALLY DETECT PARKINSON'S DISEASE FROM SPEECH

Moro-Velazquez, Laureano, Johns Hopkins University, United States Villalba, Jesús, Johns Hopkins University, United States Dehak, Najim, Johns Hopkins University, United States

BIO-P2.7: LEARNING A COMMON GRANGER CAUSALITY NETWORK USING A NON-CONVEX REGULARIZATION

Manomaisaowapak, Parinthorn, Chulalongkorn University, Thailand Songsiri, Jitkomut, Chulalongkorn University, Thailand

BIO-P2.8: SYNTHETIC DATA GENERATION THROUGH STATISTICAL EXPLOSION: IMPROVING CLASSIFICATION ACCURACY OF CORONARY ARTERY DISEASE USING PPG

Bhattacharya, Sakyajit, Tata Consultancy Services, India Mazumder, Oishee, Tata Consultancy Services, India Roy, Dibyendu, Tata Consultancy Services, India Sinha, Aniruddha, Tata Consultancy Services, India Ghose, Avik, Tata Consultancy Services, India

BIO-P2.9: HIGH-ACCURACY CLASSIFICATION OF ATTENTION DEFICIT HYPERACTIVITY DISORDER WITH L2,1-NORM LINEAR DISCRIMINANT ANALYSIS

Tang, Yibin, Hohai University, China Li, Xufei, Hohai University, China Chen, Ying, Columbia University, United States Zhong, Yuan, Nanjing Normal University, China Jiang, Aimin, Hohai University, China Liu, Xiaofeng, Hohai University, China

BIO-P2.10: A NEURAL NETWORK-BASED SPIKE SORTING FEATURE MAP THAT RESOLVES SPIKE OVERLAP IN THE FEATURE SPACE

Wouters, Jasper, Katholieke Universiteit Leuven, Belgium Kloosterman, Fabian, Neuro-Electronics Research Flanders, Belgium Bertrand, Alexander, Katholieke Universiteit Leuven, Belgium

BIO-P2.11: GAIT PHASE SEGMENTATION USING WEIGHTED DYNAMIC TIME WARPING AND K-NEAREST NEIGHBORS GRAPH EMBEDDING

Chen, Tze-Shen, National Tsing Hua University, Taiwan Lin, Ting-Ya, National Tsing Hua University, Taiwan Hong, Y.-W. Peter, National Tsing Hua University, Taiwan

BIO-P2.12: AUTOMATIC CLASSIFICATION OF VOLUMES OF WATER USING SWALLOW SOUNDS FROM CERVICAL AUSCULTATION

Subramani, Siddharth, Indian Institute of Science, India Rao M V, Achuth, Indian Institute of Science, India Giridhar, Divya, Indian Institute of Science, India Hegde, Prasanna Suresh, Health Care Ltd Global Enterprises, India Kumar Ghosh, Prasanta, Indian Institute of Science, Bangalore, India

Thursday, 7 May, 09:00 - 11:00

BIO-P3 - Neuro Image and Signal Processing

BIO-P3.1: CONDITIONAL DOMAIN ADVERSARIAL TRANSFER FOR ROBUST CROSS-SITE ADHD CLASSIFICATION USING FUNCTIONAL MRI

Huang, Ya-Lin, National Tsing Hua University, Taiwan Hsieh, Wan-Ting, National Tsing Hua University, Taiwan Yang, Hao-Chun, National Tsing Hua University, Taiwan Lee, Chi-Chun, National Tsing Hua University, Taiwan

BIO-P3.2: EEG CONNECTIVITY - INFORMED COOPERATIVE ADAPTIVE LINE ENHANCER FOR RECOGNITION OF BRAIN STATE

Sanei, Saeid, Nottingham Trent University, United Kingdom Took, Clive Cheong, Royal Holloway, University of London, United Kingdom Jarchi, Delaram, University of Essex, United Kingdom Prochazke, Ales, Institute of Chemical Engineering, Czech Republic

BIO-P3.3: ONLINE GRAPH TOPOLOGY INFERENCE WITH KERNELS FOR BRAIN CONNECTIVITY ESTIMATION

Moscu, Mircea, Université Côte d'Azur, France Borsoi, Ricardo, Université Côte d'Azur, France Richard, Cédric, Université Côte d'Azur, France

BIO-P3.4: MINIMAL ADVERSARIAL PERTURBATIONS IN MOBILE HEALTH APPLICATIONS: THE EPILEPTIC BRAIN ACTIVITY CASE STUDY

Aminifar, Amir, Uppsala University, Sweden

BIO-P3.5: DETECTING AUTISM SPECTRUM DISORDER USING TOPOLOGICAL DATA ANALYSIS

Majumder, Shouvik, IISER Kolkata, India Apicella, Fabio, University of Pisa, Italy Muratori, Filippo, University of Pisa, Italy Das, Koel, IISER Kolkata, India

BIO-P3.6: MULTI-VIEW BAYESIAN GENERATIVE MODEL FOR MULTI-SUBJECT FMRI DATA ON BRAIN DECODING OF VIEWED IMAGE CATEGORIES

Akamatsu, Yusuke, Hokkaido University, Japan Harakawa, Ryosuke, Nagaoka University of Technology, Japan Ogawa, Takahiro, Hokkaido University, Japan Haseyama, Miki, Hokkaido University, Japan

BIO-P3.7: TIME-FREQUENCY ANALYSIS OF UNIMODAL SENSORY PROCESSING IN AUTISM SPECTRUM DISORDER

D'Croz-Baron, David F., Texas Tech University, United States Baker, Mary C., Texas Tech University, United States Karp, Tanja, Texas Tech University, United States

BIO-P3.8: AUTOMATIC EPILEPTIC SEIZURE ONSET-OFFSET DETECTION BASED ON CNN IN SCALP EEG

Boonyakitanont, Poomipat, Chulalongkorn University, Thailand Lek-uthai, Apiwat, Chulalongkorn University, Thailand Songsiri, Jitkomut, Chulalongkorn University, Thailand

BIO-P3.9: ENHANCE FEATURE REPRESENTATION OF ELECTROENCEPHALOGRAM FOR SEIZURE DETECTION

Wang, Danyang, Shanghai University, China Fang, Yuchun, Shanghai University, China Li, Yifan, Shanghai University, China Chai, Changfeng, Changhai Hospital of Shanghai, China

BIO-P3.10: SPEECH SYNTHESIS USING EEG

Krishna, Gautam, University of Texas at Austin, United States Tran, Co, University of Texas at Austin, United States Han, Yan, University of Texas at Austin, United States Carnahan, Mason, University of Texas at Austin, United States Tewfik, Ahmed, University of Texas at Austin, United States

BIO-P3.11: EEG FEATURE SELECTION USING ORTHOGONAL REGRESSION: APPLICATION TO EMOTION RECOGNITION

Xu, Xueyuan, Beijing Normal University, China Wei, Fulin, Beijing Normal University, China Zhu, Zhiyuan, Beijing Normal University, China Liu, Jianhong, Beijing Normal University, China Wu, Xia, Beijing Normal University, China

BIO-P3.12: SCALPNET: DETECTION OF SPATIOTEMPORAL ABNORMAL INTERVALS IN EPILEPTIC EEG USING CONVOLUTIONAL NEURAL NETWORKS

Sakai, Takahiko, Tokyo University of Agriculture and Technology, Japan Shoji, Taku, Tokyo University of Agriculture and Technology, Japan Yoshida, Noboru, Juntendo University Nerima Hospital, Japan Fukumori, Kosuke, Tokyo University of Agriculture and Technology, Japan Tanaka, Yuichi, Tokyo University of Agriculture and Technology, Japan Tanaka, Toshihisa, Tokyo University of Agriculture and Technology, Japan

Thursday, 7 May, 16:30 - 18:30

BIO-P4 - Physiological Signal Processing

BIO-P4.1: A SEMI-SUPERVISED APPROACH FOR IDENTIFYING ABNORMAL HEART SOUNDS USING VARIATIONAL AUTOENCODER

Banerjee, Rohan, Tata Consultancy Services, India Ghose, Avik, Tata Consultancy Services, India

BIO-P4.2: DETECTION OF S1 AND S2 LOCATIONS IN PHONOCARDIOGRAM SIGNALS USING ZERO FREQUENCY FILTER

Prasad, RaviShankar, Idiap Research Institute, Switzerland Yilmaz, Gurkan, Swiss Center for Electronics and Microtechnology, Switzerland Chetelat, Olivier, Swiss Center for Electronics and Microtechnology, Switzerland Magimai.-Doss, Mathew, Idiap Research Institute, Switzerland

BIO-P4.3: MENTAL FATIGUE PREDICTION FROM MULTI-CHANNEL ECOG SIGNAL

Yao, Lin, Cornell University, United States Baker, Jonathan, Weill Cornell Medicine, United States Ryou, Jae-Wook, Weill Cornell Medicine, United States Schiff, Nicholas, Weill Cornell Medicine, United States Purpura, Keith, Weill Cornell Medicine, United States Shoaran, Mahsa, Cornell University, United States

BIO-P4.4: THE EFFECT OF DATA AUGMENTATION ON CLASSIFICATION OF ATRIAL FIBRILLATION IN SHORT SINGLE-LEAD ECG SIGNALS USING DEEP NEURAL NETWORKS

Nejati Hatamian, Faezeh, Fraunhofer Institute for Integrated Circuits IIS, Germany Ravikumar, Nishant, University of Leeds, United Kingdom Vesal, Sulaiman, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Kemeth, Felix P., Fraunhofer Institute for Integrated Circuits IIS, Germany Struck, Matthias, Fraunhofer Institute for Integrated Circuits IIS, Germany Maier, Andreas, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

BIO-P4.5: ATRIAL FIBRILLATION RISK PREDICTION FROM ELECTROCARDIOGRAM AND RELATED HEALTH DATA WITH DEEP NEURAL NETWORK

Chen, Yi-Huan, University of Illinois at Chicago, United States Twing, Aamir Husain, University of Illinois Hospital, United States Badawi, Diaa, University of Illinois at Chicago, United States Danavi, Joseph, University of Illinois Hospital, United States McCauley, Mark, University of Illinois Hospital, United States Cetin, Ahmet Enis, University of Illinois at Chicago, United States

BIO-P4.6: ADAPTIVE REGION AGGREGATION NETWORK: UNSUPERVISED DOMAIN ADAPTATION WITH ADVERSARIAL TRAINING FOR ECG DELINEATION

Chen, Ming, Tsinghua University, China Wang, Guijin, Tsinghua University, China Chen, Hui, Tsinghua University, China Ding, Zijian, Tsinghua University, China

BIO-P4.7: MATCHING PURSUIT BASED DYNAMIC PHASE-AMPLITUDE COUPLING MEASURE

Munia, Tamanna Tabassum Khan, Michigan State University, United States Aviyente, Selin, Michigan State University, United States

BIO-P4.8: MULTITAPER SPECTRAL GRANGER CAUSALITY WITH APPLICATION TO SSVEP

Anderson, Rachele, Lund University, Sweden Sandsten, Maria, Lund University, Sweden

BIO-P4.9: CROSS-DOMAIN ADAPTATION FOR BIOMETRIC IDENTIFICATION USING PHOTOPLETHYSMOGRAM

Lee, Eugene, National Chiao Tung University, Taiwan Ho, Annie, National Chiao Tung University, Taiwan Wang, Yi-Ting, National Chiao Tung University, Taiwan Huang, Cheng-Han, National Chiao Tung University, Taiwan Lee, Chen-Yi, National Chiao Tung University, Taiwan

BIO-P4.10: EXPLORING BIO-BEHAVIORAL SIGNAL TRAJECTORIES OF STATE ANXIETY DURING PUBLIC SPEAKING

Nirjhar, Ehsanul Haque, Texas A&M University, United States Behzadan, Amir, Texas A&M University, United States Chaspari, Theodora, Texas A&M University, United States

BIO-P4.11: REAL-TIME HAND GESTURE RECOGNITION USING TEMPORAL MUSCLE ACTIVATION MAPS OF MULTI-CHANNEL SEMG SIGNALS

De Silva, Ashwin, University of Moratuwa, Sri Lanka Perera, Malsha Vijini, University of Moratuwa, Sri Lanka Wickramasinghe, Kithmin, University of Moratuwa, Sri Lanka Mohamed Naim, Asma, University of Moratuwa, Sri Lanka Lalitharatne, Thilina Dulantha, University of Moratuwa, Sri Lanka Kappel, Simon Lind, University of Moratuwa, Sri Lanka

BIO-P4.12: XCEPTIONTIME: INDEPENDENT TIME-WINDOW XCEPTIONTIME ARCHITECTURE FOR HAND GESTURE CLASSIFICATION

Rahimian, Elahe, Concordia University, Canada Zabihi, Soheil, Concordia University, Canada Atashzar, Farokh, New York University, United States Asif,

Amir, Concordia University, Canada Mohammadi, Arash, Concordia University, Canada

Friday, 8 May, 08:00 - 10:00

BIO-P5 - Bio Image and Signal Processing

BIO-P5.1: DISCOVERING CAUSALITIES FROM CARDIOTOCOGRAPHY SIGNALS USING IMPROVED CONVERGENT CROSS MAPPING WITH GAUSSIAN PROCESSES

Feng, Guanchao, Stony Brook University, United States Quirk, J. Gerald, Stony Brook University Hospital, United States Djuric, Petar, Stony Brook University, United States

BIO-P5.2: LAI-NET: LOCAL-ANCESTRY INFERENCE WITH NEURAL NETWORKS

Mas Montserrat, Daniel, Purdue University, United States Bustamante, Carlos, Stanford University, United States Ioannidis, Alexander, Stanford University, United States

BIO-P5.3: PREDICTION OF INDIVIDUAL PROGRESSION RATE IN PARKINSON'S DISEASE USING CLINICAL MEASURES AND BIOMECHANICAL MEASURES OF GAIT AND POSTURAL STABILITY

Raval, Vyom, University of Texas at Dallas, United States Nguyen, Kevin, University of Texas Southwestern Medical Center, United States Gerald, Ashley, University of Texas Southwestern Medical Center, United States Dewey, Richard, University of Texas Southwestern Medical Center, United States Montillo, Albert, University of Texas Southwestern Medical Center, United States

BIO-P5.4: DEEP MATRIX COMPLETION ON GRAPHS: APPLICATION IN DRUG TARGET INTERACTION PREDICTION

Mongia, Aanchal, Indian Institute of Technology Delhi, India Majumdar, Angshul, Indian Institute of Technology Delhi, India

BIO-P5.5: IDENTIFICATION OF ESSENTIAL PROTEINS USING A NOVEL MULTI-OBJECTIVE OPTIMIZATION METHOD

Wu, Chong, City University of Hong Kong, Hong Kong SAR of China Zhang, Houwang, China University of Geosciences, China Zhang, Le, Tongji University, China Zheng, Hanying, China University of Geosciences, China

BIO-P5.7: DEEP JAMES-STEIN NEURAL NETWORKS FOR BRAIN-COMPUTER INTERFACES

Angjelichinoski, Marko, Duke University, United States Soltani, Mohammadreza, Duke University, United States Choi, John, New York University, United States

Pesaran, Bijan, New York University, United States Tarokh, Vahid, Duke University, United States

BIO-P5.8: FORMULATING DIVERGENCE FRAMEWORK FOR MULTICLASS MOTOR IMAGERY EEG BRAIN COMPUTER INTERFACE

Kumar, Satyam, Indian Institute of Technology Kanpur, India Reddy, Tharun Kumar, Indian Institute of Technology Kanpur, India Arora, Vipul, Indian Institute of Technology Kanpur, India Behera, Laxmidhar, Indian Institute of Technology Kanpur, India

BIO-P5.9: SUBJECT TRANSFER FRAMEWORK BASED ON SOURCE SELECTION AND SEMI-SUPERVISED STYLE TRANSFER MAPPING FOR SEMG PATTERN RECOGNITION

Kanoga, Suguru, National Institute of Advanced Industrial Science and Technology (AIST), Japan Hoshino, Takayuki, National Institute of Advanced Industrial Science and Technology (AIST), Japan Asoh, Hideki, National Institute of Advanced Industrial Science and Technology (AIST), Japan

BIO-P5.10: DECODING MOVEMENT IMAGINATION AND EXECUTION FROM EEG SIGNALS USING BCI-TRANSFER LEARNING METHOD BASED ON RELATION NETWORK

Lee, Do-Yeun, Korea University, Korea (South) Jeong, Ji-Hoon, Korea University, Korea (South) Shim, Kyung-Hwan, Korea University, Korea (South) Lee, Seong-Whan, Korea University, Korea (South)

BIO-P5.11: CLASSIFICATION OF HIGH-DIMENSIONAL MOTOR IMAGERY TASKS BASED ON AN END-TO-END ROLE ASSIGNED CONVOLUTIONAL NEURAL NETWORK

Lee, Byeong-Hoo, Korea University, Korea (South) Jeong, Ji-Hoon, Korea University, Korea (South) Shim, Kyung-Hwan, Korea University, Korea (South) Lee, Seong-Whan, Korea University, Korea (South)

BIO-P5.12: CHANNEL SELECTION OVER RIEMANNIAN MANIFOLD WITH NON-STATIONARITY CONSIDERATION FOR BRAIN-COMPUTER INTERFACE APPLICATIONS

Sadatnejad, Khadijeh, INRIA sud-ouest, France Roc, Aline, INRIA sud-ouest, France Pillette, Lea, INRIA sud-ouest, France Appriou, Aurelien, INRIA sud-ouest, France Monseigne, Thibaut, INRIA sud-ouest, France Lotte, Fabien, INRIA sud-ouest, France

Friday, 8 May, 15:15 - 17:15

BIO-P6 - Biomedical Image Segmentation

BIO-P6.1: A SEGMENTATION BASED ROBUST DEEP LEARNING FRAMEWORK FOR MULTIMODAL RETINAL IMAGE REGISTRATION

Wang, Yiqian, University of California, San Diego, United States Zhang, Junkang, University of California, San Diego, United States An, Cheolhong, University of California, San Diego, United States Cavichini, Melina, University of California, San Diego, United States Jhingan, Mahima, University of California, San Diego, United States Amador-Patarroyo, Manuel J., University of California, San Diego, United States Long, Christopher P., University of California, San Diego, United States Bartsch, Dirk-Uwe G., University of California, San Diego, United States Freeman, William R., University of California, San Diego, United States Nguyen, Truong Q., University of California, San Diego, United States

BIO-P6.2: DENSE RESIDUAL NETWORK FOR RETINAL VESSEL SEGMENTATION

Guo, Changlu, Budapest University of Technology and Economics, Hungary Szemenyei, Márton, Budapest University of Technology and Economics, Hungary Yi, Yugen, Jiangxi Normal University, China Xue, Ying, Eötvös Loránd University, Hungary Zhou, Wei, Shenyang Aerospace University, China Li, Yangyuan, Budapest University of Technology and Economics, Hungary

BIO-P6.3: LIGHTWEIGHT V-NET FOR LIVER SEGMENTATION

Lei, Tao, Shaanxi University of Science and Technology, China Zhou, Wenzheng, Shaanxi University of Science and Technology, China Zhang, Yuxiao, Shaanxi University of Science and Technology, China Wang, Risheng, Shaanxi University of Science and Technology, China Meng, Hongying, Brunel University London, United Kingdom Nandi, Asoke K., Brunel University London, United Kingdom

BIO-P6.4: ACU-NET: A 3D ATTENTION CONTEXT U-NET FOR MULTIPLE SCLEROSIS LESION SEGMENTATION

Hu, Chuan, Ministry of Education Beijing University of Posts and Telecommunications, China Kang, Guixia, Ministry of Education Beijing University of Posts and Telecommunications, China Hou, Beibei, Ministry of Education Beijing University of Posts and Telecommunications, China Ma, Yiyuan, Ministry of Education Beijing University of Posts and Telecommunications, China Labeau, Fabrice, McGill University, Canada Su, Zichen, Ministry of Education Beijing University of Posts and Telecommunications, China

BIO-P6.5: EDNFC-NET: CONVOLUTIONAL NEURAL NETWORK WITH NESTED FEATURE CONCATENATION FOR NUCLEI-INSTANCE SEGMENTATION

Gehlot, Shiv, Indraprastha Institute of Information Technology Delhi, India Gupta, Anubha, Indraprastha Institute of Information Technology Delhi, India Gupta, Ritu, All India Institute of Medical Sciences, New Delhi, India

BIO-P6.6: AN UNSUPERVISED RETINAL VESSEL EXTRACTION AND SEGMENTATION METHOD BASED ON A TUBE MARKED POINT PROCESS MODEL

Li, Tianyu, Purdue University, United States Comer, Mary, Purdue University, United States Zerubia, Josiane, Inria and Université Côte d'Azur, France

BIO-P6.7: KALM: KEY AREA LOCALIZATION MECHANISM FOR ABNORMALITY DETECTION IN MUSCULOSKELETAL RADIOGRAPHS

Huang, Wei, Northwestern Polytechnical University, China Xiong, Zhitong, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

BIO-P6.8: COMBINING CGAN AND MIL FOR HOTSPOT SEGMENTATION IN BONE SCINTIGRAPHY

Xu, Hang, Shanghai Jiao Tong University, China Geng, Shijie, Shanghai Jiao Tong University, China Qiao, Yu, Shanghai Jiao Tong University, China Xu, Kuan, Shanghai Jiao Tong University, China Gu, Yueyang, Shanghai Jiao Tong University, China

BIO-P6.9: A NONINVASIVE METHOD TO DETECT DIABETES MELLITUS AND LUNG CANCER USING THE STACKED SPARSE AUTOENCODER

Zhang, Qi, University of Macau, Macao SAR of China Zhou, Jianhang, University of Macau, Macao SAR of China Zhang, Bob, University of Macau, Macao SAR of China

BIO-P6.10: A MULTI-SCALED RECEPTIVE FIELD LEARNING APPROACH FOR MEDICAL IMAGE SEGMENTATION

Guo, Pengcheng, Inner Mongolia University, China Su, Xiangdong, Inner Mongolia University, China Zhang, Haoran, Inner Mongolia University, China Wang, Meng, Inner Mongolia University, China Bao, Feilong, Inner Mongolia University, China

BIO-P6.11: AUTOMATIC DATA AUGMENTATION VIA DEEP REINFORCEMENT LEARNING FOR EFFECTIVE KIDNEY TUMOR SEGMENTATION

Qin, Tiexin, Nanjing University, China Wang, Ziyuan, Nanjing University, China He, Kelei, Nanjing University, China Shi, Yinghuan, Nanjing University, China Gao, Yang, Nanjing University, China Shen, Dinggang, University of North Carolina - Chapel Hill, United States

BIO-P6.12: CROSS-STAINED SEGMENTATION FROM RENAL BIOPSY IMAGES USING MULTI-LEVEL ADVERSARIAL LEARNING

Mei, Ke, Beijing University of Posts and Telecommunications, China Zhu, Chuang, Beijing University of Posts and Telecommunications, China Jiang, Lei, Peking University People's Hospital, China Liu, Jun, Beijing University of Posts and Telecommunications, China Qiao, Yuanyuan, Beijing University of Posts and Telecommunications, China

Computational Imaging

Thursday, 7 May, 09:00 - 11:00

CI-L1 - Computational Imaging

CI-L1.1: BLIND MULTI-SPECTRAL IMAGE PAN-SHARPENING

Yu, Lantao, Rice University, United States Liu, Dehong, Mitsubishi Electric Research Laboratories (MERL), United States Mansour, Hassan, Mitsubishi Electric Research Laboratories (MERL), United States Boufounos, Petros T., Mitsubishi Electric Research Laboratories (MERL), United States Ma, Yanting, Mitsubishi Electric Research Laboratories (MERL), United States

CI-L1.2: A FORWARD-BACKWARD ALGORITHM FOR REWEIGHTED PROCEDURES: APPLICATION TO RADIO-ASTRONOMICAL IMAGING

Repetti, Audrey, Heriot-Watt University, United Kingdom Wiaux, Yves, Heriot-Watt University, United Kingdom

CI-L1.3: CRA: A GENERIC COMPRESSION RATIO ADAPTER FOR END-TO-END DATA-DRIVEN IMAGE COMPRESSIVE SENSING RECONSTRUCTION FRAMEWORKS

Zhang, Zhikang, Arizona State University, United States Xu, Kai, Arizona State University, United States Ren, Fengbo, Arizona State University, United States

CI-L1.4: REVEALING HIDDEN DRAWINGS IN LEONARDO'S 'THE VIRGIN OF THE ROCKS' FROM MACRO X-RAY FLUORESCENCE SCANNING DATA THROUGH ELEMENT LINE LOCALISATION

Yan, Su, Imperial College London, United Kingdom Huang, Jun-Jie, Imperial College London, United Kingdom Daly, Nathan, The National Gallery, United Kingdom Higgitt, Catherine, The National Gallery, United Kingdom Dragotti, Pier Luigi, Imperial College London, United Kingdom

CI-L1.5: 3D UNKNOWN VIEW TOMOGRAPHY VIA ROTATION INVARIANTS

Zehni, Mona, University of Illinois at Urbana-Champaign, United States Huang, Shuai, University of Illinois at Urbana-Champaign, United States Dokmanic, Ivan, University of Illinois at Urbana-Champaign, United States Zhao, Zhizhen, University of Illinois at Urbana-Champaign, United States

CI-L1.6: MODELLING SEA CLUTTER IN SAR IMAGES USING LAPLACE-RICIAN DISTRIBUTION

Karakus, Oktay, University of Bristol, United Kingdom Kuruoglu, Ercan E., Tsinghua-Berkeley Shenzhen Institute, China Achim, Alin, University of Bristol, United Kingdom

Thursday, 7 May, 16:30 - 18:30

CI-L2 - Computational Optics

CI-L2.1: VOLUME RECONSTRUCTION FOR LIGHT FIELD MICROSCOPY

Verinaz-Jadan, Herman, Imperial College London, United Kingdom Song, Pingfan, Imperial College London, United Kingdom Howe, Carmel L., Imperial College London, United Kingdom Foust, Amanda J., Imperial College London, United Kingdom Dragotti, Pier Luigi, Imperial College London, United Kingdom

CI-L2.2: DEEP EXPOSURE FUSION WITH DEGHOSTING VIA HOMOGRAPHY ESTIMATION AND ATTENTION LEARNING

Chen, Sheng-Yeh, National Taiwan University, Taiwan Chuang, Yung-Yu, National Taiwan University, Taiwan

CI-L2.3: SINGLE-SHOT REAL-TIME MULTIPLE-PATH TIME-OF-FLIGHT DEPTH IMAGING FOR MULTI-APERTURE AND MACRO-PIXEL SENSORS

Heredia Conde, Miguel, University of Siegen, Germany Kagawa, Keiichiro, Shizuoka University, Japan Kokado, Tomoya, Shizuoka University, Japan Kawahito, Shoji, Shizuoka University, Japan Loffeld, Otmar, University of Siegen, Germany

CI-L2.4: FAST OPTICAL SYSTEM IDENTIFICATION BY NUMERICAL INTERFEROMETRY

Gupta, Sidharth, University of Illinois at Urbana-Champaign, United States Gribonval, Rémi, Inria, France Daudet, Laurent, LightOn, France Dokmanić, Ivan, University of Illinois at Urbana-Champaign, United States

CI-L2.5: FOURIER PHASE RETRIEVAL WITH ARBITRARY REFERENCE SIGNAL

Arab, Fahimeh, University of California, Riverside, United States Asif, M. Salman, University of California, Riverside, United States

CI-L2.6: PRECONDITIONED GHOST IMAGING VIA SPARSITY CONSTRAINT

Tong, Zhishen, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China Wang, Jian, Fudan University, China Han, Shensheng, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China

Wednesday, 6 May, 11:30 - 13:30

CI-P1 - Computational Imaging Method and Applications

CI-P1.1: MULTISPECTRAL FUSION OF RGB AND NIR IMAGES USING WEIGHTED LEAST SQUARES AND ALTERNATING GUIDANCE

Zhou, Kailong, Xidian University, China Jung, Cheolkon, Xidian University, China

CI-P1.2: COLOR AND ANGULAR RECONSTRUCTION OF LIGHT FIELDS FROM INCOMPLETE-COLOR CODED PROJECTIONS

Nguyen, Hoai-Nam, Inria Rennes - Bretagne Atlantique, France Guillemot, Christine, Inria Rennes - Bretagne Atlantique, France

CI-P1.3: CROSS IMAGE CUBIC INTERPOLATOR FOR SPATIALLY VARYING EXPOSURES

Li, Zhengguo, Institute for Infocomm Research, Singapore Zheng, Jinghong, Institute for Infocomm Research, Singapore Xie, Shoulie, Institute for Infocomm Research, Singapore Shu, Haiyan, Institute for Infocomm Research, Singapore

CI-P1.4: DISCRIMINANT AND SPARSITY BASED LEAST SQUARES REGRESSION WITH L1 REGULARIZATION FOR FEATURE REPRESENTATION

Zhao, Shuping, University of Macau, China Zhang, Bob, University of Macau, China Li, Shuyi, University of Macau, China

CI-P1.5: DEEP META-RELATION NETWORK FOR VISUAL FEW-SHOT LEARNING

Zhang, Fahong, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

CI-P1.6: A SEMI-SUPERVISED RANK TRACKING ALGORITHM FOR ON-LINE UNMIXING OF HYPERSPECTRAL IMAGES

Nus, Ludivine, Université de Lorraine, France Miron, Sebastian, Université de Lorraine, France Jaillais, Benoît, INRA-ONIRIS, StatSC Unité de Statistique, Sensométrie, Chimiométrie, France Moussaoui, Said, Ecole Centrale Nantes, France Brie, David, Université de Lorraine, France

CI-P1.7: INVERSE MULTIPLE SCATTERING WITH PHASELESS MEASUREMENTS

Lodhi, Muhammad Asad, Rutgers University, United States Ma, Yanting, Mitsubishi Electric Research Laboratories (MERL), United States Mansour, Hassan, Mitsubishi Electric Research Laboratories (MERL), United States

Boufounos, Petros T., Mitsubishi Electric Research Laboratories (MERL), United States Liu, Dehong, Mitsubishi Electric Research Laboratories (MERL), United States

CI-P1.8: MULTI-POLARIZATION INFORMATION FUSION FOR OBJECT CONTOUR DISPLAY IN PASSIVE MILLIMETER-WAVE AND TERAHERTZ SECURITY IMAGING

Cheng, Yayun, Tsinghua University, China Zhao, Ziran, Tsinghua University, China Wang, Yingxin, Tsinghua University, China Niu, Yingying, Tsinghua University, China

CI-P1.9: CHARACTERIZATION OF A SNAPSHOT FOURIER TRANSFORM IMAGINGSPECTROMETER BASED ON AN ARRAY OF FABRY-PEROT INTERFEROMETERS

Picone, Daniele, Grenoble Images Parole Signal Automatique (GIPSA-lab), France Dolet, Aneline, Grenoble Images Parole Signal Automatique (GIPSA-lab), France Gousset, Silvère, Institut de Planétologie et d'Astrophysique de Grenoble (IPAG), France Voisin, Didier, Institut Géosciences de l'Environnement (IGE), France Dalla Mura, Mauro, Grenoble Images Parole Signal Automatique (GIPSA-lab), France Le Coarer, Etienne, Institut de Planétologie et d'Astrophysique de Grenoble (IPAG), France

CI-P1.10: SHADOW REMOVAL OF TEXT DOCUMENT IMAGES BY ESTIMATING LOCAL AND GLOBAL BACKGROUND COLORS

Wang, Jian-Ren, National Taiwan University, Taiwan Chuang, Yung-Yu, National Taiwan University, Taiwan

CI-P1.11: AN EFFICIENT COUPLED DICTIONARY LEARNING METHOD

Veshki, Farshad G., Aalto University, Finland Vorobyov, Sergiy A., Aalto University, Finland

Collaborative Sessions

Thursday, 7 May, 16:30 - 18:30

COLL-L1 - Session 3H: Processing of Highly complex, Heterogeneous, High-dimension data

COLL-L1.1: IMAGE FUSION USING JOINT SPARSE REPRESENTATIONS AND COUPLED DICTIONARY LEARNING

Ghorbani Veshki, Farshad, Aalto university, Finland Ouzir, Nora, Aalto university, Finland Vorobyov, Sergiy A., Aalto University, Finland

COLL-L1.2: CLUSTERING OF NONNEGATIVE DATA AND AN APPLICATION TO MATRIX COMPLETION

Strohmeier, Christopher, University of California, Los Angeles, United States Needell, Deanna, University of California, Los Angeles, United States

COLL-L1.3: SAMPLING OF SURFACES AND LEARNING FUNCTIONS IN HIGH DIMENSIONS

Zou, Qing, University of Iowa, United States Jacob, Mathews, University of Iowa, United States

COLL-L1.4: STOCK MOVEMENT PREDICTION THAT INTEGRATES HETEROGENEOUS DATA SOURCES USING DILATED CAUSAL CONVOLUTION NETWORKS WITH ATTENTION

Daiya, Divyanshu, LNM Institute of Information Technology, India Wu, Min-Sheng, National Tsing Hua University, Taiwan Lin, Che, National Taiwan University, Taiwan

COLL-L1.5: LARGE-SCALE WEAKLY-SUPERVISED CONTENT EMBEDDINGS FOR MUSIC RECOMMENDATION AND TAGGING

Huang, Qingqing, Google, United States Jansen, Aren, Google, United States Zhang, Li, Google, United States Ellis, Daniel P. W., Google Research, United States Saurous, Rif A., Google, United States Anderson, John, Google, United States

COLL-L1.6: SUPERVISED CANONICAL CORRELATION ANALYSIS OF DATA ON SYMMETRIC POSITIVE DEFINITE MANIFOLDS BY RIEMANNIAN DIMENSIONALITY REDUCTION

Fallah, Faezeh, University of Stuttgart, Germany Yang, Bin, University of Stuttgart, Germany

Friday, 8 May, 08:00 - 10:00

COLL-L2 - Session 3R: Robustness Reproducibility Replicability

COLL-L2.1: THE EMPIRICAL DUALITY GAP OF CONSTRAINED STATISTICAL LEARNING

Chamon, Luiz, University of Pennsylvania, United States Paternain, Santiago, University of Pennsylvania, United States Calvo-Fullana, Miguel, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

COLL-L2.2: CONTEXT AND UNCERTAINTY MODELING FOR ONLINE SPEAKER CHANGE DETECTION

Aronowitz, Hagai, IBM Research AI, Israel Zhu, Weizhong, IBM Research AI, United States

COLL-L2.3: MODELING UNCERTAINTY IN PREDICTING EMOTIONAL ATTRIBUTES FROM SPONTANEOUS SPEECH

Sridhar, Kusha, University of Texas at Austin, United States Busso, Carlos, University of Texas at Austin, United States

COLL-L2.4: ACCURACY-ROBUSTNESS TRADE-OFF FOR POSITIVELY WEIGHTED NEURAL NETWORKS

Neacsu, Ana, University Politehnica of Bucharest, Romania Pesquet, Jean-Christophe, Université Paris-Saclay, CentraleSupélec, Inria, France Burileanu, Corneliu, University Politehnica of Bucharest, Romania

COLL-L2.5: TOWARDS A NEW UNDERSTANDING OF THE TRAINING OF NEURAL NETWORKS WITH MISLABELED TRAINING DATA

Gish, Herbert, Raytheon BBN Technologies, United States Silovsky, Jan, Apple, United States Sung, Man-Ling, Chinese University of Hong Kong, China Siu, Man-Hung, Apple, United States Hartmann, William, Raytheon BBN Technologies, United States Jiang, Zhuolin, Raytheon BBN Technologies, United States

COLL-L2.6: ON NETWORK SCIENCE AND MUTUAL INFORMATION FOR EXPLAINING DEEP NEURAL NETWORKS

Davis, Brian, Carnegie Mellon University, United States Bhatt, Umang, Carnegie Mellon University, United States Bhardwaj, Kartikeya, Carnegie Mellon University, United States Marculescu, Radu, Carnegie Mellon University, United States Moura, José, Carnegie Mellon University, United States

Design and Implementation of Signal Processing Systems

Wednesday, 6 May, 11:30 - 13:30

DIS-L1 - Array-based Architectures for Energy-efficient Signal Processing Systems

DIS-L1.1: EXPLORING ENERGY EFFICIENT QUANTUM-RESISTANT SIGNAL PROCESSING USING ARRAY PROCESSORS

Nejatollahi, Hamid, University of California, Irvine, United States Shahhosseini, Sina, University of California, Irvine, United States Cammarota, Rosario, Intel AI, Privacy and Security Research, United States Dutt, Nikil, University of California, Irvine, United States

DIS-L1.2: DMAZERUNNER: OPTIMIZING CONVOLUTIONS ON DATAFLOW ACCELERATORS

Dave, Shail, Arizona State University, United States Shrivastava, Aviral, Arizona State University, United States Kim, Youngbin, Yonsei University, Korea (South) Avancha, Sasikanth, Intel, India Lee, Kyoungwoo, Yonsei University, Korea (South)

DIS-L1.3: EXPLORATION METHODOLOGY FOR BTI-INDUCED FAILURES ON RRAM-BASED EDGE AI SYSTEMS

Levisse, Alexandre, Embedded Systems Laboratory (ESL) EPFL, Switzerland Rios, Marco, Embedded Systems Laboratory (ESL) EPFL, Switzerland Peon, Miguel, Embedded Systems Laboratory (ESL) EPFL, Switzerland Atienza, David, Embedded Systems Laboratory (ESL) EPFL, Switzerland

DIS-L1.4: TIME-PREDICTABLE SOFTWARE-DEFINED ARCHITECTURE WITH SDF-BASED COMPILER FLOW FOR 5G BASEBAND PROCESSING

Venkataramani, Vanchinathan, National University of SIngapore, Singapore Bodin, Bruno, National University of SIngapore, Singapore Kulkarni, Aditi, National University of SIngapore, Singapore Mitra, Tulika, National University of SIngapore, Singapore Peh, Li-Shiuan, National University of SIngapore, Singapore

DIS-L1.5: ACCELERATING LINEAR ALGEBRA KERNELS ON A MASSIVELY PARALLEL RECONFIGURABLE ARCHITECTURE

Soorishetty, Anuraag, Arizona State University, United States Zhou, Jian, Arizona State University, United States Pal, Subhankar, University of Michigan, United States Blaauw, David, University of Michigan, United States Kim, Hun-Seok, University of Michigan, United States Mudge, Trevor, University of Michigan, United States Dreslinski, Ronald, University of Michigan, United States Chakrabarti, Chaitali, Arizona State University, United States

DIS-L1.6: ENERGY EFFICIENT ACCELERATION OF FLOATING POINT APPLICATIONS ONTO CGRA

Das, Satyajit, Indian Institute of Technology Palakkad, India Prasad, Rohit, Universite Bretagne-Sud, France Martin, Kevin J. M., Universite Bretagne-Sud, France Coussy, Philippe, Universite Bretagne-Sud, France

Tuesday, 5 May, 16:30 - 18:30

DIS-P1 - Signal Processing for Emerging Applications: Machine Learning

DIS-P1.1: FAST AND ACCURATE EMBEDDED DCNN FOR RGB-D BASED SIGN LANGUAGE RECOGNITION

Wang, Ching-Chen, National Tsing Hua University, Taiwan Chiu, Ching-Te, National Tsing Hua University, Taiwan Huang, Chao-Tsung, National Tsing Hua University, Taiwan Ding, Yu-Chun, National Tsing Hua University, Taiwan Wang, Li-Wei, National Tsing Hua University, Taiwan

DIS-P1.2: D2NA: DAY-TO-NIGHT ADAPTATION FOR VISION BASED PARKING MANAGEMENT SYSTEM

Zheng, Wei-Zhong, National Chung Cheng University, Taiwan Tran, Vu-Hoang, Ho Chi Minh City University of Technology and Education, Viet Nam Huang, Ching-Chun, National Chiao Tung University, Taiwan

DIS-P1.3: ENERGAN: A GENERATIVE ADVERSARIAL NETWORK FOR ENERGY DISAGGREGATION

Kaselimi, Maria, National Technical University of Athens, Greece Voulodimos, Athanasios, University of West Attica, Greece Protopapadakis, Eftychios, National Technical University of Athens, Greece Doulamis, Nikolaos, National Technical University of Athens, Greece Doulamis, Anastasios, National Technical University of Athens, Greece

DIS-P1.4: ENHANCING THE LABELLING OF AUDIO SAMPLES FOR AUTOMATIC INSTRUMENT CLASSIFICATION BASED ON NEURAL NETWORKS

Castel-Branco, Gonçalo, Instituto de Telecomunicações, University of Coimbra, Portugal Falcao, Gabriel, Instituto de Telecomunicações, University of Coimbra, Portugal Perdigão, Fernando, Instituto de Telecomunicações, University of Coimbra, Portugal

DIS-P1.5: DEEP-NEURAL-NETWORK BASED FALL-BACK MECHANISM IN INTERFERENCE-AWARE RECEIVER DESIGN

Hu, Sha, Huawei Sweden, Sweden Hu, Wenquan, Huawei Sweden, Sweden Kapetanovic, Dzevdan, Huawei Sweden, Sweden Wang, Neng, Huawei Sweden, Sweden

DIS-P1.6: DNN-CHIP PREDICTOR: AN ANALYTICAL PERFORMANCE PREDICTOR FOR DNN ACCELERATORS WITH VARIOUS DATAFLOWS AND HARDWARE ARCHITECTURES

Zhao, Yang, Rice University, United States Li, Chaojian, Rice University, United States Wang, Yue, Rice University, United States Xu, Pengfei, Rice University, United States Zhang, Yongan, Rice University, United States Lin, Yingyan, Rice University, United States

DIS-P1.7: LOW-COMPLEXITY FIXED-POINT CONVOLUTIONAL NEURAL NETWORKS FOR AUTOMATIC TARGET RECOGNITION

Dbouk, Hassan, University of Illinois at Urbana-Champaign, United States Geng, Hanfei, University of Illinois at Urbana-Champaign, United States Vineyard, Craig M., Sandia National Laboratories, United States Shanbhag, Naresh R., University of Illinois at Urbana-Champaign, United States

DIS-P1.8: ACCELERATING DISTRIBUTED DEEP LEARNING BY ADAPTIVE GRADIENT QUANTIZATION

Guo, Jinrong, Institute of Information Engineering, Chinese Academy of Sciences; School of Cyber Security, University of Chinese Academy of Sciences, China Liu, Wantao, Institute of Information Engineering, Chinese Academy of Sciences, China Wang, Wang, Institute of Information Engineering, Chinese Academy of Sciences; School of Cyber Security, University of Chinese Academy of Sciences, China Han, Jizhong, Institute of Information Engineering, Chinese Academy of Sciences, China Li, Ruixuan, Institute of Information Engineering, Chinese Academy of Sciences, China Lu, Yijun, Alibaba Cloud Computing Co. Ltd., China Hu, Songlin, Institute of Information Engineering, Chinese Academy of Sciences; School of Cyber Security, University of Chinese Academy of Sciences, China

DIS-P1.9: LUPULUS: A FLEXIBLE HARDWARE ACCELERATOR FOR NEURAL NETWORKS

Kristensen, Andreas Toftegaard, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Giterman, Robert, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Balatsoukas-Stimming, Alexios, Eindhoven University of Technology, Switzerland Burg, Andreas, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

DIS-P1.10: DEPTH ESTIMATION FROM SINGLE IMAGE THROUGH MULTI-PATH-MULTI-RATE DIVERSE FEATURE EXTRACTOR

Lo, Wen-Yi, National Tsing Hua University, Taiwan Chiu, Ching-Te, National Tsing Hua University, Taiwan Luo, Jie-Yu, National Tsing Hua University, Taiwan

DIS-P1.11: OBJECT DETECTION WITH COLOR AND DEPTH IMAGES WITH MULTI-REDUCED REGION PROPOSAL NETWORK AND MULTI-POOLING

Lin, Jiou-Ai, National Tsing Hua University, Taiwan Chiu, Ching-Te, National Tsing Hua University, Taiwan Cheng, Yen-Yu, National Tsing Hua University, Taiwan

DIS-P1.12: DEBLURRING AND SUPER-RESOLUTION USING DEEP GATED FUSION ATTENTION NETWORKS FOR FACE IMAGES

Yang, Chao-Hsun, National Tsing Hua University, Taiwan Chang, Long-Wen, National Tsing Hua University, Taiwan

Thursday, 7 May, 16:30 - 18:30

DIS-P2 - Algorithm and Architecture Co-optimization

DIS-P2.1: INDOOR HEADING DIRECTION ESTIMATION USING RF SIGNALS

Fan, Yusen, University of Maryland, United States Zhang, Feng, Origin Wireless Inc, United States Wu, Chenshu, University of Maryland, United States Wang, Beibei, Origin Wireless Inc, United States Liu, K. J. Ray, University of Maryland, College Park, United States

DIS-P2.2: AN IMPROVED SELECTIVE ACTIVE NOISE CONTROL ALGORITHM BASED ON EMPIRICAL WAVELET TRANSFORM

Wen, Shulin, Nanyang Technological University, Singapore Gan, Woon-Seng, Nanyang Technological University, Singapore Shi, Dongyuan, Nanyang Technological University, Singapore

DIS-P2.3: TOWARDS REAL-TIME, MULTI-VIEW VIDEO STEREOPSIS

Ke, Jianwei, University of Wisconsin-Madison, United States Watras, Alex, University of Wisconsin-Madison, United States Kim, Jae-Jun, University of Wisconsin-Madison, United States Liu, Hewei, University of Wisconsin-Madison, United States Jiang, Hongrui, University of Wisconsin-Madison, United States Hu, Yu Hen, University of Wisconsin-Madison, United States

DIS-P2.4: ERNET FAMILY: HARDWARE-ORIENTED CNN MODELS FOR COMPUTATIONAL IMAGING USING BLOCK-BASED INFERENCE

Huang, Chao-Tsung, National Tsing Hua University, Taiwan

DIS-P2.5: A DSP ACCELERATION FRAMEWORK FOR SOFTWARE-DEFINED RADIOS ON X86_64

Georgis, Georgios, University of Surrey, United Kingdom Thanos, Alexios, University of Surrey, United Kingdom Filo, Marcin, University of Surrey, United Kingdom Nikitopoulos, Konstantinos, University of Surrey, United Kingdom

DIS-P2.6: FAST SINGLE-VIEW 3D OBJECT RECONSTRUCTION WITH FINE DETAILS THROUGH DILATED DOWNSAMPLE AND MULTI-PATH UPSAMPLE DEEP NEURAL NETWORK

Hsu, Chia-Ho, National Tsing Hua University, Taiwan Chiu, Ching-Te, National Tsing Hua University, Taiwan Kuan, Chia-Yu, National Tsing Hua University, Taiwan

DIS-P2.7: PROCESSING CONVOLUTIONAL NEURAL NETWORKS ON CACHE

Vieira, João, INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal Roma, Nuno, INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal Falcao, Gabriel, Instituto de Telecomunicações, University of Coimbra, Portugal Tomás, Pedro, INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal

DIS-P2.8: LIGHTWEIGHT HARDWARE IMPLEMENTATION OF VVC TRANSFORM BLOCK FOR ASIC DECODER

Farhat, Ibrahim, VITEC, France Hamidouche, Wassim, INSA Rennes, France Grill, Adrien, VITEC, France Menard, Daniel, INSA Rennes, France Déforges, Olivier, Institut d'Electronique et de Télécommunications de Rennes / Institut Nationnal des Sciences Appliquées, France

DIS-P2.9: RGB-D BASED MULTI-MODAL DEEP LEARNING FOR FACE IDENTIFICATION

Lin, Tzu-Ying, National Tsing Hua University, Taiwan Chiu, Ching-Te, National Tsing Hua University, Taiwan Tang, Ching-Tung, National Tsing Hua University, Taiwan

DIS-P2.10: A REAL TIME IMPLEMENTATION OF A BAYER DOMAIN IMAGE DEBLURRING CORE FOR OPTICAL BLUR COMPENSATION

Lee, Han-Sol, Samsung Electronics, Korea (South) Heo, Eundoo, Samsung Electronics, Korea (South) Lee, Wonseok, Samsung Electronics, Korea (South) Ahn, Do-Chang, Samsung Electronics, Korea (South) Cheon, Jeonghyeon, Samsung Electronics, Korea (South) Kim, Kyungho, Samsung Electronics, Korea (South) Lee, Kyunghwan, Samsung Electronics, Korea (South) Lee, Jeongguk, Samsung Electronics, Korea (South) Choi, Yunseok, Samsung Electronics, Korea (South) Chang, Soonkeun, Samsung Electronics, Korea (South)

DIS-P2.11: SELF-ATTENTIVE SENTIMENTAL SENTENCE EMBEDDING FOR SENTIMENT ANALYSIS

Lin, Sheng-Chieh, Academia Sinica, Taiwan Su, Wen-Yuh, National Chengchi University, Taiwan Chien, Po-Chuan, Academia Sinica, Taiwan Tsai, Ming-Feng, National Chengchi University, Taiwan Wang, Chuan-Ju, Academia Sinica, Taiwan

DIS-P2.12: DECIDABLE VARIABLE-RATE DATAFLOW FOR HETEROGENEOUS SIGNAL PROCESSING SYSTEMS

Ma, Yujunrong, University of Maryland, United States Wu, Jiahao, University of Maryland, United States Bhattacharyya, Shuvra, University of Maryland, United States Boutellier, Jani, University of Vaasa, Finland

Friday, 8 May, 11:45 - 13:45

DIS-P3 - Design and Implementation of Signal Processing Systems for Wireless Communication Systems

DIS-P3.1: BACK-TO-BACK BUTTERFLY NETWORK, AN ADAPTIVE PERMUTATION NETWORK FOR NEW COMMUNICATION STANDARDS

Harb, Hassan, Lab-STICC, France Chavet, Cyrille, Lab-STICC, France

DIS-P3.2: 1.5GBIT/S 4.9W HYPERSPECTRAL IMAGE ENCODERS ON A LOW-POWER PARALLEL HETEROGENEOUS PROCESSING PLATFORM

Ferraz, Óscar, Instituto de Telecomunicações, University of Coimbra, Portugal Silva, Vitor, Instituto de Telecomunicações, University of Coimbra, Portugal Falcao, Gabriel, Instituto de Telecomunicações, University of Coimbra, Portugal

DIS-P3.3: DESIGN OF A CONVERGENCE-AWARE BASED EXPECTATION PROPAGATION ALGORITHM FOR UPLINK MIMO SCMA SYSTEMS

Lin, Jih-Yang, National Central University, Taiwan Tsai, Pei-Yun, National Central University, Taiwan

DIS-P3.4: BIPARTITE BELIEF PROPAGATION POLAR DECODING WITH BIT-FLIPPING

Gong, Zihao, Southeast University, China Shen, Yifei, Southeast University, China Ji, Houren, Southeast University, China Song, Wenqing, Nanjing University, China Zhang, Zaichen, Southeast University, China You, Xiaohu, Southeast University, China Zhang, Chuan, Southeast University, China

DIS-P3.5: LOW-COMPLEXITY LSTM-ASSISTED BIT-FLIPPING ALGORITHM FOR SUCCESSIVE CANCELLATION LIST POLAR DECODER

Chen, Chun-Hsiang, National Taiwan University, Taiwan Teng, Chieh-Fang, National Taiwan University, Taiwan Wu, An-Yeu, National Taiwan University, Taiwan

DIS-P3.6: ADAPTIVE NORMALIZATION FOR FORECASTING LIMIT ORDER BOOK DATA USING CONVOLUTIONAL NEURAL NETWORKS

Passalis, Nikolaos, Aristotle University of Thessaloniki, Greece Tefas, Anastasios, Aristotle University of Thessaloniki, Greece Kanniainen, Juho, Tampere University, Finland Gabbouj, Moncef, Tampere University, Finland Iosifidis, Alexandros, Aarhus University, Denmark

DIS-P3.7: GREEDY HYBRID RATE ADAPTATION IN DYNAMIC WIRELESS COMMUNICATION ENVIRONMENT

Zhao, Yapeng, Shanghai University, China Kang, Kai, Shanghai Advanced Research Institute, Chinese Academy of Sciences, China Qian, Hua, Shanghai Advanced Research Institute, Chinese Academy of Sciences, China Luo, Xiliang, ShanghaiTech University, China Jin, Yanliang, Shanghai University, China

DIS-P3.8: A WIFI-BASED PASSIVE FALL DETECTION SYSTEM

Hu, Yuqian, University of Maryland, College Park, United States Zhang, Feng, University of Maryland, College Park, United States Wu, Chenshu, University of Maryland, College Park, United States Wang, Beibei, University of Maryland, College Park, United States Liu, K. J. Ray, University of Maryland, College Park, United States

DIS-P3.9: PROGRAMMABLE DATAFLOW ACCELERATORS: A 5G OFDM MODULATION/DEMODULATION CASE STUDY

Wu, Yun, Queen's University Belfast, United Kingdom Wang, Peng, Queen's University Belfast, United Kingdom McAllister, John, Queen's University Belfast, United Kingdom

DIS-P3.10: SIMPLIFIED DYNAMIC SC-FLIP POLAR DECODING

Ercan, Furkan, McGill University, Canada Tonnellier, Thibaud, McGill University, Canada Doan, Nghia, McGill University, Canada Gross, Warren J., McGill University, Canada

DIS-P3.11: REAL-TIME, UNIVERSAL, AND ROBUST ADVERSARIAL ATTACKS AGAINST SPEAKER RECOGNITION SYSTEMS

Xie, Yi, Rutgers University, United States Shi, Cong, Rutgers University, United States Li, Zhuohang, University of Tennessee, Knoxville, United States Liu, Jian, University of Tennessee, Knoxville, United States Chen, Yingying, Rutgers University, United States Yuan, Bo, Rutgers University, United States

DIS-P3.12: AN ODORANT ENCODING MACHINE FOR SAMPLING, RECONSTRUCTION AND ROBUST REPRESENTATION OF ODORANT IDENTITY

Lazar, Aurel A., Columbia University, United States Liu, Tingkai, Columbia University, United States Yeh, Chung-Heng, Columbia University, United States

Friday, 8 May, 15:15 - 17:15

DIS-P4 - Design and Implementation of Emerging Signal Processing Systems

DIS-P4.1: FIR FILTER DESIGN AND IMPLEMENTATION FOR PHASE-BASED PROCESSING

Huang, Shih-Yao, National Tsing Hua University, Taiwan Chen, Wei-Chih, National Tsing Hua University, Taiwan Huang, Chao-Tsung, National Tsing Hua University, Taiwan

DIS-P4.2: FIXED-POINT OPTIMIZATION OF TRANSFORMER NEURAL NETWORK

Boo, Yoonho, Seoul National University, Korea (South) Sung, Wonyong, Seoul National University, Korea (South)

DIS-P4.3: A FIFO BASED ACCELERATOR FOR CONVOLUTIONAL NEURAL NETWORKS

Panchbhaiyye, Vineet, Santa Clara University, United States Ogunfunmi, Tokunbo, Santa Clara University, United States

DIS-P4.4: SOFT-OUTPUT FINITE ALPHABET EQUALIZATION FOR MMWAVE MASSIVE MIMO

Castañeda, Oscar, Cornell Tech, United States Jacobsson, Sven, Ericsson Research, Sweden Durisi, Giuseppe, Chalmers University of Technology, Sweden Goldstein, Tom, University of Maryland, United States Studer, Christoph, Cornell Tech, United States

DIS-P4.5: DIVERSITY AND SPARSITY: A NEW PERSPECTIVE ON INDEX TRACKING

Zheng, Yu, Southwestern University of Finance and Economics, China Hospedales, Timothy M., University of Edinburgh, United Kingdom Yang, Yongxin, University of Edinburgh, United Kingdom

DIS-P4.6: SPARSE BEAMSPACE EQUALIZATION FOR MASSIVE MU-MIMO MMWAVE SYSTEMS

Mirfarshbafan, Seyed Hadi, Cornell Tech, United States Studer, Christoph, Cornell Tech, United States

DIS-P4.7: THRESHOLD-ADJUSTED ORB STRATEGIES WITH GENETIC ALGORITHM AND PROTECTIVE CLOSING STRATEGY ON TAIWAN FUTURES MARKET

Syu, Jia-Hao, National Taiwan University, Taiwan Wu, Mu-En, National Taipei University of Technology, Taiwan Chen, Chun-Hao, Tamkang University, Taiwan Ho, Jan-Ming, Academia Sinica, Taiwan

DIS-P4.8: CAN EVERY ANALOG SYSTEM BE SIMULATED ON A DIGITAL COMPUTER?

Boche, Holger, Technische Universität München, Germany Pohl, Volker, Technische Universität München, Germany

DIS-P4.9: LOW-COMPLEXITY COMPRESSED ALIGNMENT-AIDED COMPRESSIVE ANALYSIS FOR REAL-TIME ELECTROCARDIOGRAPHY TELEMONITORING

Pua, Yo-Woei, National Taiwan University, Taiwan Chou, Ching-Yao, National Taiwan University, Taiwan Wu, An-Yeu, National Taiwan University, Taiwan

DIS-P4.10: REDUCED-COMPLEXITY SINGULAR VALUE DECOMPOSITION FOR TUCKER DECOMPOSITION: ALGORITHM AND HARDWARE

Hu, Xiaofeng, Rutgers University, United States Deng, Chunhua, Rutgers University, United States Yuan, Bo, Rutgers University, United States

DIS-P4.11: AN EARLY TERMINATION SCHEME FOR SUCCESSIVE CANCELLATION LIST DECODING OF POLAR CODES

Lee, Huang-Chang, Chang Gung University, Taiwan Pao, Yu-Sheng, Tsing Hua University, Taiwan Chi, Cheng-Yi, Tsing Hua University, Taiwan Lee, Hsin-Yu, Tsing Hua University, Taiwan Ueng, Yeong-Luh, Tsing Hua University, Taiwan

DIS-P4.12: LOW-LATENCY LIGHTWEIGHT STREAMING SPEECH RECOGNITION WITH 8-BIT QUANTIZED SIMPLE GATED CONVOLUTIONAL NEURAL NETWORKS

Park, Jinhwan, Seoul National University, Korea (South) Qian, Xue, Seoul National University, Korea (South) Jo, Youngmin, Seoul National University, Korea (South) Sung, Wonyong, Seoul National University, Korea (South)

Human Language Technology

Thursday, 7 May, 09:00 - 11:00

HLT-L1 - Spoken Language Translation

HLT-L1.1: END-END SPEECH-TO-TEXT TRANSLATION WITH MODALITY AGNOSTIC META-LEARNING

Indurthi, Sathish Reddy, Samsung Research, Korea (South) Han, Houjeung, Samsung Research, Korea (South) Lakumarapu, Nikhil Kumar, Samsung Research, Korea (South) Lee, Beomseok, Samsung Research, Korea (South) Chung, Insoo, Samsung Research, Korea (South) Kim, Sangha, Samsung Research, Korea (South) Kim, Chanwoo, Samsung Research, Korea (South)

HLT-L1.2: ANALYZING ASR PRETRAINING FOR LOW-RESOURCE SPEECH-TO-TEXT TRANSLATION

Stoian, Mihaela C., University of Edinburgh, Romania Bansal, Sameer, University of Edinburgh, United Kingdom Goldwater, Sharon, University of Edinburgh, United Kingdom

HLT-L1.3: INSTANCE-BASED MODEL ADAPTATION FOR DIRECT SPEECH TRANSLATION

Di Gangi, Mattia Antonino, Fondazione Bruno Kessler and University of Trento, Italy Nguyen, Viet Nhat, University of Trento, Italy Negri, Matteo, Fondazione Bruno Kessler, Italy Turchi, Marco, Fondazione Bruno Kessler, Italy

HLT-L1.4: RE-TRANSLATION STRATEGIES FOR LONG FORM, SIMULTANEOUS, SPOKEN LANGUAGE TRANSLATION

Arivazhagan, Naveen, Google, United States Cherry, Colin, Google, Canada I, Te, Google, United States Macherey, Wolfgang, Google, United States Baljekar, Pallavi, Google, Canada Foster, George, Google, Canada

HLT-L1.5: SKINAUGMENT: AUTO-ENCODING SPEAKER CONVERSIONS FOR AUTOMATIC SPEECH TRANSLATION

McCarthy, Arya D., Johns Hopkins University, United States Puzon, Liezl, Facebook, United States Pino, Juan, Facebook, United States

HLT-L1.6: END-TO-END SPEECH TRANSLATION WITH SELF-CONTAINED VOCABULARY MANIPULATION

Tu, Mei, Samsung Research China-Beijing, China Zhang, Fan, Samsung Research China-Beijing, China Liu, Wei, Samsung Research China-Beijing, China

Friday, 8 May, 08:00 - 10:00

HLT-L2 - Language Modeling

HLT-L2.1: AN EMPIRICAL STUDY OF TRANSFORMER-BASED NEURAL LANGUAGE MODEL ADAPTATION

Li, Ke, Johns Hopkins University, United States Liu, Zhe, Facebook, United States He, Tianxing, Massachusetts Institute of Technology, United States Huang, Hongzhao, Facebook, United States Peng, Fuchun, Facebook, United States Povey, Daniel, [None], United States Khudanpur, Sanjeev, Johns Hopkins University, United States

HLT-L2.2: LOW-BIT QUANTIZATION OF RECURRENT NEURAL NETWORK LANGUAGE MODELS USING ALTERNATING DIRECTION METHODS OF MULTIPLIERS

Xu, Junhao, Chinese University of Hong Kong, China Chen, Xie, Microsoft, China Hu, Shoukang, Chinese University of Hong Kong, China Yu, Jianwei, Chinese University of Hong Kong, China Liu, Xunying, Chinese University of Hong Kong, China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China

HLT-L2.3: AUDIO-ATTENTION DISCRIMINATIVE LANGUAGE MODEL FOR ASR RESCORING

Gandhe, Ankur, Amazon, Inc., United States Rastrow, Ariya, Amazon, Inc., United States

HLT-L2.4: TRAINING CODE-SWITCHING LANGUAGE MODEL WITH MONOLINGUAL DATA

Chuang, Shun-Po, National Taiwan University, Taiwan Sung, Tzu-Wei, University of California, San Diego, Taiwan Lee, Hung-Yi, National Taiwan University, Taiwan

HLT-L2.5: DOMAIN ROBUST, FAST, AND COMPACT NEURAL LANGUAGE MODELS

Gerstenberger, Alexander, RWTH Aachen University, Germany Irie, Kazuki, RWTH Aachen University, Germany Golik, Pavel, AppTek GmbH, Germany Beck, Eugen, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

HLT-L2.6: A RANDOM GOSSIP BMUF PROCESS FOR NEURAL LANGUAGE MODELING

Huang, Yiheng, Tencent, China Tian, Jinchuan, Tencent, China Han, Lei, Tencent, China Wang, Guangsen, Tencent, China Song, Xingchen, Tsinghua University, China Su, Dan, Tencent, China Yu, Dong, Tencent, United States

Friday, 8 May, 11:45 - 13:45

HLT-L3 - Spoken Language Understanding and Dialogue II

HLT-L3.1: PSEUDO LABELING AND NEGATIVE FEEDBACK LEARNING FOR LARGE-SCALE MULTI-LABEL DOMAIN CLASSIFICATION

Kim, Joo-Kyung, Amazon, Inc., United States Kim, Young-Bum, Amazon, Inc., United States

HLT-L3.2: PRE-TRAINING FOR QUERY REWRITING IN A SPOKEN LANGUAGE UNDERSTANDING SYSTEM

Chen, Zheng, Drexel University, United States Fan, Xing, Amazon, Inc., United States Ling, Yuan, Amazon, Inc., United States Mathias, Lambert, Amazon, Inc., United States Guo, Chenlei, Amazon, Inc., United States

HLT-L3.3: END-TO-END ARCHITECTURES FOR ASR-FREE SPOKEN LANGUAGE UNDERSTANDING

Palogiannidi, Elisavet, Omilia Conversational Intelligence, Greece Gkinis, Ioannis, Omilia Conversational Intelligence, Greece Mastrapas, George, Omilia Conversational Intelligence, Greece Mizera, Petr, Omilia Conversational Intelligence, Czech Republic Stafylakis, Themos, Omilia Conversational Intelligence, Greece

HLT-L3.4: END-TO-END SPOKEN LANGUAGE UNDERSTANDING WITHOUT MATCHED LANGUAGE SPEECH MODEL PRETRAINING DATA

Price, Ryan, Interactions, LLC., United States

HLT-L3.5: LEVERAGING UNPAIRED TEXT DATA FOR TRAINING END-TO-END SPEECH-TO-INTENT SYSTEMS

Huang, Yinghui, IBM, United States Kuo, Hong-Kwang, IBM, United States Thomas, Samuel, IBM, United States Kons, Zvi, IBM, Israel Audhkhasi, Kartik, IBM, United States Kingsbury, Brian, IBM, United States Hoory, Ron, IBM, Israel Picheny, Michael, IBM, United States

HLT-L3.6: GENERATING EMPATHETIC RESPONSES BY LOOKING AHEAD THE USER'S SENTIMENT

Shin, Jamin, Hong Kong University of Science and Technology, Hong Kong SAR of China Xu, Peng, Hong Kong University of Science and Technology, Hong Kong SAR of China Madotto, Andrea, Hong Kong University of Science and Technology, Hong Kong SAR of China Fung, Pascale, Hong Kong University of Science and Technology, Hong Kong SAR of China

Wednesday, 6 May, 16:30 - 18:30

HLT-P1 - Spoken Language Understanding and Dialogue I

HLT-P1.1: A HIERARCHICAL MODEL FOR DIALOG ACT RECOGNITION CONSIDERING ACOUSTIC AND LEXICAL CONTEXT INFORMATION

Si, Yuke, Tianjin University, China Wang, Longbiao, Tianjin University, China Dang, Jianwu, Tianjin University, China Wu, Mengfei, Tianjin University, China Li, Aijun, Chinese Academy of Social Science, China

HLT-P1.2: LARGE-SCALE UNSUPERVISED PRE-TRAINING FOR END-TO-END SPOKEN LANGUAGE UNDERSTANDING

Wang, Pengwei, Alibaba, China Wei, Liangchen, Alibaba, China Cao, Yong, Alibaba, China Xie, Jinghui, Alibaba, China Nie, Zaiqing, Alibaba, China

HLT-P1.3: IMPROVING SPOKEN QUESTION ANSWERING USING CONTEXTUALIZED WORD REPRESENTATION

Su, Dan, Hong Kong University of Science and Technology, Hong Kong SAR of China Fung, Pascale, Hong Kong University of Science and Technology, Hong Kong SAR of China

HLT-P1.4: LEARNING ASR-ROBUST CONTEXTUALIZED EMBEDDINGS FOR SPOKEN LANGUAGE UNDERSTANDING

Huang, Chao-Wei, National Taiwan University, Taiwan Chen, Yun-Nung, National Taiwan University, Taiwan

HLT-P1.5: A HIERARCHICAL TRACKER FOR MULTI-DOMAIN DIALOGUE STATE TRACKING

Li, Jieyu, Shanghai Jiao Tong University, China Zhu, Su, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

HLT-P1.6: A BI-MODEL APPROACH FOR HANDLING UNKNOWN SLOT VALUES IN DIALOGUE STATE TRACKING

Wang, Yu, Samsung Research America, United States Shen, Yilin, Samsung Research America, United States Jin, Hongxia, Samsung Research America, United States

HLT-P1.7: IMPROVING SAMPLE-EFFICIENCY IN REINFORCEMENT LEARNING FOR DIALOGUE SYSTEMS BY USING TRAINABLE-ACTION-MASK

Wu, Yen-Chen, Cambridge University, United Kingdom Tseng, Bo-Hsiang, Cambridge University, United Kingdom Rasmussen, Carl Edward, Cambridge University, United Kingdom

HLT-P1.8: FG2SEQ: EFFECTIVELY ENCODING KNOWLEDGE FOR END-TO-END TASK-ORIENTED DIALOG

He, Zhenhao, South China University of Technology, China He, Yuhong, South China Agricultural University, China Wu, Qingyao, South China University of Technology, China Chen, Jian, South China University of Technology, China

HLT-P1.9: A SIMPLE BUT EFFECTIVE BERT MODEL FOR DIALOG STATE TRACKING ON RESOURCE-LIMITED SYSTEMS

Lai, Tuan, Purdue University, United States Tran, Quan, Adobe Research, United States Bui, Trung, Adobe Research, United States Kihara, Daisuke, Purdue University, United States

HLT-P1.10: FAST DOMAIN ADAPTATION FOR GOAL-ORIENTED DIALOGUE USING A HYBRID GENERATIVE-RETRIEVAL TRANSFORMER

Shalyminov, Igor, Heriot-Watt University, United Kingdom Sordoni, Alessandro, Microsoft Research Montréal, Canada Atkinson, Adam, Microsoft Research Montréal, Canada Schulz, Hannes, Microsoft Research Montréal, Canada

HLT-P1.11: PREDICTING PERFORMANCE OUTCOME WITH A CONVERSATIONAL GRAPH CONVOLUTIONAL NETWORK FOR SMALL GROUP INTERACTIONS

Lin, Yun-Shao, National Tsing Hua University, Taiwan Lee, Chi-Chun, National Tsing Hua University, Taiwan

HLT-P1.12: DESIGN CONSIDERATIONS FOR HYPOTHESIS REJECTION MODULES IN SPOKEN LANGUAGE UNDERSTANDING SYSTEMS

Alok, Aman, Amazon.com Services Inc., United States Gupta, Rahul, Amazon.com Services Inc., United States Ananthakrishnan, Shankar, Amazon.com Services Inc., United States

Thursday, 7 May, 09:00 - 11:00

HLT-P2 - Speech and Language Analysis

HLT-P2.1: COMBINING ACOUSTICS, CONTENT AND INTERACTION FEATURES TO FIND HOT SPOTS IN MEETINGS

Makhervaks, Dave, Harvey Mudd College, United States Hinthorn, William, Microsoft, United States Dimitriadis, Dimitrios, Microsoft, United States Stolcke, Andreas, Amazon, Inc., United States

HLT-P2.2: ACCENT ESTIMATION OF JAPANESE WORDS FROM THEIR SURFACES AND ROMANIZATIONS FOR BUILDING LARGE VOCABULARY ACCENT DICTIONARIES

Tachibana, Hideyuki, PKSHA Technology, Inc., Japan Katayama, Yotaro, PKSHA Technology, Inc., Japan

HLT-P2.3: OH, JEEZ! OR UH-HUH? A LISTENER-AWARE BACKCHANNEL PREDICTOR ON ASR TRANSCRIPTIONS

Ortega, Daniel, University of Stuttgart, Germany Li, Chia-Yu, University of Stuttgart, Germany Vu, Ngoc Thang, University of Stuttgart, Germany

HLT-P2.4: CONTROLLABLE TIME-DELAY TRANSFORMER FOR REAL-TIME PUNCTUATION PREDICTION AND DISFLUENCY DETECTION

Chen, Qian, Alibaba Group, China Chen, Mengzhe, Alibaba Group, China Li, Bo, Alibaba Group, China Wang, Wen, Alibaba Group, United States

HLT-P2.5: IDENTIFYING TRUTHFUL LANGUAGE IN CHILD INTERVIEWS

Ardulov, Victor, University of Southern California, United States Durante, Zane, University of Southern California, United States Williams, Shanna, University of Southern California, United States Lyon, Thomas, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

HLT-P2.6: A MULTI-VIEW APPROACH FOR MANDARIN NON-NATIVE MISPRONUNCIATION VERIFICATION

Wang, Zhenyu, University of Texas at Dallas, United States Hansen, John H.L., University of Texas at Dallas, United States Xie, Yanlu, Beijing Language and Culture University, China

HLT-P2.7: DIACRITIC-LEVEL PRONUNCIATION ANALYSIS USING PHONOLOGICAL FEATURES

Kain, Alexander, Oregon Health & Science University, United States Roten, Amie, Oregon Health & Science University, United States Gale, Robert, Oregon Health & Science University, United States

HLT-P2.8: PHONEME BOUNDARY DETECTION USING LEARNABLE SEGMENTAL FEATURES

Kreuk, Felix, Bar-Ilan University, Israel Sheena, Yaniv, Facebook, Israel Keshet, Joseph, Bar-Ilan University, Israel Adi, Yossi, Facebook, Israel

HLT-P2.9: META-LEARNING FOR ROBUST CHILD-ADULT CLASSIFICATION FROM SPEECH

Koluguri, Nithin Rao, University of Southern California, United States Kumar, Manoj, University of Southern California, United States Kim, So Hyun, Weill Cornell Medicine, United States Lord, Catherine, University of California, Los Angeles, United States Narayanan, Shrikanth, University of Southern California, United States

HLT-P2.11: ACCOUNTING FOR MICROPROSODY IN MODELING INTONATION

Birkholz, Peter, Technische Universität Dresden, Germany Zhang, Xinyu, Technische Universität Dresden, Germany

HLT-P2.12: HOW CONFIDENT ARE YOU? EXPLORING THE ROLE OF FILLERS IN THE AUTOMATIC PREDICTION OF A SPEAKER'S CONFIDENCE

Dinkar, Tanvi, Telecom Paris, France Vasilescu, Ioana, Université Paris-Saclay, France Pelachaud, Catherine, Sorbonne University Pierre and Marie Curie, France Clavel, Chloé, Telecom Paris, France

Thursday, 7 May, 11:30 - 13:30

HLT-P3 - Language Understanding and Modeling

HLT-P3.1: TRAINING SPOKEN LANGUAGE UNDERSTANDING SYSTEMS WITH NON-PARALLEL SPEECH AND TEXT

Sari, Leda, University of Illinois at Urbana-Champaign, United States Thomas, Samuel, IBM Research AI, United States Hasegawa-Johnson, Mark, University of Illinois at Urbana-Champaign, United States

HLT-P3.2: WHAT IS BEST FOR SPOKEN LANGUAGE UNDERSTANDING: SMALL BUT TASK-DEPENDANT EMBEDDINGS OR HUGE BUT OUT-OF-DOMAIN EMBEDDINGS?

Ghannay, Sahar, Université Paris-Saclay, CNRS, LIMSI, 91400, France Neuraz, Antoine, Hôpital Necker-Enfants Malades, APHP INSERM UMRS 1138, Team 22, Paris Descartes, Université Sorbonne Paris Cité LIMSI, CNRS, Université Paris-Saclay, France Rosset, Sophie, Université Paris-Saclay, CNRS, LIMSI, 91400, France

HLT-P3.3: FAST INTENT CLASSIFICATION FOR SPOKEN LANGUAGE UNDERSTANDING SYSTEMS

Tyagi, Akshit, University of Massachusetts, Amherst, United States Sharma, Varun, University of Massachusetts, Amherst, United States Gupta, Rahul, Amazon, Inc., United States Samson, Lynn, University of Massachusetts, Amherst, United States Zhuang, Nan, University of Massachusetts, Amherst, United States Wang, Zihang, University of Massachusetts, Amherst, United States Campbell, Bill, Amazon, Inc., United States

HLT-P3.4: CONVERTING WRITTEN LANGUAGE TO SPOKEN LANGUAGE WITH NEURAL MACHINE TRANSLATION FOR LANGUAGE MODELING

Ando, Shintaro, University of Tokyo, Japan Suzuki, Masayuki, IBM Research AI, Japan Itoh, Nobuyasu, IBM Research AI, Japan Kurata, Gakuto, IBM Research AI, Japan Minematsu, Nobuaki, University of Tokyo, Japan

HLT-P3.5: ADDRESSING THE POLYSEMY PROBLEM IN LANGUAGE MODELING WITH ATTENTIONAL MULTI-SENSE EMBEDDINGS

Ma, Rao, Shanghai Jiao Tong University, China Jin, Lesheng, Shanghai Jiao Tong University, China Liu, Qi, Shanghai Jiao Tong University, China Chen, Lu, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

HLT-P3.6: ADDRESSING CHALLENGES IN BUILDING WEB-SCALE CONTENT CLASSIFICATION SYSTEMS

Timmaraju, Aditya Srinivas, Facebook, United States Liu, Angli, Facebook, United States Tripathi, Pushkar, Facebook, United States

HLT-P3.7: A NEURAL DOCUMENT LANGUAGE MODELING FRAMEWORK FOR SPOKEN DOCUMENT RETRIEVAL

Yen, Li-Phen, National Taiwan University of Science and Technology, Taiwan Wu, Zhen-Yu, National Taiwan University of Science and Technology, Taiwan Chen, Kuan-Yu, National Taiwan University of Science and Technology, Taiwan

HLT-P3.8: SPOKEN DOCUMENT RETRIEVAL LEVERAGING BERT-BASED MODELING AND QUERY REFORMULATION

Fan-Jiang, Shao-Wei, National Taiwan Normal University, Taiwan Lo, Tien-Hong, National Taiwan Normal University, Taiwan Chen, Berlin, National Taiwan Normal University; ASUS AICS, Taiwan

HLT-P3.9: MULTITASK LEARNING FOR DARPA LORELEI'S SITUATION FRAME EXTRACTION TASK

Singla, Karan, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

HLT-P3.10: AUXILIARY CAPSULES FOR NATURAL LANGUAGE UNDERSTANDING

Staliūnaitė, Ieva, Huawei Noah's Ark Lab, United Kingdom Iacobacci, Ignacio, Huawei Noah's Ark Lab, United Kingdom

HLT-P3.11: DISCRETE WASSERSTEIN AUTOENCODERS FOR DOCUMENT RETRIEVAL

Zhang, Yifei, Alibaba Group, China Zhu, Hao, Australian National University, Australia

HLT-P3.12: CROSS-LINGUAL TOPIC PREDICTION FOR SPEECH USING TRANSLATIONS

Bansal, Sameer, University of Edinburgh, United Kingdom Kamper, Herman, Stellenbosch University, South Africa Lopez, Adam, University of Edinburgh, United Kingdom Goldwater, Sharon, University of Edinburgh, United Kingdom

Thursday, 7 May, 16:30 - 18:30

HLT-P4 - Machine Learning for Language Processing II

HLT-P4.1: EMBEDDED LARGE–SCALE HANDWRITTEN CHINESE CHARACTER RECOGNITION

Chherawala, Youssouf, Apple, United States Dolfing, Hans, Apple, United States Dixon, Ryan, Apple, United States Bellegarda, Jerome, Apple, United States

HLT-P4.2: LEVERAGING GANS TO IMPROVE CONTINUOUS PATH KEYBOARD INPUT MODELS

Mehra, Akash, Apple, United States Bellegarda, Jerome, Apple, United States Bapat, Ojas, Apple, United States Lal, Partha, Apple, United States Wang, Xin, Apple, United States

HLT-P4.3: UNSUPERVISED KEY HAND SHAPE DISCOVERY OF SIGN LANGUAGE VIDEOS WITH CORRESPONDENCE SPARSE AUTOENCODERS

Siyli, Recep Doga, Boğaziçi University, Turkey Gundogdu, Batuhan, Boğaziçi University, Turkey Saraçlar, Murat, Boğaziçi University, Turkey Akarun, Lale, Boğaziçi University, Turkey

HLT-P4.4: KEYWORD SEARCH FOR SIGN LANGUAGE

Tamer, Nazif Can, Boğaziçi University, Turkey Saraçlar, Murat, Boğaziçi University, Turkey

HLT-P4.5: LARGE-CONTEXT POINTER-GENERATOR NETWORKS FOR SPOKEN-TO-WRITTEN STYLE CONVERSION

Ihori, Mana, NTT Corporation, Japan Takashima, Akihiko, NTT Corporation, Japan Masumura, Ryo, NTT Corporation, Japan

HLT-P4.6: FROM UNSUPERVISED MACHINE TRANSLATION TO ADVERSARIAL TEXT GENERATION

Rashid, Ahmad, Huawei Noah's Ark Lab, Canada Do-Omri, Alan, Huawei Noah's Ark Lab, Canada Haidar, Md. Akmal, Huawei Noah's Ark Lab, Canada Liu, Qun, Huawei Noah's Ark Lab, China Rezagholizadeh, Mehdi, Huawei Noah's Ark Lab, Canada

HLT-P4.7: SELF-ATTENTION AND RETRIEVAL ENHANCED NEURAL NETWORKS FOR ESSAY GENERATION

Wang, Wei, Tsinghua University, China Zheng, Hai-Tao, Tsinghua University, China Lin, Zibo, Tsinghua University, China

HLT-P4.8: BERT IS NOT ALL YOU NEED FOR COMMONSENSE INFERENCE

Park, Sunghyun, Yonsei University, Korea (South) Son, Junsung, Yonsei University, Korea (South) Hwang, Seung-Won, Yonsei University, Korea (South) Park, Kyunglang, SK Telecom, Korea (South)

HLT-P4.9: SEMI-SUPERVISED SENTENCE CLASSIFICATION BASED ON USER POLARITY IN THE SOCIAL SCENARIOS

Ma, Bing, Beijing University of Posts and Telecommunications, China Sun, Haifeng, Beijing University of Posts and Telecommunications, China Wang, Jingyu, Beijing University of Posts and Telecommunications, China Qi, Qi, Beijing University of Posts and Telecommunications, China Liao, Jianxin, Beijing University of Posts and Telecommunications, China

HLT-P4.10: UPGRADING CRFS TO JRFS AND ITS BENEFITS TO SEQUENCE MODELING AND LABELING

Song, Yunfu, Tsinghua University, China Ou, Zhijian, Tsinghua University, China Liu, Zitao, TAL AI Lab, China Yang, Songfan, TAL AI Lab, China

HLT-P4.11: SELECTIVE ATTENTION ENCODERS BY SYNTACTIC GRAPH CONVOLUTIONAL NETWORKS FOR DOCUMENT SUMMARIZATION

Xu, Haiyang, DiDi Chuxing, China Wang, Yun, Peking University, China Han, Kun, DiDi Chuxing, United States Ma, Baochang, DiDi Chuxing, China Chen, Junwen, DiDi Chuxing, China Li, Xiangang, DiDi Chuxing, China

HLT-P4.12: LEARNING TO GENERATE DIVERSE QUESTIONS FROM KEYWORDS

Pan, Youcheng, Harbin Institute of Technology, China Hu, Baotian, Harbin Institute of Technology, China Chen, Qingcai, Harbin Institute of Technology, China Xiang, Yang, University of Texas Health Science Center, China Wang, Xiaolong, Harbin Institute of Technology, China

Friday, 8 May, 11:45 - 13:45

HLT-P5 - Multilingual Processing of Language

HLT-P5.1: EUROPARL-ST: A MULTILINGUAL CORPUS FOR SPEECH TRANSLATION OF PARLIAMENTARY DEBATES

Iranzo-Sánchez, Javier, Universitat Politècnica de València, Spain Silvestre-Cerdà, Joan Albert, Universitat Politècnica de València, Spain Jorge, Javier, Universitat Politècnica de València, Spain Roselló, Nahuel, Universitat Politècnica de València, Spain Giménez, Adrià, Universitat Politècnica de València, Spain Sanchis, Albert, Universitat Politècnica de València, Spain Civera, Jorge, Universitat Politècnica de València, Spain Juan, Alfons, Universitat Politècnica de València, Spain

HLT-P5.2: MULTILINGUAL GRAPHEME-TO-PHONEME CONVERSION WITH BYTE REPRESENTATION

Yu, Mingzhi, University of Pittsburgh, United States Nguyen, Hieu, Amazon, Inc., United States Sokolov, Alex, Amazon, Inc., United States Lepird, Jack, Amazon, Inc., United States Sathyendra, Kanthashree, Amazon, Inc., United States Choudhary, Samridhi, Amazon, Inc., United States Mouchtaris, Athanasios, Amazon, Inc., United States Kunzmann, Siegfried, Amazon, Inc., United States

HLT-P5.3: LANGUAGE-AGNOSTIC MULTILINGUAL MODELING

Datta, Arindrima, Google LLC, United States Ramabhadran, Bhuvana, Google LLC, United States Emond, Jesse, Google LLC, United States Kannan, Anjuli, Google LLC, United States Roark, Brian, Google LLC, United States

HLT-P5.4: ADI17: A FINE-GRAINED ARABIC DIALECT IDENTIFICATION DATASET

Shon, Suwon, ASAPP Inc, United States Ali, Ahmed, Qatar Computing Research Institute, Qatar Samih, Younes, Qatar Computing Research Institute, Qatar Mubarak, Hamdy, Qatar Computing Research Institute, Qatar Glass, James, Massachusetts Institute of Technology, United States

HLT-P5.5: UNIVERSAL PHONE RECOGNITION WITH A MULTILINGUAL ALLOPHONE SYSTEM

Li, Xinjian, Carnegie Mellon University, United States Dalmia, Siddharth, Carnegie Mellon University, United States Li, Juncheng, Carnegie Mellon University, United States Littell, Patrick, National Research Council of Canada, Canada Lee, Matthew, SIL International, United States Yao, Jiali, ByteDance AI Lab, China Anastasopoulos, Antonios, Carnegie Mellon University, United States Mortensen, David, Carnegie Mellon University, United States Neubig, Graham, Carnegie

Mellon University, United States Black, Alan, Carnegie Mellon University, United States Metze, Florian, Carnegie Mellon University, United States

HLT-P5.6: COUPLED TRAINING OF SEQUENCE-TO-SEQUENCE MODELS FOR ACCENTED SPEECH RECOGNITION

Unni, Vinit, Indian Institute of Technology Bombay, India Joshi, Nitish, Indian Institute of Technology Bombay, India Jyothi, Preethi, Indian Institute of Technology Bombay, India

HLT-P5.7: ADDRESSING ACCENT MISMATCH IN MANDARIN-ENGLISH CODE-SWITCHING SPEECH RECOGNITION

Tan, Zhili, Microsoft, China Fan, Xinghua, Microsoft, China Zhu, Hui, Microsoft, China Lin, Ed, Microsoft, China

HLT-P5.8: DETECTING MISMATCH BETWEEN TEXT SCRIPT AND VOICE-OVER USING UTTERANCE VERIFICATION BASED ON PHONEME RECOGNITION RANKING

Jeong, Yoonjae, NCSOFT, Korea (South) Cho, Hoon-Young, NCSOFT, Korea (South)

HLT-P5.9: DNN-BASED SPEECH RECOGNITION FOR GLOBALPHONE LANGUAGES

Tachbelie, Martha Yifiru, University of Bremen, Germany Abulimiti, Ayimunishagu, University of Bremen, Germany Abate, Solomon Teferra, University of Bremen, Germany Schultz, Tanja, University of Bremen, Germany

HLT-P5.10: DEEP NEURAL NETWORKS BASED AUTOMATIC SPEECH RECOGNITION FOR FOUR ETHIOPIAN LANGUAGES

Abate, Solomon Teferra, University of Bremen, Germany Tachbelie, Martha Yifiru, University of Bremen, Germany Schultz, Tanja, University of Bremen, Germany

HLT-P5.11: IMPROVING THE PERFORMANCE OF TRANSFORMER BASED LOW RESOURCE SPEECH RECOGNITION FOR INDIAN LANGUAGES

M. Shetty, Vishwas, Indian Institute of Technology Madras, India Sagaya Mary N J, Metilda, Indian Institute of Technology Madras, India Umesh, Srinivasan, Indian Institute of Technology Madras, India

HLT-P5.12: IMPROVING LANGUAGE IDENTIFICATION FOR MULTILINGUAL SPEAKERS

Titus, Andrew, Apple, United States Silovsky, Jan, Apple, United States Chen, Nanxin, Apple and Johns Hopkins University, United States Hsiao, Roger, Apple,

United States Young, Mary, Apple, United States Ghoshal, Arnab, Apple, United States

Industry DSP

Wednesday, 6 May, 16:30 - 18:30

IDSP-L1 - Signal Processing for Emerging Industry Applications

IDSP-L1.1: FAST START-UP ALGORITHM FOR ADAPTIVE NOISE CANCELLERS WITH NOVEL SNR ESTIMATION AND STEPSIZE CONTROL

Sugiyama, Akihiko, Yahoo Japan Corporation, Japan

IDSP-L1.2: ROBUST AND COMPUTATIONALLY-EFFICIENT ANOMALY DETECTION USING POWERS-OF-TWO NETWORKS

Muneeb, Usama, University of Illinois at Chicago, United States Koyuncu, Erdem, University of Illinois at Chicago, United States Keshtkarjahromi, Yasaman, Seagate Technology LLC, United States Seferoglu, Hulya, University of Illinois at Chicago, United States Erden, Mehmet Fatih, Seagate Technology LLC, United States Cetin, Ahmet Enis, University of Illinois at Chicago, United States

IDSP-L1.3: SEMI-SUPERVISED OPTIMAL TRANSPORT METHODS FOR DETECTING ANOMALIES

Alaoui-Belghiti, Amina, Hensoldt Nexeya, France Chevallier, Sylvain, LISV - UVSQ, France Monacelli, Eric, LISV - UVSQ, France Bao, Guillaume, Garches Neuro-Physio-Lab, France Azabou, Eric, Garches Neuro-Physio-Lab, France

IDSP-L1.4: LEARNING TO ESTIMATE DRIVER DROWSINESS FROM CAR ACCELERATION SENSORS USING WEAKLY LABELED DATA

Katsuki, Takayuki, IBM Japan, Ltd, Japan Zhao, Kun, IBM Japan, Ltd, Japan Yoshizumi, Takayuki, IBM Japan, Ltd, Japan

IDSP-L1.5: DAMAGE-SENSITIVE AND DOMAIN-INVARIANT FEATURE EXTRACTION FOR VEHICLE-VIBRATION-BASED BRIDGE HEALTH MONITORING

Liu, Jingxiao, Stanford University, United States Chen, Bingqing, Carnegie Mellon University, United States Chen, Siheng, Mitsubishi Electric Research Laboratories (MERL), United States Berges, Mario, Carnegie Mellon University, United States Bielak, Jacobo, Carnegie Mellon University, United States Noh, HaeYoung, Stanford University, United States

IDSP-L1.6: ON ROBUST VARIANCE FILTERING AND CHANGE OF VARIANCE DETECTION

Wen, Qingsong, Alibaba Group U.S., United States Ma, Zhengzhi, University of Southern California, United States Sun, Liang, Alibaba Group U.S., United States

Thursday, 7 May, 16:30 - 18:30

IDSP-L2 - Industry Session on Large-Scale Distributed Learning Strategies

IDSP-L2.1: LOW-RANK GRADIENT APPROXIMATION FOR MEMORY-EFFICIENT ON-DEVICE TRAINING OF DEEP NEURAL NETWORK

Gooneratne, Mary, Duke University, United States Sim, Khe Chai, Google, United States Zadrazil, Petr, Google, United States Kabel, Andreas, Google, United States Beaufays, Francoise, Google, United States Motta, Giovanni, Google, United States

IDSP-L2.2: IMPROVING EFFICIENCY IN LARGE-SCALE DECENTRALIZED DISTRIBUTED TRAINING

Zhang, Wei, IBM, United States Cui, Xiaodong, IBM, United States Kayi, Abdullah, IBM, United States Liu, Mingrui, University of Iowa, United States Finkler, Ulrich, IBM, United States Kingsbury, Brian, IBM, United States Saon, George, IBM, United States Mroueh, Youssef, IBM, United States Buyuktosunoglu, Alper, IBM, United States Das, Payel, IBM, United States Kung, David, IBM, United States Picheny, Michael, IBM, United States

IDSP-L2.3: PARALLELIZING ADAM OPTIMIZER WITH BLOCKWISE MODEL-UPDATE FILTERING

Chen, Kai, Microsoft Research Asia, China Ding, Haisong, University of Science and Technology of China, China Huo, Qiang, Microsoft Research Asia, China

Friday, 8 May, 15:15 - 17:15

IDSP-P1 - Emerging Signal Processing Applications

IDSP-P1.1: JOINT TRAINING OF DEEP NEURAL NETWORKS FOR MULTI-CHANNEL DEREVERBERATION AND SPEECH SOURCE SEPARATION

Togami, Masahito, LINE Corporation, Japan

IDSP-P1.2: STRUCTURAL SPARSIFICATION FOR FAR-FIELD SPEAKER RECOGNITION WITH INTEL GNA

Zhang, Jingchi, Duke University, United States Huang, Jonathan, Intel Corporation, United States Deisher, Michael, Intel Corporation, United States Li, Hai, Duke University, United States Chen, Yiran, Duke University, United States

IDSP-P1.3: ENVIRONMENT-AWARE RECONFIGURABLE NOISE SUPPRESSION

Yang, Jun, Facebook, United States Bingham, Joshua, Facebook, United States

IDSP-P1.4: FULLY-NEURAL APPROACH TO HEAVY VEHICLE DETECTION ON BRIDGES USING A SINGLE STRAIN SENSOR

Kawakatsu, Takaya, National Institute of Informatics, Japan Aihara, Kenro, National Institute of Informatics, Japan Takasu, Atsuhiro, National Institute of Informatics, Japan Adachi, Jun, National Institute of Informatics, Japan

IDSP-P1.5: MULTICHANNEL SIGNAL PROCESSING FOR ROAD SURFACE IDENTIFICATION

Safont, Gonzalo, Universitat Politècnica de València, Spain Salazar, Addisson, Universitat Politècnica de València, Spain Rodriguez, Alberto, Universidad Miguel Hernández de Elche, Spain Vergara, Luis, Universitat Politècnica de València, Spain

IDSP-P1.6: A MONTE CARLO SEARCH-BASED TRIPLET SAMPLING METHOD FOR LEARNING DISENTANGLED REPRESENTATION OF IMPULSIVE NOISE ON STEERING GEAR

Bu, Seok-Jun, Yonsei University, Korea (South) Park, Namu, Yonsei University, Korea (South) Nam, Gue-Hwan, Hyundai Mobis, Korea (South) Seo, Jae-Yong, Hyundai Mobis, Korea (South) Cho, Sung-Bae, Yonsei University, Korea (South)

IDSP-P1.7: STOCHASTIC GEOMETRY PLANNING OF ELECTRIC VEHICLES CHARGING STATIONS

Atat, Rachad, Texas A&M University at Qatar, Qatar Ismail, Muhammad, Tennessee Technological University, United States Serpedin, Erchin, Texas A&M University at Qatar, Qatar

IDSP-P1.8: DISCRIMINANT GENERATIVE ADVERSARIAL NETWORKS WITH ITS APPLICATION TO EQUIPMENT HEALTH CLASSIFICATION

Zheng, Shuai, Hitachi America Ltd, United States Gupta, Chetan, Hitachi America Ltd, United States

IDSP-P1.9: POWER OPTIMIZATION USING EMBEDDED AUTOMATIC GAIN CONTROL ALGORITHM WITH PHOTOPLETHYSMOGRAPHY SIGNAL QUALITY CLASSIFICATION

Foroozan, Foroohar, Analog Devices, Inc., United States Xue, Di, Analog Devices, Inc., Canada Fang, Ken, Analog Devices, Inc., Canada Wu, James, University of Toronto, Canada

IDSP-P1.10: A GENERAL DIFFICULTY CONTROL ALGORITHM FOR PROOF-OF-WORK BASED BLOCKCHAINS

Zhang, Shulai, Shanghai Jiao Tong University, China Ma, Xiaoli, Georgia Institute of Technology, United States

IDSP-P1.11: A NEW APPLICATION OF ULTRASOUND SIGNAL PROCESSING FOR ARCHAEOLOGICAL CERAMIC CLASSIFICATION

Salazar, Addisson, Universitat Politècnica de València, Spain Safont, Gonzalo, Universitat Politècnica de València, Spain Vergara, Luis, Universitat Politècnica de València, Spain

Information Forensics and Security

Tuesday, 5 May, 16:30 - 18:30

IFS-L1 - Multimedia Forensics

IFS-L1.1: STEGANOGRAPHY AND ITS DETECTION IN JPEG IMAGES OBTAINED WITH THE "TRUNC" QUANTIZER

Butora, Jan, Binghamton University, United States Fridrich, Jessica, Binghamton University, United States

IFS-L1.2: JPEG STEGANOGRAPHY WITH SIDE INFORMATION FROM THE PROCESSING PIPELINE

Giboulot, Quentin, Troyes University of Technology, France Cogranne, Rémi, Troyes University of Technology, France Bas, Patrick, French National Centre for Scientific Research (CNRS), France

IFS-L1.3: SELECTION-CHANNEL-AWARE REVERSE JPEG COMPATIBILITY FOR HIGHLY RELIABLE STEGANALYSIS OF JPEG IMAGES

Cogranne, Rémi, Troyes University of Technology, France

IFS-L1.4: EMET: EMBEDDINGS FROM MULTILINGUAL-ENCODER TRANSFORMER FOR FAKE NEWS DETECTION

Schwarz, Stephane, University of Campinas, Brazil Theóphilo, Antônio, University of Campinas, Brazil Rocha, Anderson, University of Campinas, Brazil

IFS-L1.5: DEPTH MAP FINGERPRINTING AND SPLICING DETECTION

Matern, Falko, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Riess, Christian, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Stamminger, Marc, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

IFS-L1.6: A FRAMEWORK FOR PARAMETERS ESTIMATION OF IMAGE OPERATOR CHAIN

Liao, Xin, Hunan University, China Huang, Zihang, Hunan University, China

Wednesday, 6 May, 16:30 - 18:30

IFS-L2 - Privacy, Biometrics and Information Security

IFS-L2.1: PRIVACY-PRESERVING PHISHING WEB PAGE CLASSIFICATION VIA FULLY HOMOMORPHIC ENCRYPTION

Chou, Edward, Stanford University, United States Gururajan, Arun, Microsoft Corporation, United States Laine, Kim, Microsoft Corporation, United States Goel, Nitin Kumar, Microsoft Corporation, United States Bertiger, Anna, Microsoft Corporation, United States Stokes, Jack W., Microsoft Corporation, United States

IFS-L2.2: PRIVACY-PRESERVING IMAGE SHARING VIA SPARSIFYING LAYERS ON CONVOLUTIONAL GROUPS

Ferdowsi, Sohrab, University of Geneva, Switzerland Razeghi, Behrooz, University of Geneva, United States Holotyak, Taras, University of Geneva, Switzerland Calmon, Flavio, Harvard University, Switzerland Voloshynovskiy, Slava, University of Geneva, Switzerland

IFS-L2.3: EVALUATING VOICE CONVERSION-BASED PRIVACY PROTECTION AGAINST INFORMED ATTACKERS

Srivastava, Brij Mohan Lal, Inria, France Vauquier, Nathalie, Inria, France Sahidullah, Md, Inria, France Bellet, Aurélien, Inria, France Tommasi, Marc, Université de Lille, France Vincent, Emmanuel, Inria, France

IFS-L2.4: LOW-COMPLEXITY AND RELIABLE TRANSFORMS FOR PHYSICAL UNCLONABLE FUNCTIONS

Günlü, Onur, Technische Universität Berlin, Germany Schaefer, Rafael F., Technische Universität Berlin, Germany

IFS-L2.5: ADVERSARIAL DETECTION OF COUNTERFEITED PRINTABLE GRAPHICAL CODES: TOWARDS "ADVERSARIAL GAMES" IN PHYSICAL WORLD

Taran, Olga, University of Geneva, Switzerland Bonev, Slavi, University of Geneva, Switzerland Holotyak, Taras, University of Geneva, Switzerland Voloshynovskiy, Slava, University of Geneva, Switzerland

IFS-L2.6: PHYLOGENETIC MINIMUM SPANNING TREE RECONSTRUCTION USING AUTOENCODERS

Castelletto, Riccardo, University of Padova, Italy Milani, Simone, University of Padova, Italy Bestagini, Paolo, Politecnico di Milano, Italy

Friday, 8 May, 08:00 - 10:00

IFS-P1 - Information Hiding, Biometrics and Security

IFS-P1.1: FCEM: A NOVEL FAST CORRELATION EXTRACT MODEL FOR REAL TIME STEGANALYSIS OF VOIP STREAM VIA MULTI-HEAD ATTENTION

Yang, Hao, Tsinghua University, China Yang, ZhongLiang, Tsinghua University, China Bao, Yongjian, Tsinghua University, China Liu, Sheng, Tsinghua University, China Huang, YongFeng, Tsinghua University, China

IFS-P1.2: APPROACHING OPTIMAL EMBEDDING IN AUDIO STEGANOGRAPHY WITH GAN

Yang, Jianhua, School of Data and Computer Science, Sun Yat-Sen University, Guangzhou, China Zheng, Huilin, School of Data and Computer Science, Sun Yat-Sen University, Guangzhou, China Kang, Xiangui, School of Data and Computer Science, Sun Yat-Sen University, Guangzhou, China Shi, Yun-Qing, New Jersey Institute of Technology, United States

IFS-P1.3: MULTI-STAGE RESIDUAL HIDING FOR IMAGE-INTO-AUDIO STEGANOGRAPHY

Cui, Wenxue, Harbin Institute of Technology, China Liu, Shaohui, Harbin Institute of Technology, China Jiang, Feng, Harbin Institute of Technology, China Liu, Yongliang, Alibaba Group, China Zhao, Debin, Harbin Institute of Technology, China

IFS-P1.4: PATCH-LEVEL SELECTION AND BREADTH-FIRST PREDICTION STRATEGY FOR REVERSIBLE DATA HIDING

Wu, Hanzhou, Shanghai University, China

IFS-P1.5: DIGITAL WATERMARKING FOR PROTECTING AUDIO CLASSIFICATION DATASETS

Kim, Wansoo, Seoul National University, Korea (South) Lee, Kyogu, Seoul National University, Korea (South)

IFS-P1.6: SALIENCY-BASED IMAGE CONTRAST ENHANCEMENT WITH REVERSIBLE DATA HIDING

Yang, Shilong, South China University of Technology, China

IFS-P1.7: UNSEEN FACE PRESENTATION ATTACK DETECTION WITH HYPERSPHERE LOSS

Li, Zhi, Nanyang Technological University, Singapore Li, Haoliang, Nanyang Technological University, Singapore Lam, Kwok-Yan, Nanyang Technological

University, Singapore Kot, Alex Chichung, Nanyang Technological University, Singapore

IFS-P1.8: TEXCEPTION: A CHARACTER/WORD-LEVEL DEEP LEARNING MODEL FOR PHISHING URL DETECTION

Tajaddodianfar, Farid, Microsoft, United States Stokes, Jack W., Microsoft, United States Gururajan, Arun, Microsoft, United States

IFS-P1.9: CELL-PHONE CLASSIFICATION: A CONVOLUTIONAL NEURAL NETWORK APPROACH EXPLOITING ELECTROMAGNETIC EMANATIONS

Yilmaz, Baki Berkay, Georgia Institute of Technology, United States Ugurlu, Elvan Mert, Georgia Institute of Technology, United States Prvulovic, Milos, Georgia Institute of Technology, United States Zajic, Alenka, Georgia Institute of Technology, United States

IFS-P1.10: QUALITY-OF-SERVICE PREDICTION FOR PHYSICAL-LAYER SECURITY VIA SECRECY MAPS

Gutierrez-Estevez, Miguel A., Fraunhofer Heinrich Hertz Institute, Germany Utkovski, Zoran, Fraunhofer Heinrich Hertz Institute, Germany Agostini, Patrick, Fraunhofer Heinrich Hertz Institute, Germany Schäufele, Daniel, Fraunhofer Heinrich Hertz Institute, Germany Frey, Matthias, Technische Universität Berlin, Germany Bjelakovic, Igor, Technische Universität Berlin, Germany Stanczak, Slawomir, Fraunhofer Heinrich Hertz Institute, Germany

IFS-P1.11: SECURE IDENTIFICATION FOR GAUSSIAN CHANNELS

Labidi, Wafa, Technische Universität München, Germany Deppe, Christian, Technische Universität München, Germany Boche, Holger, Technische Universität München, Germany

Friday, 8 May, 11:45 - 13:45

IFS-P2 - Anonymization, Security and Privacy

IFS-P2.1: ANTI-JAMMING ROUTING FOR INTERNET OF SATELLITES: A REINFORCEMENT LEARNING APPROACH

Han, Chen, Army Engineering University, China Liu, Aijun, Army Engineering University, China Huo, Liangyu, Beihang University, China Wang, Haichao, Army Engineering University, China Liang, Xiaohu, Army Engineering University, China

IFS-P2.2: ELECTRO-MAGNETIC SIDE-CHANNEL ATTACK THROUGH LEARNED DENOISING AND CLASSIFICATION

Lemarchand, Florian, Institut d'Eléctronique et de Télécommunications de Rennes, France Marlin, Cyril, DGA-MI, France Montreuil, Florent, DGA-MI, France Nogues, Erwan, DGA-MI, France Pelcat, Maxime, Institut d'Eléctronique et de Télécommunications de Rennes, France

IFS-P2.3: DETECTION OF MALICIOUS VBSCRIPT USING STATIC AND DYNAMIC ANALYSIS WITH RECURRENT DEEP LEARNING

Stokes, Jack W., Microsoft Corporation, United States Agrawal, Rakshit, University of California, Santa Cruz, United States McDonald, Geoff, Microsoft Corporation, Canada

IFS-P2.4: DYNAMIC ATTACK SCORING USING DISTRIBUTED LOCAL DETECTORS

Zohrevand, Zahra, Simon Fraser University, Canada Glässer, Uwe, Simon Fraser University, Canada

IFS-P2.5: HIJACKING TRACKER: A POWERFUL ADVERSARIAL ATTACK ON VISUAL TRACKING

Yan, Xiyu, Tsinghua University, China Chen, Xuesong, Shenzhen Graduate School of Peking University, China Jiang, Yong, Tsinghua University, China Xia, Shu-Tao, Tsinghua University, China Zhao, Yong, Shenzhen Graduate School of Peking University, China Zheng, Feng, Southern University of Science and Technology, China

IFS-P2.6: ADVMS: A MULTI-SOURCE MULTI-COST DEFENSE AGAINST ADVERSARIAL ATTACKS

Wang, Xiao, Boston University, United States Wang, Siyue, Northeastern University, United States Chen, Pin-Yu, IBM Research, United States Lin, Xue, Northeastern University, United States Chin, Peter, Boston University, United States

IFS-P2.7: CLASSIFYING ANOMALIES FOR NETWORK SECURITY

Do, Emily, Massachusetts Institute Of Technology, United States Gadepally, Vijay, Lincoln Laboratory/Massachusetts Institute of Technology, United States

IFS-P2.8: A SWITCHING TRANSMISSION GAME WITH LATENCY AS THE USER'S COMMUNICATION UTILITY

Garnaev, Andrey, Rutgers University, United States Petropulu, Athina, Rutgers University, United States Trappe, Wade, Rutgers University, United States Poor, H. Vincent, Princeton University, United States

IFS-P2.9: AN EFFICIENT METHODOLOGY TO DE-ANONYMIZE THE 5G-NEW RADIO PHYSICAL DOWNLINK CONTROL CHANNEL

Gardner, Benjamin, Naval Postgraduate School, United States Roth, John, Naval Postgraduate School, United States

IFS-P2.10: JOINT LEARNING OF ASSIGNMENT AND REPRESENTATION FOR BIOMETRIC GROUP MEMBERSHIP

Gheisari, Marzieh, Inria, France Furon, Teddy, Inria, France Amsaleg, Laurent, IRISA, France

IFS-P2.11: PRIVATE FL-GAN: DIFFERENTIAL PRIVACY SYNTHETIC DATA GENERATION BASED ON FEDERATED LEARNING

Xin, Bangzhou, University of Science and Technology of China, China Yang, Wei, University of Science and Technology of China, China Geng, Yangyang, University of Science and Technology of China, China Chen, Sheng, University of Science and Technology of China, China Wang, Shaowei, Tencent Games, China Huang, Liusheng, University of Science and Technology of China, China

Friday, 8 May, 15:15 - 17:15

IFS-P3 - Multimedia Forensics and Biometrics

IFS-P3.1: AUGMENTATION DATA SYNTHESIS VIA GANS: BOOSTING LATENT FINGERPRINT RECONSTRUCTION

Xu, Ying, Tsinghua University, China Wang, Yi, Chinese University of Hong Kong, China Liang, Jiajun, Megvii Technology, China Jiang, Yong, Tsinghua University, China

IFS-P3.2: LEARNING TO FOOL THE SPEAKER RECOGNITION

Li, Jiguo, Chinese Academy of Sciences, China Zhang, Xinfeng, Chinese Academy of Sciences, China Jia, Chuanmin, Peking University, China Xu, Jizheng, ByteDance, China Zhang, Li, ByteDance, United States Wang, Yue, ByteDance, China Ma, Siwei, Peking University, China Gao, Wen, Peking University, China

IFS-P3.3: TS-FEN: PROBING FEATURE SELECTION STRATEGY FOR FACE ANTI-SPOOFING

Peng, Dongmei, Wuhan University, China Xiao, Jing, Wuhan University, China Zhu, Rong, Wuhan University, China Gao, Ge, Wuhan University, China

IFS-P3.4: IMPROVING CROSS-DATASET PERFORMANCE OF FACE PRESENTATION ATTACK DETECTION SYSTEMS USING FACE RECOGNITION DATASETS

Mohammadi, Amir, Idiap Research Institue, Switzerland Bhattacharjee, Sushil, Idiap Research Institue, Switzerland Marcel, Sebastien, Idiap Research Institue, Switzerland

IFS-P3.5: SSTNET: DETECTING MANIPULATED FACES THROUGH SPATIAL, STEGANALYSIS AND TEMPORAL FEATURES

Wu, Xi, Alibaba Group, China Xie, Zhen, Alibaba Group, China Gao, YuTao, Alibaba Group, China Xiao, Yu, Alibaba Group, China

IFS-P3.6: MULTIMODAL VIOLENCE DETECTION IN VIDEOS

Peixoto, Bruno, University of Campinas, Brazil Lavi, Bahram, University of Campinas, Brazil Bestagini, Paolo, Politecnico di Milano, Italy Dias, Zanoni, University of Campinas, Brazil Rocha, Anderson, University of Campinas, Brazil

IFS-P3.7: OPEN SET VIDEO CAMERA MODEL VERIFICATION

Mayer, Owen, Drexel University, United States Hosler, Brian, Drexel University, United States Stamm, Matthew, Drexel University, United States

IFS-P3.8: MULTI-PATCH AGGREGATION MODELS FOR RESAMPLING DETECTION

Lamba, Mohit, Indian Institute of Technology Madras, India Mitra, Kaushik, Indian Institute of Technology Madras, India

IFS-P3.9: IMPROVING THE CHRONOLOGICAL SORTING OF IMAGES THROUGH OCCLUSION: A STUDY ON THE NOTRE-DAME CATHEDRAL FIRE

Padilha, Rafael, University of Campinas, Brazil Alcântara Andaló, Fernanda, University of Campinas, Brazil Rocha, Anderson, University of Campinas, Brazil

IFS-P3.10: EFFECTIVENESS OF RANDOM DEEP FEATURE SELECTION FOR SECURING IMAGE MANIPULATION DETECTORS AGAINST ADVERSARIAL EXAMPLES

Barni, Mauro, University of Siena, Italy Nowroozi, Ehsan, University of Siena, Italy Tondi, Benedetta, University of Siena, Italy Zhang, Bowen, Xidian University, China

IFS-P3.11: A DENSE U-NET WITH CROSS-LAYER INTERSECTION FOR DETECTION AND LOCALIZATION OF IMAGE FORGERY

Zhang, Rongyu, Sun Yat-Sen University, China Ni, Jiangqun, Sun Yat-Sen University, China

Signal Processing for Internet of Things

Thursday, 7 May, 11:30 - 13:30

IOT-P1 - Internet of Things

IOT-P1.1: INFORMATION FLOW OPTIMIZATION IN INFERENCE NETWORKS

Deshmukh, Aditya, University of Illinois at Urbana–Champaign, United States Liu, Jing, University of Illinois at Urbana–Champaign, Veeravalli, Venugopal, University of Illinois at Urbana–Champaign, United States Verma, Gunjan, U.S. Army Research Laboratory, United States

IOT-P1.2: EXPLOITING TWO-DIMENSIONAL SYMMETRY AND UNIMODALITY FOR MODEL-FREE SOURCE LOCALIZATION IN HARSH ENVIRONMENT

Chen, Junting, Chinese University of Hong Kong, Shenzhen, China

IOT-P1.3: UNCERTAINTY QUANTIFICATION FOR REMAINING USEFUL LIFETIME PREDICTION WITH MULTI-CHANNEL SENSORY DATA

Deng, Yingjun, Tianjin University, China Wu, Huaming, Tianjin University, China Jiang, Chao, Research Institute of Physical & Chemical Engineering of Nuclear Industry, China

IOT-P1.4: VIMO: VITAL SIGN MONITORING USING COMMODITY MILLIMETER WAVE RADIO

Wang, Fengyu, University of Maryland, College Park, United States Zhang, Feng, University of Maryland, College Park, United States Wu, Chenshu, University of Maryland, College Park, United States Wang, Beibei, University of Maryland, College Park, United States Liu, K. J. Ray, University of Maryland, College Park, United States

IOT-P1.5: TIME REVERSAL BASED ROBUST GESTURE RECOGNITION USING WIFI

Regani, Sai Deepika, University of Maryland, College Park, United States Wang, Beibei, University of Maryland, College Park, United States Wu, Min, University of Maryland, College Park, United States Liu, K. J. Ray, University of Maryland, College Park, United States

IOT-P1.6: NONCOHERENT MAXIMUM-LIKELIHOOD DETECTION FOR AMBIENT BACKSCATTERING COMMUNICATIONS OVER AMBIENT OFDM SIGNALS

Darsena, Donatella, University of Naples Parthenope, Italy

IOT-P1.7: BANDIT SAMPLING FOR FASTER ACTIVITY AND DATA DETECTION IN MASSIVE RANDOM ACCESS

Dong, Jialin, ShanghaiTech University and Hong Kong Polytechnic University, China Zhang, Jun, Hong Kong Polytechnic University, Hong Kong SAR of China Shi, Yuanming, ShanghaiTech University, China

IOT-P1.8: CONSENSUS-BASED DISTRIBUTED CLUSTERING FOR IOT

Chen, Hui, Tongji University, China Yu, Hao, Tongji University, China Zhao, Shengjie, Tongji University, China Shi, Qingjiang, Tongji University, China

IOT-P1.9: ENERGY-EFFICIENT 3D UAV TRAJECTORY DESIGN FOR DATA COLLECTION IN WIRELESS SENSOR NETWORKS

Bonilla Licea, Daniel, International University of Rabat, Morocco Nurellari, Edmond, University of Lincoln, United Kingdom Ghogho, Mounir, International University of Rabat, United Kingdom

IOT-P1.10: APPLICATION INFORMED MOTION SIGNAL PROCESSING FOR FINGER MOTION TRACKING USING WEARABLE SENSORS

Liu, Yilin, Pennsylvania State University, United States Jiang, Fengyang, Pennsylvania State University, United States Gowda, Mahanth, Pennsylvania State University, United States

IOT-P1.11: INSTANT ADAPTIVE LEARNING: AN ADAPTIVE FILTER BASED FAST LEARNING MODEL CONSTRUCTION FOR SENSOR SIGNAL TIME SERIES CLASSIFICATION ON EDGE DEVICES

Pal, Arpan, Tata Consultancy Services, India Ukil, Arijit, Tata Consultancy Services, India Deb, Trisrota, Tata Consultancy Services, India Sahu, Ishan, Tata Consultancy Services, India Majumdar, Angshul, Indraprastha Institute of Information Technology Delhi, India

Image, Video, and Multidimensional Signal Processing

Tuesday, 5 May, 11:30 - 13:30

IVMSP-L1 - Inverse Problems in Image/Video Processing I

IVMSP-L1.1: SHAPE FROM BANDWIDTH: CENTRAL PROJECTION CASE

Elhami, Golnoosh, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Scholefield, Adam, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Vetterli, Martin, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

IVMSP-L1.2: SEQUENTIAL DEEP UNROLLING WITH FLOW PRIORS FOR ROBUST VIDEO DERAINING

Xue, Xinwei, Dalian University of Technology, China Ding, Ying, Dalian University of Technology, China Mu, Pan, Dalian University of Technology, China Ma, Long, Dalian University of Technology, China Liu, Risheng, Dalian University of Technology, China Fan, Xin, Dalian University of Technology, China

IVMSP-L1.3: A FAST AND ACCURATE SUPER-RESOLUTION NETWORK USING PROGRESSIVE RESIDUAL LEARNING

Liu, Hong, Peking University Shenzhen Graduate School, China Lu, Zhisheng, Peking University Shenzhen Graduate School, China Shi, Wei, Peking University Shenzhen Graduate School, China Tu, Juanhui, Tencent, China

IVMSP-L1.4: REV-AE: A LEARNED FRAME SET FOR IMAGE RECONSTRUCTION

Li, Shaohui, Shanghai Jiao Tong University, China Zheng, Ziyang, Shanghai Jiao Tong University, China Dai, Wenrui, Shanghai Jiao Tong University, China Zou, Junni, Shanghai Jiao Tong University, China Xiong, Hongkai, Shanghai Jiao Tong University, China

IVMSP-L1.5: DECOMPOSED CYCLEGAN FOR SINGLE IMAGE DERAINING WITH UNPAIRED DATA

Han, Kewen, Nanjing University of Science and Technology, China Xiang, Xinguang, Nanjing University of Science and Technology, China

IVMSP-L1.6: SLICENET: SLICE-WISE 3D SHAPES RECONSTRUCTION FROM SINGLE IMAGE

Wu, Yunjie, Nanjing University, China Sun, Zhengxing, Nanjing University, China Song, Youcheng, Nanjing University, China Sun, Yunhan, Jiangsu University of Science and Technology, China Shi, Jinlong, Jiangsu University of Science and Technology, China

Wednesday, 6 May, 11:30 - 13:30

IVMSP-L2 - Image/Video Analysis II

IVMSP-L2.1: SIGHT TO SOUND: AN END-TO-END APPROACH FOR VISUAL PIANO TRANSCRIPTION

Koepke, A. Sophia, University of Oxford, United Kingdom Wiles, Olivia, University of Oxford, United Kingdom Moses, Yael, The Interdisciplinary Centre, Israel Zisserman, Andrew, University of Oxford, United Kingdom

IVMSP-L2.2: EXOCENTRIC TO EGOCENTRIC IMAGE GENERATION VIA PARALLEL GENERATIVE ADVERSARIAL NETWORK

Liu, Gaowen, Texas State University, United States Tang, Hao, University of Trento, Italy Latapie, Hugo, Cisco, United States Yan, Yan, Texas State University, United States

IVMSP-L2.3: FOCUS ON SEMANTIC CONSISTENCY FOR CROSS-DOMAIN CROWD UNDERSTANDING

Han, Tao, Northwestern Polytechnical University, China Gao, Junyu, Northwestern Polytechnical University, China Yuan, Yuan, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China

IVMSP-L2.4: IMPROVED REAL-TIME VISUAL TRACKING VIA ADVERSARIAL LEARNING

Zhong, Haoxiang, Tsinghua University, China Yan, Xiyu, Tsinghua University, China Jiang, Yong, Tsinghua University, China Xia, Shu-Tao, Tsinghua University, China

IVMSP-L2.5: SPATIAL-TEMPORAL FEATURE AGGREGATION NETWORK FOR VIDEO OBJECT DETECTION

Chen, Zhu, University of Science and Technology of China, China Li, Weihai, University of Science and Technology of China, China Fei, Chi, University of Science and Technology of China, China Liu, Bin, University of Science and Technology of China, China Yu, Nenghai, University of Science and Technology of China, China

Wednesday, 6 May, 16:30 - 18:30

IVMSP-L3 - Image Emerging Topics

IVMSP-L3.1: USING PANORAMIC VIDEOS FOR MULTI-PERSON LOCALIZATION AND TRACKING IN A 3D PANORAMIC COORDINATE

Yang, Fan, RIKEN, Center for Advanced Intelligence Project (AIP) & NARA Institute of Science and Technology, Japan Li, Feiran, Osaka University, Japan Wu, Yang, Kyoto University, Japan Sakti, Sakriani, RIKEN, Center for Advanced Intelligence Project (AIP) & NARA Institute of Science and Technology, Japan Nakamura, Satoshi, RIKEN, Center for Advanced Intelligence Project (AIP) & NARA Institute of Science and Technology, Japan

IVMSP-L3.2: POSITION CONSTRAINT LOSS FOR FASHION LANDMARK ESTIMATION

Liu, Hong, Peking University Shenzhen Graduate School, China Song, Meijia, Peking University Shenzhen Graduate School, China Shi, Wei, Peking University Shenzhen Graduate School, China Li, Xia, Peking University Shenzhen Graduate School, China

IVMSP-L3.3: RECEPTIVE FIELD PYRAMID NETWORK FOR OBJECT DETECTION

Wu, Faming, Sun Yat-Sen University, China Ma, Andy J, Sun Yat-Sen University, China Pan, Yangshan, Sun Yat-Sen University, China Gao, Yuan, Sun Yat-Sen University, China Yan, Xiaowei, Sun Yat-Sen University, China

IVMSP-L3.4: ROBUST VISUAL TRACKING WITH CONTEXT-BASED ACTIVE OCCLUSION RECOGNITION

Gu, Yueyang, Shanghai Jiao Tong University, China Qiao, Yu, Shanghai Jiao Tong University, China Xu, Kuan, Shanghai Jiao Tong University, China Xu, Hang, Shanghai Jiao Tong University, China Fang, Xingqi, Shanghai Jiao Tong University, China

IVMSP-L3.5: LEVERAGING ORDINAL REGRESSION WITH SOFT LABELS FOR 3D HEAD POSE ESTIMATION FROM POINT SETS

Xiao, Shihua, University of Electronic Science and Technology of China, China Sang, Nan, University of Electronic Science and Technology of China, China Wang, Xupeng, University of Electronic Science and Technology of China, China Ma, Xiangtian, University of Electronic Science and Technology of China, China

Wednesday, 6 May, 16:30 - 18:30

IVMSP-L4 - Machine Learning For Image/Video Processing III

IVMSP-L4.1: SOLVING MISSING-ANNOTATION OBJECT DETECTION WITH BACKGROUND RECALIBRATION LOSS

Zhang, Han, Carnegie Mellon University, United States Chen, Fangyi, Carnegie Mellon University, United States Shen, Zhiqiang, Carnegie Mellon University, United States Hao, Qiqi, Beihang University, China Zhu, Chenchen, Carnegie Mellon University, United States Savvides, Marios, Carnegie Mellon University, United States

IVMSP-L4.2: FACE FEATURE RECOVERY VIA TEMPORAL FUSION FOR PERSON SEARCH

Fan, Cheng-Yu, National Taiwan University, Taiwan Liu, Chao-Peng, National Taiwan University, Taiwan Wang, Kuan-Chun, National Taiwan University, Taiwan Jhan, Jiun-Hao, National Taiwan University, Taiwan Wang, Yu-Chiang Frank, National Taiwan University, Taiwan Chen, Jun-Cheng, Academia Sinica, Taiwan

IVMSP-L4.3: EDGEFOOL: AN ADVERSARIAL IMAGE ENHANCEMENT FILTER

Shahin Shamsabadi, Ali, Queen Mary University of London, United Kingdom Oh, Changjae, Queen Mary University of London, United Kingdom Cavallaro, Andrea, Queen Mary University of London, United Kingdom

IVMSP-L4.4: FACIAL FEATURE EMBEDDED CYCLEGAN FOR VIS-NIR TRANSLATION

Wang, Huijiao, Wuhan University, China Zhang, Haijian, Wuhan University, China Yu, Lei, Wuhan University, China Wang, Li, Agency for Science, Technology and Research (A*STAR), Singapore Yang, Xulei, Agency for Science, Technology and Research (A*STAR), Singapore

IVMSP-L4.5: DEEP IMAGE DEBLURRING USING LOCAL CORRELATION BLOCK

Su, Wei, Northwestern Polytechnical University, China Yuan, Yuan, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China

IVMSP-L4.6: GLOBAL STRUCTURE GRAPH GUIDED FINE-GRAINED VEHICLE RECOGNITION

Wang, Chuanming, Beijing University of Posts and Telecommunications, China Fu, Huiyuan, Beijing University of Posts and Telecommunications, China Ma, Huadong, Beijing University of Posts and Telecommunications, China

Thursday, 7 May, 11:30 - 13:30

IVMSP-L5 - Image/Video Storage, and Retrieval

IVMSP-L5.1: TRIPLET LOSS FEATURE AGGREGATION FOR SCALABLE HASH

Jia, Wei, University of Missouri Kansas City, United States Li, Li, University of Missouri Kansas City, United States Li, Zhu, University of Missouri Kansas City, United States Zhao, Shuai, Tencent, United States Liu, Shan, Tencent, United States

IVMSP-L5.2: HDMFH: HYPERGRAPH BASED DISCRETE MATRIX FACTORIZATION HASHING FOR MULTIMODAL RETRIEVAL

Gao, Jing, Dalian University of Technology, China Zhang, Wenjun, Dalian University of Technology, China Chen, Zhikui, Dalian University of Technology, China Zhong, Fangming, Dalian University of Technology, China

IVMSP-L5.3: MULTI-SCALE DEEP FEATURE FUSION FOR VEHICLE RE-IDENTIFICATION

Cheng, Yiting, Fudan University, China Zhang, Chuanfa, Fudan University, China Gu, Kangzheng, Fudan University, China Qi, Lizhe, Fudan University, China Gan, Zhongxue, Fudan University, China Zhang, Wenqiang, Fudan University, China

IVMSP-L5.4: CROWDSOURCING-BASED RANKING AGGREGATION FOR PERSON RE-IDENTIFICATION

Yu, Yinxue, Wuhan University, China Liang, Chao, Wuhan University, China Ruan, Weijian, Wuhan University, China Jiang, Longxiang, Wuhan University, China

IVMSP-L5.5: DEEP MULTI-REGION HASHING

Zhou, Quan, Shandong University, China Nie, Xiushan, Shandong Jianzhu University, China Shi, Yang, Shandong University, China Liu, Xingbo, Shandong University, China Yin, Yilong, Shandong University, China

IVMSP-L5.6: SEMANTIC AUGMENTATION HASHING FOR ZERO-SHOT IMAGE RETRIEVAL

Zhong, Fangming, Dalian University of Technology, China Chen, Zhikui, Dalian University of Technology, China Min, Geyong, University of Exeter, United Kingdom Xia, Feng, Dalian University of Technology, China

Friday, 8 May, 08:00 - 10:00

IVMSP-L6 - Image/Video Synthesis, Rendering and Visualization

IVMSP-L6.1: END-TO-END GENERATION OF TALKING FACES FROM NOISY SPEECH

Eskimez, Sefik Emre, University of Rochester, United States Maddox, Ross K., University of Rochester, United States Xu, Chenliang, University of Rochester, United States Duan, Zhiyao, University of Rochester, United States

IVMSP-L6.2: UNSUPERVISED IMAGE-TO-IMAGE TRANSLATION VIA FAIR REPRESENTATION OF GENDER BIAS

Hwang, Sunhee, Yonsei University, Korea (South) Byun, Hyeran, Yonsei University, Korea (South)

IVMSP-L6.3: VIDEO FRAME INTERPOLATION VIA EXCEPTIONAL MOTION-AWARE SYNTHESIS

Park, Minho, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Lee, Sangmin, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Ro, Yong Man, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

IVMSP-L6.4: LOOK GLOBALLY, AGE LOCALLY: FACE AGING WITH AN ATTENTION MECHANISM

Zhu, Haiping, School of Computer Science, Fudan University, China Huang, Zhizhong, School of Computer Science, Fudan University, China Shan, Hongming, School of Computer Science, Fudan University, China Zhang, Junping, School of Computer Science, Fudan University, China

IVMSP-L6.5: DESIGN-GAN: CROSS-CATEGORY FASHION TRANSLATION DRIVEN BY LANDMARK ATTENTION

Lang, Yining, Alibaba and Beijing Institute of Technology, China He, Yuan, Alibaba, China Dong, Jianfeng, Zhejiang Gongshang Univresity and Alibaba-Zhejiang University Joint Institute of Frontier Technologies, China Yang, Fan, Alibaba, China Xue, Hui, Alibaba, China

IVMSP-L6.6: INTENSITY-IMAGE RECONSTRUCTION FOR EVENT CAMERAS USING CONVOLUTIONAL NEURAL NETWORK

Chen, Yongwei, Peking University, China Chen, Weitong, Peking University, China Cao, Xixin, Peking University, China Hua, Qianting, Peking University, China

Friday, 8 May, 08:00 - 10:00

IVMSP-L7 - Point Cloud and Depth Processing

IVMSP-L7.1: COLOUR COMPRESSION OF PLENOPTIC POINT CLOUDS USING RAHT-KLT WITH PRIOR COLOUR CLUSTERING AND SPECULAR/DIFFUSE COMPONENT SEPARATION

Krivokuća, Maja, INRIA Rennes, France Guillemot, Christine, INRIA Rennes, France

IVMSP-L7.2: SUPER-RESOLUTION OF 3D COLOR POINT CLOUDS VIA FAST GRAPH TOTAL VARIATION

Dinesh, Chinthaka, Simon Fraser University, Canada Cheung, Gene, York University, Canada Bajić, Ivan V., Simon Fraser University, Canada

IVMSP-L7.3: DEEP MONOCULAR VIDEO DEPTH ESTIMATION USING TEMPORAL ATTENTION

Ren, Haoyu, Samsung Semiconductor, Inc., United States El-khamy, Mostafa, Samsung Semiconductor, Inc., United States Lee, Jungwon, Samsung Semiconductor, Inc., United States

IVMSP-L7.4: ROBUST FULL-FOV DEPTH ESTIMATION IN TELE-WIDE CAMERA SYSTEM

Guo, Kai, Samsung Electronics, Korea (South) Song, Seongwook, Samsung Electronics, Korea (South) Chang, Soonkeun, Samsung Electronics, Korea (South) Kim, Tae-ui, Samsung Electronics, Korea (South) Han, Seungmin, Samsung Electronics, Korea (South) Kim, Irina, Samsung Electronics, Korea (South)

IVMSP-L7.5: MANET: MULTI-SCALE AGGREGATED NETWORK FOR LIGHT FIELD DEPTH ESTIMATION

Li, Yan, Université Libre De Bruxelles,, Belgium Zhang, Lu, INSA de Rennes, France Wang, Qiong, Zhejiang University of Technology, China Lafruit, Gauthier, Université Libre De Bruxelles, Belgium

IVMSP-L7.6: EPI-NEIGHBORHOOD DISTRIBUTION BASED LIGHT FIELD DEPTH ESTIMATION

Li, Junke, Tsinghua University, China Jin, Xin, Tsinghua University, China

Friday, 8 May, 11:45 - 13:45

IVMSP-L8 - Multi-scale and Wavelet Processing

IVMSP-L8.1: STOCHASTIC MULTI-SCALE AGGREGATION NETWORK FOR CROWD COUNTING

Wang, Mingjie, Memorial University of Newfoundland, University of Guelph, Canada Cai, Hao, Memorial University of Newfoundland, University of Guelph, Canada Zhou, Jun, Dalian University of Technology, China Gong, Minglun, University of Guelph, Canada

IVMSP-L8.2: MDR-SURV: A MULTI-SCALE DEEP LEARNING-BASED RADIOMICS FOR SURVIVAL PREDICTION IN PULMONARY MALIGNANCIES

Afshar, Parnian, Concordia University, Canada Oikonomou, Anastasia, University of Toronto, Canada Plataniotis, Konstantinos N., University of Toronto, Canada Mohammadi, Arash, Concordia University, Canada

IVMSP-L8.3: LEARNING A GENERIC ADAPTIVE WAVELET SHRINKAGE FUNCTION FOR DENOISING

Alt, Tobias, Saarland University, Germany Weickert, Joachim, Saarland University, Germany

IVMSP-L8.4: MULTI-SCALE RESIDUAL NETWORK FOR IMAGE CLASSIFICATION

Zhong, Xian, Wuhan University of Technology, China Gong, Oubo, Wuhan University of Technology, China Huang, Wenxin, Wuhan University, China Yuan, Jingling, Wuhan University of Technology, China Ma, Bo, University of Florida, United States Liu, Ryan Wen, Wuhan University of Technology, China

IVMSP-L8.5: DEEP MULTI-SCALE GABOR WAVELET NETWORK FOR IMAGE RESTORATION

Dong, Hang, Xi'an Jiaotong University, China Zhang, Xinyi, Xi'an Jiaotong University, China Guo, Yu, Xi'an Jiaotong University, China Wang, Fei, Xi'an Jiaotong University, China

IVMSP-L8.6: RESIDUAL ATTENTION NETWORK FOR WAVELET DOMAIN SUPER-RESOLUTION

Liu, Jing, School of Software Engineering, East China Normal University, China Xie, Yuan, School of Software Engineering, East China Normal University, China Song, Haichuan, School of Software Engineering, East China Normal University, China Yuan, Wang, School of Software Engineering, East China Normal

University, China Ma, Lizhuang, School of Software Engineering, East China Normal University, China

Friday, 8 May, 15:15 - 17:15

IVMSP-L9 - Image/Video Coding II

IVMSP-L9.1: AN ADAPTIVE LINEAR ESTIMATOR BASED APPROACH TO BI-DIRECTIONAL MOTION COMPENSATED PREDICTION

Li, Bohan, University of California, Santa Barbara, United States Han, Jingning, Google LLC, United States Rose, Kenneth, University of California, Santa Barbara, United States

IVMSP-L9.2: SPHERICAL VIDEO CODING WITH GEOMETRY AND REGION ADAPTIVE TRANSFORM DOMAIN TEMPORAL PREDICTION

Vishwanath, Bharath, University of California, Santa Barbara, United States Rose, Kenneth, University of California, Santa Barbara, United States

IVMSP-L9.3: VERSATILE VIDEO CODING AND SUPER-RESOLUTION FOR EFFICIENT DELIVERY OF 8K VIDEO WITH 4K BACKWARD-COMPATIBILITY

Bonnineau, Charles, IRT b<>com, France Hamidouche, Wassim, Institut d'Electronique et de Télécommunications de Rennes / Institut Nationnal des Sciences Appliquées, France Travers, Jean-François, TDF, France Déforges, Olivier, Institut d'Electronique et de Télécommunications de Rennes / Institut Nationnal des Sciences Appliquées, France

IVMSP-L9.4: ALTERNATIVE HALF-SAMPLE INTERPOLATION FILTERS FOR VERSATILE VIDEO CODING

Henkel, Anastasia, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Zupancic, Ivan, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Bross, Benjamin, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Winken, Martin, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Schwarz, Heiko, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Marpe, Detlev, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Wiegand, Thomas, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany

IVMSP-L9.5: JUST NOTICEABLE DISTORTION BASED PERCEPTUALLY LOSSLESS INTRA CODING

Shen, Xuelin, City University of Hong Kong, Hong Kong SAR of China Zhang, Xinfeng, University of Chinese Academy of Sciences, China Wang, Shiqi, City University of Hong Kong, Hong Kong SAR of China Kwong, Sam, City University of Hong Kong, Hong Kong SAR of China Zhu, Guopu, Chinese Academy of Sciences, China

IVMSP-L9.6: EFFICIENT DEEP LEARNING-BASED LOSSY IMAGE COMPRESSION VIA ASYMMETRIC AUTOENCODER AND PRUNING

Kim, Jun-Hyuk, Yonsei University, Korea (South) Choi, Jun-Ho, Yonsei University, Korea (South) Chang, Jaehyuk, NAVER WEBTOON Corp., Korea (South) Lee, Jong-Seok, Yonsei University, Korea (South)

Friday, 8 May, 15:15 - 17:15

IVMSP-L10 - Image/Video Processing III

IVMSP-L10.1: DERIVING COMPACT FEATURE REPRESENTATIONS VIA ANNEALED CONTRACTION

Shah, Muhammad, Carnegie Mellon University, United States Raj, Bhiksha, Carnegie Mellon University, United States

IVMSP-L10.2: FAST CLUSTERING WITH CO-CLUSTERING VIA DISCRETE NON-NEGATIVE MATRIX FACTORIZATION FOR IMAGE IDENTIFICATION

Nie, Feiping, Northwestern Polytechnical University, China Pei, Shenfei, Northwestern Polytechnical University, China Wang, Rong, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

IVMSP-L10.3: COMPRESSIVE ADAPTIVE BILATERAL FILTERING

Nair, Pravin, Indian Institute of Science, India Gavaskar, Ruturaj, Indian Institute of Science, India Chaudhury, Kunal Narayan, Indian Institute of Science, India

IVMSP-L10.4: ATTENTION MECHANISM ENHANCED KERNEL PREDICTION NETWORKS FOR DENOISING OF BURST IMAGES

Zhang, Bin, Southeast University, China Jin, Shenyao, Jiangsu Industrial Technology Research Institute, China Xia, Yili, Southeast University, China Huang, Yongming, Southeast University, China Xiong, Zixiang, Texas A&M University, United States

IVMSP-L10.5: IMAGE RESTORATION VIA DATA-DEPENDENT PROXIMAL AVERAGED OPTIMIZATION

Mu, Pan, Dalian University of Technology, China Chen, Jian, Dalian University of Technology, China Liu, Risheng, Dalian University of Technology, China Zhong, Wei, Dalian University of Technology, China Fan, Xin, Dalian University of Technology, China Luo, Zhongxuan, Dalian University of Technology, China

IVMSP-L10.6: MULTI-WAY MULTI-VIEW DEEP AUTOENCODER FOR IMAGE FEATURE LEARNING WITH MULTI-LEVEL GRAPH REGULARIZATION

Fang, Zheng, Zhejiang University, China Zhou, Sen, Netease Inc., China Li, Xi, Zhejiang university, China Zhu, Haoqi, Netease Inc., China

Tuesday, 5 May, 11:30 - 13:30

IVMSP-P1 - Image/Video Representation

IVMSP-P1.1: EXPOSURE INTERPOLATION VIA HYBRID LEARNING

Zheng, Chaobing, Wuhan University of Science and Technology, China Li, Zhengguo, Institute for Infocomm Research, Singapore Yang, Yi, Wuhan University of Science and Technology, China Wu, Shiqian, Wuhan University of Science and Technology, China

IVMSP-P1.2: LEARNING SPATIO-TEMPORAL REPRESENTATIONS WITH TEMPORAL SQUEEZE POOLING

Huang, Guoxi, University of York, United Kingdom Bors, Adrian, University of York, United Kingdom

IVMSP-P1.3: FINE-GRAINED GIANT PANDA IDENTIFICATION

Ding, Rizhi, Xi'an Jiaotong University, China Wang, Le, Xi'an Jiaotong University, China Zhang, QiLin, HERE Technologies, United States Niu, Zhenxing, Alibaba Group, China Zheng, Nanning, Xi'an Jiaotong University, China Hua, Gang, Wormpex AI Research, United States

IVMSP-P1.4: LEARNING FROM DANCES: POSE-INVARIANT RE-IDENTIFICATION FOR MULTI-PERSON TRACKING

Ho, Hsuan-I, ETH Zürich, Switzerland Shim, Minho, Independent, Korea (South) Wee, Dongyoon, NAVER Corporation, Korea (South)

IVMSP-P1.5: LEARNING FRACTIONAL ORTHOGONAL LATENT CONSISTENT FEATURES FOR FACE HALLUCINATION AND RECOGNITION

Yuan, Yun-Hao, Yangzhou University, China Li, Jin, Yangzhou University, China Li, Yun, Yangzhou University, China Qiang, Jipeng, Yangzhou University, China Li, Bin, Yangzhou University, China

IVMSP-P1.6: SPARSE MODELING ON DISTRIBUTED ENCRYPTION DATA

Bandoh, Yukihiro, NTT, Japan Nakachi, Takayuki, NTT, Japan Kiya, Hitoshi, Tokyo Metropolitan University, Japan

IVMSP-P1.7: S-DOD-CNN: DOUBLY INJECTING SPATIALLY-PRESERVED OBJECT INFORMATION FOR EVENT RECOGNITION

Lee, Hyungtae, Booz Allen Hamilton Inc., United States Eum, Sungmin, Booz Allen Hamilton Inc., United States Kwon, Heesung, U.S. Army Research Laboratory, United States

IVMSP-P1.8: ANGULAR DISCRIMINATIVE DEEP FEATURE LEARNING FOR FACE VERIFICATION

Wu, Bowen, Midea Corporate Research Center, China Wu, Huaming, Tianjin University, China

IVMSP-P1.9: 3D DEFORMATION SIGNATURE FOR DYNAMIC FACE RECOGNITION

Shabayek, Abd El Rahman, University of Luxembourg, Luxembourg Aouada, Djamila, University of Luxembourg, Luxembourg Cherenkova, Kseniya, Artec 3D, Luxembourg Gusev, Gleb, Artec 3D, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

IVMSP-P1.10: ASR IS ALL YOU NEED: CROSS-MODAL DISTILLATION FOR LIP READING

Afouras, Triantafyllos, University of Oxford, United Kingdom Chung, Joon Son, University of Oxford and Naver Corporation, United Kingdom Zisserman, Andrew, University of Oxford, United Kingdom

IVMSP-P1.11: COLOR STABILIZATION FOR MULTI-CAMERA LIGHT-FIELD IMAGING

Vu Thanh, Olivier, INP Grenoble, France Canham, Trevor, Universitat Pompeu Fabra, Spain Vazquez-Corral, Javier, Universitat Pompeu Fabra, Spain Gil-Rodríguez, Raquel, Justus-Leibig Universität, Germany Bertalmío, Marcelo, Universitat Pompeu Fabra, Spain

IVMSP-P1.12: LEARNING SPATIO-TEMPORAL CONVOLUTIONAL NETWORK FOR REAL-TIME OBJECT TRACKING

Chen, Hanzao, South China University of Technology, China Xing, Xiaofen, South China University of Technology, China Xu, Xiangmin, South China University of Technology, China

Tuesday, 5 May, 16:30 - 18:30

IVMSP-P2 - Image/Video Coding I

IVMSP-P2.1: LEARNED LOSSLESS IMAGE COMPRESSION WITH A HYPERPRIOR AND DISCRETIZED GAUSSIAN MIXTURE LIKELIHOODS

Cheng, Zhengxue, Waseda University, Japan Sun, Heming, Waseda University, Japan Takeuchi, Masaru, Waseda University, Japan Katto, Jiro, Waseda University, Japan

IVMSP-P2.2: VARIABLE BITRATE IMAGE COMPRESSION WITH QUALITY SCALING FACTORS

Chen, Tong, Nanjing University, China Ma, Zhan, Nanjing University, China

IVMSP-P2.3: BINARY PROBABILITY MODEL FOR LEARNING BASED IMAGE COMPRESSION

Ladune, Théo, Orange, France Philippe, Pierrick, Orange, France Hamidouche, Wassim, INSA Rennes, France Zhang, Lu, INSA Rennes, France Déforges, Olivier, Institut d'Electronique et de Télécommunications de Rennes / Institut Nationnal des Sciences Appliquées, France

IVMSP-P2.4: IMPROVED PROBABILITY MODELLING FOR EXCEPTION HANDLING IN LOSSLESS SCREEN CONTENT CODING

Strutz, Tilo, Leipzig University of Telecommunications, Germany

IVMSP-P2.5: SPATIALLY ADAPTIVE INTRA MODE PRE-SELECTION FOR ERP 360 VIDEO CODING

Storch, Iago, Federal University of Pelotas, Brazil Zatt, Bruno, Federal University of Pelotas, Brazil Agostini, Luciano, Federal University of Pelotas, Brazil Corrêa, Guilherme, Federal University of Pelotas, Brazil da Silva Cruz, Luis A., University of Coimbra, Portugal Palomino, Daniel, Federal University of Pelotas, Brazil

IVMSP-P2.6: SEMI-REGULAR GEOMETRIC KERNEL ENCODING & RECONSTRUCTION FOR VIDEO COMPRESSION

Jiang, Xiaochong, Zhengzhou University, China Yang, Cheng, York University, Canada Cheung, Gene, York University, Canada Takamura, Seishi, NTT Corporation, Japan

IVMSP-P2.7: LEVERAGING CUBOIDS FOR BETTER MOTION MODELING IN HIGH EFFICIENCY VIDEO CODING

Ahmmed, Ashek, Charles Sturt University, Australia Murshed, Manzur, Federation University, Australia Paul, Manoranjan, Charles Sturt University, Australia

IVMSP-P2.9: ADVERSARIAL VIDEO COMPRESSION GUIDED BY SOFT EDGE DETECTION

Kim, Sungsoo, University of Texas at Austin, United States Park, Jin Soo, University of Texas at Austin, United States Bampis, Christos, Netflix Inc., United States Lee, Jaeseong, University of Texas at Austin, United States Markey, Mia, University of Texas at Austin, United States Dimakis, Alexandros, University of Texas at Austin, United States Bovik, Alan, University of Texas at Austin, United States

IVMSP-P2.10: COMPRESSING FLOW FIELDS WITH EDGE-AWARE HOMOGENEOUS DIFFUSION INPAINTING

Jost, Ferdinand, Saarland University, Germany Peter, Pascal, Saarland University, Germany Weickert, Joachim, Saarland University, Germany

IVMSP-P2.11: ADAPTIVE RESOLUTION CHANGE USING UNCODED AREAS AND DICTIONARY LEARNING-BASED SUPER-RESOLUTION IN VERSATILE VIDEO CODING

Schneider, Jens, RWTH Aachen University, Germany Sauer, Johannes, RWTH Aachen University, Germany Rohlfing, Christian, RWTH Aachen University, Germany

IVMSP-P2.12: RDE-MOGA: AUTOMATIC SELECTION OF RATE-DISTORTION-ENERGY CONTROL POINTS FOR VIDEO ENCODERS USING MUTI-OBJETIVE GENETIC ALGORITHM

Machado, Italo, Federal University of Pelotas, Brazil de Aguiar, Marilton, Federal University of Pelotas, Brazil Porto, Marcelo, Federal University of Pelotas, Brazil Corrêa, Guilherme, Federal University of Pelotas, Brazil Palomino, Daniel, Federal University of Pelotas, Brazil Zatt, Bruno, Federal University of Pelotas, Brazil

Tuesday, 5 May, 16:30 - 18:30

IVMSP-P3 - Machine Learning For Image/Video Processing I

IVMSP-P3.1: A CONNECTED AUTO-ENCODERS BASED APPROACH FOR IMAGE SEPARATION WITH SIDE INFORMATION: WITH APPLICATIONS TO ART INVESTIGATION

Pu, Wei, University College London, United Kingdom Sober, Barak, Duke University, United States Daly, Nathan, National Gallery, United Kingdom Higgitt, Catherine, National Gallery, United Kingdom Daubechies, Ingrid, Duke University, United States Rodrigues, Miguel, University College London, United Kingdom

IVMSP-P3.2: SELF-SUPERVISED ADVERSARIAL TRAINING

Chen, Kejiang, University of Science and Technology of China, China Chen, Yuefeng, Alibaba group, China Zhou, Hang, University of Science and Technology of China, China Mao, Xiaofeng, Alibaba group, China Li, Yuhong, Alibaba group, China He, Yuan, Alibaba group, China Xue, Hui, Alibaba group, China Zhang, Weiming, University of Science and Technology of China, China Yu, NengHai, University of Science and Technology of China, China

IVMSP-P3.3: GRAY-SCALE IMAGE COLORIZATION USING CYCLE-CONSISTENT GENERATIVE ADVERSARIAL NETWORKS WITH RESIDUAL STRUCTURE ENHANCER

Johari, Mohammad Mahdi, Sharif University of Technology, Iran Behroozi, Hamid, Sharif University of Technology, Iran

IVMSP-P3.4: ALL YOU NEED IS A SECOND LOOK: TOWARDS TIGHTER ARBITRARY SHAPE TEXT DETECTION

Cao, Meng, Peking University, China Zou, Yuexian, Peking University, China

IVMSP-P3.5: COMPARE LEARNING: BI-ATTENTION NETWORK FOR FEW-SHOT LEARNING

Ke, Li, Alibaba Group, China Pan, Meng, Alibaba Group, China Wen, Weigao, Alibaba Group, China Li, Dong, Alibaba Group, China

IVMSP-P3.6: ARNET:ATTENTION-BASED REFINEMENT NETWORK FOR FEW-SHOT SEMANTIC SEGMENTATION

Li, Rusheng, Shen Zhen Graduate School, Peking University, China Liu, Hanhui, Shen Zhen Graduate School, Peking University, China Zhu, Yuesheng, Shen Zhen Graduate School, Peking University, China Bai, Zhiqiang, Shen Zhen Graduate School, Peking University, China

IVMSP-P3.7: LIGHTDET: A LIGHTWEIGHT AND ACCURATE OBJECT DETECTION NETWORK

Tang, Qiankun, Institute of Computing Technology, Chinese Academy of Sciences, China Li, Jie, Institute of Computing Technology, Chinese Academy of Sciences, China Shi, Zhiping, Capital Normal University, China Hu, Yu, Institute of Computing Technology, Chinese Academy of Sciences, China

IVMSP-P3.8: SELF-SUPERVISED DEEP LEARNING FOR FISHEYE IMAGE RECTIFICATION

Chao, Chun-Hao, National Taiwan University, Taiwan Hsu, Pin-Lun, National Taiwan University, Taiwan Lee, Hung-Yi, National Taiwan University, Taiwan Wang, Yu-Chiang Frank, National Taiwan University, Taiwan

IVMSP-P3.9: SKETCHPPNET: A JOINT PIXEL AND POINT CONVOLUTIONAL NEURAL NETWORK FOR LOW RESOLUTION SKETCH IMAGE RECOGNITION

Zhu, Xianyi, Hunan University, China Xiao, Yi, Hunan University, China Zheng, Yan, Hunan University, China Tan, Guanghua, Hunan University, China Zhou, Shizhe, Hunan University, China

IVMSP-P3.10: ALL IN ONE NETWORK FOR DRIVER ATTENTION MONITORING

Yang, Dawei, Fudan University, China Li, Xinlei, Fudan University, China Dai, Xiaotian, University of York, United Kingdom Zhang, Rui, Fudan University, China Qi, Lizhe, Fudan University, China Zhang, Wenqiang, Fudan University, China Jiang, Zhe, University of York, United Kingdom

IVMSP-P3.11: UNSUPERVISED DOMAIN ADAPTATION FOR SEMANTIC SEGMENTATION WITH SYMMETRIC ADAPTATION CONSISTENCY

Li, Zongyao, Hokkaido University, Japan Togo, Ren, Hokkaido University, Japan Ogawa, Takahiro, Hokkaido University, Japan Haseyama, Miki, Hokkaido University, Japan

IVMSP-P3.12: IQ-STAN: IMAGE QUALITY GUIDED SPATIO-TEMPORAL ATTENTION NETWORK FOR LICENSE PLATE RECOGNITION

Zhang, Cong, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

Wednesday, 6 May, 09:00 - 11:00

IVMSP-P4 - Image/Video Analysis I

IVMSP-P4.1: WEAKLY SUPERVISED SEMANTIC SEGMENTATION FOR REMOTE SENSING HYPERSPECTRAL IMAGING

Moliner, Eloi, Universitat Politecnica de Catalunya, Spain Salgueiro Romero, Luis, Universitat Politecnica de Catalunya, Spain Vilaplana, Veronica, Universitat Politecnica de Catalunya, Spain

IVMSP-P4.2: SOCIAL DATA ASSISTED MULTI-MODAL VIDEO ANALYSIS FOR SALIENCY DETECTION

Xia, Jiangyue, Tsinghua University, China Tian, Jingqi, Tsinghua University, China Xing, Jiankai, Tsinghua University, China Cheng, Jiawen, Tsinghua University, China Zhang, Jun, Tsinghua University, China Wen, Jiangtao, Tsinghua University, China Li, Zhengguang, Alibaba Group, China Lou, Jian, Alibaba Group, China

IVMSP-P4.3: VIEW-ANGLE INVARIANT OBJECT MONITORING WITHOUT IMAGE REGISTRATION

Zhang, Xin, Institute of Automation, Chinese Academy of Sciences, University of Chinese Academy of Sciences, China Huo, Chunlei, Institute of Automation, Chinese Academy of Sciences, University of Chinese Academy of Sciences, China Pan, Chunhong, Institute of Automation, Chinese Academy of Sciences, University of Chinese Academy of Sciences, China

IVMSP-P4.4: HIERARCHICAL SEQUENCE REPRESENTATION WITH GRAPH NETWORK

Chen, Da, Alibaba Group, China Wu, Xiang, Alibaba Group, China Dong, Jianfeng, Zhejiang Gongshang University, China He, Yuan, Alibaba Group, China Xue, Hui, Alibaba Group, China Mao, Feng, Alibaba Group, China

IVMSP-P4.5: MULTI IMAGE DEPTH FROM DEFOCUS NETWORK WITH BOUNDARY CUE FOR DUAL APERTURE CAMERA

Song, Gwangmo, Seoul National University, Korea (South) Kim, Yumee, Seoul National University, Korea (South) Chun, Kukjin, Seoul National University, Korea (South) Lee, Kyoung Mu, Seoul National University, Korea (South)

IVMSP-P4.6: HEIGHT AND WEIGHT ESTIMATION FROM UNCONSTRAINED IMAGES

Altinigne, Can Yilmaz, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Thanou, Dorina, Ecole Polytechnique Fédérale de Lausanne (EPFL),

Switzerland Achanta, Radhakrishna, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

IVMSP-P4.7: SAMPLING STRATEGIES FOR GAN SYNTHETIC DATA

Bhattarai, Binod, Imperial College London, United Kingdom Baek, Seungryul, Imperial College London, United Kingdom Bodur, Rumeysa, Imperial College London, United Kingdom Kim, Tae-Kyun, Imperial College London, United Kingdom

IVMSP-P4.8: AUGLABEL: EXPLOITING WORD REPRESENTATIONS TO AUGMENT LABELS FOR FACE ATTRIBUTE CLASSIFICATION

Bhattarai, Binod, Imperial College London, United Kingdom Bodur, Rumeysa, Imperial College London, United Kingdom Kim, Tae-Kyun, Imperial College London, United Kingdom

IVMSP-P4.9: MULTI-TASK CENTER-OF-PRESSURE METRICS ESTIMATION FROM SKELETON USING GRAPH CONVOLUTIONAL NETWORK

Du, Chen, University of California, San Diego, United States Graham, Sarah, University of California, San Diego, United States Jin, Shiwei, University of California, San Diego, United States Depp, Colin, University of California, San Diego, United States Nguyen, Truong Q., University of California, San Diego, United States

IVMSP-P4.10: REGRESSION BEFORE CLASSIFICATION FOR TEMPORAL ACTION DETECTION

Jin, Cece, Peking University Shenzhen Graduate School, China Zhang, Tao, Peking University Shenzhen Graduate School, China Kong, Weijie, Peking University Shenzhen Graduate School, China Li, Thomas H., Peking University, China Li, Ge, Peking University Shenzhen Graduate School, China

IVMSP-P4.11: MULTI-TASK LEARNING IN AUTONOMOUS DRIVING SCENARIOS VIA ADAPTIVE FEATURE REFINEMENT NETWORKS

Zhai, Mingliang, Harbin Engineering University, China Xiang, Xuezhi, Harbin Engineering University, China Lv, Ning, Harbin Engineering University, China Saddik, Abdulmotaleb El, University of Ottawa, Canada

IVMSP-P4.12: A REAL-TIME DEEP NETWORK FOR CROWD COUNTING

Shi, Xiaowen, East China Normal University, China Li, Xin, East China Normal University, China Wu, Caili, East China Normal University, China Kong, Shuchen, Videt Tech Ltd., China Yang, Jing, East China Normal University, China He, Liang, East China Normal University, China

Wednesday, 6 May, 09:00 - 11:00

IVMSP-P5 - Image/Video Interpretation and Understanding

IVMSP-P5.1: DRIFT DETECTION AND CORRECTION POST-TRACKING

Ghoniemy, Tarek, Concordia University, Canada Amer, Maria A., Concordia University, Canada

IVMSP-P5.2: INTERPRETABLE SELF-ATTENTION TEMPORAL REASONING FOR DRIVING BEHAVIOR UNDERSTANDING

Liu, Yi-Chieh, Georgia Institute of Technology, United States Hsieh, Yung-An, Georgia Institute of Technology, United States Chen, Min-Hung, Georgia Institute of Technology, United States Yang, Chao-Han Huck, Georgia Institute of Technology, United States Tegner, Jesper, King Abdullah University of Science and Technology (KAUST), United Arab Emirates Tsai, Yi-Chang James, Georgia Institute of Technology, United States

IVMSP-P5.3: NON-UNIFORM VIDEO TIME-LAPSE METHOD BASED ON MOTION SCENARIO AND STABILIZATION CONSTRAINT

Guo, Kai, Samsung Electronics, Korea (South) Kim, Nakhoon, Samsung Electronics, Korea (South) Seo, Duckchan, Samsung Electronics, Korea (South) Kim, Irina, Samsung Electronics, Korea (South) Chang, Soonkeun, Samsung Electronics, Korea (South) Min, Dong-Ki, Samsung Electronics, Korea (South) Lim, Sukhwan, Samsung Electronics, Korea (South)

IVMSP-P5.4: KEY ACTION AND JOINT CTC-ATTENTION BASED SIGN LANGUAGE RECOGNITION

Li, Haibo, Tianjin University, China Gao, Liqing, Tianjin University, China Han, Ruize, Tianjin University, China Wan, Liang, Tianjin University, China Feng, Wei, Tianjin University, China

IVMSP-P5.5: LEARNING GEOMETRIC FEATURES WITH DUAL-STREAM CNN FOR 3D ACTION RECOGNITION

Huynh-The, Thien, Kumoh National Institute of Technology, Korea (South) Hua, Cam-Hao, Kyung Hee University, Korea (South) Anh Tu, Nguyen, Nazarbayev University, Kazakhstan Kim, Dong-Seong, Kumoh National Institute of Technology, Korea (South)

IVMSP-P5.6: A DEEP LEARNING APPROACH TO OBJECT AFFORDANCE SEGMENTATION

Thermos, Spyridon, University of Thessaly, Greece Daras, Petros, Centre for Research and Technology Hellas, Greece Potamianos, Gerasimos, University of Thessaly, Greece

IVMSP-P5.7: MULTI-VIEW SHAPE ESTIMATION OF TRANSPARENT CONTAINERS

Xompero, Alessio, Queen Mary University of London, United Kingdom Sanchez-Matilla, Ricardo, Queen Mary University of London, United Kingdom Modas, Apostolos, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Frossard, Pascal, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Cavallaro, Andrea, Queen Mary University of London, United Kingdom

IVMSP-P5.8: RETHINKING TEMPORAL-RELATED SAMPLE FOR HUMAN ACTION RECOGNITION

Wang, Jinpeng, Sun Yat-Sen University, China Li, Shiren, Sun Yat-Sen University, China Duan, Zhikui, Foshan University, China Yuan, Zhihao, Sun Yat-Sen University, China

IVMSP-P5.9: FDDWNET: A LIGHTWEIGHT CONVOLUTIONAL NEURAL NETWORK FOR REAL-TIME SEMANTIC SEGMENTATION

Liu, Jia, Nanjing University of Posts and Telecommunications, China Zhou, Quan, Nanjing University of Posts and Telecommunications, China Qiang, Yong, Nanjing University of Posts and Telecommunications, China Kang, Bin, Nanjing University of Posts and Telecommunications, China Wu, Xiaofu, Nanjing University of Posts and Telecommunications, China Zheng, Baoyu, Nanjing University of Posts and Telecommunications, China

IVMSP-P5.10: COMPLEX PAIRWISE ACTIVITY ANALYSIS VIA INSTANCE LEVEL EVOLUTION REASONING

Paul, Sudipta, University of California, Riverside, United States Torres, Carlos, TwoSixLabs, LLC, United States Chandrasekaran, Shivkumar, Mayachitra, Inc, United States Roy-Chowdhury, Amit K., University of California, Riverside, United States

IVMSP-P5.11: SCENE TEXT RECOGNITION WITH TEMPORAL CONVOLUTIONAL ENCODER

Du, Xiangcheng, East China Normal University, China Ma, Tianlong, East China Normal University, China Zheng, Yingbin, Videt Tech Ltd., China Ye, Hao, Videt Tech Ltd., China Wu, Xingjiao, East China Normal University, China He, Liang, East China Normal University, China

IVMSP-P5.12: ENHANCED ACTION TUBELET DETECTOR FOR SPATIO-TEMPORAL VIDEO ACTION DETECTION

Wu, Yutang, Tongji University, China Wang, Hanli, Tongji University, China
Wang, Shuheng, Tongji University, China Li, Qinyu, Tongji University, China

Wednesday, 6 May, 09:00 - 11:00

IVMSP-P6 - Machine Learning For Image/Video Processing II

IVMSP-P6.1: SECURE FACE RECOGNITION IN EDGE AND CLOUD NETWORKS: FROM THE ENSEMBLE LEARNING PERSPECTIVE

Wang, Yitu, Nippon Telegraph and Telephone Corporation, Japan Nakachi, Takayuki, Nippon Telegraph and Telephone Corporation, Japan

IVMSP-P6.2: LOW COMPLEXITY SINGLE IMAGE SUPER-RESOLUTION WITH CHANNEL SPLITTING AND FUSION NETWORK

Zou, Minqiang, Nanjing University, China Tang, Jie, Nanjing University, China Wu, Gangshan, Nanjing University, China

IVMSP-P6.3: LEARNING SPECTRAL-SPATIAL PRIOR VIA 3DDNCNN FOR HYPERSPECTRAL IMAGE DECONVOLUTION

Wang, Xiuheng, Northwestern Polytechnical University, China Chen, Jie, Northwestern Polytechnical University, China Richard, Cédric, Université de la Cote d'Azur, France Brie, David, Université de Lorraine, France

IVMSP-P6.4: DYNAMICALLY MODULATED DEEP METRIC LEARNING FOR VISUAL SEARCH

Manandhar, Dipu, Nanyang Technological University, Singapore Bastan, Muhammet, Amazon, Inc., United States Yap, Kim-Hui, Nanyang Technological University, Singapore

IVMSP-P6.5: DEEP RESIDUAL NETWORK FOR MSFA RAW IMAGE DENOISING

Pan, Zhihong, Baidu USA, United States Li, Baopu, Baidu USA, United States Cheng, Hsuchun, Baidu Shenzhen R&D, China Bao, Yingze, Baidu USA, United States

IVMSP-P6.6: MSPNET: MULTI-SUPERVISED PARALLEL NETWORK FOR CROWD COUNTING

Wei, Bo, Northwestern Polytechnical University, China Yuan, Yuan, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China

IVMSP-P6.7: VIDEO QUESTION GENERATION VIA SEMANTIC RICH CROSS-MODAL SELF-ATTENTION NETWORKS LEARNING

Wang, Yu-Siang, University of Toronto, Canada Su, Hung-Ting, National Taiwan University, Taiwan Chang, Chen-Hsi, National Taiwan University, Taiwan Liu, Zhe-

Yu, National Taiwan University, Taiwan Hsu, Winston H., National Taiwan University, Taiwan

IVMSP-P6.8: BLIND HYPERSPECTRAL UNMIXING USING DUAL BRANCH DEEP AUTOENCODER WITH ORTHOGONAL SPARSE PRIOR

Dou, Zeyang, Beijing Institute of Technology, China Gao, Kun, Beijing Institute of Technology, China Zhang, Xiaodian, Beijing Institute of Technology, China Wang, Hong, Beijing Institute of Technology, China Wang, Junwei, Beijing Institute of Technology, China

IVMSP-P6.9: CLASSIFICATION OF DEPTH AND SURFACE EDGES WITH DEEP FEATURES

Li, Zhenhao, Shanghai Jiao Tong University, China Wu, Xiaolin, Shanghai Jiao Tong University, China

IVMSP-P6.10: LEARNING TO CHARACTERIZE ADVERSARIAL SUBSPACES

Mao, Xiaofeng, Alibaba Group, China Chen, Yuefeng, Alibaba Group, China Li, Yuhong, Alibaba Group, China He, Yuan, Alibaba Group, China Xue, Hui, Alibaba Group, China

IVMSP-P6.11: VIDEO DEBLURRING VIA 3D CNN AND FOURIER ACCUMULATION LEARNING

Yang, Fan, Nanjing University of Science and Technology, China Xiao, Liang, Nanjing University of Science and Technology, China Yang, Jingxiang, Nanjing University of Science and Technology, China

IVMSP-P6.12: ENHANCED NON-LOCAL CASCADING NETWORK WITH ATTENTION MECHANISM FOR HYPERSPECTRAL IMAGE DENOISING

Ma, Hanwen, Northwestern Polytechnical University, China Liu, Ganchao, Northwestern Polytechnical University, China Yuan, Yuan, Northwestern Polytechnical University, China

Thursday, 7 May, 09:00 - 11:00

IVMSP-P7 - Image/Video Processing I

IVMSP-P7.1: QUANTIZED TENSOR ROBUST PRINCIPAL COMPONENT ANALYSIS

Aidini, Anastasia, Foundation for Research and Technology-Hellas (FORTH), Greece Tsagkatakis, Grigorios, Foundation for Research and Technology-Hellas (FORTH), Greece Tsakalides, Panagiotis, Foundation for Research and Technology-Hellas (FORTH), Greece

IVMSP-P7.2: A NEW PERSPECTIVE FOR FLEXIBLE FEATURE GATHERING IN SCENE TEXT RECOGNITION VIA CHARACTER ANCHOR POOLING

Long, Shangbang, Peking University, China Guan, Yushuo, Peking University, China Bian, Kaigui, Peking University, China Yao, Cong, Megvii (Face++) Technology Inc, China

IVMSP-P7.3: HYBRID ACTIVE CONTOUR DRIVEN BY DOUBLE-WEIGHTED SIGNED PRESSURE FORCE FOR IMAGE SEGMENTATION

Fu, Xingyu, Chongqing University, China Fang, Bin, Chongqing University, China Zhou, Mingliang, Chongqing University, China Li, Jiajun, Chongqing University, China

IVMSP-P7.4: NEURAL CODING STRATEGIES FOR EVENT-BASED VISION DATA

Harrigan, Shane, Ulster University, United Kingdom Coleman, Sonya, Ulster University, United Kingdom Kerr, Dermot, Ulster University, United Kingdom Yogarajah, Pratheepan, Ulster University, United Kingdom Fang, Zheng, Northeastern University, China Wu, Chengdong, Northeastern University, China

IVMSP-P7.5: CAMERA CONFIGURATION DESIGN IN COOPERATIVE ACTIVE VISUAL 3D RECONSTRUCTION: A STATISTICAL APPROACH

An, Qier, Tsinghua University, China Shen, Yuan, Tsinghua University, China

IVMSP-P7.6: HAND-3D-STUDIO: A NEW MULTI-VIEW SYSTEM FOR 3D HAND RECONSTRUCTION

Zhao, Zhengyi, Southeast University, China Wang, Tianyao, Southeast University, China Xia, Siyu, Southeast University, China Wang, Yangang, Southeast University, China

IVMSP-P7.7: LEARNING ENDMEMBER DYNAMICS IN MULTITEMPORAL HYPERSPECTRAL DATA USING A STATE-SPACE MODEL FORMULATION

Drumetz, Lucas, IMT Atlantique, France Dalla Mura, Mauro, Grenoble INP - GIPSA-lab, France Tochon, Guillaume, LRDE EPITA, France Fablet, Ronan, IMT Atlantique, France

IVMSP-P7.8: LEARNING EATING ENVIRONMENTS THROUGH SCENE CLUSTERING

Yarlagadda, Sri Kalyan, Purdue University, United States Baireddy, Sriram, Purdue University, United States Güera, David, Purdue University, United States Boushey, Carol J., University of Hawaii, United States Kerr, Deborah A., Curtin University, Australia Zhu, Fengqing, Purdue University, United States

Thursday, 7 May, 09:00 - 11:00

IVMSP-P8 - Inverse Problems in Image/Video Processing II

IVMSP-P8.1: A HYBRID STRUCTURAL SPARSE ERROR MODEL FOR IMAGE DEBLOCKING

Zha, Zhiyuan, Nanyang Technological University, Singapore Yuan, Xin, Nokia Bell Labs, United States Zhou, Jiantao, University of Macau, China Zhu, Ce, University of Electronic Science and Technology of China, China Wen, Bihan, Nanyang Technological University, Singapore

IVMSP-P8.2: REFLECTANCE-GUIDED, CONTRAST-ACCUMULATED HISTOGRAM EQUALIZATION

Wu, Xiaomeng, NTT Corporation, Japan Kawanishi, Takahito, NTT Corporation, Japan Kashino, Kunio, NTT Corporation, Japan

IVMSP-P8.3: BILATERAL RECURRENT NETWORK FOR SINGLE IMAGE DERAINING

Shang, Wei, Tianjin University, China Zhu, Pengfei, Tianjin University, China Ren, Dongwei, Tianjin University, China Shi, Hong, Tianjin University, China

IVMSP-P8.4: SRZOO: AN INTEGRATED REPOSITORY FOR SUPER-RESOLUTION USING DEEP LEARNING

Choi, Jun-Ho, Yonsei University, Korea (South) Kim, Jun-Hyuk, Yonsei University, Korea (South) Lee, Jong-Seok, Yonsei University, Korea (South)

IVMSP-P8.5: SUB-DIP: OPTIMIZATION ON A SUBSPACE WITH DEEP IMAGE PRIOR REGULARIZATION AND APPLICATION TO SUPERRESOLUTION

Sagel, Alexander, fortiss - The Research Institute of the Free State of Bavaria, Germany Roumy, Aline, Inria, France Guillemot, Christine, Inria, France

IVMSP-P8.6: PARSING MAP GUIDED MULTI-SCALE ATTENTION NETWORK FOR FACE HALLUCINATION

Wang, Chenyang, Harbin Institute of Technology, China Zhong, Zhiwei, Harbin Institute of Technology, China Jiang, Junjun, Harbin Institute of Technology, China Zhai, Deming, Harbin Institute of Technology, China Liu, Xianming, Harbin Institute of Technology, China

IVMSP-P8.7: A VARIATIONAL BAYESIAN APPROACH FOR MULTICHANNEL THROUGH-WALL RADAR IMAGING WITH LOW-RANK AND SPARSE PRIORS

Tang, Van Ha, Le Quy Don Technical University, Viet Nam Bouzerdoum, Abdesselam, University of Wollongong, Australia Phung, Son Lam, University of Wollongong, Australia

IVMSP-P8.8: SEMANTICGAN: GENERATIVE ADVERSARIAL NETWORKS FOR SEMANTIC IMAGE TO PHOTO-REALISTIC IMAGE TRANSLATION

Liu, Junling, Peking University, China Zou, Yuexian, Peking University, China Yang, Dongming, Peking University, China

IVMSP-P8.9: LEARNING BLIND DENOISING NETWORK FOR NOISY IMAGE DEBLURRING

Chen, Meiya, Huazhong University of Science and Technology, China Chang, Yi, Huazhong University of Science and Technology, China Cao, Shuning, Huazhong University of Science and Technology, China Yan, Luxin, Huazhong University of Science and Technology, China

IVMSP-P8.10: PIXEL-LEVEL SELF-PACED LEARNING FOR SUPER-RESOLUTION

Lin, Wei, Northwestern Polytechnical University, China Gao, Junyu, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

IVMSP-P8.11: A RECURSIVE EDGE DETECTOR FOR COLOR FILTER ARRAY IMAGE

Magnier, Baptiste, IMT Mines ALES, France Aberkane, Arezki, Audensiel, France Gorrity, Nicolas, Audensiel, France

IVMSP-P8.12: IMAGE DE-RAINING VIA RDL: WHEN REWEIGHTED CONVOLUTIONAL SPARSE CODING MEETS DEEP LEARNING

He, Jingwei, Wuhan University, China Yu, Lei, Wuhan University, China Yang, Wen, Wuhan University, China

Thursday, 7 May, 09:00 - 11:00

IVMSP-P9 - Image/Video Analysis III

IVMSP-P9.1: CS-R-FCN: CROSS-SUPERVISED LEARNING FOR LARGE-SCALE OBJECT DETECTION

Guo, Ye, Tsinghua University, China Li, Yali, Tsinghua University, China Wang, Shengjin, Tsinghua University, China

IVMSP-P9.2: DILATED CONVOLUTIONAL NEURAL NETWORKS FOR PANORAMIC IMAGE SALIENCY PREDICTION

Dai, Feng, Institute of Computing Technology, Chinese Academy of Sciences, China Zhang, Youqiang, Institute of Computing Technology, Chinese Academy of Sciences, China Ma, Yike, Institute of Computing Technology, Chinese Academy of Sciences, China Li, Hongliang, University of Chinese Academy of Sciences, China Zhao, Qiang, Institute of Computing Technology, Chinese Academy of Sciences, China

IVMSP-P9.3: FINE-GRAINED ACTION RECOGNITION ON A NOVEL BASKETBALL DATASET

Gu, Xiaofan, East China Normal University, China Xue, Xinwei, East China Normal University, China Wang, Feng, East China Normal University, China

IVMSP-P9.4: ATTENTION GUIDED REGION DIVISION FOR CROWD COUNTING

Pan, Xiaoqi, Beihang University, China Mo, Hong, Beihang University, China Zhou, Zhong, Beihang University, China Wu, Wei, Beihang University, China

IVMSP-P9.5: SUPERPIXEL SEGMENTATION VIA CONVOLUTIONAL NEURAL NETWORKS WITH REGULARIZED INFORMATION MAXIMIZATION

Suzuki, Teppei, DENSO IT Laboratory, Inc., Japan

IVMSP-P9.6: STACKED POOLING FOR BOOSTING SCALE INVARIANCE OF CROWD COUNTING

Huang, Siyu, Baidu Research, China Li, Xi, Zhejiang University, China Cheng, Zhi-Qi, Carnegie Mellon University, United States Zhang, Zhongfei, State University of New York at Binghamton, United States Hauptmann, Alexander, Carnegie Mellon University, United States

IVMSP-P9.7: GFNET: A LIGHTWEIGHT GROUP FRAME NETWORK FOR EFFICIENT HUMAN ACTION RECOGNITION

Liu, Hong, Peking University Shenzhen Graduate School, China Zhang, Linlin, Peking University Shenzhen Graduate School, China Guan, Lisi, Peking University Shenzhen Graduate School, China Liu, Mengyuan, Tencent AI Lab, China

IVMSP-P9.8: ROIMIX: PROPOSAL-FUSION AMONG MULTIPLE IMAGES FOR UNDERWATER OBJECT DETECTION

Lin, Wei-Hong, Peking University Shenzhen Graduate School, China Zhong, Jia-Xing, Peking University Shenzhen Graduate School, China Liu, Shan, Tencent America, United States Li, Thomas H., Peking University, China Li, Ge, Peking University Shenzhen Graduate School, China

IVMSP-P9.9: TREE OF SHAPES CUT FOR MATERIAL SEGMENTATION GUIDED BY A DESIGN

Baderot, Julien, Univ. Grenoble Alpes, CNRS, Grenoble INP, France Desvignes, Michel, Univ. Grenoble Alpes, CNRS, Grenoble INP, France Condat, Laurent, Univ. Grenoble Alpes, CNRS, Grenoble INP, France Dalla Mura, Mauro, Univ. Grenoble Alpes, CNRS, Grenoble INP, France

IVMSP-P9.10: DEEP FLOW COLLABORATIVE NETWORK FOR ONLINE VISUAL TRACKING

Liu, Peidong, Tsinghua University, China Yan, Xiyu, Tsinghua University, China Jiang, Yong, Tsinghua University, China Xia, Shu-Tao, Tsinghua University, China

IVMSP-P9.11: SALIENT OBJECT DETECTION BASED ON IMAGE BIT-MAP

Cao, Bangqi, University of Electronic Science and Technology of China, China Meng, Xiandong, Hong Kong University of Science and Technology, China Zhu, Shuyuan, University of Electronic Science and Technology of China, China Zeng, Bing, University of Electronic Science and Technology of China, China

IVMSP-P9.12: A NOVEL SALIENCY-DRIVEN OIL TANK DETECTION METHOD FOR SYNTHETIC APERTURE RADAR IMAGES

Zhang, Libao, Beijing Normal University, China Liu, Congyang, Beijing Normal University, China

Thursday, 7 May, 16:30 - 18:30

IVMSP-P10 - Inverse Problems in Image/Video Processing III

IVMSP-P10.1: VIDEO FRAME INTERPOLATION VIA RESIDUE REFINEMENT

Li, Haopeng, Northwestern Polytechnical University, China Yuan, Yuan, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China

IVMSP-P10.2: ATTENTION-GUIDED DERAINING NETWORK VIA STAGE-WISE LEARNING

Jiang, Kui, Wuhan University, China Wang, Zhongyuan, Wuhan University, China Yi, Peng, Wuhan University, China Chen, Chen, University of North Carolina - Charlotte, United States Yang, Yuhong, Wuhan University, China Tian, Xin, Wuhan University, China Jiang, Junjun, Harbin Institute of Technology, China

IVMSP-P10.3: ATTENTION-MASK DENSE MERGER (ATTENDENSE) DEEP HDR FOR GHOST REMOVAL

Metwaly, Kareem, Pennsylvania State University, United States Monga, Vishal, Pennsylvania State University, United States

IVMSP-P10.4: Y-NET: MULTI-SCALE FEATURE AGGREGATION NETWORK WITH WAVELET STRUCTURE SIMILARITY LOSS FUNCTION FOR SINGLE IMAGE DEHAZING

Yang, Hao-Hsiang, ASUS Intelligent Cloud Services, Taiwan Yang, Chao-Han Huck, Georgia Institute of Technology, United States Tsai, Yi-Chang James, Georgia Institute of Technology, United States

IVMSP-P10.5: IMAGE SUPER-RESOLUTION USING RESIDUAL GLOBAL CONTEXT NETWORK

Liu, Kuangye, Wuhan University, China Han, Zhen, Wuhan University, China Chen, Junkui, Wuhan University, China Liu, Chunlei, Wuhan University, China Chen, Jun, Wuhan University, China Wang, Zhongyuan, Wuhan University, China

IVMSP-P10.6: PRINCIPLE-INSPIRED MULTI-SCALE AGGREGATION NETWORK FOR EXTREMELY LOW-LIGHT IMAGE ENHANCEMENT

Zhang, Jiaao, Dalian University of Technology, China Liu, Risheng, Dalian University of Technology, China Ma, Long, Dalian University of Technology, China Zhong, Wei, Dalian University of Technology, China Fan, Xin, Dalian University of Technology, China Luo, Zhongxuan, Dalian University of Technology, China

IVMSP-P10.7: NON-LOCAL NESTED RESIDUAL ATTENTION NETWORK FOR STEREO IMAGE SUPER-RESOLUTION

Xie, Wangduo, Shenzhen Graduate School of Peking University, China Zhang, Jian, Shenzhen Graduate School of Peking University, China Lu, Zhisheng, Shenzhen Graduate School of Peking University, China Cao, Meng, Shenzhen Graduate School of Peking University, China Zhao, Yong, Shenzhen Graduate School of Peking University, China

IVMSP-P10.8: OPENDENOISING: AN EXTENSIBLE BENCHMARK FOR BUILDING COMPARATIVE STUDIES OF IMAGE DENOISERS

Lemarchand, Florian, Institut d'Eléctronique et de Télécommunications de Rennes, France Fernandes Montesuma, Eduardo, Institut d'Eléctronique et de Télécommunications de Rennes, France Pelcat, Maxime, Institut d'Eléctronique et de Télécommunications de Rennes, France Nogues, Erwan, DGA-MI, France

IVMSP-P10.9: SDTCN: SIMILARITY DRIVEN TRANSMISSION COMPUTING NETWORK FOR IMAGE DEHAZING

Zhang, Libao, Beijing Normal University, China Wang, Shan, Beijing Normal University, China Wang, Xiaohan, Beijing Normal University, China

IVMSP-P10.10: JOINT ENHANCEMENT AND DENOISING OF LOW LIGHT IMAGES VIA JND TRANSFORM

Yu, Long, Xidian University, China Su, Haonan, Xidian University, China Jung, Cheolkon, Xidian University, China

IVMSP-P10.11: ADVERSARIAL TEXT IMAGE SUPER-RESOLUTION USING SINKHORN DISTANCE

Geng, Cong, Shanghai Jiao Tong University, China Chen, Li, Shanghai Jiao Tong University, China Zhang, Xiaoyun, Shanghai Jiao Tong University, China Gao, Zhiyong, Shanghai Jiao Tong University, China

IVMSP-P10.12: ADRN: ATTENTION-BASED DEEP RESIDUAL NETWORK FOR HYPERSPECTRAL IMAGE DENOISING

Zhao, Yongsen, Harbin Institute of Technology, China Zhai, Deming, Harbin Institute of Technology, China Jiang, Junjun, Harbin Institute of Technology, China Liu, Xianming, Harbin Institute of Technology, China

Thursday, 7 May, 16:30 - 18:30

IVMSP-P11 - Image/Video Processing II

IVMSP-P11.1: WEAKLY SUPERVISED SEGMENTATION GUIDED HAND POSE ESTIMATION DURING INTERACTION WITH UNKNOWN OBJECTS

Zhang, Cairong, Tsinghua University, China Wang, Guijin, Tsinghua University, China Chen, Xinghao, Huawei, China Xie, Pengwei, Tsinghua University, China Yamasaki, Toshihiko, University of Tokyo, Japan

IVMSP-P11.2: SPARSE DIRECTED GRAPH LEARNING FOR HEAD MOVEMENT PREDICTION IN 360 VIDEO STREAMING

Zhang, Xue, York University, Canada Cheung, Gene, York University, Canada Le Callet, Patrick, Université de Nantes, France Tan, Jack Z. G., KanDao Technology Co. Ltd, China

IVMSP-P11.3: TRACKING TO IMPROVE DETECTION QUALITY IN LIDAR FOR AUTONOMOUS DRIVING

Tang, Jennifer, Massachusetts Institute of Technology, United States Yellepeddi, Atulya, Analog Devices, Inc., United States Demirtas, Sefa, Analog Devices, Inc., United States Barber, Christopher, Analog Devices, Inc., United States

IVMSP-P11.4: CARTOON-TEXTURE DECOMPOSITION-BASED VARIATIONAL PANSHARPENING

Chen, Yuerong, Wuhan University, China Zhang, Mengliang, Wuhan University, China Li, Song, Wuhan University, China Wang, Zhongyuan, Wuhan University, China Tian, Xin, Wuhan University, China

IVMSP-P11.5: AN ALTERNATIVE SIGNATURE DESIGN USING L1 PRINCIPAL COMPONENTS FOR SPREAD-SPECTRUM STEGANOGRAPHY

Bailey, Colleen, University of North Texas, United States Chamadia, Shubham, Massachusetts General Hospital, United States Pados, Dimitris, Florida Atlantic University, United States

IVMSP-P11.6: PRIVACY-PRESERVING PATTERN RECOGNITION USING ENCRYPTED SPARSE REPRESENTATIONS IN L0 NORM MINIMIZATION

Nakachi, Takayuki, Nippon Telegraph and Telephone Corporation, Japan Wang, Yitu, Nippon Telegraph and Telephone Corporation, Japan Kiya, Hitoshi, Tokyo Metropolitan University, Japan

IVMSP-P11.7: FLEXIBLY-TUNABLE BITCUBE-BASED PERCEPTUAL ENCRYPTION WITHIN JPEG COMPRESSION

Shimizu, Kosuke, University of Tsukuba, Japan Suzuki, Taizo, University of Tsukuba, Japan

IVMSP-P11.8: GYROSCOPE AIDED VIDEO STABILIZATION USING NONLINEAR REGRESSION ON SPECIAL ORTHOGONAL GROUP

Hu, Xiao, Technical University of Denmark, Denmark Olesen, Daniel, Technical University of Denmark, Denmark Knudsen, Per, Technical University of Denmark, Denmark

IVMSP-P11.9: SUPER-RESOLUTION VIA IMAGE-ADAPTED DENOISING CNNS: INCORPORATING EXTERNAL AND INTERNAL LEARNING

Tirer, Tom, Tel Aviv University, Israel Giryes, Raja, Tel Aviv University, Israel

IVMSP-P11.10: FAST HIGH-DIMENSIONAL KERNEL FILTERING

Nair, Pravin, Indian Institute of Science, India Chaudhury, Kunal Narayan, Indian Institute of Science, India

IVMSP-P11.12: ANISOTROPIC GUIDED FILTERING

Ochotorena, Carlo Noel, De La Salle University, Philippines Yamashita, Yukihiko, Tokyo Institute of Technology, Japan

Thursday, 7 May, 16:30 - 18:30

IVMSP-P12 - Perception and Quality Models

IVMSP-P12.1: BBAND INDEX: A NO-REFERENCE BANDING ARTIFACT PREDICTOR

Tu, Zhengzhong, University of Texas at Austin, United States Lin, Jessie, Google, Inc., United States Wang, Yilin, Google, Inc., United States Adsumilli, Balu, Google, Inc., United States Bovik, Alan, University of Texas at Austin, United States

IVMSP-P12.2: LQAID: LOCALIZED QUALITY AWARE IMAGE DENOISING USING DEEP CONVOLUTIONAL NEURAL NETWORKS

Dendi, Sathya Veera Reddy, Indian Institute of Technology Hyderabad, India Dev, Chander, Indian Institute of Technology Hyderabad, India Kothari, Narayan, Indian Institute of Technology Hyderabad, India S. Channappayya, Sumohana, Indian Institute of Technology Hyderabad, India

IVMSP-P12.3: WEAKLY SUPERVISED CROWD-WISE ATTENTION FOR ROBUST CROWD COUNTING

Kong, Xiyu, Shanghai Jiao Tong University, China Zhao, Muming, Shanghai Jiao Tong University, China Zhou, Hao, Shanghai Jiao Tong University, China Zhang, Chongyang, Shanghai Jiao Tong University, China

IVMSP-P12.4: XPSNR: A LOW-COMPLEXITY EXTENSION OF THE PERCEPTUALLY WEIGHTED PEAK SIGNAL-TO-NOISE RATIO FOR HIGH-RESOLUTION VIDEO QUALITY ASSESSMENT

Helmrich, Christian, Fraunhofer Heinrich Hertz Institute, Germany Siekmann, Mischa, Fraunhofer Heinrich Hertz Institute, Germany Becker, Sören, Fraunhofer Heinrich Hertz Institute, Germany Bosse, Sebastian, Fraunhofer Heinrich Hertz Institute, Germany Marpe, Detlev, Fraunhofer Heinrich Hertz Institute, Germany Wiegand, Thomas, Fraunhofer Heinrich Hertz Institute, Germany

IVMSP-P12.5: NON-EXPERTS OR EXPERTS? STATISTICAL ANALYSES OF MOS USING DSIS METHOD

Sugito, Yasuko, NHK, Japan Bertalmío, Marcelo, Universitat Pompeu Fabra, Spain

IVMSP-P12.6: FULL REFERENCE VIDEO QUALITY MEASURES IMPROVEMENT USING NEURAL NETWORKS

Fotio Tiotsop, Lohic, Politecnico di Torino, Italy Servetti, Antonio, Politecnico di Torino, Italy Masala, Enrico, Politecnico di Torino, Italy

IVMSP-P12.7: LEARNING MULTI-SCALE ATTENTIVE FEATURES FOR SERIES PHOTO SELECTION

Huang, Jin, Shandong University, China Cui, Chaoran, Shandong University of Finance and Economics, China Zhang, Chunyun, Shandong University of Finance and Economics, China Shen, Zhen, Shandong University, China Yu, Jun, Shandong University, China Yin, Yilong, Shandong University, China

IVMSP-P12.8: SPATIO-TEMPORAL AND GEOMETRY CONSTRAINED NETWORK FOR AUTOMOBILE VISUAL ODOMETRY

Liu, Hong, Peking University, China Wei, Peng, Peking University, China Huang, Weibo, Peking University, China Hua, Guoliang, Peking University, China Meng, Fanyang, Peng Cheng Laboratory, China

IVMSP-P12.9: A COMPREHENSIVE FRAMEWORK FOR 2D-JND EXTENSION TO 360-DEG IMAGES

Jaballah, Sami, Université de Poitiers, France Bhavsar, Amegh, Université de Poitiers, France Larabi, Chaker, Université de Poitiers, France

IVMSP-P12.10: COMPOSITE DYNAMIC TEXTURE SYNTHESIS USING HIERARCHICAL LINEAR DYNAMICAL SYSTEM

Singh, Rishabh, University of Florida, United States Yu, Shujian, University of Florida, United States Principe, Jose, University of Florida, United States

Machine Learning Signal Processing

Tuesday, 5 May, 16:30 - 18:30

MLSP-L1 - Adversarial Machine Learning

MLSP-L1.1: HEADLESS HORSEMAN: ADVERSARIAL ATTACKS ON TRANSFER LEARNING MODELS

Abdelkader, Ahmed, University of Maryland, United States Curry, Michael, University of Maryland, United States Fowl, Liam, University of Maryland, United States Goldstein, Tom, University of Maryland, United States Schwarzschild, Avi, University of Maryland, United States Shu, Manli, University of Maryland, United States Studer, Christoph, Cornell Tech, United States Zhu, Chen, University of Maryland, United States

MLSP-L1.2: DETECTING ADVERSARIAL ATTACKS IN TIME-SERIES DATA

Abdu-Aguye, Mubarak, Egypt-Japan University of Science and Technology, Egypt Gomaa, Walid, Egypt-Japan University of Science and Technology, Egypt Makihara, Yasushi, Osaka University, Japan Yagi, Yasushi, Osaka University, Japan

MLSP-L1.3: DETECTION OF ADVERSARIAL ATTACKS AND CHARACTERIZATION OF ADVERSARIAL SUBSPACE

Esmaeilpour, Mohammad, École de Technologie Supérieure, Canada Cardinal, Patrick, École de Technologie Supérieure, Canada Lameiras Koerich, Alessandro, École de Technologie Supérieure, Canada

MLSP-L1.4: ADVERSARIAL EXAMPLE DETECTION BY CLASSIFICATION FOR DEEP SPEECH RECOGNITION

Samizade, Saeid, Aalborg University, Denmark Tan, Zheng-Hua, Aalborg University, Denmark Shen, Chao, Xi'an Jiaotong University, China Guan, Xiaohong, Xi'an Jiaotong University, China

MLSP-L1.5: CHARACTERIZING SPEECH ADVERSARIAL EXAMPLES USING SELF-ATTENTION U-NET ENHANCEMENT

Yang, Chao-Han Huck, Georgia Institute of Technology, United States Qi, Jun, Georgia Institute of Technology, United States Chen, Pin-Yu, IBM Research, United States Ma, Xiaoli, Georgia Institute of Technology, United States Lee, Chin-Hui, Georgia Institute of Technology, United States

MLSP-L1.6: ACTION-MANIPULATION ATTACKS ON STOCHASTIC BANDITS

Liu, Guanlin, University of California, Davis, United States Lai, Lifeng, University of California, Davis, United States

Wednesday, 6 May, 11:30 - 13:30

MLSP-L2 - Optimization Algorithms I

MLSP-L2.1: PRIMAL-DUAL STOCHASTIC SUBGRADIENT METHOD FOR LOG-DETERMINANT OPTIMIZATION

Wu, Songwei, Nanyang Technological University, Singapore Yu, Hang, Nanyang Technological University, Singapore Dauwels, Justin, Nanyang Technological University, Singapore

MLSP-L2.2: NEURAL NETWORK TRAINING WITH APPROXIMATE LOGARITHMIC COMPUTATIONS

Sanyal, Arnab, University of Southern California, United States Beerel, Peter, University of Southern California, United States Chugg, Keith, University of Southern California, United States

MLSP-L2.3: AUTOMATIC AND SIMULTANEOUS ADJUSTMENT OF LEARNING RATE AND MOMENTUM FOR STOCHASTIC GRADIENT-BASED OPTIMIZATION METHODS

Lancewicki, Tomer, eBay, United States Kopru, Selcuk, eBay, United States

MLSP-L2.4: A STUDY OF GENERALIZATION OF STOCHASTIC MIRROR DESCENT ALGORITHMS ON OVERPARAMETERIZED NONLINEAR MODELS

Azizan, Navid, California Institute of Technology, United States Lale, Sahin, California Institute of Technology, United States Hassibi, Babak, California Institute of Technology, United States

MLSP-L2.5: ON DISTRIBUTED STOCHASTIC GRADIENT DESCENT FOR NONCONVEX FUNCTIONS IN THE PRESENCE OF BYZANTINES

Bulusu, Saikiran, Syracuse University, United States Khanduri, Prashant, Syracuse University, United States Sharma, Pranay, Syracuse University, United States Varshney, Pramod, Syracuse University, United States

MLSP-L2.6: PRECONDITIONING ADMM FOR FAST DECENTRALIZED OPTIMIZATION

Ma, Meng, University of Minnesota, United States Giannakis, Georgios B., University of Minnesota, United States

Wednesday, 6 May, 16:30 - 18:30

MLSP-L3 - Optimization Algorithms II

MLSP-L3.1: EXTRAPOLATED ALTERNATING ALGORITHMS FOR APPROXIMATE CANONICAL POLYADIC DECOMPOSITION

Man Shun Ang, Andersen, Université de Mons, Belgium E. Cohen, Jeremy, CNRS, France Hien, Le Thi Khanh, Université de Mons, Belgium Gillis, Nicolas, Université de Mons, Belgium

MLSP-L3.2: SCALABLE KERNEL LEARNING VIA THE DISCRIMINANT INFORMATION

Al, Mert, Princeton University, United States Hou, Zejiang, Princeton University, United States Kung, Sun-Yuan, Princeton University, United States

MLSP-L3.3: ARSM GRADIENT ESTIMATOR FOR SUPERVISED LEARNING TO RANK

Zamani Dadaneh, Siamak, Texas A&M University, United States Boluki, Shahin, Texas A&M University, United States Zhou, Mingyuan, University of Texas at Austin, United States Qian, Xiaoning, Texas A&M University, United States

MLSP-L3.4: SOLVING NON-CONVEX NON-DIFFERENTIABLE MIN-MAX GAMES USING PROXIMAL GRADIENT METHOD

Barazandeh, Babak, University of Southern California, United States Razaviyayn, Meisam, University of Southern California, United States

MLSP-L3.5: A FAST AND ACCURATE FREQUENT DIRECTIONS ALGORITHM FOR LOW RANK APPROXIMATION VIA BLOCK KRYLOV ITERATION

Yi, Qianxin, Xi'an Jiaotong University, China Wang, Chenhao, Xi'an Jiaotong University, China Liao, Xiuwu, Xi'an Jiaotong University, China Wang, Yao, Xi'an Jiaotong University, China

MLSP-L3.6: STOCHASTIC ADMM FOR BYZANTINE-ROBUST DISTRIBUTED LEARNING

Lin, Feng, Sun Yat-Sen University, China Ling, Qing, Sun Yat-Sen University, China Li, Weiyu, University of Science and Technology of China, China Xiong, Zhiwei, University of Science and Technology of China, China

Thursday, 7 May, 11:30 - 13:30

MLSP-L4 - Generative Adversarial Networks

MLSP-L4.1: UNIFIED SIGNAL COMPRESSION USING GENERATIVE ADVERSARIAL NETWORKS

Liu, Bowen, University of Michigan, United States Cao, Ang, University of Michigan, United States Kim, Hun-Seok, University of Michigan, United States

MLSP-L4.2: WIND: WASSERSTEIN INCEPTION DISTANCE FOR EVALUATING GENERATIVE ADVERSARIAL NETWORK PERFORMANCE

Dimitrakopoulos, Panagiotis, University of Ioannina, Greece Sfikas, Giorgos, University of Ioannina, Greece Nikou, Christophoros, University of Ioannina, Greece

MLSP-L4.3: TRACE NORM GENERATIVE ADVERSARIAL NETWORKS FOR SENSOR GENERATION AND FEATURE EXTRACTION

Zheng, Shuai, Hitachi America Ltd, United States Gupta, Chetan, Hitachi America Ltd, United States

MLSP-L4.4: MAHALANOBIS DISTANCE BASED ADVERSARIAL NETWORK FOR ANOMALY DETECTION

Hou, Yubo, Institute for Infocomm Research, Singapore Chen, Zhenghua, Institute for Infocomm Research, Singapore Wu, Min, Institute for Infocomm Research, Singapore Foo, Chuan-Sheng, Institute for Infocomm Research, Singapore Li, Xiaoli, Institute for Infocomm Research, Singapore Shubair, Raed, Massachusetts Institute of Technology, United States

MLSP-L4.5: COMMUTING CONDITIONAL GANS FOR MULTI-MODAL FUSION

Roheda, Siddharth, North Carolina State University, United States Krim, Hamid, North Carolina State University, United States Riggan, Benjamin S., University of Nebraska-Lincoln, United States

MLSP-L4.6: SEQUENCE-TO-SUBSEQUENCE LEARNING WITH CONDITIONAL GAN FOR POWER DISAGGREGATION

Pan, Yungang, Shandong University, China Liu, Ke, Shandong University, China Shen, Zhaoyan, Shandong University, China Cai, Xiaojun, Shandong University, China Jia, Zhiping, Shandong University, China

Thursday, 7 May, 11:30 - 13:30

MLSP-L5 - Neural Networks Applications I

MLSP-L5.1: A BIN ENCODING TRAINING OF A SPIKING NEURAL NETWORK BASED VOICE ACTIVITY DETECTION

Dellaferrera, Giorgia, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Martinelli, Flavio, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Cernak, Milos, Logitech Europe, Switzerland

MLSP-L5.2: ECG HEARTBEAT CLASSIFICATION BASED ON MULTI-SCALE WAVELET CONVOLUTIONAL NEURAL NETWORKS

El Bouny, Lahcen, Hassan II University Of Casablanca, Morocco Khalil, Mohammed, Hassan II University Of Casablanca, Morocco Adib, Abdellah, Hassan II University Of Casablanca, Morocco

MLSP-L5.3: SELF-SUPERVISED LEARNING FOR ECG-BASED EMOTION RECOGNITION

Sarkar, Pritam, Queen's University, Canada Etemad, Ali, Queen's University, Canada

MLSP-L5.4: EXPRESSION-GUIDED EEG REPRESENTATION LEARNING FOR EMOTION RECOGNITION

Rayatdoost, Soheil, University of Geneva, Switzerland Rudrauf, David, University of Geneva, Switzerland Soleymani, Mohammad, University of Southern California, United States

MLSP-L5.5: ATTENTION DRIVEN FUSION FOR MULTI-MODAL EMOTION RECOGNITION

Priyasad, Darshana, Queensland University of Technology, Australia Fernando, Tharindu, Queensland University of Technology, Australia Denman, Simon, Queensland University of Technology, Australia Sridharan, Sridha, Queensland University of Technology, Australia Fookes, Clinton, Queensland University of Technology, Australia

MLSP-L5.6: LEARNING THE SPATIO-TEMPORAL DYNAMICS OF PHYSICAL PROCESSES FROM PARTIAL OBSERVATIONS

Ayed, Ibrahim, Sorbonne Université, Theresis Lab Thales, France de Bézenac, Emmanuel, Sorbonne Université, France Pajot, Arthur, Sorbonne Université, France Gallinari, Patrick, Sorbonne Université / Criteo AI Lab, France

Thursday, 7 May, 11:30 - 13:30

MLSP-L6 - Sparsity Aware Processing and Learning

MLSP-L6.1: OPTIMAL LAPLACIAN REGULARIZATION FOR SPARSE SPECTRAL COMMUNITY DETECTION

Dall'Amico, Lorenzo, GIPSA lab - Grenoble INP, France Couillet, Romain, GIPSA lab - Grenoble INP, France Tremblay, Nicolas, GIPSA lab - Grenoble INP, France

MLSP-L6.2: ANOMALY DETECTION IN MIXED TIME-SERIES USING A CONVOLUTIONAL SPARSE REPRESENTATION WITH APPLICATION TO SPACECRAFT HEALTH MONITORING

Pilastre, Barbara, TéSA, France Silva, Gustavo, Pontifica Universidad Catolica del Peru, Peru Boussouf, Loïc, Airbus Defence and Space, France D'Escrivan, Stéphane, CNES, France Rodriguez, Paul, Pontifica Universidad Catolica del Peru, Peru Tourneret, Jean-Yves, ENSEEIHT-IRIT/TéSA, France

MLSP-L6.3: VARIATIONAL STUDENT: LEARNING COMPACT AND SPARSER NETWORKS IN KNOWLEDGE DISTILLATION FRAMEWORK

Hegde, Srinidhi, TCS Research, India Prasad, Ranjitha, TCS Research, India Hebbalaguppe, Ramya, TCS Research, India Kumar, Vishwajeet, IIT Kharagpur, India

MLSP-L6.4: LOW RANK ACTIVATIONS FOR TENSOR-BASED CONVOLUTIONAL SPARSE CODING

Humbert, Pierre, CMLA - École normale supérieure Paris-Saclay, France Audiffren, Julien, CMLA - École normale supérieure Paris-Saclay, France Oudre, Laurent, L2TI Universite Paris 13, France Vayatis, Nicolas, CMLA - École normale supérieure Paris-Saclay, France

Thursday, 7 May, 16:30 - 18:30

MLSP-L7 - Machine Learning Applications III

MLSP-L7.1: ENERGY DISAGGREGATION USING FRACTIONAL CALCULUS

Schirmer, Pascal, University of Hertfordhshire, United Kingdom Mporas, Iosif, University of Hertfordhshire, United Kingdom

MLSP-L7.2: DYNA-BOLT: DOMAIN ADAPTIVE BINARY FACTORIZATION OF CURRENT WAVEFORMS FOR ENERGY DISAGGREGATION

Chen, Bingqing, Carnegie Mellon University, United States Liu, Jingxiao, Carnegie Mellon University, United States Lange, Henning, University of Washington, United States Berges, Mario, Carnegie Mellon University, United States

MLSP-L7.3: INDEPENDENT-VARIATION MATRIX FACTORIZATION WITH APPLICATION TO ENERGY DISAGGREGATION

Henriet, Simon, LTCI, Telecom Paris, Institut Polytechnique Paris, France Simsekli, Umut, LTCI, Telecom Paris, Institut Polytechnique Paris, France Dos Santos, Sergio, Smart Impulse, France Fuentes, Benoit, Smart Impulse, France Richard, Gaël, LTCI, Telecom Paris, Institut Polytechnique Paris, France

MLSP-L7.4: UNSUPERVISED STYLE AND CONTENT SEPARATION BY MINIMIZING MUTUAL INFORMATION FOR SPEECH SYNTHESIS

Hu, Ting-Yao, Carnegie Mellon University, United States Shrivastava, Ashish, Apple, United States Tuzel, Oncel, Apple, United States Dhir, Chandra, Apple, United States

MLSP-L7.5: IMPROVING SINGING VOICE SEPARATION WITH THE WAVE-U-NET USING MINIMUM HYPERSPHERICAL ENERGY

Perez-Lapillo, Joaquin, City, University of London, United Kingdom Galkin, Oleksandr, City, University of London, United Kingdom Weyde, Tillman, City, University of London, United Kingdom

MLSP-L7.6: SINGING VOICE CONVERSION WITH DISENTANGLED REPRESENTATIONS OF SINGER AND VOCAL TECHNIQUE USING VARIATIONAL AUTOENCODERS

Luo, Yin-Jyun, Singapore University of Technology and Design, Singapore Hsu, Chin-Cheng, University of Southern California, United States Agres, Kat, Agency for Science, Technology and Research (A*STAR), Singapore Herremans, Dorien, Singapore University of Technology and Design, Singapore

Thursday, 7 May, 16:30 - 18:30

MLSP-L8 - Tensor-based Signal Processing

MLSP-L8.1: ONLINE TENSOR COMPLETION AND FREE SUBMODULE TRACKING WITH THE T-SVD

Gilman, Kyle, University of Michigan, United States Balzano, Laura, University of Michigan, United States

MLSP-L8.2: EXPLOITING COMMUTATIVITY CONDITION FOR CP DECOMPOSITION VIA APPROXIMATE SIMULTANEOUS DIAGONALIZATION

Akema, Riku, Tokyo Institute of Technology, Japan Yamagishi, Masao, Tokyo Institute of Technology, Japan Yamada, Isao, Tokyo Institute of Technology, Japan

MLSP-L8.3: A NOVEL RANK SELECTION SCHEME IN TENSOR RING DECOMPOSITION BASED ON REINFORCEMENT LEARNING FOR DEEP NEURAL NETWORKS

Cheng, Zhiyu, Baidu USA, United States Li, Baopu, Baidu USA, United States Fan, Yanwen, Baidu, China Bao, Yingze, Baidu USA, United States

MLSP-L8.4: SENSITIVITY IN TENSOR DECOMPOSITION

Tichavsky, Petr, Academy of Sciences of the Czech Republic, Czech Republic Phan, Anh-Huy, Skolkovo Institute of Science and Technology (Skoltech), Russia Cichocki, Andrzej, Skolkovo Institute of Science and Technology (Skoltech), Russia

MLSP-L8.5: ESTIMATING STRUCTURAL MISSING VALUES VIA LOW-TUBAL-RANK TENSOR COMPLETION

Wang, Hailin, Southwest University, China Zhang, Feng, Southwest University, China Wang, Jianjun, Southwest University, China Wang, Yao, Xi'an Jiaotong University, China

MLSP-L8.6: LOW-TUBAL-RANK TENSOR RECOVERY FROM ONE-BIT MEASUREMENTS

Hou, Jingyao, Southwest University, China Zhang, Feng, Southwest University, China Wang, Yao, Xi'an Jiaotong University, China Wang, Jianjun, Southwest University, China

Friday, 8 May, 08:00 - 10:00

MLSP-L9 - Autoencoders

MLSP-L9.1: CONTINUAL LEARNING THROUGH ONE-CLASS CLASSIFICATION USING VAE

Wiewel, Felix, University of Stuttgart, Germany Brendle, Andreas, University of Stuttgart, Germany Yang, Bin, University of Stuttgart, Germany

MLSP-L9.2: ESTIMATION OF POST-NONLINEAR CAUSAL MODELS USING AUTOENCODING STRUCTURE

Uemura, Kento, Fujitsu Laboratories Ltd., Japan Shimizu, Shohei, Shiga University, Japan

MLSP-L9.3: FROM SYMBOLS TO SIGNALS: SYMBOLIC VARIATIONAL AUTOENCODERS

Devaraj, Chinmaya, University of Maryland, United States Chowdhury, Aritra, GE Research, United States Jain, Arpit, GE Research, United States Kubricht, James, GE Research, United States Peter, Tu, GE Research, United States Santamaria-Pang, Alberto, GE Research, United States

MLSP-L9.4: GRAPH AUTO-ENCODER FOR GRAPH SIGNAL DENOISING

Huu Do, Tien, Vrije Universiteit Brussel, Belgium Nguyen, Minh Duc, Vrije Universiteit Brussel, Belgium Deligiannis, Nikos, Vrije Universiteit Brussel, Belgium

MLSP-L9.5: A PRIORI ESTIMATES OF THE GENERALIZATION ERROR FOR AUTOENCODERS

Dou, Zehao, Peking University, China E, Weinan, Princeton University, United States Ma, Chao, Princeton University, United States

Friday, 8 May, 08:00 - 10:00

MLSP-L10 - Deep Neural Network Structures

MLSP-L10.1: GFCN: A NEW GRAPH CONVOLUTIONAL NETWORK BASED ON PARALLEL FLOWS

Ji, Feng, Nanyang Technological University, Singapore Yang, Jielong, Nanyang Technological University, Singapore Zhang, Qiang, Nanyang Technological University, Singapore Tay, Wee Peng, Nanyang Technological University, Singapore

MLSP-L10.2: DEPTHWISE-STFT BASED SEPARABLE CONVOLUTIONAL NEURAL NETWORKS

Kumawat, Sudhakar, Indian Institute of Technology Gandhinagar, India Raman, Shanmuganathan, Indian Institute of Technology Gandhinagar, India

MLSP-L10.3: SEMI-IMPLICIT STOCHASTIC RECURRENT NEURAL NETWORKS

Hajiramezanali, Ehsan, Texas A&M University, United States Hasanzadeh, Arman, Texas A&M University, United States Duffield, Nick, Texas A&M University, United States Narayanan, Krishna, Texas A&M University, United States Zhou, Mingyuan, University of Texas at Austin, United States Qian, Xiaoning, Texas A&M University, United States

MLSP-L10.4: FEEDBACK RECURRENT AUTOENCODER

Yang, Yang, Qualcomm Inc., United States Sautière, Guillaume, Qualcomm Inc., Netherlands Ryu, Jongha, Qualcomm Inc., United States Cohen, Taco, Qualcomm Inc., Netherlands

MLSP-L10.5: INDYLSTMS: INDEPENDENTLY RECURRENT LSTMS

Gonnet, Pedro, Google Research, Switzerland Deselaers, Thomas, Google Research, Switzerland

MLSP-L10.6: NEURAL ATTENTIVE MULTIVIEW MACHINES

Barkan, Oren, Microsoft, Israel Katz, Ori, Microsoft, Israel Koenigstein, Noam, Microsoft, Israel

Friday, 8 May, 15:15 - 17:15

MLSP-L11 - Attention Networks

MLSP-L11.1: ATTENTIVE MODALITY HOPPING MECHANISM FOR SPEECH EMOTION RECOGNITION

Yoon, Seunghyun, Seoul National University, Korea (South) Dey, Subhadeep, Idiap Research Institute, Swaziland Lee, Hwanhee, Seoul National University, Korea (South) Jung, Kyomin, Seoul National University, Korea (South)

MLSP-L11.2: FACIAL EMOTION RECOGNITION USING LIGHT FIELD IMAGES WITH DEEP ATTENTION-BASED BIDIRECTIONAL LSTM

Sepas-Moghaddam, Alireza, Queen's University, Canada Etemad, Ali, Queen's University, Canada Pereira, Fernando, Instituto Superior Técnico, Universidade de Lisboa, Portugal Lobato Correia, Paulo, Instituto Superior Técnico, Universidade de Lisboa, Portugal

MLSP-L11.3: A REGULARIZED ATTENTION MECHANISM FOR GRAPH ATTENTION NETWORKS

Shanthamallu, Uday Shankar, Arizona State University, United States Thiagarajan, Jayaraman J, Lawrence Livermore National Laboratory, United States Spanias, Andreas, Arizona State University, United States

MLSP-L11.4: ATTENTIVE ITEM2VEC: NEURAL ATTENTIVE USER REPRESENTATIONS

Barkan, Oren, Microsoft, Israel Caciularu, Avi, Bar-Ilan University, Israel Katz, Ori, Microsoft, Israel Koenigstein, Noam, Microsoft, Israel

MLSP-L11.5: AUDIO SOUND DETERMINATION USING FEATURE SPACE ATTENTION BASED CONVOLUTION RECURRENT NEURAL NETWORK

Xia, Xianjun, Tencent, China Pan, Jingjing, China University of Mining and Technology, China Wang, Yannan, Tencent, China

MLSP-L11.6: SPATIAL ATTENTIONAL BILINEAR 3D CONVOLUTIONAL NETWORK FOR VIDEO-BASED AUTISM SPECTRUM DISORDER DETECTION

Sun, Kangbo, Shanghai Jiao Tong University, China Li, Lin, Shanghai Jiao Tong University, China Li, Lianqiang, Shanghai Jiao Tong University, China He, Ningyu, Shanghai Jiao Tong University, China Zhu, Jie, Shanghai Jiao Tong University, China

Friday, 8 May, 15:15 - 17:15

MLSP-L12 - Sequential Learning

MLSP-L12.1: LINEAR THOMPSON SAMPLING UNDER UNKNOWN LINEAR CONSTRAINTS

Moradipari, Ahmadreza, UC Santa Barbara, United States Alizadeh, Mahnoosh, UC Santa Barbara, United States Thrampoulidis, Christos, UC Santa Barbara, United States

MLSP-L12.2: OVERLAPPED STATE HIDDEN SEMI-MARKOV MODEL FOR GROUPED MULTIPLE SEQUENCES

Narimatsu, Hiromi, University of Electro-Communications / NTT Communication Science Laboratories, Japan Kasai, Hiroyuki, Waseda University, Japan

MLSP-L12.3: ONLINE COMMUNITY DETECTION BY SPECTRAL CUSUM

Zhang, Minghe, Georgia Institute of Technology, United States Xie, Liyan, Georgia Institute of Technology, United States Xie, Yao, Georgia Institute of Technology, United States

MLSP-L12.4: ENHANCED ADVERSARIAL STRATEGICALLY-TIMED ATTACKS AGAINST DEEP REINFORCEMENT LEARNING

Yang, Chao-Han Huck, Georgia Institute of Technology, United States Qi, Jun, Georgia Institute of Technology, United States Chen, Pin-Yu, IBM Research, United States Ouyang, Yi, Preferred Network America, United States Hung, I-Te Danny, Columbia University, United States Lee, Chin-Hui, Georgia Institute of Technology, United States Ma, Xiaoli, Georgia Institute of Technology, United States

MLSP-L12.5: PREFERENCE-AWARE MASK FOR SESSION-BASED RECOMMENDATION WITH BIDIRECTIONAL TRANSFORMER

Zhang, Yuanxing, Peking University, China Zhao, Pengyu, Peking University, China Guan, Yushuo, Peking University, China Chen, Lin, Yale University, China Bian, Kaigui, Peking University, China Song, Lingyang, Peking University, China Cui, Bin, Peking University, China Li, Xiaoming, Peking University, China

Tuesday, 5 May, 11:30 - 13:30

MLSP-P1 - Dictionary Learning, Representation Learning and Matrix Completion

MLSP-P1.1: LOW MUTUAL AND AVERAGE COHERENCE DICTIONARY LEARNING USING CONVEX APPROXIMATION

Parsa, Javad, Sharif University of Technology, Iran Sadeghi, Mostafa, Inria Grenoble Rhône-Alpes, France Babaie-Zadeh, Massoud, Sharif University of Technology, Iran Jutten, Christian, GIPSA-Lab, France

MLSP-P1.2: ROBUST ONLINE MATRIX COMPLETION WITH GAUSSIAN MIXTURE MODEL

Liu, Chunsheng, National University of Defense Technology, China Chen, Chunlei, Weifang University, China Shan, Hong, National University of Defense Technology, China Wang, Bin, National University of Defense Technology, China

MLSP-P1.3: DEEP NEURAL NETWORK BASED MATRIX COMPLETION FOR INTERNET OF THINGS NETWORK LOCALIZATION

Kim, Sunwoo, Seoul National University, Korea (South) Nguyen, Luong Trung, Seoul National University, Korea (South) Shim, Byonghyo, Seoul National University, Korea (South)

MLSP-P1.4: BRINGING IN THE OUTLIERS: A SPARSE SUBSPACE CLUSTERING APPROACH TO LEARN A DICTIONARY OF MOUSE ULTRASONIC VOCALIZATIONS

Wang, Jiaxi, University of Southern California, United States Mundnich, Karel, University of Southern California, United States Knoll, Allison, University of Southern California, United States Levitt, Pat, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

MLSP-P1.5: ONE-BIT COMPRESSED SENSING USING GENERATIVE MODELS

Joseph, Geethu, Syracuse University, United States Kafle, Swatantra, Syracuse University, United States Varshney, Pramod, Syracuse University, United States

MLSP-P1.6: HYBRID DEEP-SEMANTIC MATRIX FACTORIZATION FOR TAG-AWARE PERSONALIZED RECOMMENDATION

Xu, Zhenghua, Hebei University of Technology, China Yuan, Di, Hebei University of Technology, China Lukasiewicz, Thomas, University of Oxford, United Kingdom Chen, Cheng, China Academy of Electronics and Information

Technology, China Miao, Yishu, University of Oxford, United Kingdom Xu, Guizhi, Hebei University of Technology, China

MLSP-P1.7: SUPERVISED ENCODING FOR DISCRETE REPRESENTATION LEARNING

Le, Cat, Duke University, United States Zhou, Yi, University of Utah, United States Ding, Jie, University of Minnesota, United States Tarokh, Vahid, Duke University, United States

MLSP-P1.8: LEARNING DATA REPRESENTATION AND EMOTION ASSESSMENT FROM PHYSIOLOGICAL DATA

Joaquim, Miguel, Universidade de Lisboa, Portugal Maçorano, Rita, Universidade de Lisboa, Portugal Canais, Francisca, Universidade de Lisboa, Portugal Ramos, Rafael, Universidade de Lisboa, Portugal Fred, Ana, Instituto Superior Técnico, Universidade de Lisboa, Portugal Torrado, Marco, Universidade de Lisboa, Portugal Ferreira, Hugo, Universidade de Lisboa, Portugal

MLSP-P1.9: FEATURE SELECTION UNDER ORTHOGONAL REGRESSION WITH REDUNDANCY MINIMIZING

Xu, Xueyuan, Beijing Normal University, China Wu, Xia, Beijing Normal University, China

MLSP-P1.10: THE PICASSO ALGORITHM FOR BAYESIAN LOCALIZATION VIA PAIRED COMPARISONS IN A UNION OF SUBSPACES MODEL

Canal, Gregory, Georgia Institute of Technology, United States Connor, Marissa, Georgia Institute of Technology, United States Jin, Jihui, Georgia Institute of Technology, United States Nadagouda, Namrata, Georgia Institute of Technology, United States O'Shaughnessy, Matthew, Georgia Institute of Technology, United States Rozell, Christopher, Georgia Institute of Technology, United States Davenport, Mark, Georgia Institute of Technology, United States

MLSP-P1.11: LEARNING SEMI-SUPERVISED ANONYMIZED REPRESENTATIONS BY MUTUAL INFORMATION

Feutry, Clement, CentraleSupelec-CNRS-Universite Paris Sud, France Piantanida, Pablo, CentraleSupelec-CNRS-Universite Paris Sud, France Duhamel, Pierre, CNRS-CentraleSupelec-Universite Paris Sud, France

MLSP-P1.12: LEARNING LOCAL STRUCTURE OF REPRESENTATIVE POINTS FOR POINT CLOUD CLASSIFICATION AND SEMANTIC SEGMENTATION

Li, Xincheng, Tianjin University, China Pang, Yanwei, Tianjin University, China Wu, Yuefeng, Tianjin University, China Li, Yazhao, Tianjin University, China

Tuesday, 5 May, 11:30 - 13:30

MLSP-P2 - Applications in Speech and Audio

MLSP-P2.1: TOWARDS BLIND QUALITY ASSESSMENT OF CONCERT AUDIO RECORDINGS USING DEEP NEURAL NETWORKS

Simou, Nikonas, University of Crete, Greece Mastorakis, Yannis, Foundation for Research and Technology-Hellas (FORTH), Greece Stefanakis, Nikolaos, Foundation for Research and Technology-Hellas (FORTH), Greece

MLSP-P2.3: MULTI-LABEL SOUND EVENT RETRIEVAL USING A DEEP LEARNING-BASED SIAMESE STRUCTURE WITH A PAIRWISE PRESENCE MATRIX

Fan, Jianyu, Simon Fraser University, Canada Nichols, Eric, Microsoft, United States Tompkins, Daniel, Microsoft, United States Méndez Méndez, Ana Elisa, New York University, United States Elizalde, Benjamin, Carnegie Mellon University, United States Pasquier, Philippe, Simon Fraser University, Canada

MLSP-P2.4: SPEECH-DRIVEN FACIAL ANIMATION USING POLYNOMIAL FUSION OF FEATURES

Kefalas, Triantafyllos, Imperial College London, United Kingdom Vougioukas, Konstantinos, Imperial College London, United Kingdom Panagakis, Yannis, Imperial College London, United Kingdom Petridis, Stavros, Imperial College London and Samsung AI Centre Cambridge, United Kingdom Kossaifi, Jean, Imperial College London and Samsung AI Centre Cambridge, United Kingdom Pantic, Maja, Imperial College London and Samsung AI Centre Cambridge, United Kingdom

MLSP-P2.5: SED-MDD: TOWARDS SENTENCE DEPENDENT END-TO-END MISPRONUNCIATION DETECTION AND DIAGNOSIS

Feng, Yiqing, Harbin Institute of Technology, China Fu, Guanyu, Harbin Institute of Technology, China Chen, Qingcai, Harbin Institute of Technology, China Chen, Kai, Harbin Institute of Technology, China

MLSP-P2.6: GENERATIVE PRE-TRAINING FOR SPEECH WITH AUTOREGRESSIVE PREDICTIVE CODING

Chung, Yu-An, Massachusetts Institute of Technology, United States Glass, James, Massachusetts Institute of Technology, United States

MLSP-P2.7: STARGAN FOR EMOTIONAL SPEECH CONVERSION: VALIDATED BY DATA AUGMENTATION OF END-TO-END EMOTION RECOGNITION

Rizos, Georgios, Imperial College London, United Kingdom Baird, Alice, University of Augsburg, Germany Elliott, Max, Imperial College London, United Kingdom Schuller, Björn, Imperial College London, United Kingdom

MLSP-P2.8: MULTIMODAL TRANSFORMER FUSION FOR CONTINUOUS EMOTION RECOGNITION

Huang, Jian, Institute of Automation, Chinese Academy of Sciences, China Tao, Jianhua, Institute of Automation, Chinese Academy of Sciences, China Liu, Bin, Institute of Automation, Chinese Academy of Sciences, China Lian, Zheng, Institute of Automation, Chinese Academy of Sciences, China Niu, Mingyue, Institute of Automation, Chinese Academy of Sciences, China

MLSP-P2.9: HKA: A HIERARCHICAL KNOWLEDGE ATTENTION MECHANISM FOR MULTI-TURN DIALOGUE SYSTEM

Song, Jian, Tsinghua University, China Zhang, Kailai, Tsinghua University, China Zhou, Xuesi, Tsinghua University, China Wu, Ji, Tsinghua University, China

MLSP-P2.10: SUBMODULAR RANK AGGREGATION ON SCORE-BASED PERMUTATIONS FOR DISTRIBUTED AUTOMATIC SPEECH RECOGNITION

Qi, Jun, Georgia Institute of Technology, United States Yang, Chao-Han Huck, Georgia Institute of Technology, United States Tejedor, Javier, Universidad San Pablo-CEU, CEU Universities, Spain

MLSP-P2.11: BRIDGING MIXTURE DENSITY NETWORKS WITH META-LEARNING FOR AUTOMATIC SPEAKER IDENTIFICATION

Li, Ruirui, University of California, Los Angeles, United States Jiang, Jyun-Yu, University of California, Los Angeles, United States Wu, Xian, University of Notre Dame, United States Mao, Hongda, Amazon, Inc., United States Hsieh, Chu-Cheng, Amazon, Inc., United States Wang, Wei, University of California, Los Angeles, United States

MLSP-P2.12: PITCH ESTIMATION VIA SELF-SUPERVISION

Gfeller, Beat, Google, Switzerland Frank, Christian, Google, Switzerland Roblek, Dominik, Google, Switzerland Sharifi, Matt, Google, Switzerland Tagliasacchi, Marco, Google, Switzerland Velimirovic, Mihajlo, Google, Switzerland

Tuesday, 5 May, 16:30 - 18:30

MLSP-P3 - Reinforcement and Sequential Learning

MLSP-P3.1: HIERARCHICAL CACHING VIA DEEP REINFORCEMENT LEARNING

Sadeghi, Alireza, University of Minnesota, United States Wang, Gang, University of Minnesota, United States Giannakis, Georgios B., University of Minnesota, United States

MLSP-P3.2: LEARNING NETWORK REPRESENTATION THROUGH REINFORCEMENT LEARNING

Shen, Siqi, National University of Defense Technology, China Fu, Yongquan, National University of Defense Technology, China Jia, Adele Lu, China Agricultural University, China Su, Huayou, National University of Defense Technology, China Wang, Qinglin, National University of Defense Technology, China Wang, Chengsong, National University of Defense Technology, China Dou, Yong, National University of Defense Technology, China

MLSP-P3.3: ATTENTION-BASED CURIOSITY-DRIVEN EXPLORATION IN DEEP REINFORCEMENT LEARNING

Reizinger, Patrik, Budapest University of Technology and Economics, Hungary Szemenyei, Márton, Budapest University of Technology and Economics, Hungary

MLSP-P3.4: STABILIZING MULTI-AGENT DEEP REINFORCEMENT LEARNING BY IMPLICITLY ESTIMATING OTHER AGENTS' BEHAVIORS

Jin, Yue, Tsinghua University, China Wei, Shuangqing, Louisiana State University, United States Yuan, Jian, Tsinghua University, China Zhang, Xudong, Tsinghua University, China Wang, Chao, Tsinghua University, China

MLSP-P3.5: QOS-AWARE FLOW CONTROL FOR POWER-EFFICIENT DATA CENTER NETWORKS WITH DEEP REINFORCEMENT LEARNING

Sun, Penghao, National Digital Switching System Engineering & Technological R&D Center, China Guo, Zehua, Beijing Institute of Technology, China Liu, Sen, Central South University, China Lan, Julong, Central South University, China Hu, Yuxiang, Central South University, China

MLSP-P3.6: IMPROVING THE SCALABILITY OF DEEP REINFORCEMENT LEARNING-BASED ROUTING WITH CONTROL ON PARTIAL NODES

Sun, Penghao, National Digital Switching System Engineering & Technological R&D Center, China Lan, Julong, National Digital Switching System Engineering & Technological R&D Center, China Guo, Zehua, Beijing Institute of Technology,

China Xu, Yang, Fudan University, China Hu, Yuxiang, National Digital Switching System Engineering & Technological R&D Center, China

MLSP-P3.7: GENERALIZED LINEAR BANDITS WITH SAFETY CONSTRAINTS

Amani, Sanae, University of California, Santa Barbara, United States Alizadeh, Mahnoosh, University of California, Santa Barbara, United States Thrampoulidis, Christos, University of California, Santa Barbara, United States

MLSP-P3.8: FROM VIDEO GAME TO REAL ROBOT: THE TRANSFER BETWEEN ACTION SPACES

Karttunen, Janne, Karelics Oy, Finland Kanervisto, Anssi, University of Eastern Finland, Finland Kyrki, Ville, Aalto University, Finland Hautamäki, Ville, University of Eastern Finland, Finland

MLSP-P3.9: CORRELATED MULTI-ARMED BANDITS WITH A LATENT RANDOM SOURCE

Gupta, Samarth, Carnegie Mellon University, United States Joshi, Gauri, Carnegie Mellon University, United States Yagan, Osman, Carnegie Mellon University, United States

MLSP-P3.10: ADAPTIVE SEQUENTIAL INTERPOLATOR USING ACTIVE LEARNING FOR EFFICIENT EMULATION OF COMPLEX SYSTEMS

Martino, Luca, Universidad Rey Juan Carlos, Spain Heestermans Svendsen, Daniel, Universitat de Valencia, Spain Vicent, Jorge, Universitat of Valencia and Magellium Company in Geoinformation and Image Processing, France Camps-Valls, Gustau, Universitat de Valencia, Spain

MLSP-P3.11: CONTINUAL LEARNING FOR INFINITE HIERARCHICAL CHANGE-POINT DETECTION

Moreno-Muñoz, Pablo, Universidad Carlos III de Madrid, Spain Ramírez, David, Universidad Carlos III de Madrid, Spain Artés-Rodríguez, Antonio, Universidad Carlos III de Madrid, Spain

Tuesday, 5 May, 16:30 - 18:30

MLSP-P4 - Adversarial Attacks and Fast Algorithms

MLSP-P4.2: COST AWARE ADVERSARIAL LEARNING

De Silva, Shashini, Oregon State University, United States Kim, Jinsub, Oregon State University, United States Raich, Raviv, Oregon State University, United States

MLSP-P4.3: ON DIVERGENCE APPROXIMATIONS FOR UNSUPERVISED TRAINING OF DEEP DENOISERS BASED ON STEIN'S UNBIASED RISK ESTIMATOR

Soltanayev, Shakarim, Ulsan National Institute of Science and Technology, Korea (South) Giryes, Raja, Tel Aviv University, Israel Chun, Se Young, Ulsan National Institute of Science and Technology, Korea (South) Eldar, Yonina, Weizmann Institute of Science, Israel

MLSP-P4.4: VARIABLE METRIC PROXIMAL GRADIENT METHOD WITH DIAGONAL BARZILAI-BORWEIN STEPSIZE

Park, Youngsuk, Stanford university, United States Dhar, Sauptik, LG Sillicon Valley Lab, United States Boyd, Stephen, Stanford university, United States Shah, Mohak, LG Sillicon Valley Lab, United States

MLSP-P4.5: REVISIT OF ESTIMATE SEQUENCE FOR ACCELERATED GRADIENT METHOD

Li, Bingcong, University of minnesota, United States Coutino, Mario, Delft University of Technology, Netherlands Giannakis, Georgios B., University of minnesota, United States

MLSP-P4.6: A GENERALIZATION OF PRINCIPAL COMPONENT ANALYSIS

Battaglino, Samuele, University of Illinois at Chicago, United States Koyuncu, Erdem, University of Illinois at Chicago, United States

MLSP-P4.7: AN EASY-TO-IMPLEMENT FRAMEWORK OF FAST SUBSPACE CLUSTERING FOR BIG DATA SETS

Meng, Linghang, Tsinghua University, China Jiao, Yuchen, Tsinghua University, China Gu, Yuantao, Tsinghua University, China

MLSP-P4.8: INVESTIGATING GENERALIZATION IN NEURAL NETWORKS UNDER OPTIMALLY EVOLVED TRAINING PERTURBATIONS

Chaudhury, Subhajit, University of Tokyo, Japan Yamasaki, Toshihiko, University of Tokyo, Japan

MLSP-P4.9: HETEROGENEOUS DOMAIN GENERALIZATION VIA DOMAIN MIXUP

Wang, Yufei, University of Electronic Science and Technology of China, China Li, Haoliang, Nanyang Technological University, Singapore Kot, Alex Chichung, Nanyang Technological University, Singapore

MLSP-P4.10: PRESERVATION OF ANOMALOUS SUBGROUPS ON VARIATIONAL AUTOENCODER TRANSFORMED DATA

Maina, Samuel C., IBM Research, Kenya Bryant, Reginald E., IBM Research, Kenya Ogallo, William, IBM Research, Kenya Samoilescu, Robert-Florian, University Politehnica of Bucharest, Romania Walcott-Bryant, Aisha, IBM Research, Kenya Speakman, Skyler, IBM Research, Kenya Cintas, Celia, IBM Research, Kenya Varshney, Kush R., IBM Research, United States Weldemariam, Komminist, IBM Research, Kenya

MLSP-P4.11: LEARN-BY-CALIBRATING: USING CALIBRATION AS A TRAINING OBJECTIVE

J. Thiagarajan, Jayaraman, Lawrence Livermore National Labs, United States Venkatesh, Bindya, Arizona State University, United States Rajan, Deepta, IBM Research, United States

Wednesday, 6 May, 09:00 - 11:00

MLSP-P5 - Applications in Video and Image Processing I

MLSP-P5.1: ESRGAN+ : FURTHER IMPROVING ENHANCED SUPER-RESOLUTION GENERATIVE ADVERSARIAL NETWORK

Rakotonirina, Nathanaël Carraz, Université d'Antananarivo, Madagascar Rasoanaivo, Andry, Université d'Antananarivo, Madagascar

MLSP-P5.3: EFFICIENT IMAGE SUPER RESOLUTION VIA CHANNEL DISCRIMINATIVE DEEP NEURAL NETWORK PRUNING

Hou, Zejiang, Princeton University, United States Kung, Sun-Yuan, Princeton University, United States

MLSP-P5.4: MULTI-RESOLUTION OVERLAPPING STRIPES NETWORK FOR PERSON RE-IDENTIFICATION

Okay, Arda Efe, University of Miami, United States AlGhamdi, Manal, Umm AlQura University, Saudi Arabia Westendorp, Robert, FORTINET Technologies (Canada) ULC, Canada Abdel-Mottaleb, Mohamed, University of Miami, United States

MLSP-P5.5: PERSON IDENTIFICATION USING DEEP CONVOLUTIONAL NEURAL NETWORKS ON SHORT-TERM SIGNALS FROM WEARABLE SENSORS

Retsinas, George, National Technical University of Athens, Greece Filntisis, Panagiotis P., National Technical University of Athens, Greece Efthymiou, Niki, National Technical University of Athens, Greece Theodosis, Emmanouil, National Technical University of Athens, Greece Zlatintsi, Athanasia, National Technical University of Athens, Greece Maragos, Petros, National Technical University of Athens, Greece

MLSP-P5.6: LOCAL-GLOBAL FEATURE FOR VIDEO-BASED ONE-SHOT PERSON RE-IDENTIFICATION

Zhao, Chao, Nanjing University of Science and Technology, China Zhang, Zhenyu, Nanjing University of Science and Technology, China Yang, Jian, Nanjing University of Science and Technology, China Yan, Yan, Nanjing University of Science and Technology, China

MLSP-P5.7: GLOBAL AND LOCAL DISCRIMINATIVE PATCHES EXPLOITING FOR ACTION RECOGNITION

Wu, Jintao, Shanghai Jiao Tong University, China Luo, Wu, Shanghai Jiao Tong University, China Liu, Weiwei, Shanghai Jiao Tong University, China Zhang, Chongyang, Shanghai Jiao Tong University, China

MLSP-P5.9: DISENTANGLING CONTROLLABLE OBJECT THROUGH VIDEO PREDICTION IMPROVES VISUAL REINFORCEMENT LEARNING

Zhong, Yuanyi, University of Illinois at Urbana-Champaign, United States Schwing, Alexander, University of Illinois at Urbana-Champaign, United States Peng, Jian, University of Illinois at Urbana-Champaign, United States

MLSP-P5.10: DYNAMIC VARIATIONAL AUTOENCODERS FOR VISUAL PROCESS MODELING

Sagel, Alexander, fortiss - The Research Institute of the Free State of Bavaria, Germany Shen, Hao, fortiss - The Research Institute of the Free State of Bavaria, Germany

MLSP-P5.11: A NOVEL TWO-PATHWAY ENCODER-DECODER NETWORK FOR 3D FACE RECONSTRUCTION

Li, Xianfeng, South China University of Technology, China Weng, Zichun, South China University of Technology, China Liang, Juntao, South China University of Technology, China Cai, Lei, South China University of Technology, China Xiang, Youjun, South China University of Technology, China Fu, Yuli, South China University of Technology, China

MLSP-P5.12: RATE ASSIGNMENT IN 360-DEGREE VIDEO TILED STREAMING USING RANDOM FOREST REGRESSION

Skupin, Robert, Fraunhofer Heinrich Hertz Institute, Germany Bitterschulte, Kai, Fraunhofer Heinrich Hertz Institute, Germany Sanchez, Yago, Fraunhofer Heinrich Hertz Institute, Germany Hellge, Cornelius, Fraunhofer Heinrich Hertz Institute, Germany Schierl, Thomas, Fraunhofer Heinrich Hertz Institute, Germany

Wednesday, 6 May, 09:00 - 11:00

MLSP-P6 - Pattern Recognition and Machine Learning

MLSP-P6.1: IMPROVING CONVERGENT CROSS MAPPING FOR CAUSAL DISCOVERY WITH GAUSSIAN PROCESSES

Feng, Guanchao, Stony Brook University, United States Yu, Kezi, IQVIA, United States Wang, Yunlong, IQVIA, United States Yuan, Yilian, IQVIA, United States Djuric, Petar, Stony Brook University, United States

MLSP-P6.2: LABEL REUSE FOR EFFICIENT SEMI-SUPERVISED LEARNING

Hsieh, Tsung-Hung, Academia Sinica, Taiwan Chen, Jun-Cheng, Academia Sinica, Taiwan Chen, Chu-Song, Academia Sinica, Taiwan

MLSP-P6.3: DECENTRALIZED OPTIMIZATION WITH NON-IDENTICAL SAMPLING IN PRESENCE OF STRAGGLERS

Adikari, Tharindu, University of Toronto, Canada Draper, Stark, University of Toronto, Canada

MLSP-P6.4: CONTENT VS CONTEXT: HOW ABOUT “WALKING HAND-IN-HAND" FOR IMAGE CLUSTERING?

Hu, Shizhe, Zhengzhou University, China Hou, Zhenquan, Zhengzhou University, China Lou, Zhengzheng, Zhengzhou University, China Ye, Yangdong, Zhengzhou University, China

MLSP-P6.5: FIXED SMOOTH CONVOLUTIONAL LAYER FOR AVOIDING CHECKERBOARD ARTIFACTS IN CNNS

Kinoshita, Yuma, Tokyo Metropolitan University, Japan Kiya, Hitoshi, Tokyo Metropolitan University, Japan

MLSP-P6.6: THIS DATASET DOES NOT EXIST: TRAINING MODELS FROM GENERATED IMAGES

Besnier, Victor, Sorbonne University, France Jain, Himalaya, Valeo AI, France Bursuc, Andrei, Valeo AI, France Cord, Matthieu, Valeo AI, Sorbonne University, France Pérez, Patrick, Valeo AI, France

MLSP-P6.7: LET-SNE: A HYBRID APPROACH TO DATA EMBEDDING AND VISUALIZATION OF HYPERSPECTRAL IMAGERY

Shukla, Megh, Mercedes-Benz Research and Development India Pvt. Ltd., India Banerjee, Biplab, Indian Institute of Technology Bombay, India Buddhiraju, Krishna Mohan, Indian Institute of Technology Bombay, India

MLSP-P6.8: ADVERSARIAL MIXUP SYNTHESIS TRAINING FOR UNSUPERVISED DOMAIN ADAPTATION

Tang, Yuhua, National University of Defense Technology, China Lin, Zhipeng, National University of Defense Technology, China Wang, Haotian, National University of Defense Technology, China Xu, Liyang, National University of Defense Technology, China

MLSP-P6.9: RATE-INVARIANT AUTOENCODING OF TIME-SERIES

Koneripalli, Kaushik, Arizona State University, United States Lohit, Suhas, Arizona State University, United States Anirudh, Rushil, Lawrence Livermore National Laboratory, United States Turaga, Pavan, Arizona State University, United States

MLSP-P6.10: SELF-PACED PROBABILISTIC PRINCIPAL COMPONENT ANALYSIS FOR DATA WITH OUTLIERS

Zhao, Bowen, Tsinghua University, China Xiao, Xi, Tsinghua University, China Zhang, Wanpeng, Tsinghua University, China Zhang, Bin, Peng Cheng Laboratory, China Gan, Guojun, University of Connecticut, United States Xia, Shu-Tao, Tsinghua University, China

MLSP-P6.11: CORRDROP: CORRELATION BASED DROPOUT FOR CONVOLUTIONAL NEURAL NETWORKS

Zeng, Yuyuan, Tsinghua University, China Dai, Tao, Tsinghua University, China Xia, Shu-Tao, Tsinghua University, China

MLSP-P6.12: WITCHCRAFT: EFFICIENT PGD ATTACKS WITH RANDOM STEP SIZE

Chiang, Ping-Yeh, University of Maryland, Taiwan Geiping, Jonas, University of Siegen, Germany Goldblum, Micah, University of Maryland, United States Goldstein, Tom, University of Maryland, United States Ni, Renkun, University of Maryland, China Reich, Steven, University of Maryland, United States Shafahi, Ali, University of Maryland, United States

Wednesday, 6 May, 16:30 - 18:30

MLSP-P7 - Machine Learning Applications I

MLSP-P7.1: THE FIFTHNET CHROMA EXTRACTOR

O'Hanlon, Ken, Queen Mary University of London, United Kingdom Sandler, Mark, Queen Mary University of London, United Kingdom

MLSP-P7.2: ROBUST MARINE BUOY PLACEMENT FOR SHIP DETECTION USING DROPOUT K-MEANS

Ng, Yuting, Duke University, United States Pereira, João M., Duke University, United States Garagic, Denis, BAE Systems FAST Labs, United States Tarokh, Vahid, Duke University, United States

MLSP-P7.3: ON-THE-FLY FEATURE SELECTION AND CLASSIFICATION WITH APPLICATION TO CIVIC ENGAGEMENT PLATFORMS

Warahena Liyanage, Yasitha, University at Albany, State University of New York, United States Zois, Daphney-Stavroula, University at Albany, State University of New York, United States Chelmis, Charalampos, University at Albany, State University of New York, United States

MLSP-P7.4: GLOBAL TRAFFIC STATE RECOVERY VIA LOCAL OBSERVATIONS WITH GENERATIVE ADVERSARIAL NETWORKS

He, Mingcheng, Shanghai Jiao Tong University, China Luo, Xiliang, ShanghaiTech University, China Wang, Zixin, ShanghaiTech University, China Yang, Fuqian, ShanghaiTech University, China Qian, Hua, Shanghai Advanced Research Institute, Chinese Academy of Sciences, China Hua, Cunqing, Shanghai Jiao Tong University, China

MLSP-P7.5: FORECASTING SPARSE TRAFFIC CONGESTION PATTERNS USING MESSAGE-PASSING RNNS

Iyer, Shiva, New York University, United States An, Ulzee, New York University, United States Subramanian, Lakshminarayanan, New York University, United States

MLSP-P7.6: ENERGY DISAGGREGATION FROM LOW SAMPLING FREQUENCY MEASUREMENTS USING MULTI-LAYER ZERO CROSSING RATE

Schirmer, Pascal, University of Hertfordhshire, United Kingdom Mporas, Iosif, University of Hertfordhshire, United Kingdom

MLSP-P7.7: DECODING 5G-NR COMMUNICATIONS VIA DEEP LEARNING

Henarejos, Pol, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Vázquez, Miguel Ángel, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain

MLSP-P7.8: BODY MOVEMENT GENERATION FOR EXPRESSIVE VIOLIN PERFORMANCE APPLYING NEURAL NETWORKS

Liu, Jun-Wei, Taipei Municipal Jianguo High School, Taiwan Lin, Hung-Yi, Taipei Municipal Jianguo High School, Taiwan Huang, Yu-Fen, Academia Sinica, Taiwan Kao, Hsuan-Kai, Academia Sinica, Taiwan Su, Li, Academia Sinica, Taiwan

MLSP-P7.9: SEQUENTIAL VESSEL TRAJECTORY IDENTIFICATION USING TRUNCATED VITERBI ALGORITHM

Dong, Zheng, University of Science and Technology of China, China Yang, Yifei, Tsinghua University, China Xie, Yao, Georgia Institute of Technology, United States

MLSP-P7.10: A PROTOTYPICAL TRIPLET LOSS FOR COVER DETECTION

Doras, Guillaume, Sacem, France Peeters, Geoffroy, Telecom Paris, France

MLSP-P7.11: AUTOMOTIVE RADAR SIGNAL INTERFERENCE MITIGATION USING RNN WITH SELF ATTENTION

Mun, Jiwoo, Seoul National University, Korea (South) Ha, Seokhyeon, Seoul National University, Korea (South) Lee, Jungwoo, Seoul National University, Korea (South)

MLSP-P7.12: A LARGE-SCALE DEEP ARCHITECTURE FOR PERSONALIZED GROCERY BASKET RECOMMENDATIONS

Mantha, Aditya, Walmart Labs, United States Arora, Yokila, Walmart Labs, United States Gupta, Shubham, Walmart Labs, United States Kanumala, Praveenkumar, Walmart Labs, United States Liu, Zhiwei, Walmart Labs, United States Guo, Stephen, Walmart Labs, United States Achan, Kannan, Walmart Labs, United States

Wednesday, 6 May, 16:30 - 18:30

MLSP-P8 - Machine Learning Applications II

MLSP-P8.1: BLIND BOUNDED SOURCE SEPARATION USING NEURAL NETWORKS WITH LOCAL LEARNING RULES

Erdogan, Alper, Koc University, Turkey Pehlevan, Cengiz, Harvard University, United States

MLSP-P8.2: MODELING PIECE-WISE STATIONARY TIME SERIES

Wu, Daoping, Purdue University, United States Gundimeda, Suhas, Purdue University, United States Mou, Shaoshuai, Purdue University, United States Quinn, Christopher, Purdue University, United States

MLSP-P8.3: MULTIVARIATE TROPICAL REGRESSION AND PIECEWISE-LINEAR SURFACE FITTING

Maragos, Petros, National Technical University of Athens, Greece Theodosis, Emmanouil, Harvard University, United States

MLSP-P8.4: REVEALING BACKDOORS, POST-TRAINING, IN DNN CLASSIFIERS VIA NOVEL INFERENCE ON OPTIMIZED PERTURBATIONS INDUCING GROUP MISCLASSIFICATION

Xiang, Zhen, Pennsylvania State University, United States Miller, David, Anomalee, Inc., United States Kesidis, George, Pennsylvania State University, United States

MLSP-P8.5: CLASSIFYING PARTIALLY LABELED NETWORKED DATA VIA LOGISTIC NETWORK LASSO

Tran, Nguyen, Aalto University, Finland Ambos, Henrik, Aalto University, Finland Jung, Alexander, Aalto University, Finland

MLSP-P8.6: NEURAL TIME WARPING FOR MULTIPLE SEQUENCE ALIGNMENT

Kawano, Keisuke, Toyota Central R&D Labs. Inc., Japan Kutsuna, Takuro, Toyota Central R&D Labs. Inc., Japan Koide, Satoshi, Toyota Central R&D Labs. Inc., Japan

MLSP-P8.7: LANCE: EFFICIENT LOW-PRECISION QUANTIZED WINOGRAD CONVOLUTION FOR NEURAL NETWORKS BASED ON GRAPHICS PROCESSING UNITS

Li, Guangli, Institute of Computing Technology, Chinese Academy of Sciences, China Liu, Lei, Institute of Computing Technology, Chinese Academy of Sciences,

China Wang, Xueying, Institute of Computing Technology, Chinese Academy of Sciences, China Ma, Xiu, Jilin University, China Feng, Xiaobing, Institute of Computing Technology, Chinese Academy of Sciences, China

MLSP-P8.8: MEDIA CLASSIFICATION WITH BAYESIAN OPTIMIZATION AND VAPNIK-CHERVONENKIS (VC) BOUNDS

Bharitkar, Sunil, HP Inc., United States

MLSP-P8.9: BATMAN: BAYESIAN TARGET MODELLING FOR ACTIVE INFERENCE

Koudahl, Magnus T., Eindhoven University of Technology, Netherlands de Vries, Bert, Eindhoven University of Technology and GN Hearing, Netherlands

MLSP-P8.10: DEEP LEARNING ABILITIES TO CLASSIFY INTRICATE VARIATIONS IN TEMPORAL DYNAMICS OF MULTIVARIATE TIME SERIES

Liotet, Pierre, Ecole normale supérieure Paris-Saclay, France Abry, Patrice, Ecole Normale Superieure de Lyon, France Leonarduzzi, Roberto, Ecole Normale Supérieure, France Senneret, Marc, Vivienne Investissement, France Jaffrès, Laurent, Vivienne Investissement, France Perrin, Geral, Vivienne Investissement, France

MLSP-P8.11: ASSIMILATION-BASED LEARNING OF CHAOTIC DYNAMICAL SYSTEMS FROM NOISY AND PARTIAL DATA

Nguyen, Duong, IMT Atlantique, Lab-STICC, France Ouala, Said, IMT Atlantique, Lab-STICC, France Drumetz, Lucas, IMT Atlantique, Lab-STICC, France Fablet, Ronan, IMT Atlantique, Lab-STICC, France

MLSP-P8.12: GATED MULTI-LAYER CONVOLUTIONAL FEATURE EXTRACTION NETWORK FOR ROBUST PEDESTRIAN DETECTION

Liu, Tianrui, Imperial College London, United Kingdom Huang, Jun-Jie, Imperial College London, United Kingdom Dai, Tianhong, Imperial College London, United Kingdom Ren, Guangyu, Imperial College London, United Kingdom Stathaki, Tania, Imperial College London, United Kingdom

Thursday, 7 May, 09:00 - 11:00

MLSP-P9 - Graphical, Kernel and Tensor Methods

MLSP-P9.1: KERNEL RIDGE REGRESSION WITH AUTOCORRELATION PRIOR: OPTIMAL MODEL AND CROSS-VALIDATION

Tanaka, Akira, Hokkaido University, Japan Imai, Hideyuki, Hokkaido University, Japan

MLSP-P9.2: GENERALIZED KERNEL-BASED DYNAMIC MODE DECOMPOSITION

Héas, Patrick, Inria & Irmar, Univ. Rennes, France Herzet, Cédric, Inria & Irmar, Univ. Rennes, France Combès, Benoit, Inria & Irisa, Univ. Rennes, France

MLSP-P9.3: AN ONLINE KERNEL SCALAR QUANTIZATION SCHEME FOR SIGNAL CLASSIFICATION

Guo, Jing, Purdue University, United States Raj, Raghu, U.S. Naval Research Laboratory, United States Love, David, Purdue University, United States

MLSP-P9.4: SELF-DRIVEN GRAPH VOLTERRA MODELS FOR HIGHER-ORDER LINK PREDICTION

Coutino, Mario, Delft University of Technology, Netherlands Karanikolas, Georgios V., University of Minnesota, United States Leus, Geert, Delft University of Technology, Netherlands Giannakis, Georgios B., University of Minnesota, United States

MLSP-P9.5: GRAPH CONSTRUCTION FROM DATA BY NON-NEGATIVE KERNEL REGRESSION

Shekkizhar, Sarath, University of Southern California, United States Ortega, Antonio, University of Southern California, United States

MLSP-P9.6: STRUCTURED CITATION TREND PREDICTION USING GRAPH NEURAL NETWORKS

Cummings, Daniel, Intel, United States Nassar, Marcel, Intel, United States

MLSP-P9.7: REVISITING FAST SPECTRAL CLUSTERING WITH ANCHOR GRAPH

Wang, Cheng-Long, Northwestern Polytechnical University, China Nie, Feiping, Northwestern Polytechnical University, China Wang, Rong, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

MLSP-P9.8: A GRAPH NETWORK MODEL FOR DISTRIBUTED LEARNING WITH LIMITED BANDWIDTH LINKS AND PRIVACY CONSTRAINTS

Parras, Juan, Universidad Politécnica de Madrid, Spain Zazo, Santiago, Universidad Politécnica de Madrid, Spain

MLSP-P9.9: GRAPH REGULARIZED TENSOR TRAIN DECOMPOSITION

Sofuoglu, Seyyid Emre, Michigan State University, United States Aviyente, Selin, Michigan State University, United States

MLSP-P9.10: WEIGHTED KRYLOV-LEVENBERG-MARQUARDT METHOD FOR CANONICAL POLYADIC TENSOR DECOMPOSITION

Tichavsky, Petr, Academy of Sciences of the Czech Republic, Czech Republic Phan, Anh-Huy, Skolkovo Institute of Science and Technology (Skoltech), Russia Cichocki, Andrzej, Skolkovo Institute of Science and Technology (Skoltech), Russia

MLSP-P9.11: LOW-COMPLEXITY LEVENBERG-MARQUARDT ALGORITHM FOR TENSOR CANONICAL POLYADIC DECOMPOSITION

Huang, Kejun, University of Florida, United States Fu, Xiao, Oregon State University, United States

MLSP-P9.12: A MOMENT-BASED APPROACH FOR GUARANTEED TENSOR DECOMPOSITION

Marmin, Arthur, Université Paris-Saclay, CentraleSupélec, Inria, France Castella, Marc, CNRS, Télécom SudParis, Institut Polytechnique de Paris, France Pesquet, Jean-Christophe, Université Paris-Saclay, CentraleSupélec, Inria, France

Thursday, 7 May, 09:00 - 11:00

MLSP-P10 - Learning Methods

MLSP-P10.1: LEARNING DIVERSE SUB-POLICIES VIA A TASK-AGNOSTIC REGULARIZATION ON ACTION DISTRIBUTIONS.

Huo, Liangyu, Beihang University, China Wang, Zulin, Beihang University, China Xu, Mai, Beihang University, China Song, Yuhang, University of Oxford, United Kingdom

MLSP-P10.2: FEDERATED LEARNING WITH MUTUALLY COOPERATING DEVICES: A CONSENSUS APPROACH TOWARDS SERVER-LESS MODEL OPTIMIZATION

Savazzi, Stefano, Consiglio Nazionale delle Ricerche CNR-IEIIT, Italy Nicoli, Monica, Politecnico di Milano, Italy Rampa, Vittorio, Consiglio Nazionale delle Ricerche CNR-IEIIT, Italy Kianoush, Sanaz, Consiglio Nazionale delle Ricerche CNR-IEIIT, Italy

MLSP-P10.3: NO-REGRET NON-CONVEX ONLINE META-LEARNING

Zhuang, Zhenxun, Boston University, United States Wang, Yunlong, IQVIA Inc., United States Yu, Kezi, IQVIA Inc., United States Lu, Songtao, IBM, United States

MLSP-P10.4: ASYNCHROUNOUS DECENTRALIZED LEARNING OF A NEURAL NETWORK

Liang, Xinyue, KTH Royal Institute of Technology, Sweden M. Javid, Alireza, KTH Royal Institute of Technology, Sweden Skoglund, Mikael, KTH Royal Institute of Technology, Sweden Chatterjee, Saikat, KTH Royal Institute of Technology, Sweden

MLSP-P10.5: LEARNING PERCEPTION AND PLANNING WITH DEEP ACTIVE INFERENCE

Çatal, Ozan, Ghent University - imec, Belgium Verbelen, Tim, Ghent University - imec, Belgium Nauta, Johannes, Ghent University - imec, Belgium De Boom, Cedric, Ghent University - imec, Belgium Dhoedt, Bart, Ghent University - imec, Belgium

MLSP-P10.6: PROJECTION FREE DYNAMIC ONLINE LEARNING

Kalhan, Deepak Singh, Indian Institute of Technology Kanpur, India Bedi, Amrit Singh, U.S. Army Research Laboratory, United States Koppel, Alec, U.S. Army Research Laboratory, India Rajawat, Ketan, Indian Institute of Technology Kanpur, India Gupta, Abhishek Kumar, Indian Institute of Technology Kanpur, India Banerjee, Adrish, Indian Institute of Technology Kanpur, India

MLSP-P10.7: LEARNING PARTIAL DIFFERENTIAL EQUATIONS FROM DATA USING NEURAL NETWORKS

Hasan, Ali, Duke University, United States Pereira, João M., Duke University, United States Ravier, Robert, Duke University, United States Farsiu, Sina, Duke University, United States Tarokh, Vahid, Duke University, United States

MLSP-P10.8: ACTIVE LEARNING WITH UNSUPERVISED ENSEMBLES OF CLASSIFIERS

Traganitis, Panagiotis, University of Minnesota, United States Berberidis, Dimitrios, Carnegie Mellon University, United States Giannakis, Georgios B., University of Minnesota, United States

MLSP-P10.9: NASIL : NEURAL ARCHITECTURE SEARCH WITH IMITATION LEARNING

S. Fard, Farzaneh, Fluent.ai, Canada Rad, Arash, Fluent.ai, Canada Singh Tomar, Vikrant, Fluent.ai, Canada

MLSP-P10.10: MULTI-VIEW CLUSTERING VIA MIXED EMBEDDING APPROXIMATION

Wu, Danyang, Northwestern Polytechnical University, China Nie, Feiping, Northwestern Polytechnical University, China Wang, Rong, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

MLSP-P10.11: SIGNAL CLUSTERING WITH CLASS-INDEPENDENT SEGMENTATION

Gasperini, Stefano, Technische Universität München, Germany Paschali, Magdalini, Technische Universität München, Germany Hopke, Carsten, Airbus Defence and Space GmbH, Germany Wittmann, David, Airbus Defence and Space GmbH, Germany Navab, Nassir, Technische Universität München, Germany

Thursday, 7 May, 11:30 - 13:30

MLSP-P11 - Neural Networks and Pattern Recognition

MLSP-P11.1: MANGO: A PYTHON LIBRARY FOR PARALLEL HYPERPARAMETER TUNING

Sandha, Sandeep Singh, University of California, Los Angeles, United States Aggarwal, Mohit, Arm, United States Fedorov, Igor, Arm, United States Srivastava, Mani, University of California, Los Angeles, United States

MLSP-P11.2: ANYTIME MINIBATCH WITH DELAYED GRADIENTS: SYSTEM PERFORMANCE AND CONVERGENCE ANALYSIS

Al-Lawati, Haider, University of Toronto, Canada Draper, Stark, University of Toronto, Canada

MLSP-P11.3: ON EXPONENTIALLY CONSISTENCY OF LINKAGE-BASED HIERARCHICAL CLUSTERING ALGORITHM USING KOLMOGROV-SMIRNOV DISTANCE

Wang, Tiexing, Syracuse University, United States Liu, Yang, Syracuse University, United States Chen, Biao, Syracuse University, United States

MLSP-P11.5: A NEURAL NETWORK BASED ON FIRST PRINCIPLES

Baggenstoss, Paul, Fraunhofer FKIE, Germany

MLSP-P11.6: AL2: PROGRESSIVE ACTIVATION LOSS FOR LEARNING GENERAL REPRESENTATIONS IN CLASSIFICATION NEURAL NETWORKS

El Helou, Majed, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Dümbgen, Frederike, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Süsstrunk, Sabine, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

MLSP-P11.7: LABEL PROPAGATION ADAPTIVE RESONANCE THEORY FOR SEMI-SUPERVISED CONTINUOUS LEARNING

Kim, Taehyeong, Seoul National University, Korea (South) Hwang, Injune, Seoul National University, Korea (South) Kang, Gi-Cheon, Seoul National University, Korea (South) Choi, Won-Seok, Seoul National University, Korea (South) Kim, Hyunseo, Seoul National University, Korea (South) Zhang, Byoung-Tak, Seoul National University, Korea (South)

MLSP-P11.8: A PROBABILISTIC SCHEME FOR REPRESENTATION LEARNING WITH RADIAL TRANSFORM IMAGES

Salehinejad, Hojjat, University of Toronto, Canada Valaee, Shahrokh, University of Toronto, Canada

MLSP-P11.9: PERCEPTION-DISTORTION TRADE-OFF WITH RESTRICTED BOLTZMANN MACHINES

Cannella, Chris, Duke University, United States Ding, Jie, University of Minnesota, United States Soltani, Mohammadreza, Duke University, United States Zhou, Yi, University of Utah, United States Tarokh, Vahid, Duke University, United States

MLSP-P11.10: AN EFFICIENT ALTERNATIVE TO NETWORK PRUNING THROUGH ENSEMBLE LEARNING

Pöllot, Martin, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Zhang, Rui, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Kaup, André, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

MLSP-P11.11: A NOVEL PRUNING APPROACH FOR BAGGING ENSEMBLE REGRESSION BASED ON SPARSE REPRESENTATION

Khorashadi-Zadeh, Amir Ehsan, Sharif University of Technology, Iran Babaie-Zadeh, Massoud, Sharif University of Technology, Iran Jutten, Christian, University Grenoble Alpes, France

MLSP-P11.12: K-AUTOENCODERS DEEP CLUSTERING

Opochinsky, Yaniv, Bar-Ilan University, Israel Chazan, Shlomo E., Bar-Ilan University, Israel Gannot, Sharon, Bar-Ilan University, Israel Goldberger, Jacob, Bar-Ilan University, Israel

Thursday, 7 May, 11:30 - 13:30

MLSP-P12 - Applications in Video and Image Processing II

MLSP-P12.1: MOGA: SEARCHING BEYOND MOBILENETV3

Chu, Xiangxiang, Xiaomi, China Zhang, Bo, Xiaomi, China Xu, Ruijun, Xiaomi, China

MLSP-P12.2: META METRIC LEARNING FOR HIGHLY IMBALANCED AERIAL SCENE CLASSIFICATION

Guan, Jian, Harbin Engineering University, China Liu, Jiabei, Harbin Engineering University, China Sun, Jianguo, Harbin Engineering University, China Feng, Pengming, State Key Laboratory of Space-Ground Integrated Information Technology, China Shuai, Tong, CETC Key Laboratory of Aerospace Information Applications, China Wang, Wenwu, University of Surrey, United Kingdom

MLSP-P12.3: SYNTHETIC CROWD AND PEDESTRIAN GENERATOR FOR DEEP LEARNING PROBLEMS

Khadka, A, Kingston University, United Kingdom Remagnino, P, Kingston University, United Kingdom Argyriou, V, Kingston University, United Kingdom

MLSP-P12.4: TOSO: STUDENT'S-T DISTRIBUTION AIDED ONE-STAGE ORIENTATION TARGET DETECTION IN REMOTE SENSING IMAGES

Feng, Pengming, State Key Laboratory of Space-Ground Integrated Information Technology, China Lin, Youtian, Harbin Engineering University, China Guan, Jian, Harbin Engineering University, China He, Guangjun, State Key Laboratory of Space-Ground Integrated Information Technology, China Shi, Huifeng, State Key Laboratory of Space-Ground Integrated Information Technology, China Chambers, Jonathon, University of Leicester, United Kingdom

MLSP-P12.5: IMPROVING DEEP LEARNING CLASSIFICATION OF JPEG2000 IMAGES OVER BANDLIMITED NETWORKS

Chamain, Lahiru D., University of California, Davis, United States Ding, Zhi, University of California, Davis, United States

MLSP-P12.6: AUGMENTED GRAD-CAM: HEAT-MAPS SUPER RESOLUTION THROUGH AUGMENTATION

Morbidelli, Pietro, Politecnico di Milano, Italy Carrera, Diego, STMicroelectronics, Italy Rossi, Beatrice, STMicroelectronics, Italy Fragneto, Pasqualina, STMicroelectronics, Italy Boracchi, Giacomo, Politecnico di Milano, Italy

MLSP-P12.7: BBA-NET: A BI-BRANCH ATTENTION NETWORK FOR CROWD COUNTING

Hou, Yi, National Engineering Laboratory for Video Technology, Peking University, China Li, Chengyang, Key Lab of Petroleum Data Mining, China University of Petroleum (Beijing), China Yang, Fan, National Engineering Laboratory for Video Technology, Peking University, China Ma, Cong, National Engineering Laboratory for Video Technology, Peking University, China Zhu, Liping, Key Lab of Petroleum Data Mining, China University of Petroleum (Beijing), China Li, Yuan, National Engineering Laboratory for Video Technology, Peking University, China Jia, Huizhu, National Engineering Laboratory for Video Technology, Peking University, China Xie, Xiaodong, National Engineering Laboratory for Video Technology, Peking University, China

MLSP-P12.8: DEEP METRIC LEARNING BASED ON CENTER-RANKED LOSS FOR GAIT RECOGNITION

Su, Jingran, Northwestern Polytechnical University, China Zhao, Yang, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

MLSP-P12.9: CHANNEL ATTENTION BASED GENERATIVE NETWORK FOR ROBUST VISUAL TRACKING

Hu, Ying, Nanjing University of Science and Technology, China Xuan, Hanyu, Nanjing University of Science and Technology, China Yang, Jian, Nanjing University of Science and Technology, China Yan, Yan, Nanjing University of Science and Technology, China

MLSP-P12.10: CROSS-VAE: TOWARDS DISENTANGLING EXPRESSION FROM IDENTITY FOR HUMAN FACES

Wu, Haozhe, Tsinghua University, China Jia, Jia, Tsinghua University, China Xie, Lingxi, Huawei Noah's Ark Lab, China Qi, Guojun, Futurewei Technologies, China Shi, Yuanchun, Tsinghua University, China Tian, Qi, Huawei Noah's Ark Lab, China

MLSP-P12.11: ENHANCE PART-BASED MODEL FOR PERSON RE-IDENTIFICATION WITH FUSED MULTI-SCALE FEATURES

Lin, Xipeng, Nanjing University, China Yang, Yubin, Nanjing University, China Niu, Zhonghan, Nanjing University, China

MLSP-P12.12: TEXT-TO-IMAGE SYNTHESIS METHOD EVALUATION BASED ON VISUAL PATTERNS

Sommer, William Lund, Aarhus University, Denmark Iosifidis, Alexandros, Aarhus University, Denmark

Friday, 8 May, 11:45 - 13:45

MLSP-P13 - Neural Networks Applications II

MLSP-P13.1: DETECTION OF MILD DYSPNEA FROM PAIRS OF SPEECH RECORDINGS

Boelders, Sander, Eindhoven University of Technology, Netherlands Nallanthighal, Venkata Srikanth, Philips Research and Radboud University, Netherlands Menkovski, Vlado, Eindhoven University of Technology, Netherlands Härmä, Aki, Philips Research, Netherlands

MLSP-P13.2: A HYBRID MODEL FOR BIPOLAR DISORDER CLASSIFICATION FROM VISUAL INFORMATION

Abaei, Niloufar, University of Ottawa, Canada Al Osman, Hussein, University of Ottawa, Canada

MLSP-P13.3: AUTOMATIC EVENT DETECTION OF REM SLEEP WITHOUT ATONIA FROM POLYSOMNOGRAPHY SIGNALS USING DEEP NEURAL NETWORKS

Wallis, Phillip, Oregon Health & Science University, United States Yaeger, Daniel, Oregon Health & Science University, United States Kain, Alexander, Oregon Health & Science University, United States Song, Xubo, Oregon Health & Science University, United States Lim, Miranda, Oregon Health & Science University / Veterans Affairs Portland Health Care System, United States

MLSP-P13.4: A DEEP LEARNING ARCHITECTURE FOR EPILEPTIC SEIZURE CLASSIFICATION BASED ON OBJECT AND ACTION RECOGNITION

Karácsony, Tamás, INESC TEC - Institute for Systems and Computer Engineering, Technology and Science, Portugal Loesch-Biffar, Anna Mira, University of Munich, Germany Vollmar, Christian, University of Munich, Germany Noachtar, Soheyl, University of Munich, Germany Cunha, Joao Paulo Silva, INESC TEC - Institute for Systems and Computer Engineering, Technology and Science, Portugal

MLSP-P13.5: TRANSFORMING SEISMOCARDIOGRAMS INTO ELECTROCARDIOGRAMS BY APPLYING CONVOLUTIONAL AUTOENCODERS

Haescher, Marian, Fraunhofer Gesellschaft, Germany Höpfner, Florian, Fraunhofer Gesellschaft, Germany Chodan, Wencke, Fraunhofer Gesellschaft, Germany Kraft, Dimitri, Universität Rostock, Germany Aehnelt, Mario, Fraunhofer Gesellschaft, Germany Urban, Bodo, Universität Rostock, Germany

MLSP-P13.6: IMPROVED NEAREST NEIGHBOR DENSITY-BASED CLUSTERING TECHNIQUES WITH APPLICATION TO HYPERSPECTRAL IMAGES

Cariou, Claude, Univ Rennes, CNRS, France Chehdi, Kacem, Univ Rennes, CNRS, France Le Moan, Steven, Massey University, New Zealand

MLSP-P13.7: OBJECT SURFACE ESTIMATION FROM RADAR IMAGES

Bialer, Oded, General Motors, Israel Shapiro, David, General Motors, Israel Jonas, Amnon, General Motors, Israel

MLSP-P13.8: COUNTING DENSE OBJECTS IN REMOTE SENSING IMAGES

Gao, Guangshuai, Beihang University, China Liu, Qingjie, Beihang University, China Wang, Yunhong, Beihang University, China

MLSP-P13.9: HPRNN: A HIERARCHICAL SEQUENCE PREDICTION MODEL FOR LONG-TERM WEATHER RADAR ECHO EXTRAPOLATION

Jing, Jinrui, National University of Defense Technology, China Li, Qian, National University of Defense Technology, China Peng, Xuan, National University of Defense Technology, China Ma, Qiang, National University of Defense Technology, China Tang, Shaoen, National University of Defense Technology, China

MLSP-P13.10: ACCURATE 6D OBJECT POSE ESTIMATION BY POSE CONDITIONED MESH RECONSTRUCTION

Castro, Pedro, Imperial College London, United Kingdom Armagan, Anil, Imperial College London, United Kingdom Kim, Tae-Kyun, Imperial College London, United Kingdom

MLSP-P13.11: CPWC: CONTEXTUAL POINT WISE CONVOLUTION FOR OBJECT RECOGNITION

Mazumder, Pratik, Indian Institute of Technology Kanpur, India Singh, Pravendra, Indian Institute of Technology Kanpur, India Namboodiri, Vinay, Indian Institute of Technology Kanpur, India

MLSP-P13.12: ELECTRIC ANALOG CIRCUIT DESIGN WITH HYPERNETWORKS AND A DIFFERENTIAL SIMULATOR

Rotman, Michael, Tel Aviv University, Israel Wolf, Lior, Tel Aviv University, Israel

Friday, 8 May, 11:45 - 13:45

MLSP-P14 - Topics in Machine Learning

MLSP-P14.1: MULTI-TASK LEARNING VIA SA-FPN AND EJ-HEAD

Ni, Feng, Peking University, China Luo, Zhipeng, DeepBlue Technology (Shanghai) Co.,Ltd, China Cao, Xixin, Peking University, China Xu, Zhenyu, DeepBlue Technology (Shanghai) Co.,Ltd, China Yao, Yuehan, DeepBlue Technology (Shanghai) Co.,Ltd, China

MLSP-P14.2: DIFFERENTIABLE BRANCHING IN DEEP NETWORKS FOR FAST INFERENCE

Scardapane, Simone, Sapienza University of Rome, Italy Comminiello, Danilo, Sapienza University of Rome, Italy Scarpiniti, Michele, Sapienza University of Rome, Italy Baccarelli, Enzo, Sapienza University of Rome, Italy Uncini, Aurelio, Sapienza University of Rome, Italy

MLSP-P14.3: MULTI-STEP ONLINE UNSUPERVISED DOMAIN ADAPTATION

Moon, J. H., Purdue University, United States Das, Debasmit, Purdue University, United States Lee, C. S. George, Purdue University, United States

MLSP-P14.4: SELF-ADAPTIVE FEATURE FOOL

Liu, Xinyi, Tsinghua University, China Bai, Yang, Tsinghua University, China Xia, Shu-Tao, Tsinghua University, China Jiang, Yong, Tsinghua University, China

MLSP-P14.5: MULTI-MOTIFGAN (MMGAN): MOTIF-TARGETED GRAPH GENERATION AND PREDICTION

Gamage, Anuththari, University of Illinois at Urbana–Champaign, United States Chien, Eli, University of Illinois at Urbana–Champaign, United States Peng, Jianhao, University of Illinois at Urbana–Champaign, United States Milenkovic, Olgica, University of Illinois at Urbana–Champaign, United States

MLSP-P14.6: FEDERATED CLASSIFICATION WITH LOW COMPLEXITY REPRODUCING KERNEL HILBERT SPACE REPRESENTATIONS

Peifer, Maria, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

MLSP-P14.7: MAXPOLYNOMIAL DIVISION WITH APPLICATION TO NEURAL NETWORK SIMPLIFICATION

Smyrnis, Georgios, National Technical University of Athens, Greece Maragos, Petros, National Technical University of Athens, Greece Retsinas, George, National Technical University of Athens, Greece

MLSP-P14.8: BALANCED BINARY NEURAL NETWORKS WITH GATED RESIDUAL

Shen, Mingzhu, Beihang University, China Liu, Xianglong, Beihang University, China Gong, Ruihao, Beihang University, China Han, Kai, University of Chinese Academy of Sciences, China

MLSP-P14.9: A GEOMETRIC APPROACH FOR UNSUPERVISED SIMILARITY LEARNING

Dutta, Ujjal K. R., Indian Institute of Technology Madras, India C, Chandra Sekhar, Indian Institute of Technology Madras, India

MLSP-P14.10: GRADIENT DELAY ANALYSIS IN ASYNCHRONOUS DISTRIBUTED OPTIMIZATION

Al-Lawati, Haider, University of Toronto, Canada Draper, Stark, University of Toronto, Canada

MLSP-P14.11: SEQUENTIAL IOT DATA AUGMENTATION USING GENERATIVE ADVERSARIAL NETWORKS

Tschuchnig, Maximilian Ernst, Salzburg University of Applied Sciences, Austria Ferner, Cornelia, Salzburg University of Applied Sciences, Austria Wegenkittl, Stefan, Salzburg University of Applied Sciences, Austria

MLSP-P14.12: ROBUST RANK CONSTRAINED SPARSE LEARNING: A GRAPH-BASED METHOD FOR CLUSTERING

Liu, Ran, Northwestern Polytechnical University, China Chen, Mulin, Northwestern Polytechnical University, China Wang, Qi, Northwestern Polytechnical University, China Li, Xuelong, Northwestern Polytechnical University, China

Friday, 8 May, 15:15 - 17:15

MLSP-P15 - Neural Network Algorithms

MLSP-P15.1: EFFICIENT DECOUPLED NEURAL ARCHITECTURE SEARCH BY STRUCTURE AND OPERATION SAMPLING

Lee, Heung-Chang, Hana Institute of Technology, Korea (South) Kim, Do-Guk, Hana Institute of Technology, Korea (South) Han, Bohyung, Seoul National University, Korea (South)

MLSP-P15.2: WEIGHT SHARING AND DEEP LEARNING FOR SPECTRAL DATA

Larsen, Jacob Søgaard, Technical University of Denmark, Denmark Clemmensen, Line, Technical University of Denmark, Denmark

MLSP-P15.3: COMPLEX TRANSFORMER: A FRAMEWORK FOR MODELING COMPLEX-VALUED SEQUENCE

Yang, Muqiao, Carnegie Mellon University, United States Ma, Martin Q., Carnegie Mellon University, United States Li, Dongyu, Carnegie Mellon University, United States Tsai, Yao-Hung Hubert, Carnegie Mellon University, United States Salakhutdinov, Ruslan, Carnegie Mellon University, United States

MLSP-P15.4: HIGH-DIMENSIONAL NEURAL FEATURE USING RECTIFIED LINEAR UNIT AND RANDOM MATRIX INSTANCE

M. Javid, Alireza, KTH Royal Institute of Technology, Sweden Venkitaraman, Arun, KTH Royal Institute of Technology, Sweden Skoglund, Mikael, KTH Royal Institute of Technology, Sweden Chatterjee, Saikat, KTH Royal Institute of Technology, Sweden

MLSP-P15.5: PROJECTED WEIGHT REGULARIZATION TO IMPROVE NEURAL NETWORK GENERALIZATION

Zhang, Guoqiang, university of Technology Sydney, Australia Kenta, Niwa, NTT Media Intelligence Laboratories, Japan Kleijn, W. Bastiaan, Victoria University of Wellington, New Zealand

MLSP-P15.7: DEEP CLUSTERING FOR DOMAIN ADAPTATION

Gao, Boyan, University of Edinburgh, United Kingdom Yang, Yongxin, University of Edinburgh, United Kingdom Gouk, Henry, University of Edinburgh, United Kingdom Hospedales, Timothy M., University of Edinburgh, United Kingdom

MLSP-P15.8: DEEP CLUSTERING WITH CONCRETE K-MEANS

Gao, Boyan, University of Edinburgh, United Kingdom Yang, Yongxin, University of Edinburgh, United Kingdom Gouk, Henry, University of Edinburgh, United Kingdom Hospedales, Timothy M., University of Edinburgh, United Kingdom

MLSP-P15.9: POLARIZING FRONT ENDS FOR ROBUST CNNS

Bakiskan, Can, University of California, Santa Barbara, United States Gopalakrishnan, Soorya, University of California, Santa Barbara, United States Cekic, Metehan, University of California, Santa Barbara, United States Madhow, Upamanyu, University of California, Santa Barbara, United States Pedarsani, Ramtin, University of California, Santa Barbara, United States

MLSP-P15.10: ADAPTIVE DISTRIBUTED STOCHASTIC GRADIENT DESCENT FOR MINIMIZING DELAY IN THE PRESENCE OF STRAGGLERS

Kas Hanna, Serge, Rutgers University, United States Bitar, Rawad, Rutgers University, United States Parag, Parimal, Indian Institute of Science, India Dasari, Venkat, U.S. Army Research Laboratory, India El Rouayheb, Salim, Rutgers University, United States

MLSP-P15.11: A MODEL OF DOUBLE DESCENT FOR HIGH-DIMENSIONAL LOGISTIC REGRESSION

Deng, Zeyu, University of California, Santa Barbara, United States Kammoun, Abla, King Abdullah University of Science and Technology (KAUST), Saudi Arabia Thrampoulidis, Christos, University of California, Santa Barbara, United States

MLSP-P15.12: LOCALIZED LINEAR REGRESSION IN NETWORKED DATA

Jung, Alexander, Aalto University, Finland Tran, Nguyen, Aalto University, Finland

Friday, 8 May, 15:15 - 17:15

MLSP-P16 - Neural Networks Applications III

MLSP-P16.1: EFFICIENT SCENE TEXT DETECTION WITH TEXTUAL ATTENTION TOWER

Zhang, Liang, Xidian University, China Liu, Yufei, Xidian University, China Xiao, Hang, OrionStar Ltd., China Yang, Lu, Xidian University, China Zhu, Guangming, Xidian University, China Shah, Syed Afaq, Murdoch University, Australia Bennamoun, Mohammed, University of Western Australia, Australia Shen, Peiyi, Xidian University, China

MLSP-P16.2: A HYBRID APPROACH FOR THERMOGRAPHIC IMAGING WITH DEEP LEARNING

Kovács, Péter, Johannes Kepler University Linz, Austria Lehner, Bernhard, Silicon Austria Labs, Austria Thummerer, Gregor, University of Applied Sciences Upper Austria, Austria Mayr, Günther, University of Applied Sciences Upper Austria, Austria Burgholzer, Peter, Research Center for Non Destructive Testing (RECENDT), Austria Huemer, Mario, Johannes Kepler University Linz, Austria

MLSP-P16.3: KNOWLEDGE ENHANCED LATENT RELEVANCE MINING FOR QUESTION ANSWERING

Wang, Dong, Tsinghua Shenzhen International Graduate School, Tsinghua University, China Shen, Ying, Sun Yat-Sen University, China Zheng, Hai-Tao, Tsinghua Shenzhen International Graduate School, Tsinghua University, China

MLSP-P16.4: MULTI-LABEL CONSISTENT CONVOLUTIONAL TRANSFORM LEARNING: APPLICATION TO NON-INTRUSIVE LOAD MONITORING

Singh, Shikha, Indraprastha Institute of Information Technology Delhi, India Maggu, Jyoti, Indraprastha Institute of Information Technology Delhi, India Majumdar, Angshul, Indraprastha Institute of Information Technology Delhi, India Chouzenoux, Emilie, Inria Saclay, OPIS, Center for Visual Computing, France Chierchia, Giovanni, Université Paris Est, ESIEE, France

MLSP-P16.5: RESILIENT DISTRIBUTED RECOVERY OF LARGE FIELDS

Chen, Yuan, Carnegie Mellon University, United States Kar, Soummya, Carnegie Mellon University, United States Moura, José, Carnegie Mellon University, United States

MLSP-P16.6: TRAINING LSTM FOR UNSUPERVISED ANOMALY DETECTION WITHOUT A PRIORI KNOWLEDGE

Cherdo, Yann, Mantu, France de Kerret, Paul, Mantu, France Pawlak, Renaud, Mantu, France

MLSP-P16.7: UNSUPERVISED PERSON RE-IDENTIFICATION USING MULTI-BRANCH FEATURE COMPENSATION NETWORK AND LINK-BASED CLUSTER DISSIMILARITY METRIC

Pan, Lin, Peking University, China Qi, Gege, Peking University, China Guo, Biao, Peking University, China Zhu, Yuesheng, Peking University, China

MLSP-P16.8: DEEP-SST-EDDIES: A DEEP LEARNING FRAMEWORK TO DETECT OCEANIC EDDIES IN SEA SURFACE TEMPERATURE IMAGES

Moschos, Evangelos, École Polytechnique, France Schwander, Olivier, Sorbonne Université, France Stegner, Alexandre, École Polytechnique, France Gallinari, Patrick, Sorbonne Université / Criteo AI Lab, France

MLSP-P16.9: INTERPRETABILITY-GUIDED CONVOLUTIONAL NEURAL NETWORKS FOR SEISMIC FAULT SEGMENTATION

Liu, Zhining, University of Electronic Science and Technology of China, China Zhou, Cheng, University of Electronic Science and Technology of China, China Hu, Guangmin, University of Electronic Science and Technology of China, China Song, Chengyun, Chongqing University of Technology, China

MLSP-P16.10: TOWARDS HIGH-PERFORMANCE OBJECT DETECTION: TASK-SPECIFIC DESIGN CONSIDERING CLASSIFICATION AND LOCALIZATION SEPARATION

Kim, Jung Uk, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Kim, Seong Tae, Technische Universität München, Germany Kim, Eun Sung, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Moon, Sang-Keun, Korea Electric Power Corporation (KEPCO) Research Institute, Korea (South) Ro, Yong Man, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

MLSP-P16.11: ANOMALY DETECTION FOR TIME SERIES USING VAE-LSTM HYBRID MODEL

Lin, Shuyu, University of Oxford, United Kingdom Clark, Ronald, Imperial College London, United Kingdom Birke, Robert, ABB Future Labs, Switzerland Schoenborn, Sandro, ABB Future Labs, Switzerland Trigoni, Niki, University of Oxford, United Kingdom Roberts, Stephen, University of Oxford, United Kingdom

MLSP-P16.12: HYDRANET: A REAL-TIME WAVEFORM SEPARATION NETWORK

Torgard Kaspersen, Esbern, Aalborg University, Denmark Kounalakis, Tsampikos, Danish Technological Institute, Denmark Erkut, Cumhur, Aalborg University, Denmark

Multimedia Signal Processing

Friday, 8 May, 08:00 - 10:00

MMSP-L1 - Signal Processing for Multimedia Applications II

MMSP-L1.1: STORING DIGITAL DATA INTO DNA: A COMPARATIVE STUDY OF QUATERNARY CODE CONSTRUCTION

Dimopoulou, Melpomeni, Université Côte d'Azur, CNRS, I3S, France Antonini, Marc, Université Côte d'Azur, CNRS, I3S, France Barbry, Pascal, Université Côte d'Azur, CNRS, IPMC, France Appuswamy, Raja, EURECOM, France

MMSP-L1.2: A NEW MULTIHYPOTHESIS PREDICTION SCHEME FOR COMPRESSED VIDEO SENSING RECONSTRUCTION

Zheng, Shuai, Xidian University, China Zhang, Xiao-Ping, Ryerson University, Canada Chen, Jian, Xidian University, China Kuo, Yonghong, Xidian University, China

MMSP-L1.3: BIT ALLOCATION FOR MULTI-TASK COLLABORATIVE INTELLIGENCE

Ranjbar Alvar, Saeed, Simon Fraser University, Canada Bajić, Ivan V., Simon Fraser University, Canada

MMSP-L1.4: MOTION FEEDBACK DESIGN FOR VIDEO FRAME INTERPOLATION

Hu, Mengshun, Wuhan University, China Liao, Liang, national institute of informatics, Japan Xiao, Jing, Wuhan University and Suzhou Institute of Wuhan University, China Gu, Lin, national institute of informatics, Japan Satoh, Shin'ichi, national institute of informatics, Japan

MMSP-L1.5: TRILINGUAL SEMANTIC EMBEDDINGS OF VISUALLY GROUNDED SPEECH WITH SELF-ATTENTION MECHANISMS

Ohishi, Yasunori, NTT Corporation, Japan Kimura, Akisato, NTT Corporation, Japan Kawanishi, Takahito, NTT Corporation, Japan Kashino, Kunio, NTT Corporation, Japan Harwath, David, Massachusetts Institute of Technology, United States Glass, James, Massachusetts Institute of Technology, United States

MMSP-L1.6: TOWARDS POSE-INVARIANT LIP-READING

Cheng, Shiyang, Samsung, United Kingdom Ma, Pingchuan, Imperial College London, United Kingdom Tzimiropoulos, Georgios, University of Nottingham

and Samsung, United Kingdom Petridis, Stavros, Imperial College London and Samsung, United Kingdom Bulat, Adrian, Samsung, United Kingdom Shen, Jie, Imperial College London and Samsung, United Kingdom Pantic, Maja, Imperial College London and Samsung, United Kingdom

Friday, 8 May, 11:45 - 13:45

MMSP-L2 - Deep Learning for Multimedia Processing and Analysis II

MMSP-L2.1: A SIAMESE CONTENT-ATTENTIVE GRAPH CONVOLUTIONAL NETWORK FOR PERSONALITY RECOGNITION USING PHYSIOLOGY

Yang, Hao-Chun, National Tsing Hua University, Taiwan Lee, Chi-Chun, National Tsing Hua University, Taiwan

MMSP-L2.2: SELF-SUPERVISED LEARNING FOR AUDIO-VISUAL SPEAKER DIARIZATION

Ding, Yifan, University of Central Florida, United States Xu, Yong, Tencent AI Lab, United States Zhang, Shi-Xiong, Tencent AI Lab, United States Cong, Yahuan, Beijing University of Posts and Telecommunications, United States Wang, Liqiang, University of Central Florida, United States

MMSP-L2.3: WHAT MAKES THE SOUND?: A DUAL-MODALITY INTERACTING NETWORK FOR AUDIO-VISUAL EVENT LOCALIZATION

Ramaswamy, Janani, Indian Institute of Technology Madras, India

MMSP-L2.4: ATTENTIONAL FUSED TEMPORAL TRANSFORMATION NETWORK FOR VIDEO ACTION RECOGNITION

Yang, Ke, National University of Defense Technology, China Wang, Zhiyuan, National Innovation Institute of Defense Technology, China Dai, Huadong, National Innovation Institute of Defense Technology, China Shen, Tianlong, National Innovation Institute of Defense Technology, China Qiao, Peng, National University of Defense Technology, China Niu, Xin, National University of Defense Technology, China Jiang, Jie, National University of Defense Technology, China Li, Dongsheng, National University of Defense Technology, China Dou, Yong, National University of Defense Technology, China

MMSP-L2.5: DEEP PRODUCT QUANTIZATION MODULE FOR EFFICIENT IMAGE RETRIEVAL

Liu, Meihan, Peking University, China Dai, Yongxing, Peking University, China Bai, Yan, Peking University, China Duan, Ling-Yu, Peking University, China

MMSP-L2.6: THE OPEN BRANDS DATASET: UNIFIED BRAND DETECTION AND RECOGNITION AT SCALE

Jin, Xuan, Alibaba Group, China Su, Wei, Alibaba Group, China Zhang, Rong, Alibaba Group, China He, Yuan, Alibaba Group, China Xue, Hui, Alibaba Group, China

Wednesday, 6 May, 16:30 - 18:30

MMSP-P1 - Signal Processing for Multimedia Applications I

MMSP-P1.1: SPECTROGRAM ANALYSIS VIA SELF-ATTENTION FOR REALIZING CROSS-MODEL VISUAL-AUDIO GENERATION

Tan, Huadong, Hefei University of Technology, China Wu, Guang, Hefei University of Technology, China Zhao, Pengcheng, Hefei University of Technology, China Chen, Yanxiang, Hefei University of Technology, China

MMSP-P1.2: DGAN: DISENTANGLED REPRESENTATION LEARNING FOR ANISOTROPIC BRDF RECONSTRUCTION

Hu, Zhongyun, Northwestern Polytechnical University, China Wang, Xue, Northwestern Polytechnical University, China Wang, Qing, Northwestern Polytechnical University, China

MMSP-P1.3: APB2FACE: AUDIO-GUIDED FACE REENACTMENT WITH AUXILIARY POSE AND BLINK SIGNALS

Zhang, Jiangning, Zhejiang University, China Liu, Liang, Zhejiang University, China Xue, Zhucun, Wuhan University, China Liu, Yong, Zhejiang University, China

MMSP-P1.4: MOTION DYNAMICS IMPROVE SPEAKER-INDEPENDENT LIPREADING

Riva, Matteo, Dalle Molle Institute for Artificial Intelligence (IDSIA) / Università degli Studi di Milano-Bicocca, Switzerland Wand, Michael, Dalle Molle Institute for Artificial Intelligence (IDSIA), Switzerland Schmidhuber, Jürgen, Dalle Molle Institute for Artificial Intelligence (IDSIA), Switzerland

MMSP-P1.5: MULTI-LAYER CONTENT INTERACTION THROUGH QUATERNION PRODUCT FOR VISUAL QUESTION ANSWERING

Shi, Lei, Beijing University of Posts and Telecommunications, China Geng, Shijie, Rutgers University, China Shuang, Kai, Beijing University of Posts and Telecommunications, China Hori, Chiori, Mitsubishi Electric Research Laboratories (MERL), China Liu, Songxiang, Chinese University of Hong Kong, China Gao, Peng, Mitsubishi Electric Research Laboratories (MERL), China Su, Sen, Beijing University of Posts and Telecommunications, China

MMSP-P1.6: LINEAR MODEL-BASED INTRA PREDICTION IN VVC TEST MODEL

Ghaznavi-Youvalari, Ramin, Nokia Technologies, Finland

MMSP-P1.7: INTRA FRAME RATE CONTROL FOR VERSATILE VIDEO CODING WITH QUADRATIC RATE-DISTORTION MODELLING

Chen, Yi, City University of Hong Kong, Hong Kong SAR of China Kwong, Sam, City University of Hong Kong, Hong Kong SAR of China Zhou, Mingliang, Chongqing University, China Wang, Shiqi, City University of Hong Kong, Hong Kong SAR of China Zhu, Guopu, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China Wang, Yi, Southern University of Science and Technology, China

MMSP-P1.8: PERFORMANCE COMPARISON OF LOSSLESS COMPRESSION STRATEGIES FOR DYNAMIC VISION SENSOR DATA

Iqbal, Khurram, Kingston University, United Kingdom Khan, Nabeel, Kingston University, United Kingdom Martini, Maria G., Kingston University, United Kingdom

MMSP-P1.9: ENCODER-RECURRENT DECODER NETWORK FOR SINGLE IMAGE DEHAZING

Dang, An, National Central University, Taiwan Vu, Toan, National Central University, Taiwan Wang, Jia-Ching, National Central University, Taiwan

MMSP-P1.10: DENOISING OF EVENT-BASED SENSORS WITH SPATIAL-TEMPORAL CORRELATION

Wu, Jinjian, School of Artificial Intelligence, Xidian University, China Ma, Chuanwei, School of Artificial Intelligence, Xidian University, China Yu, Xiaojie, Xidian University, China Shi, Guangming, School of Artificial Intelligence, Xidian University, China

Thursday, 7 May, 11:30 - 13:30

MMSP-P2 - Deep Learning for Multimedia Processing and Analysis I

MMSP-P2.1: A VISUAL-PILOT DEEP FUSION FOR TARGET SPEECH SEPARATION IN MULTI-TALKER NOISY ENVIRONMENT

Li, Yun, Alibaba Group, United States Liu, Zhang, Alibaba Group, China Na, Yueyue, Alibaba Group, China Wang, Ziteng, Alibaba Group, China Tian, Biao, Alibaba Group, China Fu, Qiang, Alibaba Group, China

MMSP-P2.2: C3DVQA: FULL-REFERENCE VIDEO QUALITY ASSESSMENT WITH 3D CONVOLUTIONAL NEURAL NETWORK

Xu, Munan, Peking University Shenzhen Graduate School, China Chen, Junming, Peking University Shenzhen Graduate School, China Wang, Haiqiang, Tencent, China Liu, Shan, Tencent, China Li, Ge, Peking University Shenzhen Graduate School, China Bai, Zhiqiang, Peking University Shenzhen Graduate School, China

MMSP-P2.3: EXPLORING ENTITY-LEVEL SPATIAL RELATIONSHIPS FOR IMAGE-TEXT MATCHING

Xia, Yaxian, Peking University, China Huang, Lun, Peking University, China Wang, Wenmin, Peking University; Macau University of Science and Technology, China Wei, Xiao-Yong, Peng Cheng Laboratory, China Chen, Jie, Peking University; Peng Cheng Laboratory, China

MMSP-P2.4: A DEEP MULTIMODAL APPROACH FOR MAP IMAGE CLASSIFICATION

Sawada, Tomoya, Doshisha University, Japan Katsurai, Marie, Doshisha University, Japan

MMSP-P2.5: SELECTIVE CONVOLUTIONAL NETWORK: AN EFFICIENT OBJECT DETECTOR WITH IGNORING BACKGROUND

Ling, Hefei, Huazhong University of Science and Technology, China Qin, Yangyang, Huazhong University of Science and Technology, China Zhang, Li, Huazhong University of Science and Technology, China Shi, Yuxuan, Huazhong University of Science and Technology, China Li, Ping, Huazhong University of Science and Technology, China

MMSP-P2.6: BACK-AND-FORTH PREDICTION FOR DEEP TENSOR COMPRESSION

Choi, Hyomin, Simon Fraser University, Canada Cohen, Robert A., Simon Fraser University, Canada Bajić, Ivan V., Simon Fraser University, Canada

MMSP-P2.7: EFFECTIVE PIPELINE FOR COMPRESSING DEEP OBJECT DETECTORS

Yao, Yiwu, Peking University, China Fang, Zheng, Zhejiang University, China Dong, Bin, R&D Center, NetEase Inc, China Zhou, Sen, R&D Center, NetEase Inc, China

MMSP-P2.8: GATED MECHANISM FOR ATTENTION BASED MULTIMODAL SENTIMENT ANALYSIS

Kumar, Ayush, Observe.AI, India Vepa, Jithendra, Observe.AI, India

MMSP-P2.9: MULTITASK LEARNING AND MULTISTAGE FUSION FOR DIMENSIONAL AUDIOVISUAL EMOTION RECOGNITION

Atmaja, Bagus Tris, Japan Advanced Institute of Science and Technology, Japan Akagi, Masato, Japan Advanced Institute of Science and Technology, Japan

MMSP-P2.10: OBJECT DETECTION AND 3D ESTIMATION VIA AN FMCW RADAR USING A FULLY CONVOLUTIONAL NETWORK

Zhang, Guoqiang, University of Technology Sydney, Australia Li, Haopeng, Qamcom Research and Technology AB, Sweden Wenger, Fabian, Qamcom Research and Technology AB, Sweden

Thursday, 7 May, 16:30 - 18:30

MMSP-P3 - Multimedia Signal Processing

MMSP-P3.1: AVA ACTIVE SPEAKER: AN AUDIO-VISUAL DATASET FOR ACTIVE SPEAKER DETECTION

Roth, Joseph, Google, Inc., United States Chaudhuri, Sourish, Google, Inc., United States Klejch, Ondrej, Google, Inc., United States Marvin, Radhika, Google, Inc., United States Gallagher, Andrew, Google, Inc., United States Kaver, Liat, Google, Inc., United States Ramaswamy, Sharadh, Google, Inc., United States Stopczynski, Arkadiusz, Google, Inc., United States Schmid, Cordelia, Google, Inc., United States Xi, Zhonghua, Google, Inc., United States Pantofaru, Caroline, Google, Inc., United States

MMSP-P3.2: SUPERVISED DEEP HASHING FOR EFFICIENT AUDIO EVENT RETRIEVAL

Jati, Arindam, University of Southern California, United States Emmanouilidou, Dimitra, Microsoft Research, United States

MMSP-P3.3: AN LSTM-BASED DYNAMIC CHORD PROGRESSION GENERATION SYSTEM FOR INTERACTIVE MUSIC PERFORMANCE

Garoufis, Christos, National Technical University of Athens, Greece Zlatintsi, Athanasia, National Technical University of Athens, Greece Maragos, Petros, National Technical University of Athens, Greece

MMSP-P3.5: ENSEMBLE NETWORK FOR RANKING IMAGES BASED ON VISUAL APPEAL

Singh, Sachin, Indian Institute of Technology Kanpur, India Sanchez, Victor, University of Warwick, United Kingdom Guha, Tanaya, University of Warwick, United Kingdom

MMSP-P3.6: TRAPEZOIDAL SEGMENT SEQUENCING: A NOVEL APPROACH FOR FUSION OF HUMAN-PRODUCED CONTINUOUS ANNOTATIONS

Booth, Brandon, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

MMSP-P3.7: SEQUENCE-TO-SEQUENCE LABANOTATION GENERATION BASED ON MOTION CAPTURE DATA

Li, Min, Beijing Jiaotong University, China Miao, Zhenjiang, Beijing Jiaotong University, China Ma, Cong, Beijing Jiaotong University, China

MMSP-P3.8: POSE REFINEMENT: BRIDGING THE GAP BETWEEN UNSUPERVISED LEARNING AND GEOMETRIC METHODS FOR VISUAL ODOMETRY

Zhang, Lanqing, Peking University Shenzhen Graduate School, China Li, Ge, Peking University Shenzhen Graduate School, China Li, Thomas H., Peking University, China

MMSP-P3.9: MULTIMODAL ACTIVE SPEAKER DETECTION AND VIRTUAL CINEMATOGRAPHY FOR VIDEO CONFERENCING

Cutler, Ross, Microsoft, United States Mehran, Ramin, Zillow, United States Johnson, Sam, Facebook, United States Zhang, Cha, Microsoft, United States Kirk, Adam, Omnivor, United States Whyte, Oliver, Omnivor, United States Kowdle, Adarsh, perceptiveIO, United States

MMSP-P3.10: A NEW VARIATIONAL METHOD FOR DEEP SUPERVISED SEMANTIC IMAGE HASHING

Zhuang, Furen, University of Illinois at Urbana-Champaign, United States Moulin, Pierre, University of Illinois at Urbana-Champaign, United States

Show and Tell Demonstrations

Tuesday, 5 May, 11:30 - 13:30

S&T-P1 - Show and Tell 1

Talk Only S&T-P1.1: REAL-TIME EPILEPTIC SEIZURE DETECTION DURING SLEEP USING PASSIVE INFRARED (PIR) SENSORS

Hanosh, Ouday, University of Illinois at Chicago, United States Cetin, Ahmet Enis, University of Illinois at Chicago, United States Ansari, Rashid, University of Illinois at Chicago, United States

Abstract: According to World Health Organization (WHO), millions of people suffer from epilepsy, which is a chronic disorder of the brain. Sudden Unexplained Death in Epilepsy (SUDEP) is considered as one of the most dangerous threats to the patients who suffer from convulsive seizures during sleep. In this presentation we will demonstrate how we can detect epileptic seizures during sleep using Passive Infrared Sensors (PIR). The causes of the SUDEP are still unknown, and the patients with epileptic seizures can experience death in bed, likely after an unwitnessed convulsive seizure. Alerting caregivers to intervene during a seizure will help to prevent the SUDEP. Most of the current approaches to detect epileptic seizures at home rely on contact-based sensors and cameras. We developed a privacy-safe, non-contact PIR sensor based system that can alert caregivers during a convulsive seizure [1]. During a convulsive seizure the whole body experiences rapid, rhythmic and sometimes violent shaking movements, often with loss of consciousness. The PIR sensor monitoring the sleeping person generates a chaotic looking signal during a seizure. This signal can be distinguished from other ordinary body movements using a machine learning algorithm. We developed an algorithm using Hidden Markov models (HMM) and a convolutional neural network to classify the sensor data set into either occurrence or non-occurrence of epileptic convulsive seizures. The PIR sensor-based seizure detection system is a contact-free system. Epileptic seizures can be detected from 1 meter up to 11 meters distance between the sensor and the subject. During the demonstration, we will simulate a seizure by shaking our body in front of our system and generate an alarm. Reference: [1] Hanosh, O., Ansari, R., Younis, Cetin, AE (2019). Real-Time Epileptic Seizure Detection during Sleep using Passive Infrared Sensors. IEEE Sensors Journal.

Talk Only S&T-P1.2: ERTIS: REAL-TIME 3D ACOUSTIC SONAR IMAGING USING SPARSE MICROPHONE ARRAYS

Jansen, Wouter, University of Antwerp, Belgium Verellen, Thomas, University of Antwerp, Belgium Kerstens, Robin, University of Antwerp, Belgium Laurijssen, Dennis, University of Antwerp, Belgium Steckel, Jan, University of Antwerp, Belgium

Abstract: In recent years, our research group has developed state of the art 3D sonar sensors which use a low-cost MEMS microphone array for real-time acoustic imaging in air. Using this sensor, various robotic applications have been developed, including obstacle avoidance, corridor following and SLAM. The developed sensor is capable of localizing an arbitrary number of reflectors, and generates 2D (range versus azimuth) or 3D (range versus azimuth and elevation) acoustic images of the environment by emitting a broadband, spatially omnidirectional acoustic emission. This emission is reflected back by the environment to the microphone array. Using array beamforming algorithms an acoustic image of the environment is created, which subsequently can be either visualized or used in various control algorithms. In this show-and-tell demonstration we will demonstrate the real-time imaging capabilities of our eRTIS 3D Sonar sensor. Using a ground-truth sensing mechanism using LIDAR, we show the 3D point-clouds generated obtained by analyzing acoustic reflections obtained from our sonar sensor. The overlay of the 3D LIDAR and Sonar point-clouds allows the visitor of the show-and-tell session to experience 3D perception of the world through acoustic imaging. A previous version of this demonstration has been shown on the IEEE Sensors Conference 2019, where we won best demonstration award for our setup. A movie can be found here: https://www.youtube.com/watch?v=NV9Wkc2j6CY

Talk Only S&T-P1.4: DEMO PROPOSAL FOR SINGLE-INPUT MULTI-OUTPUT SUB-NYQUIST RADAR WITH UNKNOWN PULSE SHAPE

Eldar, Yonina, Weizmann Institute of Science, Israel Mulleti, Satish, Weizmann Institute of Science, Israel Zhan, Zhan, Weizmann Institute of Science, Israel Namer, Moshe, Weizmann Institute of Science, Israel Shavit, Yariv, Weizmann Institute of Science, Israel

Abstract: In this demo, we present a single-input multi-output (SIMO) radar system that operates at a sub-Nyquist rate without assuming any priori knowledge of the transmit pulse shape. Shannon-Nyquist sampling technique is the most widely used analog to digital conversion (ADC) method where the sampling rate is equal to twice the bandwidth of the signal to be sampled. In active radar imaging, the transmit pulse is narrow in time and hence has a wide bandwidth. This results in a high sampling rate and expensive ADCs. However, in

radar imaging, the received signal has a structure that can be exploited to reduce the sampling rate. Specifically, the received signal consists of a stream of time-shifted and amplitude scaled copies of the transmit pulse. By assuming that the transmit pulse is known, the received signal has a finite rate of innovation and hence can be sampled within the Xampling framework where the ADC operate in the sub-Nyquist regime. However, in practice, the transmit pulse is distorted while propagation and hence, one cannot use an existing sub-Nyquist framework. In this demo, we present the implementation of recently proposed sub-Nyquist framework with unknown pulse shape [1]. Specifically, we demonstrate that low-rate sampling is still possible if the signal is received through multiple antennas. In this case, the problem of estimating the target can be posed as a sparse multichannel blind deconvolution problem and we show that it is possible to uniquely identify the targets from compressed measurements. Our demonstration platform consists of a Vector Signal generator with delay capabilities transmitting in two different RF channels into a four channel oscilloscope. The prototype will be presented along with a dedicated GUI depicting the computed performance measures and allowing comparison to sub-Nyquist scheme with a known pulse. References: 1. S. Mulleti, K. Lee, and Y. C. Eldar, “Identifiability Conditions for Compressive Multichannel Blind Deconvolution,” arXiv preprint arXiv:2001.00613, 2020

Tuesday, 5 May, 16:30 - 18:30

S&T-P2 - Show and Tell 2

Talk Only S&T-P2.1: NUS AUTO LYRIX ALIGN

Gupta, Chitralekha, National University of Singapore, Singapore Yilmaz, Emre, National University of Singapore, Singapore Li, Haizhou, National University of Singapore, Singapore

Abstract: NUS Auto Lyrix Align is a system that automatically provides word-level alignment of a given lyrics text to a given polyphonic song. Automatic lyrics alignment in polyphonic music is a challenging task because the singing vocals are corrupted by the background music. In this system, we use an acoustic model that has been trained on music genre-specific characteristics of polyphonic music. With such a genre-based approach, we explicitly model the music without removing it during acoustic modeling. This algorithm has been submitted to ICASSP 2020, also has outperformed all other systems in the International Music Information Retrieval Evaluation eXchange platform MIREX 2019, with mean absolute word alignment error of less than 200 ms across all test datasets. For the first time, we present our algorithm in the form of an interactive web interface, where a user can upload a song as an mp3 file or a youtube link along with its lyrics text file. The system processes the inputs and outputs word-level time-aligned lyrics. The aligned lyrics are displayed on the screen in karaoke fashion, i.e. scrolling highlighting of the words as the audio plays. The user may download the word-aligned output file in json or txt format, which is compatible with Audacity. A video demonstrating our system is shown here: https://drive.google.com/open?id=1oGdXQ9d3SfecPu8R3TBhY8kufFfXsd8_ The system is online now, please try it out! https://autolyrixalign.hltnus.org/ Our Relevant Publications [1] C. Gupta, E. Yılmaz, H. Li, “Automatic Lyrics Alignment and Transcription in Polyphonic Music: Does Background Music Help?,” arXiv preprint:1909.10200v2 [eess.AS], 2019 (submitted to ICASSP 2020). [2] C. Gupta, E. Yılmaz, and H. Li, “Acoustic modeling for automatic lyrics-to-audio alignment,” in Proc. Interspeech, 2019. [3] C. Gupta∗, B. Sharma∗, H. Li, and Y. Wang, “Automatic lyrics-to-audio alignment on polyphonic music using singing-adapted acoustic models,” in Proc. ICASSP, 2019. (*equal contributors). [4] C. Gupta, H. Li, and Y. Wang, "Automatic Pronunciation Evaluation of Singing," in Proc. Interspeech, 2018

Talk Only S&T-P2.2: CHOIR SINGING SYNTHESIS FOR REHEARSAL TOOLS WITH LARGE-SCALE MULTILINGUAL REPERTOIRES

Sarasúa, Álvaro, Voctro Labs, Spain Janer, Jordi, Voctro Labs, Spain Mayor, Oscar, Voctro Labs, Spain Bonada, Jordi, Universitat Pompeu Fabra, Spain Blaauw, Merlijn, Universitat Pompeu Fabra, Spain

Abstract: Advances in the quality of recent Text-to-Speech Synthesis (TTS) based on Deep Learning (DL) made a large impact for its wide application range in industry and simultaneous social awareness. In the music domain, Singing Voice Synthesis (SVS) profited from similar advances in realism and expressive control. The SVS approaches take into account musical constraints, and specific datasets need to be recorded and annotated. Although virtual singers are not new, today DL-based systems that generate synthetic media are gaining attention in academia, industry as well as in media production. One of the renowned research labs working on Singing Technologies is the MTG-UPF in Barcelona. Together with its spin-off company Voctro Labs, they have developed a Choir Singing Synthesis system that models a professional choir of 16 singers in multiple languages. The system combines a novel work on F0-modelling introduced at ICASSP 2020, with the Neural Parametric Singing Synthesis (NPSS) algorithm developed by coauthors. It takes the notes and corresponding lyrics as input, and generates a synthetic output for different voices. It includes a Hybrid DNN-Parametric F0-model trained on studio recordings by singers in four registers (soprano, alto, tenor and bass), capturing the specific intonation patterns. Timbre is also modelled independently for the different four registers, allowing to synthesize realistic replicas of each voice type and pitch range. A multilingual dataset was recorded in four languages, thanks to the diction proficiency of professional singers in Western choral music repertoire. This demo shows an interactive web-based prototype. Attendants will have the opportunity to listen to the realistic synthetic choir (e.g. https://soundcloud.com/phonos-upf/demo-2), as well as to practice their singing skills on the interactive rehearsal tool (https://trompa.netlify.com/). The work presented is partially funded by the TROMPA EU Project (Grant No 770376).

Talk Only S&T-P2.3: A SINGLE-WAVELENGTH REAL-TIME MATERIAL-SENSING CAMERA BASED ON TIME-OF-FLIGHT MEASUREMENTS

Heredia Conde, Miguel, University of Siegen, Germany Loffeld, Otmar, University of Siegen, Germany Kerstein, Thomas, pmdtechnologies ag, Germany Buxbaum, Bernd, pmdtechnologies ag, Germany

Abstract: Time-of-Flight (ToF) cameras provide a fast and robust way of acquiring the 3D shape of real scenes. Dense depth images can be generated at tens of frame per second. 3D shapes can be then segmented and objects classified, but can we directly sense the objects' material using just a ToF

camera? This live demonstration proves the answer to be affirmative. This possibility has only very recently been unveiled and we are, to the best of our knowledge, the first providing a live demonstrator showing the feasibility of this approach. Differently from mainstream research on material classification, we do not make use of costly hyperspectral measurements, but of single-wavelength ToF measurements. Depending on the nature of the material, the probing function arising from the modulation/demodulation sensing scheme (e.g., a sinusoid in CW-ToF) will be further convolved with a different impulse response function that is characteristic of the material. If the material is perfectly opaque and plain this response function is a Dirac delta function. If not, phenomena like internal reflections will produce bandlimited response functions. Using a multi-frequency CW-ToF system we are able to extract the main Fourier coefficients of such bandlimited functions, thus offering an accurate approximation thereof and enabling native material recognition. This novel approach opens the door for low-cost ToF cameras to enter high-impact applications, e.g., those requiring distinguishing biological material from artificial ones, typically with markedly different inner light diffusion characteristics. The demonstrator consists of our material sensing camera, connected to a computer that shows a real-time video of “material images”. The camera observes a dynamic scene containing real-life objects of different materials. Objects can be removed from the scene and new objects can be incorporated. The spectators will enjoy a literal “hands-on” interaction, and will also be able to challenge the system with their own items.

Wednesday, 6 May, 09:00 - 11:00

S&T-P3 - Show and Tell 3

Talk Only S&T-P3.2: A NOVEL METHOD FOR OBTAINING DIFFUSE FIELD MEASUREMENTS FOR MICROPHONE CALIBRATION

Akbar, Noman, Australian National University, Australia Dickins, Glenn, Australian National University, Australia Thomas, Mark R. P., Dolby Laboratories, United States Samarasinghe, Prasanga N., Australian National University, Australia Abhayapala, Thushara D., Australian National University, Australia

Abstract: NOVELTY OF THE DEMO: Is it possible to obtain a diffused field response of a microphone array and perform calibration in under a minute? If such a method exists, is it possible to achieve an accuracy of half a dB from the expected response? The answer to both questions is "yes". We will demonstrate a novel, straightforward, and cost-effective method of obtaining diffuse field measurements for microphone calibration. TECHNICAL CONTENTS: This demo is associated with an accepted paper at ICASSP 2020. The paper describing the proposed method entitled "A novel method for obtaining diffuse field measurements for microphone calibration" has been accepted for presentation in a lecture session. As such, this demo will be of high-interest to the attendees of ICASSP and will significantly improve the quality of presentation of the accepted paper. Technical details of the proposed method will be easily available to the ICASSP attendees in the form of the accepted paper. HARDWARE AND INTERACTIVE DEMO SETUP: We will setup a 1.8m diameter 26-speaker rhombic tricontrahedron array and calibrate a higher-order microphone array using the proposed method. Participants at ICASSP will be invited to calibrate a microphone array using the hardware setup and the frequency response of the microphone array will be displayed on a laptop screen. A Participant will be able to see the result of his/her trial and also see a comparison between their results with those obtained by other participants. The demo will include a 1-2 minute talk describing the proposed method and its novel aspects. VIDEOS ASSOCIATED WITH THE DEMO: •A 26-speaker rhombic tricontrahedron array will be used in the demo https://vimeo.com/361493511 •Videos demonstrating the proposed method https://vimeo.com/367536785 https://vimeo.com/367536766

Talk Only S&T-P3.3: PRE-TRAINING IN DEEP REINFORCEMENT LEARNING FOR AUTOMATIC SPEECH RECOGNITION

Rajapakshe, Thejan, University of Southern Queensland, Sri Lanka Rana, Rajib, University of Southern Queensland, Australia Latif, Siddique, University of Southern Queensland, Australia Khalifa, Sara, Commonwealth Scientific and

Industrial Research Organisation, Australia Schuller, Björn, Imperial College London, United Kingdom

Abstract: Deep reinforcement learning (deep RL) is a combination of deep learning and reinforcement learning principles. it creates efficient methods that can learn by interacting with its environment. Deep RL led to breakthroughs in many complex tasks that were previously difficult to solve. However, deep RL requires a large amount of training time that makes it difficult to use in various real-life applications like human-computer interaction (HCI). Therefore, in this work, pre-training in deep RL has been studied to reduce the training time and improve the performance in speech recognition. Implementation of the policy model in RL was done using the well-known Tensorflow python library. It includes a combination of Convolutional Neural Network (CNN) Layers and Long-Short Term Memory (LSTM) layers. The use of CNN and LSTM indulges us the ability to increase the performance for speech recognition tasks. We considered RL in playing a guessing game of speech commands. After considering the ground truth by the environment, a reward is given. For a correct guessing a positive reward, and for a false guessing a negative reward is given. The study was carried out by using the publicly available Speech Commands Dataset. Initially, the policy model was pre-trained in a separate sub-set of the selected dataset before RL starts. The REINFORCE algorithm was used to approximate the policy gradient. The average score was compared between "with" and "without" pre-training paradigms. The score after 10,000 episodes with pre-training has increased by about 50% in higher class classifiers. Results show that pre-training helps to achieve considerably better results in a lower number of episodes. Moreover, the velocity of the score has increased in "with pre-training" rather than in "without pre-training" experiments. In the proposed model, it uses pre-training knowledge to achieve a better score while reducing the convergence time.

Talk Only S&T-P3.4: DEMO PROPOSAL FOR JOINT RADAR AND COMMUNICATION SYSTEM BASED ON INDEX MODULATION

Eldar, Yonina, Weizmann Institute of Science, Israel Shlezinger, Nir, Weizmann Institute of Science, Israel Ma, Dingyou, Tsinghua University, China Shavit, Yariv, Weizmann Institute of Science, Israel Jin, Jidong, Tsinghua University, China Namer, Moshe, Weizmann Institute of Science, Israel

Abstract: In this demo we present a radar system capable of transmitting digital communication messages to a remote receiver using a transmission scheme, operating as a dual-function radar-communication (DFRC) system. Many applications, such as vehicular systems, utilize both radar and communication functionalities. These systems share many similarities in hardware architecture

and signal processing methods, which motivates the study of DFRC systems, i.e., systems implementing both radar and communication functionalities using the same platform. Such joint designs have several benefits, including a reduction of the system volume, reduced cost, and the ability to naturally mitigate the cross interference between radar and communications. Therefore, the joint design of radar and communication systems has been the focus of a growing research attention. In this demo, we present an implementation of a DFRC scheme recently proposed in [1]-[2]. This scheme combines frequency agile radar with index modulation for conveying digital messages at minimal degradation to the radar performance. In the proposed demo we implement the DFRC transmitter while simulating the radar target using a radar echo generator (REG). Our demonstration platform consists of a control unit implementing over-the-air joint-waveform signaling using a dedicated antenna array of 16 elements capable of both receiving and transmitting, as well as an REG which generates the reflecting radar echos for controllable targets. Using a dedicated GUI, our demo will illustrate the operation of the DFRC system, computing its radar and communication performance measures in real-time, and demonstrating the feasibility of the concept of index-modulation based DFRC systems. [1] T. Huang, N. Shlezinger, X. Xu, Y. Liu, and Y. C. Eldar, “MAJoRCom: A dual-function radar communication system using index modulation,” arXiv preprint arXiv:1909.04223, 2019. [2] T. Huang, N. Shlezinger, X. Xu, D. Ma, Y. Liu, and Y. C. Eldar, “Multi-carrier agile phased array radar,” arXiv preprint arXiv:1906.06289, 2019

Wednesday, 6 May, 11:30 - 13:30

S&T-P4 - Show and Tell 4

Talk Only S&T-P4.1: ROBUST END-TO-END KEYWORD SPOTTING AND VOICE COMMAND RECOGNITION FOR MOBILE GAME

An, Shounan, Netmarble, Korea (South)

Abstract: We present an effective method to solve a small-footprint keyword spotting (KWS) and voice command based user interface for mobile game. For KWS task, our goal is to design and implement a computationally very light deep neural network model into mobile device, in the same time to improve the accuracy in various noisy environments. We propose a simple yet effective convolutional neural network (CNN) with Google's tensorflow-lite for android and Apple's core ML for iOS deployment. Tensorflow provides post training integer quantization and with tensorflow-lite we could deploy 8-bit quantization model into android device. Meanwhile, we choose Apple's core ML for it's better performance than tensorflow-lite for iOS device. The size of our CNN model is 0.2 MB with 7 MB memory usage totally, and the CPU usage is around 1% (test phone: Galaxy S8 and iPhone 8). To improve the overall accuracy of KWS in noisy environments, we design a hybrid thresholding method, which make use of both average inference score and volume of incoming speech signal. We also propose a voice command SDK which running game command recognition on-the-fly inside the mobile device as well. We design a convolutional recurrent neural network transducer (CNN-RNN-T) as our automatic speech recognition (ASR) model. Text-to-speech (TTS) was applied to generate game command voices with various data augmentation techniques. Our CNN-RNN-T's character error rate (CER) is 17%, the model size is 7 MB and the processing time is less than 1 second for 3 seconds incoming speech signal, which provides real-time voice command recognition for further game actions. To the best of our knowledge, this is the first work try to resolve both KWS and voice command recognition running inside device for mobile game. We will perform live demonstration of KWS and game command based user interface integrated into a full-sized, production-quality mobile game A3: Still Alive, which is one of the major games from Netmarble this year and will be available on market soon.

Talk Only S&T-P4.2: ENRICHED SPEECH FOR EFFORTLESS LISTENING

Chermaz, Carol, University of Edinburgh, United Kingdom PV, Muhammed Shifas, University of Crete, Greece Raman, Sneha, University of the Basque Country, Spain Govender, Avashna, University of Edinburgh, United Kingdom Paul, Dipjyoti, University of Crete, Greece Simantiraki, Olympia, University of the Basque Country, Spain

Abstract: Human-machine speech interaction is increasingly common in the industrialised world. A (natural or synthetic) speech output that is optimised for high intelligibility and low cognitive load is of interest for both academia and industry: ENRICH (www.enrich-etn.eu) is a unique initiative - handling these topics from a joint perspective. The group has a special focus on the role of technology for individuals with different abilities in speech or hearing, with the aim of improving social inclusion by making communication easier. We would like to propose a series of demos, interleaved by the common thread of enriched speech for effortless listening. All demos are computer-based, with simple GUIs and headphones. 1)(NELE) Near End Listening Enhancement in realistic scenarios: The user can listen to speech playback in different simulated real-world acoustic scenarios, with or without NELE; they can enter the words they heard and calculate their intelligibility score. 2)Noise-aware speech enrichment using DNNs (Deep Neural Networks): The user can record their speech and subsequently listen to their utterance cleared from the noisy background and enhanced. 3)Enrichment of oesophageal speech with voice conversion based on LSTM (Long Shot-Term Memory) neural networks: A video of a patient emitting oesophageal speech is shown; the same speech is processed with a neural approach, reintroducing missing features like pitch. 4)Transforming casual speech into clear speech using Tacotron and WaveRNN vocoder and personalising synthetic voices with speaker embeddings extracted from a limited amount of data: The user can record their speech; the utterance is transcribed and speaker features are used to produce a synthetic voice that speaks clearly and sounds similar to the user. 5)Personalising speech playback: The user can modify arbitrary features of a recorded voice to maximise perceived intelligibility. They can see how their choices compare against average responses. Modifications include F0 (using STRAIGHT), spectral location of speech band and spectral tilt.

Talk Only S&T-P4.3: DEEPJSCC: THE FUTURE OF WIRELESS VIDEO TRANSMISSION

Tung, Tze-Yang, Imperial College London, United Kingdom Kurka, David, Imperial College London, United Kingdom Gündüz, Deniz, Imperial College London, United Kingdom

Abstract: We propose a demonstration of a joint source-channel coding (JSCC) scheme, called DeepJSCC, for wireless video transmission. Unlike conventional digital communication systems, which rely on separate source and channel coding, DeepJSCC is a purely data-driven end-to-end approach inspired by recent developments in deep learning. The encoder and decoder of DeepJSCC consist of a pair of neural networks that are optimized jointly through training.

DeepJSCC can learn to transmit over the air without any explicit code design and achieve similar or better performance than conventional transmission schemes. Moreover, DeepJSCC is able to avoid the "cliff effect", which the conventional digital designs suffer from. The cliff effect refers to the complete failure of digital transmission when the channel condition deteriorates. In contrast, DeepJSCC provides graceful degradation of video quality with the channel quality (as in analog transmission). Thus, DeepJSCC does not suffer from drop out of video as conventional digital communication systems do. The demonstration consists of a pair of software defined radios that act as the transmitter and receiver. We will first show the cliff effect that the conventional digital communication suffers from with live plots of channel quality vs video quality as well as the video itself. Next, we will implement DeepJSCC on the same hardware showing the smooth adjustment of the video quality with varying channel quality. Interactivity will consist of attendants moving the radio to introduce channel distortions and they will be able to see the effects of distortions they introduce on a live video. We believe this demonstration will inspire audiences on the power of deep learning for solving the challenges of wireless video transmission, and how it can revolutionize the future of communications, which has so far depended on a strictly modular design consisting of many complex expert-designed components. Sample images and results: https://ipc-lab.github.io/deepJSCC-demo/

Talk Only S&T-P4.4: DEMO PROPOSAL FOR DATA-DRIVEN SYMBOL DETECTION AND ONLINE CHANNEL TRACKING VIA MODEL-BASED MACHINE LEARNING

Eldar, Yonina, Weizmann Institute of Science, Israel Shlezinger, Nir, Weizmann Institute of Science, Israel Namer, Moshe, Weizmann Institute of Science, Israel Shavit, Yariv, Weizmann Institute of Science, Israel

Abstract: Recent years have witnessed a dramatically growing interest in machine learning (ML). These data-driven methods have demonstrated an unprecedented success in various applications. The benefits of ML over traditional model-based approaches are twofold: First, ML methods are independent of the underlying model, and thus can operate efficiently in scenarios where this model is unknown, or its parameters cannot be accurately estimated; Second, when the model is complex, ML algorithms have demonstrated the ability to disentangle the meaningful semantic information from the observed data. Nonetheless, not every problem should be solved using deep neural networks (DNNs). In fact, in scenarios for which model-based algorithms exist and are computationally feasible, which is the case in various communications setups, analytical methods are typically preferable over ML

schemes due to their theoretical performance guarantees and possible proven optimality. In our work [1] we derived a data-driven receiver, referred to as ViterbiNet, which integrates DNNs into the Viterbi algorithm. ViterbiNet utilizes ML methods to learn only the channel-model-based computations of the Viterbi algorithm, and thus integrates ML into algorithmic symbol detection. The resulting receiver thus learns to implement Viterbi detection from a small set of labeled data and is capable of tracking time-varying channel conditions using online training. The focus of the demo is to demonstrate the ability of ViterbiNet to track channel variations online exploiting the inherent structure of error correction codes [1]. We utilize DNN accelerators to demonstrate how ViterbiNet can track varying channel conditions in real-time, utilizing its decoded output for retraining. The demo will include a GUI demonstrating the channel variations and the corresponding adaptation of the data-driven symbol detector, illustrating the feasibility of the concept of online training for model-based ML methods in communications. [1] N. Shlezinger et al, “ViterbiNet: A deep learning based Viterbi algorithm for symbol detection,” arXiv:1905.10750.

Wednesday, 6 May, 16:30 - 18:30

S&T-P5 - Show and Tell 5

Talk Only S&T-P5.1: REALISTIC REAL-TIME VOICE SWAPPING FROM SINGLE UNPAIRED SENTENCES

Provinciali, Carlo, Columbia University, United States Liu, Yihong, Columbia University, United States Kim, Junghoo, Columbia University, United States Drori, Iddo, Columbia University, United States

Abstract: We demonstrate a system that allows two speakers to swap their voices from any two unpaired sentences such that the result is indistinguishable from real voices and performed in real-time on a laptop. Each of the two speakers takes turns pronouncing any unpaired single short sentences into a microphone. Our demo plays the original voice recordings, then swaps the speakers voices, playing the words pronounced by the first speaker with the second's speaker voice and vice-versa. The two input voices are processed in two distinct ways; one to extract the text of each speech, and one to learn each speaker's unique voice profile. We extract the text from speakers' A speech by using state of the art pre-trained voice-to-text models. We then pass the audio from speaker B through an encoder, which derives an embedding that describes speakers' B distinctive features. Next, we use the text extracted from speaker A and the embeddings of speaker B to synthesize the Mel spectrogram, which is fed into a vocoder to generate the final audio of speakers' A sentence with speakers' B voice. The same process is mirrored with speaker A and B's roles swapped. Our implementation leverages pre-trained neural networks: an encoder, synthesizer, and vocoder models, for a realistic real-time performance.

Talk Only S&T-P5.2: VIDEO-DRIVEN SPEECH RECONSTRUCTION

Mira, Rodrigo, Imperial College London and Samsung AI, United Kingdom Ma, Pingchuan, Imperial College London, United Kingdom Vougioukas, Konstantinos, Imperial College London, United Kingdom Petridis, Stavros, Imperial College London and Samsung AI Centre Cambridge, United Kingdom Schuller, Björn, Imperial College London, United Kingdom and University of Augsburg, Germany Pantic, Maja, Imperial College London and Samsung AI Centre Cambridge, United Kingdom

Abstract: This demo will showcase our video-to-audio model which attempts to reconstruct speech from short videos of spoken statements. Our model does so in a completely end-to-end manner where raw audio is generated based on the input video. This approach bypasses the need for separate lip-reading and text-to-speech models. The advantage of such an approach is that it does not require large transcribed datasets and it is not based on intermediate

representations like text which remove any intonation and emotional content from the speech. This demo will show for the first time the feasibility of end-to-end video-driven speech reconstruction for unseen speakers. The model is based on generative adversarial networks and achieves the state-of-the-art performance on seen speakers on the GRID dataset in terms of word error rate and speech quality and intelligibility. It is also the first model which can generate high quality and intelligible speech for unseen speakers. Additionally, this model is the first to produce intelligible speech when trained and tested on LRW, an 'in the wild' dataset which contains thousands of utterances taken from television broadcasts. The demo will be interactive, involving recording live video from a new participant. The previously unseen speaker will be asked to utter a short sentence in front of the camera, but no audio will be recorded. This video will then be fed into the model and it will (in only a few seconds) produce a new version of the same video which will feature the reproduced speech generated by our end-to-end model. The proposed model can have a significant impact on videoconferencing by alleviating common issues such as noisy environments, gaps in the audio and unvoiced syllables. The demo will be the first step in demonstrating the potential of this technology which we believe will be very attractive and relevant to the ICASSP audience. Samples of our work can be found on https://sites.google.com/view/speech-synthesis/home/extension .

Talk Only S&T-P5.3: MACHINE LEARNING-BASED ADAPTIVE RECEIVE FILTERING: PROOF-OF-CONCEPT ON AN SDR PLATFORM

Mehlhose, Matthias, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Awan, Daniyal Amir, Technische Universität Berlin, Germany Cavalcante, Renato L. G., Fraunhofer Heinrich Hertz Institute, Germany Kurras, Martin, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany Stanczak, Slawomir, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany

Abstract: The constant demand for low latency and high data rates in a modern mobile communications network creates new scientific challenges in each new generation. An accurate reconstruction of transmission data of as many users as possible at the base station is a task that can become mathematically very complex in today's mobile networks. The scientific community and our group at Fraunhofer Institute for Telecommunications (Heinrich Hertz Institute, HHI) are therefore investigating and comparing new methods such as NOMA with conventional orthogonal multi-user recognition techniques such as OFDMA. In combination with a large number of antennas on the receiving base station, a practical implementation can become very complex. In addition, subsequent

errors in estimation with methods such as successive interference cancellation (SIC) can make it impossible for some users to reconstruct the data reliably if a large number of users are affected by incorrectly estimated parameters (such as user channels, covariance matrix, noise variance, etc.). In our demonstrator, we show how a receiver based on machine learning (ML) can help with this task. With low complexity, the modulation symbols for each user are detected without the need to estimate the typical parameters. All users send their pilots and data alternately on the same resources (frequency and time). The regular pilot phases are used to relearn changes in the channel. The method has the potential to contribute significantly to latency reduction through parallel implementation.

Talk Only S&T-P5.4: DEMO PROPOSAL FOR FAST-LEARNING SPARSE ANTENNA ARRAY FOR AUTOMOTIVE RADAR

Eldar, Yonina, Weizmann Institute of Science, Israel Mulleti, Satish, Weizmann Institute of Science, Israel Namer, Moshe, Weizmann Institute of Science, Israel Shavit, Yariv, Weizmann Institute of Science, Israel Zhan, Zhan, Weizmann Institute of Science, Israel

Abstract: In this demo, we present fast-sparse array hardware built for tracking both slow- and fast-moving targets in an automotive application. Specifically, the direction of arrivals (DOA) of the moving targets are estimated at regular time-intervals by applying sparse arrays that are adaptively configured by using deep learning. High-resolution DOA estimation requires a large number of antenna elements which results in a high cost. To reduce cost and power while obtaining sufficient performance, sparse array structures are used where a subarray of the whole antenna array is utilized. Recently, we proposed a deep learning-based (DL) approach for antenna selection that has low computational complexity and optimum solution [1, 2]. In these works, the data labeling method is based on an exhaustive search where a best sparse array is selected among all possible configurations that minimize a predefined cost function. In addition, the proposed techniques assume that the targets are moving slowly between the scans. In this demo, we address these shortcomings and demonstrate a computationally efficient labeling technique and a modified sparse array configuration strategy that can track both slow- and fast-moving targets. The results are particularly useful for automotive applications, where the radars are required to track slowly moving objects such as pedestrians and fast-moving vehicles for efficient navigation. Our demonstration platform consists of a control unit implementing over-the-air dedicated antenna array of 16 elements capable of receiving signals in the ISM band (2.4 / 5 GHZ). By using a dedicated GUI, our demo will illustrate the DOA with sparse array of the receive

antenna. References: [1] A. M. Elbir, K. V. Mishra, Y. C. Eldar, “Cognitive Radar Antenna Selection via Deep Learning”, IET Radar, Sonar & Navigation, vol. 13, issue 6, pp. 871-880, June 2019.

Thursday, 7 May, 09:00 - 11:00

S&T-P6 - Show and Tell 6

Talk Only S&T-P6.2: LEARNING BASED RECONFIGURABLE WIDEBAND NON-CONTIGUOUS SPECTRUM CHARACTERIZATION FOR 5G APPLICATIONS

Joshi, Himani, Indraprastha Institute of Information Technology Delhi, India Alaee-Kerahroodi, Mohammad, University of Luxembourg, Luxembourg Shankar M. R., Bhavani, University of Luxembourg, Luxembourg J Darak, Sumit, Indraprastha Institute of Information Technology Delhi, India Kumar, Sumit, University of Luxembourg, Luxembourg Vijay Mishra, Kumar, University of Luxembourg, Luxembourg

Abstract: Introduction of spectrum sharing in 3GPP Release 17 demands base-stations (BS) with the capability to characterize the wideband spectrum spanned over licensed, shared and unlicensed non-contiguous frequency bands. Since, multiple-antenna and beam-forming are de facto approaches to meet the throughput and quality-of-service requirements, characterization of spectrum is desired over time, frequency as well as spatial domains. Though narrowband signal characterization is well-explored, wideband spectrum needs careful design of analog and digital front-ends along with tight integration with the baseband algorithms. Furthermore, non-contiguous spectrum demands intelligence to identify the part(s) of spectrum to be characterized so that ample transmission opportunities are identified. From a complexity perspective, optimal trade-off between accurate characterization of as many bands as possible with fewer number of antennas is a challenging research problem. The proposed demonstration offers intelligent and reconfigurable architecture for non-contiguous wideband spectrum characterization (vacant/busy status, center frequency and direction-of-arrival). Here, reconfigurability allows the BS to select and digitize non-contiguous frequency bands by performing sparse sensing in temporal and spatial domain. This is achieved via sparse antenna-array and finite rate of innovation based sub-Nyquist sampling technique. Whereas by optimizing the above trade-off, the online learning based intelligence allows the BS to successfully characterize the spectrum with fewer number of hardware resources. Specifically, we setup this problem as multi-play multi-armed bandit, develop novel algorithm and validate the same in real radio environment. This demonstration has found significant traction both with academia as well as industry given the multitude of use cases in 5G requiring efficient sensing and spectrum characterization for enhanced system operation. Furthermore, we also extend this demonstration for cellular-radar coexistence scenario in which identified transmission opportunities are exploited by the Radar communication systems. The setup consists of transmitter USRP(s) to

generate directional wireless traffic with the desired distribution. The receiver, i.e. BS, consists of sparse antenna-array connected to the receiver USRP(s) synchronized via octoclock. The proposed signal processing and learning algorithms are realized in LabVIEW-NXG. We demonstrate the 34% gain in throughput (i.e. number of identified transmission opportunities) along with lower complexity with respect to state-of-the-art methods.

Thursday, 7 May, 11:30 - 13:30

S&T-P7 - Show and Tell 7

Talk Only S&T-P7.2: INTERACTIVE LOW LATENCY VIDEO STREAMING OF VOLUMETRIC CONTENT

Podborski, Dimitri, Fraunhofer Heinrich Hertz Institute, Germany Gül, Serhan, Fraunhofer Heinrich Hertz Institute, Germany Son, Jangwoo, Fraunhofer Heinrich Hertz Institute, Germany Bhullar, Gurdeep Singh, Fraunhofer Heinrich Hertz Institute, Germany Skupin, Robert, Fraunhofer Heinrich Hertz Institute, Germany Sanchez, Yago, Fraunhofer Heinrich Hertz Institute, Germany Schierl, Thomas, Fraunhofer Heinrich Hertz Institute, Germany Hellge, Cornelius, Fraunhofer Heinrich Hertz Institute, Germany

Abstract: Low latency video streaming of volumetric content is an emerging technology to enable immersive media experiences on mobile devices. Unlike 3DoF scenarios where users are restricted to changes of their head orientation at a single position, volumetric content allows users to move freely within the scene in 6DoF. Although the processing power of mobile devices has increased considerably, streaming volumetric content directly to such devices is still challenging. High-quality volumetric content requires significant data rate and network bandwidth. Although compression algorithms for volumetric video are being developed, no energy efficient hardware for decoding of volumetric data such as point clouds or meshes is available on existing mobile platforms. Moreover, software decoding may not be able to meet real-time processing requirements and increases the battery consumption. Our demonstration mitigates the above problem by offloading the rendering to a dedicated server at the network edge and avoids transmission of the original volumetric content to a mobile client. One major challenge of such cloud rendering is to meet end-to-end latency requirements and ensure a smooth user experience. Typically, placing the rendering engine at a 5G edge server can drastically reduce the network latency. The demonstration setup consists of a browser-based client that displays the 2D video containing the volumetric content and transmits user interactions to the rendering server through WebRTC data channels or websockets. On server side, a rendering engine generates an appropriate view of the volumetric content based on the user interaction. A fast GPU-based video encoder then compresses the rendered 2D view and transmits it to the client using the WebRTC protocol. The described system achieves a very low end-to-end latency, transmits the volumetric content at low bitrates and is suitable for deployment in thin client environments.

Talk Only S&T-P7.3: REAL-TIME SOUND EVENT DETECTION ON THE EDGE: PORTING VGGISH ON LOW-POWER IOT MICROCONTROLLERS

Cerutti, Gianmarco, Fondazione Bruno Kessler, Italy Brutti, Alessio, Fondazione Bruno Kessler, Italy Farella, Elisabetta, Fondazione Bruno Kessler, Italy

Abstract: Internet of Things (IoT) applications typically require a large number of heterogeneous devices to be distributed in the environment, which can generate large amounts of data for wireless transmission, affecting the energy requirements and lifetime of the devices. One strategy is computing on the very edge: performing advanced processing directly on the IoT node reduces the amount of transmitted data and the related power consumption. Thanks to recent improvements in embedded technology, commercial microcontrollers with consumptions in the range of mW and computational power to enable Artificial Intelligence (AI) at the ``thing-level" are available. Sound event detection (SED) is an example of an emerging IoT-based application, driven by a growing interest in sensing technologies for smart cities. The recent release of new datasets and challenges (UrbanSound8K, AudioSet, ESC50, and DCASE) has led to substantial advances in terms of accuracy and robustness. Unfortunately, state-of-the-art algorithms employ very large neural networks, which are increasingly hungry of computational power and memory, preventing the development of applications for energy-neutral and cheap IoT devices. This show&tell presents our implementation of state of the art SED at the very edge, by optimizing deep learning techniques on very low-cost low-power embedded platforms, with severe constraints in terms of memory footprint and computational power. Using a student-teacher approach we make a state of the art neural network for sound event detection (based on VGGish) fit on current commercial microcontrollers by achieving extreme compression factors (from 70 millions to 20 thousand parameters). We implement our model on an ARM Cortex M4 using the CMSIS-NN library and adopting an efficient layer-wise 8-bit quantization of buffers and weights. Our real-time embedded implementation achieves 68% accuracy on Urbansound8k, with an inference time of 125 ms for each second of audio and a power consumption of 5.5 mW in just 34.3 kB of RAM.

Talk Only S&T-P7.4: REAL-TIME ACOUSTIC SCENE CLASSIFICATION FOR HEARING AIDS

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Abstract: Acoustic scene classification is a popular topic mostly combining the fields of audio signal processing and machine learning. Particularly the detection and classification of acoustic scenes and events (DCASE) challenge, which is held

each year, increased the interest of the researchers to this topic. However, the definition of the acoustic scenes and the corresponding databases for training the classifiers do not account for the requirements of a hearing aid application. Furthermore, the proposed methods to classify the provided databases do not consider neither the computational nor the time restrictions of a hearing aid. For these reasons, we recorded typical scenes — so called listening situations — using two different types of binaural hearing aid shells for hearing aid scene classification applications. The first hearing aid is an in-ear hearing aid and has one microphone one each side. The second hearing aid is a behind-the-ear hearing aid and contains two microphones on each side. Performing long recording sessions in different listening situations, annotating and cutting them into 10s snippets and finally mixing them with speech, we compiled a database with 14 different classes. We computed the LogMel features of the snippets and trained a convolutional neural network (CNN) on these features using PyTorch. Finally, we implemented a real-time capable version of this network on our real-time capable signal processing platform the master hearing aid (MHA) in C++. The MHA can load the pre-trained CNN using the LibTorch library and can perform one forward iteration through the network given the input features. The system we would like to demonstrate at ICASSP in the Show & Tell session captures the binaural input signal using hearing aid shells, which an artificial head is wearing. We will play a sequence of test sounds on a loudspeaker (or possibly using headphones, if loudspeakers are now allowed), for which the true labels of the listening situations are known. The binaural signal is sent through an external sound card to the mini-PC, where the MHA is running. For each 10s chunks, the LogMel features are computed and one forward iteration of the CNN is executed. The output of the CNN is a softmax layer, which we take the maximum to determine the predicted listening situation out of possible 14 listening situations. The predicted listening situation is shown to the user on a GUI. This whole chain runs in real-time with a total delay of 10s as we perform the prediction on 10s input signals.

Thursday, 7 May, 16:30 - 18:30

S&T-P8 - Show and Tell 8

Talk Only S&T-P8.1: SPECTRAL CO-DESIGN PROTOTYPE FOR AUTOMOTIVE MIMO RADAR MIMO COMMUNICATIONS SYSTEM

Alaee-Kerahroodi, Mohammad, University of Luxembourg, Luxembourg Kumar, Sumit, University of Luxembourg, Luxembourg Joshi, Himani, Indian Institute of Technology Delhi, India Kumar Mishra, Vijay, Indian Institute of Technology Delhi, United States M. R., Bhavani Shankar, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

Abstract: Futuristic smart vehicle technologies are envisioned to operate a large number of sensors to provide greater in-vehicle and inter-vehicle activities, safety, efficiency, and connectivity. In this context, integrating the communications and radar sensors is of critical importance to minimize the hardware footprint and share the spectrum. We present a spectrum-sharing prototype that demonstrates the common transmitter-receiver design (co-design), of Multiple-Input Multiple-Output (MIMO) Radar and vehicle-to-vehicle (V2V) MIMO communications (MRMC). Both systems share the same antenna and operate via multiplexing on a pulse-to-pulse basis within a coherent processing interval. The co-designed radar embeds the communications symbols in a novel, optimized, discrete-phase sequence, which is robust to the quantization errors introduced by digital-to-analog converters. The MRMC receiver, which operates in real-time, is capable of separating the semi-orthogonal transmit signals and decoding the communications constellation. The prototype is developed using General Purpose Processor (GPP) based Software Defined Radios (SDRs): NI USRP 2943R (1.2GHz - 6GHz) and Ettus USRP B210 (70 MHz – 6 GHz). Unlike our MRMC coexistence prototype, the co-design demo incorporates a joint MIMO radar/ communication transmitter whose baseband processing is performed inside GPP using Labview NXG 3.1. The prototype offers flexibility to choose from a variety of radar waveforms, including optimized discrete-phase as other well-known sequences (e.g. Binary, frank, Golomb), and frequency modulation along with on-the-fly reconfigurable multiplexing operation. Communication symbols for multiplexing are drawn from IEEE-802.11p, (10 MHz, being used for V2V communications). The radar tasks include target range, Doppler, angle of arrival estimation while the communication receiver decodes IEEE-802.11p MAC frames. We presented our first MRMC co-design prototype at SPAWC 2019 without the full MIMO capability, especially direction-of-arrival (DoA) recovery. In the current submission, we have incorporated advanced MIMO functionality in radar and communications set-ups, such as a new co-designed waveform for an entire

coherent processing interval of the radar, space-time processing, and DoA estimation. Our MRMC co-design prototype effectively demonstrates a joint waveform transmission and recovery in multi-functional, shared multiple antenna systems.

Talk Only S&T-P8.2: TITLE: COGNITIVE JOINT MIMO RADAR MIMO COMMUNICATIONS (C-MRMC) PROTOTYPE

Alaee-Kerahroodi, Mohammad, University of Luxembourg, Luxembourg Kumar, Sumit, University of Luxembourg, Luxembourg Kumar Mishra, Vijay, University of Luxembourg, United States M. R., Bhavani Shankar, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

Abstract: Cognitive radars optimize both transmit and receive processing to adjust to the dynamic target environment while aiming to enhance their behavioral agility by learning through experience in sensing and processing. In classical radar systems, the adaptability is limited to the receiver only. We present a Software Defined Radio (SDR) prototype that demonstrates cognitive optimization of radar transmit waveform, for the first time, to mitigate the interference to a spectrally coexisting communication link. The radar operates a multiple-input multiple-output (MIMO) array while the communication is a downlink multi-user MIMO system. Both the systems have independent transmit-receive (Tx/Rx) units and the radar system adapts its transmission to reduce its interference to the communication link. Further, on the Rx, it estimates the interference covariance matrix to enhance the detection performance. The radar achieves this adaptation by periodically acquiring the channel state information (CSI), which includes the frequencies and level of interference. The CSI is then used to design novel radar waveforms to enable coexistence. We have used Ettus USRP B210 and NI-USRP 2944R (70 MHz – 6 GHz) SDR. Baseband processing for 10 MHz, MIMO radar and MIMO communications is performed in CPU using Labview NXG 3.1 and GNU Radio 3.7 respectively. Our prototype incorporates the flexibility to update the radar waveform on-the-fly based on cognitive optimization under different constraints e.g., discrete phase. Our radar toolbox is capable of detecting target range, Doppler, angle of arrival. The MIMO communication implements an OFDM (IEEE 802.11p) Tx/Rx link with appropriate MIMO receiver processing in real-time and decodes layer-2 frames. Preliminary lab validation indicates our C-MRMC prototype achieves performance enhancements in both radar metrics (better detection at lower false alarm) and communication performance (lower synchronization failure and frame error rate) compared to non-adaptive radar transmission. Our C-MRMC prototype greatly expands the scope of the emerging signal processing research on joint sensing-communications to

multiple antenna systems, thereby fitting well with the theme and audience of ICASSP.

Talk Only S&T-P8.3: USER TUNEABLE SOUND ZONES

Lee, Taewoong, Aalborg University, Denmark Shi, Liming, Aalborg University, Denmark Nielsen, Jesper Kjær, Aalborg University, Denmark Christensen, Mads Græsbøll, Aalborg University, Denmark

Abstract: Creating sound zones has been an active area of research since it was first introduced. Generally, this can be done either by maximizing an acoustic contrast that represents the acoustic potential energy ratio between the bright and dark zones or by minimizing a reproduction error between the desired and reproduced sound fields. However, the former suffers from severe distortion in the reproduced sound field, whereas the latter suffers from poor acoustic contrast. Recently, a flexible and general framework for sound zone control that is referred to as the variable span trade-off (VAST) filter has been proposed. The VAST framework allows the user to control the trade-off between the acoustic contrast and the signal distortion by adjusting user parameters. Unfortunately, the parameters are not physically meaningful and the user has to tune them for different source material and acoustic environment. In this demo, we demonstrate a precise and accurate control across the reproduced sound fields obtained by reformulating the problem using physically meaningful constraints, such as the signal distortion and the acoustic contrast. On top of this, we also demonstrate perceptually optimized sound zones by taking the characteristics of the input signals and of human auditory system into account (see https://youtu.be/msLp0Xeo0rk for more on the perceptually optimized sound zones). The demo consists in a MATLAB program (see https://youtu.be/SUyq8IjBe-Q?t=1568) which allows the user to select and specify one constraint from a list of physically meaningful constraints and listen to the resulting reproduced sound fields not only in the zones but at an arbitrary point on a plane in a room. To this end, one will experience and compare the results from different positions and constraints.

Talk Only S&T-P8.4: IS YOUR HEARING AID ALGORITHM REALLY WORKING?

Grimm, Giso, University of Oldenburg, Germany Kayser, Hendrik, University of Oldenburg, Germany Llorach, Gerard, Hörzentrum Oldenburg GmbH, Germany Hohmann, Volker, Hörzentrum Oldenburg GmbH, Germany

Abstract: When developing new hearing aid algorithms, it is difficult to systematically evaluate their performance in realistic every-day life situations. Laboratory setups and computer simulations are usually limited to very controlled and simple acoustic situations. However, software solutions are

moving towards more realistic evaluation and simulation tools for hearing devices: The open Master Hearing Aid (openMHA) is a real-time low-latency software for simulation and development of hearing aid algorithms. TASCAR is an acoustic rendering engine specially designed for real-time interaction and dynamic sources for audiological purposes. The novelty of this work is the integration of the two open source tools, leading to a better analysis, understanding and evaluation of hearing aid algorithms in realistic situations. Two different demonstrations will be shown. In the first one, participants will be able to navigate through an audiovisual simulation of a street. The audioviusal scene contains dynamic sources such as vehicles and pedestrians, as well as conversations between four talkers. Participants will be able to select different hearing aid algorithms, which interact in real-time with the scene. Additionally, the SNR benefit of the hearing aid will be shown in real-time according to the head orientation and positioning in the scene. In the second demo, the Portable Hearing Lab (PHL) will be shown, a device for the evaluation of hearing aid algorithms in field experiments. This device runs openMHA on a portable processing hardware featuring behind-the-ear hearing aids. The PHL will also be available for participants to try. The demonstration will provide an outlook of tools and methodologies for testing hearing aids in controlled realistic audiovisual simulations and field experiments.

Friday, 8 May, 11:45 - 13:45

S&T-P9 - Show and Tell 9

Talk Only S&T-P9.2: ADVISER: A TOOLKIT FOR DEVELOPING MULTIMODAL AND SOCIALLY-ENGAGED CONVERSATIONAL AGENTS

Li, Chia-Yu, University of Stuttgart, Germany Ortega, Daniel, University of Stuttgart, Germany Väth, Dirk, University of Stuttgart, Germany Lux, Florian, University of Stuttgart, Germany Vanderlyn, Lindsey, University of Stuttgart, Germany Schmidt, Maximilian, University of Stuttgart, Germany Neumann, Michael, University of Stuttgart, Germany Voelkel, Moritz, University of Stuttgart, Germany Denisov, Pavel, University of Stuttgart, Germany Jenne, Sabrina, University of Stuttgart, Germany Kacarevic, Zorica, University of Stuttgart, Germany Vu, Ngoc Thang, University of Stuttgart, Germany

Abstract: Dialog systems or chatbots, both text-based and multimodal, have received much attention in recent years, with an increasing number of dialog systems in both industrial contexts such as Amazon Alexa, Apple Siri, Microsoft Cortana, Google Duplex and XiaoIce, as well as academia such as MuMMER and Alana. However, open-source toolkits and frameworks for developing such systems are rare, especially for developing multimodal dialog systems comprised of speech, text and vision. Most of the existing toolkits are designed for developing systems focusing on core dialog components, with or without the option to access external speech processing services. To the best of our knowledge, there are only two toolkits MuMMER (Foster et al., 2016), and \psi (Bohus et al., 2017). which support multimodal processing and leverage social signals for conversational agents. Both provide a great platform for building dialog systems, however, the former is not open-source and the latter is based on the .NET platform, which could be less convenient for non-technical users such as linguists and cognitive scientists, who play an important role in dialog research. In this demonstration, we introduce ADVISER, a new option for building multimodal (speech, text, gaze and vision) dialog systems, which is open-source and Python based for easy usage and fast prototyping. The toolkit is designed in such a way that it is modular, flexible, transparent and user-friendly for both technically experienced and less technically experienced users. ADVISER focuses on task-oriented dialog systems that support users in fulfilling certain goals with a minimal number of dialog turns, while being friendly and likeable by considering social signals such as emotional states and engagement levels.

Talk Only S&T-P9.4: LEARNING TO TRANSFER MULTI-SPEAKER EMOTIONAL PROSODY TO A NEUTRAL SPEAKER

Cho, Sungjae, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Park, Sejik, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Kim, Tae-Ho, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Lee, Soo-Young, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

Abstract: Most recent emotional speech synthesizers have been studied with a large training data. These systems require a sufficient number of audios to be recorded with respect to different emotions for each speaker. Acquiring emotional speech is more expensive than acquiring neutral speech because it requires professional acting ability to express natural emotional utterance in the voice recording environment. Thus, it would be economical, beneficial to transfer decent emotional prosody to neutral voice. We demonstrate our system can learn to speak the emotional speech of multiple speakers from their emotional audios, and transfer emotional prosody to the voice of a speaker who provides only neutral speech. Our system is a neural network architecture that synthesizes speech directly from text and emotion and speaker identifiers. This architecture is mainly composed of two components: modified Tacotron 2 and original WaveGlow. Tacotron 2 is a recurrent sequence-to-sequence network that maps character embeddings to mel-spectrograms; WaveGlow is a vocoder to synthesize time-domain waveforms from those spectrograms. The modified Tacotron 2 has been trained to synthesize speech from text depending on emotions and speakers by modification of injecting emotion and speaker encoding into the decoder part of Tacotron 2. This allows the system to learn to synthesize not only emotional speech of speakers with emotional audios but also that of a speaker without emotional audios. In this demo, audience can interactively enter any sentence to the speech synthesis system. Additionally, speech synthesis markup language (SSML) has been incorporated to easily control prosody of spoken input text. With the provided SSML, audience can manipulate emotion and speaker as well as three basic components: rate, volume, and pitch for fine-tuning. These three components are controllable at the character-level. The positions of characters spoken in the mel-spectrogram are estimated from which characters are highly attended to generate each mel-spectrogram.

Sensor Array and Multichannel Signal Processing

Wednesday, 6 May, 09:00 - 11:00

SAM-L1 - Direction of Arrival Estimation

SAM-L1.1: DOA ESTIMATION IN SYSTEMS WITH NONLINEARITIES FOR MMWAVE COMMUNICATIONS

Sant, Aditya, University of California, San Diego, United States Rao, Bhaskar D., University of California, San Diego, United States

SAM-L1.2: WIDEBAND DIRECTION OF ARRIVAL ESTIMATION WITH SPARSE LINEAR ARRAYS

Wang, Feiyu, Delft University of Technology, Netherlands Tian, Zhi, George Mason University, United States Fang, Jun, University of Electronic Science and Technology of China, China Leus, Geert, Delft University of Technology, Netherlands

SAM-L1.3: FOURTH ORDER CUMULANT BASED ACTIVE DIRECTION OF ARRIVAL ESTIMATION USING COPRIME ARRAYS

Fu, Zhe, University of Nantes, France Charge, Pascal, University of Nantes, France Wang, Yide, University of Nantes, France

SAM-L1.4: ON REGULARIZATION PARAMETER FOR L0-SPARSE COVARIANCE FITTING BASED DOA ESTIMATION

Delmer, Alice, Thales / ENS Paris-Saclay, France Ferreol, Anne, Thales / ENS Paris-Saclay, France Larzabal, Pascal, Universite Paris-Sud, France

SAM-L1.5: EFFECTIVE APPROXIMATE MAXIMUM LIKELIHOOD ESTIMATION OF ANGLES OF ARRIVAL FOR NON-COHERENT SUB-ARRAYS

Tirer, Tom, Tel Aviv University, Israel Bialer, Oded, General Motors, Israel

SAM-L1.6: TWO-DIMENSIONAL DOA ESTIMATION FOR COPRIME PLANAR ARRAY: A COARRAY TENSOR-BASED SOLUTION

Zheng, Hang, Zhejiang University, China Zhou, Chengwei, Zhejiang University, China Gu, Yujie, Temple University, China Shi, Zhiguo, Zhejiang University, China

Wednesday, 6 May, 16:30 - 18:30

SAM-L2 - MIMO Systems and MIMO Radar

SAM-L2.1: MULTI-CONSTRAINT SPECTRAL CO-DESIGN FOR COLOCATED MIMO RADAR AND MIMO COMMUNICATIONS

Dokhanchi, Sayed Hossein, University of Luxembourg, Luxembourg Shankar M. R., Bhavani, University of Luxembourg, Luxembourg Mishra, Kumar Vijay, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SAM-L2.2: TENSOR DECOMPOSITION-BASED BEAMSPACE ESPRIT ALGORITHM FOR MULTIDIMENSIONAL HARMONIC RETRIEVAL

Wen, Fuxi, Chalmers University of Technology, Sweden So, Hing Cheung, City University of Hong Kong, Hong Kong SAR of China Wymeersch, Henk, Chalmers University of Technology, Sweden

SAM-L2.3: INFORMATION THEORETIC APPROACH FOR WAVEFORM DESIGN IN COEXISTING MIMO RADAR AND MIMO COMMUNICATIONS

Alaee-Kerahroodi, Mohammad, University of Luxembourg, Luxembourg Shankar M. R., Bhavani, University of Luxembourg, Luxembourg Mishra, Kumar Vijay, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SAM-L2.4: TRANSMIT BEAMPATTERN SHAPING VIA WAVEFORM DESIGN IN COGNITIVE MIMO RADAR

Raei, Ehsan, University of Luxembourg, Luxembourg Alaee-Kerahroodi, Mohammad, University of Luxembourg, Luxembourg Shankar M. R., Bhavani, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SAM-L2.5: MULTILINEAR GENERALIZED SINGULAR VALUE DECOMPOSITION (ML-GSVD) WITH APPLICATION TO COORDINATED BEAMFORMING IN MULTI-USER MIMO SYSTEMS

Khamidullina, Liana, Ilmenau University of Technology, Germany de Almeida, André L. F., Federal University of Ceará, Brazil Haardt, Martin, Ilmenau University of Technology, Germany

Thursday, 7 May, 09:00 - 11:00

SAM-L3 - Sparse Arrays and Sparse Sensing

SAM-L3.1: SPARSE LOW-REDUNDANCY LINEAR ARRAY WITH UNIFORM SUM CO-ARRAY

Rajamäki, Robin, Aalto University, Finland Koivunen, Visa, Aalto University, Finland

SAM-L3.2: COMPRESSED SENSING BASED CHANNEL ESTIMATION AND OPEN-LOOP TRAINING DESIGN FOR HYBRID ANALOG-DIGITAL MASSIVE MIMO SYSTEMS

Ardah, Khaled, Communications Research Laboratory (CRL), Ilmenau University of Technology, Germany Sokal, Bruno, Communications Research Laboratory (CRL), Ilmenau University of Technology, Germany de Almeida, André L. F., Wireless Telecom Research Group (GTEL), Federal University of Ceará, Brazil Haardt, Martin, Communications Research Laboratory (CRL), Ilmenau University of Technology, Germany

SAM-L3.3: DISPERSIVE GRID-FREE ORTHOGONAL MATCHING PURSUIT FOR MODAL ESTIMATION IN OCEAN ACOUSTICS

Paviet-Salomon, Thomas, ENSTA Bretagne/Lab-STICC (UMR 6285), France Dorffer, Clément, ENSTA Bretagne/Lab-STICC (UMR 6285), France Bonnel, Julien, Woods Hole Oceanographic Institution, United States Nicolas, Barbara, CNRS/Creatis (UMR 5220), France Chonavel, Thierry, IMT Atlantique/Lab-STICC (UMR 6285), France Dremeau, Angélique, ENSTA Bretagne/Lab-STICC (UMR 6285), France

SAM-L3.4: GREEDY SPARSE ARRAY DESIGN FOR OPTIMAL LOCALIZATION UNDER SPATIALLY PRIORITIZED SOURCE DISTRIBUTION

Gershon, Yotam, Technion - Israel Institute of Technology, Israel Buchris, Yaakov, Technion - Israel Institute of Technology, Israel Cohen, Israel, Technion - Israel Institute of Technology, Israel

SAM-L3.5: COMPRESSIVE 2-D OFF-GRID DOA ESTIMATION FOR PROPELLER CAVITATION LOCALIZATION

Park, Yongsung, University of California, San Diego, United States Gerstoft, Peter, University of California, San Diego, United States

SAM-L3.6: THE COMPRESSED NESTED ARRAY FOR UNDERDETERMINED DOA ESTIMATION BY FOURTH-ORDER DIFFERENCE COARRAY

Zhou, Yan, Northwest University, China Li, Yanyan, Northwest University, China
Wang, Lin, Northwest University, China Wen, Cai, Northwest University, China
Nie, Weike, Northwest University, China

Thursday, 7 May, 11:30 - 13:30

SAM-L4 - Learning Models and Methods for Multi-sensor Systems

SAM-L4.1: MODEL ORDER SELECTION IN DOA SCENARIOS VIA CROSS-ENTROPY BASED MACHINE LEARNING TECHNIQUES

Barthelme, Andreas, Technical University Munich, Germany Wiesmayr, Reinhard, Technical University Munich, Germany Utschick, Wolfgang, Technical University Munich, Germany

SAM-L4.2: UNSUPERVISED CHANGE DETECTION FOR MULTIMODAL REMOTE SENSING IMAGES VIA COUPLED DICTIONARY LEARNING AND SPARSE CODING

Ferraris, Vinicius, University of São Paulo, Brazil Dobigeon, Nicolas, University of Toulouse, France Cavalcanti, Yanna, University of Toulouse, France Oberlin, Thomas, University of Toulouse, France Chabert, Marie, University of Toulouse, France

SAM-L4.3: FAST DIRECTION-OF-ARRIVAL ESTIMATION OF MULTIPLE TARGETS USING DEEP LEARNING AND SPARSE ARRAYS

Papageorgiou, Georgios K., Heriot-Watt University, United Kingdom Sellathurai, Mathini, Heriot-Watt University, United Kingdom

SAM-L4.4: LEARNING BASED RECONFIGURABLE SUB-NYQUIST SAMPLING FRAMEWORK FOR ULTRA-WIDEBAND ANGULAR SENSING

Joshi, Himani, Indian Institute of Technology Delhi, India Alaee-Kerahroodi, Mohammad, University of Luxembourg, Luxembourg Kumar, Achanna A, TCS Innovations Lab, India Shankar M. R., Bhavani, University of Luxembourg, Luxembourg Darak, Sumit J, Indian Institute of Technology Delhi, India

SAM-L4.5: RAW WAVEFORM BASED END-TO-END DEEP CONVOLUTIONAL NETWORK FOR SPATIAL LOCALIZATION OF MULTIPLE ACOUSTIC SOURCES

Sundar, Harshavardhan, Amazon, Inc., United States Wang, Weiran, Salesforce Research, United States Sun, Ming, Amazon, Inc., United States Wang, Chao, Amazon, Inc., United States

SAM-L4.6: DNN-BASED MASK ESTIMATION INTEGRATING SPECTRAL AND SPATIAL FEATURES FOR ROBUST BEAMFORMING

Deng, Chengyun, Didi Chuxing, China Song, Hui, Didi Chuxing, China Zhang, Yi, Didi Chuxing, China Sha, Yongtao, Didi Chuxing, China Li, Xiangang, Didi Chuxing, China

Tuesday, 5 May, 11:30 - 13:30

SAM-P1 - Radar and Acoustic Array Processing

SAM-P1.1: DIRECTION OF ARRIVAL ESTIMATION FOR REVERBERANT SPEECH BASED ON ENHANCED DECOMPOSITION OF THE DIRECT SOUND

Madmoni, Lior, Ben-Gurion University of the Negev, Israel Rafaely, Boaz, Ben-Gurion University of the Negev, Israel

SAM-P1.2: RAY SEPARATION AND SOURCE DEPTH ESTIMATION BASED ON SOUND PRESSURE FIELD TRANSFORMATION

Wei, Runyu, Institute of Acoustics, Chinese Academy of Sciences, China Ma, Xiaochuan, Institute of Acoustics, Chinese Academy of Sciences, China Li, Xuan, Institute of Acoustics, Chinese Academy of Sciences, China

SAM-P1.3: REGULARIZED BEAMFORMER FOR THE SPHERICAL MICROPHONE ARRAY TO COPE WITH THE WHITE NOISE AMPLIFICATION

Wang, Lei, Idiap Research Institute, Switzerland Zhu, Jie, Shanghai Jiao Tong University, China

SAM-P1.4: INTERPOLATION AND RANGE EXTRAPOLATION OF SOUND SOURCE DIRECTIVITY BASED ON A SPHERICAL WAVE PROPAGATION MODEL

Ahrens, Jens, Chalmers University of Technology, Sweden Bilbao, Stefan, University of Edinburgh, United Kingdom

SAM-P1.5: POLARIZATION PARAMETERS ESTIMATION WITH SCALAR SENSOR ARRAYS

Dai, Minghui, Nanjing University of Science and Technology, China Ma, Xiaofeng, Nanjing University of Science and Technology, China Liu, Wei, University of Sheffield, United Kingdom Sheng, Weixing, Nanjing University of Science and Technology, China

SAM-P1.6: DNN-BASED DISTRIBUTED MULTICHANNEL MASK ESTIMATION FOR SPEECH ENHANCEMENT IN MICROPHONE ARRAYS

Furnon, Nicolas, Université de Lorraine, France Serizel, Romain, Université de Lorraine, France Illina, Irina, Université de Lorraine, France Essid, Slim, Télécom ParisTech, France

SAM-P1.7: ASYMPTOTICALLY OPTIMAL BLIND CALIBRATION OF ACOUSTIC VECTOR SENSOR UNIFORM LINEAR ARRAYS

Weiss, Amir, Weizmann Institute of Science, Israel Nadler, Boaz, Weizmann Institute of Science, Israel Yeredor, Arie, Tel Aviv University, Israel

SAM-P1.8: OPTIMIZED SENSOR SELECTION FOR JOINT RADAR-COMMUNICATION SYSTEMS

Ahmed, Ammar, Temple University, United States Zhang, Shuimei, Temple University, United States Zhang, Yimin D., Temple University, United States

SAM-P1.9: FREQUENCY DIVERSE ARRAY RADAR: A CLOSED-FORM SOLUTION TO DESIGN WEIGHTS FOR DESIRED BEAMPATTERN

Zubair, Muhammad, Information Technology University Lahore, Pakistan Ahmed, Sajid, Information Technology University Lahore, Pakistan Alouini, Mohamed-Slim, King Abdullah University of Science and Technology (KAUST), United Kingdom

SAM-P1.10: ROBUST CFAR RADAR DETECTION USING A K-NEAREST NEIGHBORS RULE

Coluccia, Angelo, University of Salento, Italy Fascista, Alessio, University of Salento, Italy Ricci, Giuseppe, University of Salento, Italy

SAM-P1.11: CRAMER-RAO BOUND ON DOA ESTIMATION OF FINITE BANDWIDTH SIGNALS USING A MOVING SENSOR

Arora, Aakash, University of Luxembourg, Luxembourg Mysore R, Bhavani Shankar, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SAM-P1.12: THEORETICAL ANALYSIS OF MULTI-CARRIER AGILE PHASED ARRAY RADAR

Huang, Tianyao, Tsinghua University, China Shlezinger, Nir, Weizmann Institute of Science, Israel Xu, Xingyu, Tsinghua University, China Ma, Dingyou, Tsinghua University, China Liu, Yimin, Tsinghua University, China Eldar, Yonina, Weizmann Institute of Science, Israel

Tuesday, 5 May, 11:30 - 13:30

SAM-P2 - Beamforming, Relaying and Source Separation

SAM-P2.1: CONVOLUTIONAL BEAMSPACE FOR ARRAY SIGNAL PROCESSING

Vaidyanathan, P. P., California Institute of Technology, United States Chen, Po-Chih, California Institute of Technology, United States

SAM-P2.2: EFFICIENT ESTIMATION OF MIXING MATRIX USING A TWO-SENSOR ARRAY

Yan, Qinmengying, Wuhan University, China Sun, Siyu, Wuhan University, China Zhang, Haijian, Wuhan University, China Hua, Guang, Wuhan University, China

SAM-P2.3: RIEMANNIAN GEOMETRY AND CRAMÉR-RAO BOUND FOR BLIND SEPARATION OF GAUSSIAN SOURCES

Bouchard, Florent, Univ. Savoie Mont Blanc, France Breloy, Arnaud, Univ. Paris Nanterre, France Renaux, Alexandre, Univ. Paris Sud, France Ginolhac, Guillaume, Univ. Savoie Mont Blanc, France

SAM-P2.4: BEAMFORMED FEATURE FOR LEARNING-BASED DUAL-CHANNEL SPEECH SEPARATION

Li, Hao, Inner Mongolia University, China Zhang, Xueliang, Inner Mongolia University, China Gao, Guanglai, Inner Mongolia University, China

SAM-P2.5: TRANSMIT BEAMFORMING DESIGN WITH RECEIVED-INTERFERENCE POWER CONSTRAINTS: THE ZERO-FORCING RELAXATION

Lagunas, Eva, University of Luxembourg, Luxembourg Pérez-Neira, Ana Isabel, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Universitat Politecnica de Catalunya (UPC), Spain Lagunas, Miguel Angel, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Universitat Politecnica de Catalunya (UPC), Spain Vázquez, Miguel Ángel, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain

SAM-P2.6: FOREGROUND SIGNATURE EXTRACTION FOR AN INTIMATE MIXING MODEL IN HYPERSPECTRAL IMAGE CLASSIFICATION

Hollis, Jarrod, Oregon State University, United States Raich, Raviv, Oregon State University, United States Kim, Jinsub, Oregon State University, United States Fishbain, Barak, Technion - Israel Institute of Technology, Israel Kendler, Shai, Technion - Israel Institute of Technology, Israel

SAM-P2.7: PIXEL-WISE LINEAR/NONLINEAR NONNEGATIVE MATRIX FACTORIZATION FOR UNMIXING OF HYPERSPECTRAL DATA

Zhu, Fei, Tianjin University, China Honeine, Paul, Universite de Rouen Normandie, France Chen, Jie, Northwestern Polytechnical University, China

SAM-P2.8: BEAM ELIMINATION BASED ON SEQUENTIALLY ESTIMATED A POSTERIORI PROBABILITIES OF WINNING

Khalili Marandi, Mostafa, Technische Universität Dresden, Germany Rave, Wolfgang, Technische Universität Dresden, Germany Fettweis, Gerhard, Technische Universität Dresden, Germany

SAM-P2.9: TWO-ELEMENT BIOMIMETIC ANTENNA ARRAY DESIGN AND PERFORMANCE

Kozick, Richard, Bucknell University, United States Dagefu, Fikadu, U.S. Army Research Laboratory, United States Sadler, Brian, U.S. Army Research Laboratory, United States

SAM-P2.10: DISTRIBUTED EQUALIZATION AND POWER ALLOCATION FOR MULTI-CARRIER BIDIRECTIONAL FILTER-AND-FORWARD RELAY NETWORKS

KianiHarchegani, Sharareh, University of Ontario Institute of Technology, Canada ShahbazPanahi, Shahram, University of Ontario Institute of Technology, Canada Dong, Min, University of Ontario Institute of Technology, Canada Boudreau, Gary, Ericsson Canada, Canada

SAM-P2.11: UPSCALING VECTOR APPROXIMATE MESSAGE PASSING

Skuratovs, Nikolajs, University of Edinburgh, United Kingdom Davies, Michael, University of Edinburgh, United Kingdom

Wednesday, 6 May, 11:30 - 13:30

SAM-P3 - Sparsity, Super-Resolution and Imaging

SAM-P3.1: ATOMIC NORM BASED LOCALIZATION OF FAR-FIELD AND NEAR-FIELD SIGNALS WITH GENERALIZED SYMMETRIC ARRAYS

Wu, Xiaohuan, Nanjing University of Posts and Telecommunications, China Zhu, Wei-Ping, Concordia University, Canada Yan, Jun, Nanjing University of Posts and Telecommunications, China

SAM-P3.2: A NOVEL MOVING SPARSE ARRAY GEOMETRY WITH INCREASED DEGREES OF FREEDOM

Li, Shuang, Chongqing University of Technology, China Zhang, Xiao-Ping, Ryerson University, Canada

SAM-P3.3: CLUTTER IDENTIFICATION BASED ON SPARSE RECOVERY AND L1-TYPE PROBABILISTIC DISTANCE MEASURES

Zhu, Yuansheng, University of Pittsburgh, United States Xiang, Yijian, Washington University in St. Louis, United States Sen, Satyabrata, Oak Ridge National Laboratory, United States Dagois, Elise, University of Pittsburgh, United States Nehorai, Arye, Washington University in St. Louis, United States Akcakaya, Murat, University of Pittsburgh, United States

SAM-P3.4: ADAPTIVE SUBSPACE DETECTORS FOR OFF-GRID MISMATCHED TARGETS

Bosse, Jonathan, ONERA, France Rabaste, Olivier, ONERA, France Ovarlez, Jean-Philippe, ONERA, France

SAM-P3.5: A METHOD FOR MILLIMETER-WAVE IMAGING OF CONCEALED OBJECTS VIA DE-ALIASING

Wang, Weiwei, Xidian University, China Yang, Kehu, Xidian University, China

SAM-P3.6: A FAST SPARSE COVARIANCE-BASED FITTING METHOD FOR DOA ESTIMATION VIA NON-NEGATIVE LEAST SQUARES

Zheng, Chundi, Foshan University, China Chen, Huihui, Foshan University, China Wang, Aiguo, Foshan University, China

SAM-P3.7: EXTENDED CYCLIC COORDINATE DESCENT FOR ROBUST ROW-SPARSE SIGNAL RECONSTRUCTION IN THE PRESENCE OF OUTLIERS

Huang, Huiping, Technische Universität Darmstadt, Germany So, Hing Cheung, City University of Hong Kong, Hong Kong SAR of China Zoubir, Abdelhak M., Technische Universität Darmstadt, Germany

SAM-P3.8: LOW-RANK TOEPLITZ MATRIX ESTIMATION VIA RANDOM ULTRA-SPARSE RULERS

Lawrence, Hannah, Flatiron Institute, United States Li, Jerry, Microsoft Research, United States Musco, Cameron, University of Massachusetts, Amherst, United States Musco, Christopher, NYU Tandon School of Engineering, United States

SAM-P3.9: URTIS: A SMALL 3D IMAGING SONAR SENSOR FOR ROBOTIC APPLICATIONS

Verellen, Thomas, University of Antwerp, Belgium Kerstens, Robin, University of Antwerp, Belgium Laurijssen, Dennis, University of Antwerp, Belgium Steckel, Jan, University of Antwerp, Belgium

SAM-P3.10: A PARTIAL RELAXATION DOA ESTIMATOR BASED ON ORTHOGONAL MATCHING PURSUIT

Trinh-Hoang, Minh, Technische Universität Darmstadt, Germany Ma, Wing-Kin, Chinese University of Hong Kong, Hong Kong SAR of China Pesavento, Marius, Technische Universität Darmstadt, Germany

SAM-P3.11: VARIABLE PROJECTION FOR MULTIPLE FREQUENCY ESTIMATION

Garcia Guzman, Yuneisy E., Johannes Kepler University Linz, Austria Kovács, Péter, Johannes Kepler University Linz, Austria Huemer, Mario, Johannes Kepler University Linz, Austria

SAM-P3.12: FUSIONNDVI: A NOVEL FUSION METHOD FOR NDVI IN REMOTE SENSING

Zhang, Mengliang, Wuhan University, China Zhao, Ziping, Hong Kong University of Science and Technology, Hong Kong SAR of China Chen, Yuerong, Wuhan University, China Wang, Zhongyuan, Wuhan University, China Tian, Xin, Wuhan University, China

Wednesday, 6 May, 11:30 - 13:30

SAM-P4 - Robustness, Decompositions, Calibration and Bounds

SAM-P4.1: ROBUST MUSIC ESTIMATION UNDER ARRAY RESPONSE UNCERTAINTY

Bazzi, Ahmad, CEVA, France Slock, Dirk, EURECOM, France

SAM-P4.2: L1-NORM HIGHER-ORDER ORTHOGONAL ITERATIONS FOR ROBUST TENSOR ANALYSIS

Chachlakis, Dimitris, Rochester Institute of Technology, United States Prater-Bennette, Ashley, AFRL, United States Markopoulos, Panos, Rochester Institute of Technology, United States

SAM-P4.3: SENSOR SELECTION FOR MODEL-FREE SOURCE LOCALIZATION: WHERE LESS IS MORE

Tohidi, Ehsan, EURECOM, France Chen, Junting, Chinese University of Hong Kong, China Gesbert, David, EURECOM, France

SAM-P4.4: ANOMALY DETECTION WITH TRAINING DATA IN HYPERSPECTRAL IMAGERY

Liu, Jun, University of Science and Technology of China, China Feng, Yutong, University of Science and Technology of China, China Liu, Weijian, Wuhan Electronic Information Institute, China Orlando, Danilo, Università degli Studi "Niccolò Cusano", Italy Li, Hongbin, Stevens Institute of Technology, United States

SAM-P4.5: LEAST-SQUARES DOA ESTIMATION WITH AN INFORMED PHASE UNWRAPPING AND FULL BANDWIDTH ROBUSTNESS

Bohlender, Alexander, Ghent University - imec, Belgium Spriet, Ann, NXP Semiconductors, Belgium Tirry, Wouter, NXP Semiconductors, Belgium Madhu, Nilesh, Ghent University - imec, Belgium

SAM-P4.6: AN ADMM-BASED APPROACH TO ROBUST ARRAY PATTERN SYNTHESIS

Yang, Jintai, University of Electronic Science and Technology of China, China Lin, Jingran, University of Electronic Science and Technology of China, China Shi, Qingjiang, Tongji University, China Li, Qiang, University of Electronic Science and Technology of China, China

SAM-P4.7: ERROR PRESERVING CORRECTION: A METHOD FOR CP DECOMPOSITION AT A TARGET ERROR BOUND

Phan, Anh-Huy, Skolkovo Institute of Science and Technology (Skoltech), Russia Tichavsky, Petr, Czech Academy of Sciences, Czech Republic Cichocki, Andrzej, Skolkovo Institute of Science and Technology (Skoltech), Russia

SAM-P4.8: JOINT BLIND CALIBRATION AND TIME-DELAY ESTIMATION FOR MULTIBAND RANGING

Kazaz, Tarik, Delft University of Technology, Netherlands Coutino, Mario, Delft University of Technology, Netherlands Janssen, Gerard, Delft University of Technology, Netherlands van der Veen, Alle-Jan, Delft University of Technology, Netherlands

SAM-P4.9: UPGRADE METHODS FOR STRATIFIED SENSOR NETWORK SELF-CALIBRATION

Larsson, Martin, Lund University, Sweden Flood, Gabrielle, Lund University, Sweden Oskarsson, Magnus, Lund University, Sweden Åström, Karl, Lund University, Sweden

SAM-P4.10: AUDIO-VISUAL CALIBRATION WITH POLYNOMIAL REGRESSION FOR 2-D PROJECTION USING SVD-PHAT

Grondin, Francois, Massachusetts Institute of Technology, United States Tang, Hao, Massachusetts Institute of Technology, United States Glass, James, Massachusetts Institute of Technology, United States

SAM-P4.11: WEIGHTED NULL VECTOR INITIALIZATION AND ITS APPLICATION TO PHASE RETRIEVAL

Liu, Kaihui, Dongguan University of Technology, China Li, Lingling, Shanghai Jiao Tong University, China Wan, Liangtian, Dalian University of Technology, China

Friday, 8 May, 08:00 - 10:00

SAM-P5 - Localisation and Tracking

SAM-P5.2: NON-ITERATIVE SUBSPACE-BASED DOA ESTIMATION IN THE PRESENCE OF NONUNIFORM NOISE

Esfandiari, Majdoddin, Aalto University, Finland Vorobyov, Sergiy A., Aalto University, Finland Alibani, Simin, Shiraz University, Iran Karimi, Mahmood, Shiraz University, Iran

SAM-P5.3: LOW-COMPLEXITY ACCURATE MMWAVE POSITIONING FOR SINGLE-ANTENNA USERS BASED ON ANGLE-OF-DEPARTURE AND ADAPTIVE BEAMFORMING

Fascista, Alessio, University of Salento, Italy Coluccia, Angelo, University of Salento, Italy Wymeersch, Henk, Chalmers University, Sweden Seco-Granados, Gonzalo, Universitat Autonoma de Barcelona, Spain

SAM-P5.4: ACCURATE LOCALIZATION OF AUV IN MOTION BY EXPLICIT SOLUTION USING TIME DELAYS

Jia, Tianyi, Northwestern Polytechnical University, China Ho, K. C., University of Missouri, United States Wang, Haiyan, Northwestern Polytechnical University, China Shen, Xiaohong, Northwestern Polytechnical University, China

SAM-P5.5: DRSS-BASED LOCALISATION USING WEIGHTED INSTRUMENTAL VARIABLES AND SELECTIVE POWER MEASUREMENT

Li, Jun, University of South Australia, Australia Dogancay, Kutluyil, University of South Australia, Australia Nguyen, Ngoc Hung, University of South Australia, Australia Law, Yee Wei, University of South Australia, Australia

SAM-P5.6: A SIMPLE AND EFFICIENT ITERATIVE METHOD FOR TOA LOCALIZATION

Zou, Yanbin, Shantou University, China Liu, Huaping, Oregon State University, United States

SAM-P5.7: DISTRIBUTED TRACKING AND CIRCUMNAVIGATION USING BEARING MEASUREMENTS

Parayil, Anjaly, U.S. Army Research Laboratory, United States George, Jemin, U.S. Army Research Laboratory, United States

SAM-P5.8: JOINT MULTITARGET TRACKING AND DYNAMIC NETWORK LOCALIZATION IN THE UNDERWATER DOMAIN

Mendrzik, Rico, Hamburg University of Technology, Germany Brambilla, Mattia, Politecnico di Milano, Italy Allmann, Clemens, Fraunhofer FKIE, Germany Nicoli, Monica, Politecnico di Milano, Italy Koch, Wolfgang, Fraunhofer FKIE, Germany Bauch, Gerhard, Hamburg University of Technology, Germany LePage, Kevin, NATO STO Centre for Maritime Research and Experimentation, Italy Braca, Paolo, NATO STO Centre for Maritime Research and Experimentation, Italy

SAM-P5.9: ROBUST TDOA INDOOR TRACKING USING CONSTRAINED MEASUREMENT FILTERING AND GRID-BASED FILTERING

Huang, Rui, Southeast University, China Tao, Jun, Southeast University, China Yang, Le, University of Canterbury, New Zealand Xue, Yanbo, Kanzhun Technology, China Wu, Qisong, Southeast University, China

SAM-P5.10: EXTENDED OBJECT TRACKING USING HIERARCHICAL TRUNCATION MEASUREMENT MODEL WITH AUTOMOTIVE RADAR

Xia, Yuxuan, Chalmers University of Technology, Sweden Wang, Pu, Mitsubishi Electric Research Laboratories (MERL), United States Berntorp, Karl, Mitsubishi Electric Research Laboratories (MERL), United States Koike-Akino, Toshiaki, Mitsubishi Electric Research Laboratories (MERL), United States Mansour, Hassan, Mitsubishi Electric Research Laboratories (MERL), United States Pajovic, Milutin, Mitsubishi Electric Research Laboratories (MERL), United States Boufounos, Petros T., Mitsubishi Electric Research Laboratories (MERL), United States Orlik, Philip V., Mitsubishi Electric Research Laboratories (MERL), United States

SAM-P5.11: DOA TRACKING VIA SIGNAL-SUBSPACE PROJECTOR UPDATE

Zhuang, Jie, University of Electronic Science and Technology of China, China Tan, Tianhan, University of Electronic Science and Technology of China, China Chen, Daolin, University of Electronic Science and Technology of China, China Kang, Jiancheng, University of Electronic Science and Technology of China, China

Friday, 8 May, 08:00 - 10:00

SAM-P6 - Detection, Estimation and Classification

SAM-P6.1: BLIND DETERMINATION OF THE NUMBER OF SOURCES USING DISTANCE CORRELATION

Weiss, Amir, Tel Aviv University, Israel Yeredor, Arie, Tel Aviv University, Israel

SAM-P6.2: PARAMETER ESTIMATION OF IN-CITY FRONTAL RAINFALL PROPAGATION

Hadar, Mor, Tel Aviv University, Israel Ostrometzky, Jonatan, Columbia University, United States Messer, Hagit, Tel Aviv University, Israel

SAM-P6.3: ML AND EM ESTIMATION OF SAMPLING INTERVALS OF SENSOR DEVICES

Nishimura, Ryouichi, National Institute of Information and Communications Technology (NICT), Japan Suzuki, Yôiti, National Institute of Information and Communications Technology (NICT), Japan

SAM-P6.4: ASYMPTOTIC STOCHASTIC ANALYSIS OF PARTIALLY RELAXED DML

Schenck, David, Technische Universität Darmstadt, Germany Mestre, Xavier, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Pesavento, Marius, Technische Universität Darmstadt, Germany

SAM-P6.5: THEORETICAL PERFORMANCE BOUND OF UPLINK CHANNEL ESTIMATION ACCURACY IN MASSIVE MIMO

Osinsky, Alexander, Skolkovo Institute of Science and Technology (Skoltech), Russia Ivanov, Andrey, Skolkovo Institute of Science and Technology (Skoltech), Russia Yarotsky, Dmitry, Skolkovo Institute of Science and Technology (Skoltech), Russia

SAM-P6.6: SIGNAL-AWARE BROADBAND DOA ESTIMATION USING ATTENTION MECHANISMS

Mack, Wolfgang, University Erlangen-Nuremberg, Germany Bharadwaj, Ullas, Fraunhofer, Germany Chakrabarty, Soumitro, Fraunhofer, Germany Habets, Emanuël A. P., University Erlangen-Nuremberg, Germany

SAM-P6.7: STATIC VISUAL SPATIAL PRIORS FOR DOA ESTIMATION

Swietojanski, Pawel, University of New South Wales, Australia Miksik, Ondrej, Microsoft, Switzerland

SAM-P6.8: MIRRORED ARRAYS FOR DIRECTION-OF-ARRIVAL ESTIMATION

Zhu, Dong, Tsinghua University, China Li, Gang, Tsinghua University, China Zhang, Xiao-Ping, Ryerson University, Canada

SAM-P6.9: TIME DIFFERENCE OF ARRIVAL ESTIMATION FROM FREQUENCY-SLIDING GENERALIZED CROSS-CORRELATIONS USING CONVOLUTIONAL NEURAL NETWORKS

Comanducci, Luca, Politecnico di Milano, Italy Cobos, Maximo, Universitat de València, Spain Antonacci, Fabio, Politecnico di Milano, Italy Sarti, Augusto, Politecnico di Milano, Italy

SAM-P6.10: GROUP-UTILITY METRIC FOR EFFICIENT SENSOR SELECTION AND REMOVAL IN LCMV BEAMFORMERS

Mundanad Narayanan, Abhijith, Katholieke Universiteit Leuven, Belgium Bertrand, Alexander, Katholieke Universiteit Leuven, Belgium

SAM-P6.11: ACCURATE SEMIDEFINITE RELAXATION METHOD FOR 3-D RIGID BODY LOCALIZATION USING AOA

Wang, Gang, Ningbo University, China Ho, K. C., University of Missouri, United States

SAM-P6.12: CRAMÉR-RAO BOUNDS FOR FLAW LOCALIZATION IN SUBSAMPLED MULTISTATIC MULTICHANNEL ULTRASOUND NDT DATA

Peréz, Eduardo, Technische Universität Ilmenau, Germany Kirchhof, Jan, Fraunhofer Institute for Nondestructive Testing IZFP, Germany Semper, Sebastian, Technische Universität Ilmenau, Germany Krieg, Fabian, Fraunhofer Institute for Nondestructive Testing IZFP, Germany Römer, Florian, Fraunhofer Institute for Nondestructive Testing IZFP, Germany

Signal Processing for Communications and Networking

Wednesday, 6 May, 16:30 - 18:30

SPCOM-L1 - Networks and Resource Allocation

SPCOM-L1.1: AGE OF INFORMATION WITH FINITE HORIZON AND PARTIAL UPDATES

Ramirez, David, Princeton University, United States Erkip, Elza, New York University, United States Poor, H. Vincent, Princeton University, United States

SPCOM-L1.2: ROBUST ONLINE MIRROR SADDLE-POINT METHOD FOR CONSTRAINED RESOURCE ALLOCATION

Tampubolon, Ezra, Technische Universität München, Germany Boche, Holger, Technische Universität München, Germany

SPCOM-L1.3: REAL-TIME TASK OFFLOADING FOR LARGE-SCALE MOBILE EDGE COMPUTING

Xu, Yizhen, University of Sydney, Australia Cheng, Peng, University of Sydney, Australia Chen, Zhuo, Csiro, Australia Ding, Ming, Csiro, Australia Li, Yonghui, University of Sydney, Australia Vucetic, Branka, University of Sydney, Australia

SPCOM-L1.4: SIMPLE CACHING SCHEMES FOR NON-HOMOGENEOUS MISO CACHE-AIDED COMMUNICATION VIA CONVEXITY

Bergel, Itsik, Bar-Ilan University, Israel Mohajer, Soheil, University of Minnesota, United States

SPCOM-L1.5: DYNAMIC RESOURCE OPTIMIZATION AND ALTITUDE SELECTION IN UAV-BASED MULTI-ACCESS EDGE COMPUTING

Costanzo, Francesca, Sapienza University of Rome, Italy Di Lorenzo, Paolo, Sapienza University of Rome, Italy Barbarossa, Sergio, Sapienza University of Rome, Italy

SPCOM-L1.6: JOINT RESOURCE ALLOCATION AND ROUTING FOR SERVICE FUNCTION CHAINING WITH IN-SUBNETWORK PROCESSING

Reyhanian, Navid, University of Minnesota, United States Farmanbar, Hamid, Huawei, Canada Mohajer, Soheil, University of Minnesota, United States Luo,

Zhi-Quan, Shenzhen Research Institute of Big Data, Chinese University of Hong Kong, Shenzhen, China

Friday, 8 May, 15:15 - 17:15

SPCOM-L2 - Channel Estimation

SPCOM-L2.1: ONLINE CHANNEL ESTIMATION FOR HYBRID BEAMFORMING ARCHITECTURES

Fink, Jochen, Fraunhofer Heinrich Hertz Institute, Germany Cavalcante, Renato L. G., Fraunhofer Heinrich Hertz Institute, Germany Stanczak, Slawomir, Fraunhofer Heinrich Hertz Institute, Germany

SPCOM-L2.2: AN OPTIMAL CHANNEL ESTIMATION SCHEME FOR INTELLIGENT REFLECTING SURFACES BASED ON A MINIMUM VARIANCE UNBIASED ESTIMATOR

Jensen, Tobias Lindstrøm, Aalborg University, Denmark De Carvalho, Elisabeth, Aalborg University, Denmark

SPCOM-L2.3: LOW-RANK MMWAVE MIMO CHANNEL ESTIMATION IN ONE-BIT RECEIVERS

Myers, Nitin Jonathan, University of Texas at Austin, United States Tran, Kayla N., University of Texas at Austin, United States Heath Jr., Robert W., University of Texas at Austin, United States

SPCOM-L2.4: CHANNEL CHARTING: AN EUCLIDEAN DISTANCE MATRIX COMPLETION PERSPECTIVE

Agostini, Patrick, Fraunhofer Heinrich Hertz Institute, Germany Utkovski, Zoran, Fraunhofer Heinrich Hertz Institute, Germany Stanczak, Slawomir, Fraunhofer Heinrich Hertz Institute, Germany

SPCOM-L2.5: MMSE-BASED CHANNEL ESTIMATION FOR HYBRID BEAMFORMING MASSIVE MIMO WITH CORRELATED CHANNELS

Mirzaei, Javad, University of Toronto, Canada Sohrabi, Foad, University of Toronto, Canada Adve, Raviraj, University of Toronto, Canada ShahbazPanahi, Shahram, Ontario Tech University, Canada

Tuesday, 5 May, 11:30 - 13:30

SPCOM-P1 - Machine Learning for Communcations I

SPCOM-P1.1: COMPLEX TRAINABLE ISTA FOR LINEAR AND NONLINEAR INVERSE PROBLEMS

Takabe, Satoshi, Nagoya Institute of Technology, Japan Wadayama, Tadashi, Nagoya Institute of Technology, Japan Eldar, Yonina, Weizmann Institute of Science, Israel

SPCOM-P1.2: CONDITIONAL MUTUAL INFORMATION NEURAL ESTIMATOR

Molavipour, Sina, KTH Royal Institute of Technology, Sweden Bassi, Germán, KTH Royal Institute of Technology, Sweden Skoglund, Mikael, KTH Royal Institute of Technology, Sweden

SPCOM-P1.3: Q-LEARNING BASED PREDICTIVE RELAY SELECTION FOR OPTIMAL RELAY BEAMFORMING

Dimas, Anastasios, Rutgers University, United States Diamantaras, Konstantinos, International Hellenic University, Greece Petropulu, Athina, Rutgers University, United States

SPCOM-P1.4: PEER TO PEER OFFLOADING WITH DELAYED FEEDBACK: AN ADVERSARY BANDIT APPROACH

Yang, Miao, ShanghaiTech University, China Zhu, Hongbin, ShanghaiTech University, China Wang, Haifeng, Shanghai Institute of Microsystem and Information Technology, China Koucheryavy, Yevgeni, Tampere University, Finland Samouylov, Konstantin, Peoples' Friendship University of Russia, Russia Qian, Hua, Shanghai Advanced Research Institute, Chinese Academy of Sciences, China

SPCOM-P1.5: TRANSFERABLE POLICIES FOR LARGE SCALE WIRELESS NETWORKS WITH GRAPH NEURAL NETWORKS

Eisen, Mark, Intel Corporation, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPCOM-P1.6: A ZEROTH-ORDER LEARNING ALGORITHM FOR ERGODIC OPTIMIZATION OF WIRELESS SYSTEMS WITH NO MODELS AND NO GRADIENTS

Kalogerias, Dionysios, University of Pennsylvania, United States Eisen, Mark, Intel Corporation, United States Pappas, George, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPCOM-P1.7: JOINT SPARSE RECOVERY USING DEEP UNFOLDING WITH APPLICATION TO MASSIVE RANDOM ACCESS

Sabulal, Anand P., Indian Institute of Technology Madras, India Bhashyam, Srikrishna, Indian Institute of Technology Madras, India

SPCOM-P1.8: LEARNING-BASED CONTENT CACHING AND USER CLUSTERING: A DEEP DETERMINISTIC POLICY GRADIENT APPROACH

Chan, Kun-Lin, National Chiao Tung University, Taiwan Chien, Feng-Tsun, National Chiao Tung University, Taiwan

SPCOM-P1.9: LEARNING-AIDED CONTENT PLACEMENT IN CACHING-ENABLED FOG COMPUTING SYSTEMS USING THOMPSON SAMPLING

Zhu, Junge, ShanghaiTech University, China Huang, Xi, ShanghaiTech University, China Shao, Ziyu, ShanghaiTech University, China

SPCOM-P1.10: JOINT CODING AND MODULATION IN THE ULTRA-SHORT BLOCKLENGTH REGIME FOR BERNOULLI-GAUSSIAN IMPULSIVE NOISE CHANNELS USING AUTOENCODERS

Vedula, Kirty, Worcester Polytechnic Institute, United States Paffenroth, Randy, Worcester Polytechnic Institute, United States Brown III, D. Richard, Worcester Polytechnic Institute, United States

SPCOM-P1.11: DEEP JOINT SOURCE-CHANNEL CODING FOR WIRELESS IMAGE RETRIEVAL

Jankowski, Mikolaj, Imperial College London, United Kingdom Gündüz, Deniz, Imperial College London, United Kingdom Mikolajczyk, Krystian, Imperial College London, United Kingdom

SPCOM-P1.12: META-LEARNING TO COMMUNICATE: FAST END-TO-END TRAINING FOR FADING CHANNELS

Park, Sangwoo, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Simeone, Osvaldo, King's College London, Italy Kang, Joonhyuk, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

Thursday, 7 May, 09:00 - 11:00

SPCOM-P2 - Modulation, Detection and Decoding

SPCOM-P2.1: COMPLEXITY REDUCTION METHODS FOR INDEX MODULATION BASED DUAL-FUNCTION RADAR COMMUNICATION SYSTEMS

Huang, Tianyao, Tsinghua University, China Shlezinger, Nir, Weizmann Institute of Science, Israel Xu, Xingyu, Tsinghua University, China Liu, Yimin, Tsinghua University, China Eldar, Yonina, Weizmann Institute of Science, Israel

SPCOM-P2.2: EQUALIZATION OF OFDM WAVEFORMS WITH INSUFFICIENT CYCLIC PREFIX

Gregoratti, David, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Mestre, Xavier, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain

SPCOM-P2.3: FASTER-THAN-NYQUIST SIGNALING VIA SPATIOTEMPORAL SYMBOL-LEVEL PRECODING FOR MULTI-USER MISO REDUNDANT TRANSMISSIONS

Alves Martins, Wallace, University of Luxembourg & Federal University of Rio de Janeiro, Luxembourg Spano, Danilo, University of Luxembourg, Luxembourg Chatzinotas, Symeon, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SPCOM-P2.4: OPTIMIZED SINGLE CARRIER TRANSCEIVER FOR FUTURE SUB-TERAHERTZ APPLICATIONS

Bicaïs, Simon, CEA Leti, Minatec Campus, France Doré, Jean-Baptiste, CEA Leti, Minatec Campus, France Gougeon, Grégory, Siradel, France Corre, Yoann, Siradel, France

SPCOM-P2.5: POWER SPECTRUM OPTIMIZATION FOR CAPACITY OF THE EXTENDED SPECTRUM HYBRID FIBER COAX NETWORK

Strobel, Rainer, Intel, Germany Hewavithana, Thushara, Intel, Germany

SPCOM-P2.6: A LOW-LATENCY SUCCESSIVE CANCELLATION HYBRID DECODER FOR CONVOLUTIONAL POLAR CODES

Wang, Yu, National University of Defense Technology, China Qiu, Shikai, National University of Defense Technology, China Chen, Lirui, National University of Defense Technology, China Wang, Qinglin, National University of Defense Technology, China Zhang, Yang, National University of Defense

Technology, China Liu, Cang, National University of Defense Technology, China Xing, Zuocheng, National University of Defense Technology, China

SPCOM-P2.7: NEAR CAPACITY RCQD CONSTELLATIONS FOR PAPR REDUCTION OF OFDM SYSTEMS

Arbi, Tarak, ENSTA Paris, France Nasr, Imen, SUP'COM, Tunisia Geller, Benoit, ENSTA Paris, France

SPCOM-P2.8: FULLY PIPELINED ITERATION UNROLLED DECODERS THE ROAD TO TB/S TURBO DECODING

Weithoffer, Stefan, IMT Atlantique, France Klaimi, Rami, IMT Atlantique, France Abdel Nour, Charbel, IMT Atlantique, France Wehn, Norbert, Technical University of Kaiserslautern, Germany Douillard, Catherine, IMT Atlantique, France

SPCOM-P2.9: ZERO-CROSSING PRECODING WITH MAXIMUM DISTANCE TO THE DECISION THRESHOLD FOR CHANNELS WITH 1-BIT QUANTIZATION AND OVERSAMPLING

V. Melo, Diana M., Pontifical Catholic University of Rio de Janeiro, Brazil Landau, Lukas T. N., Pontifical Catholic University of Rio de Janeiro, Brazil de Lamare, Rodrigo C., Pontifical Catholic University of Rio de Janeiro, Brazil

SPCOM-P2.10: ACHIEVING FULLY-DIGITAL PERFORMANCE BY HYBRID ANALOG/DIGITAL BEAMFORMING IN WIDE-BAND MASSIVE-MIMO SYSTEMS

Morsali, Alireza, McGill University, Canada Champagne, Benoit, McGill University, Canada

SPCOM-P2.11: ENERGY-EFFICIENT BIT ALLOCATION FOR RESOLUTION-ADAPTIVE ADC IN MULTIUSER LARGE-SCALE MIMO SYSTEMS: GLOBAL OPTIMALITY

Nguyen, Kien-Giang, University of Oulu, Finland Vu, Quang-Doanh, University of Oulu, Finland Tran, Le-Nam, University College Dublin, Ireland Juntti, Markku, University of Oulu, Finland

SPCOM-P2.12: GENERALIZED SPATIAL MODULATION FOR WIRELESS TERABITS SYSTEMS UNDER SUB-THZ CHANNEL WITH RF IMPAIRMENTS

Saad, Majed, IETR-CentraleSupélec, France Bader, Faouzi, IETR-CentraleSupélec and ISEP, France Chamas Al Ghouwayel, Ali, Lebanese International University, Lebanon Hijazi, Hussein, Lebanese International University, Lebanon Bouhel, Nizar, IETR-CentraleSupélec, France Palicot, Jacques, IETR-CentraleSupélec, France

Thursday, 7 May, 11:30 - 13:30

SPCOM-P3 - MIMO and Multi-antenna Systems

SPCOM-P3.1: EFFICIENT TECHNIQUES FOR IN-BAND SYSTEM INFORMATION BROADCAST IN MULTI-CELL MASSIVE MIMO

Jayachandran, Jinu, Indian Institute of Technology Delhi, India Biswas, Kamal, Indian Institute of Technology Delhi, India Mohammed, Saif Khan, Indian Institute of Technology Delhi, India Larsson, Erik G., Linköping University, Sweden

SPCOM-P3.2: OPTIMAL DESIGN OF ENERGY-EFFICIENT CELL-FREE MASSIVE MIMO: JOINT POWER ALLOCATION AND LOAD BALANCING

Van Chien, Trinh, Linköping University, Sweden Björnson, Emil, Linköping University, Sweden G. Larsson, Erik, Linköping University, Sweden

SPCOM-P3.3: LARGE-SCALE FADING PRECODING FOR MAXIMIZING THE PRODUCT OF SINRS

Demir, Özlem Tugfe, Linköping University, Sweden Björnson, Emil, Linköping University, Sweden

SPCOM-P3.4: PROXIMAL DISTANCE ALGORITHM FOR NONCONVEX QCQP WITH BEAMFORMING APPLICATIONS

Li, Qiang, University of Electronic Science and Technology of China, China Liu, Yatao, Chinese University of Hong Kong, Hong Kong SAR of China Shao, Mingjie, Chinese University of Hong Kong, Hong Kong SAR of China Ma, Wing-Kin, Chinese University of Hong Kong, Hong Kong SAR of China

SPCOM-P3.5: CLOUD-DRIVEN MULTI-WAY MULTIPLE-ANTENNA RELAY SYSTEMS: BEST-USER-LINK SELECTION AND JOINT MMSE DETECTION

Duarte, Flavio L., Pontifical Catholic University of Rio de Janeiro, Brazil de Lamare, Rodrigo C., Pontifical Catholic University of Rio de Janeiro, Brazil

SPCOM-P3.6: A COMPLEXITY EFFICIENT DMT-OPTIMAL TREE PRUNING BASED SPHERE DECODING

Neinavaie, Mohammad, Aalto University, Finland Derakhtian, Mostafa, Shiraz University, Iran Vorobyov, Sergiy A., Aalto University, Finland

SPCOM-P3.7: A MODEL-FREE APPROACH TO DISTRIBUTED TRANSMIT BEAMFORMING

George, Jemin, CCDC Army Research Laboratory, United States Yilmaz, Cemal, North Carolina State University, United States Parayil, Anjaly, CCDC Army

Research Laboratory, United States Chakrabortty, Aranya, North Carolina State University, United States

SPCOM-P3.8: INTELLIGENT REFLECTING SURFACE FOR MASSIVE DEVICE CONNECTIVITY: JOINT ACTIVITY DETECTION AND CHANNEL ESTIMATION

Xia, Shuhao, ShanghaiTech University, China Shi, Yuanming, ShanghaiTech University, China

SPCOM-P3.9: CHANNEL COVARIANCE ESTIMATION IN MULTIUSER MASSIVE MIMO SYSTEMS WITH AN APPROACH BASED ON INFINITE DIMENSIONAL HILBERT SPACES

Cavalcante, Renato L. G., Fraunhofer Heinrich Hertz Institute / TU Berlin, Germany Stanczak, Slawomir, Fraunhofer Heinrich Hertz Institute / TU Berlin, Germany

SPCOM-P3.10: ELIMINATING OUT-OF-CELL INTERFERENCE IN CELLULAR MASSIVE MIMO WITH A SINGLE ADDITIONAL TRANSCEIVER

Erez, Uri, Tel Aviv University, Israel Leshem, Amir, Bar-Ilan University, Israel

SPCOM-P3.11: FAVORABLE PROPAGATION AND LINEAR MULTIUSER DETECTION FOR DISTRIBUTED ANTENNA SYSTEMS

Gholami, Roya, EURECOM, France Cottatellucci, Laura, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Slock, Dirk, EURECOM, France

SPCOM-P3.12: DISTRIBUTED NON-ORTHOGONAL PILOT DESIGN FOR MULTI-CELL MASSIVE MIMO SYSTEMS

Wu, Yue, Tsinghua University, China Ma, Shaodan, University of Macau, China Gu, Yuantao, Tsinghua University, China

Friday, 8 May, 08:00 - 10:00

SPCOM-P4 - Design and Implementation of Communication Systems

SPCOM-P4.1: DISTRIBUTED DETECTION OF SPARSE SIGNALS WITH 1-BIT DATA IN TWO-LEVEL TWO-DEGREE TREE-STRUCTURED SENSOR NETWORKS

Li, Chengxi, Tsinghua University, China Li, Gang, Tsinghua University, China Varshney, Pramod, Syracuse University, United States

SPCOM-P4.2: OBJECTIVE BAYESIAN DETECTION UNDER SPATIALLY CORRELATED GAUSSIAN OBSERVATIONS FOR MULTI-ANTENNA COGNITIVE RADIO NETWORK

Al-Ali, Mohannad H., Basrah University, Iraq Ho, K. C., University of Missouri, United States

SPCOM-P4.3: A GATED HYPERNET DECODER FOR POLAR CODES

Nachmani, Eliya, Tel Aviv University, Facebook, Israel Wolf, Lior, Tel Aviv University, Facebook, Israel

SPCOM-P4.4: WEIGHTED GRADIENT CODING WITH LEVERAGE SCORE SAMPLING

Charalambides, Neophytos, University of Michigan, United States Pilanci, Mert, Stanford University, United States Hero, Alfred, University of Michigan, United States

SPCOM-P4.5: LOW-COMPLEXITY 5G SLAM WITH CKF-PHD FILTER

Kim, Hyowon, Hanyang University, Korea (South) Granström, Karl, Chalmers University of Technology, Sweden Kim, Sunwoo, Hanyang University, Korea (South) Wymeersch, Henk, Chalmers University of Technology, Sweden

SPCOM-P4.6: THE EFFECT OF POWER ALLOCATION ON VISIBLE LIGHT COMMUNICATION USING COMMERCIAL PHOSPHOR-CONVERTED LED LAMP FOR INDIRECT ILLUMINATION

Dowhuszko, Alexis, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Ilter, Mehmet, Aalto University, Finland Pinho, Paulo, Aalto University, Finland Hämäläinen, Jyri, Aalto University, Finland

SPCOM-P4.7: ROBUST TRANSMISSION OVER CHANNELS WITH CHANNEL UNCERTAINTY: AN ALGORITHMIC PERSPECTIVE

Boche, Holger, Technische Universität München, Germany Schaefer, Rafael F., Technische Universität Berlin, Germany Poor, H. Vincent, Princeton University, United States

SPCOM-P4.8: DEEP JOINT SOURCE-CHANNEL CODING OF IMAGES WITH FEEDBACK

Burth Kurka, David, Imperial College London, United Kingdom Gündüz, Deniz, Imperial College London, United Kingdom

SPCOM-P4.9: A LEARNING APPROACH TO COOPERATIVE COMMUNICATION SYSTEM DESIGN

Lu, Yuxin, Hong Kong University of Science and Technology, Hong Kong SAR of China Cheng, Peng, University of Sydney, Australia Chen, Zhuo, Commonwealth Scientific and Industrial Research Organisation, Australia Mow, Wai Ho, Hong Kong University of Science and Technology, Hong Kong SAR of China Li, Yonghui, University of Sydney, Australia

SPCOM-P4.10: A STACKED-AUTOENCODER BASED END-TO-END LEARNING FRAMEWORK FOR DECODE-AND-FORWARD RELAY NETWORKS

Gupta, Ankit, Heriot-Watt University, United Kingdom Sellathurai, Mathini, Heriot-Watt University, United Kingdom

SPCOM-P4.11: A NEW SAMPLING SCHEME FOR DISTRIBUTED BLIND SPECTRUM SENSING USING ENERGY DETECTORS

Wang, Tsang-Yi, National Sun Yat-sen University, Taiwan Chien, Feng-Tsun, National Chiao Tung University, Taiwan Hsieh, Chi-Kai, National Chiao Tung University, Taiwan

SPCOM-P4.12: SWIFT-LINK: A COMPRESSIVE BEAM ALIGNMENT ALGORITHM FOR PRACTICAL MMWAVE RADIOS

Myers, Nitin Jonathan, University of Texas at Austin, United States Mezghani, Amine, University of Manitoba, Canada Heath Jr., Robert W., University of Texas at Austin, United States

Friday, 8 May, 11:45 - 13:45

SPCOM-P5 - Communication Signal Analysis and Optimization

SPCOM-P5.1: ON THROUGHPUT OF MILLIMETER WAVE MIMO SYSTEMS WITH LOW RESOLUTION ADCS

Khalili, Abbas, New York University, United States Shahsavari, Shahram, University of Waterloo, Canada Shirani, Farhad, New York University, United States Erkip, Elza, New York University, United States C. Eldar, Yonina, Weizmann institute of Science, Israel

SPCOM-P5.2: RELIABLE AND SECURE TRANSMISSION FOR FUTURE NETWORKS

Hua, Yingbo, University of California, Riverside, United States

SPCOM-P5.3: ON POLAR CODING FOR FINITE BLOCKLENGTH SECRET KEY GENERATION OVER WIRELESS CHANNELS

Hentilä, Henri, Aalto University, Finland Shkel, Yanina, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Koivunen, Visa, Aalto University, Finland Poor, H. Vincent, Princeton University, United States

SPCOM-P5.4: AN ENHANCED DECODING ALGORITHM FOR CODED COMPRESSED SENSING

Amalladinne, Vamsi, Texas A&M University, United States Chamberland, Jean-Francois, Texas A&M University, United States Narayanan, Krishna, Texas A&M University, United States

SPCOM-P5.5: OPTIMAL WINDOW DESIGN FOR W-OFDM

Hussain, Khawar, University of Vigo, Spain Lopez-Valcarce, Roberto, University of Vigo, Spain

SPCOM-P5.6: COMPUTABILITY OF THE PEAK VALUE OF BANDLIMITED SIGNALS

Boche, Holger, Technische Universität München, Germany Mönich, Ullrich, Technische Universität München, Germany

SPCOM-P5.7: JOINT SCHEDULING AND BEAMFORMING FOR DELAY SENSITIVE TRAFFIC WITH PRIORITIES AND DEADLINES

Hadar, Ido, Bar-Ilan University, Israel Leshem, Amir, Bar-Ilan University, Israel

SPCOM-P5.8: ARBITRARY LENGTH PERFECT INTEGER SEQUENCES USING ALL-PASS POLYNOMIAL

Pei, Soo-Chang, National Taiwan University, Taiwan Chang, Kuo-Wei, Chunghwa Telecom Co Ltd Telecommunication Laboratories, Taiwan

SPCOM-P5.9: PERFORMANCE ANALYSIS AND CONSTELLATION OPTIMIZATION OF STAR-QAM-AIDED DIFFERENTIAL FASTER-THAN-NYQUIST SIGNALING

Sagayama, Chie, Tokyo University of Agriculture and Technology, Japan Ishihara, Takumi, Tokyo University of Agriculture and Technology, Japan Sugiura, Shinya, University of Tokyo, Japan

SPCOM-P5.10: CONNECTIONS BETWEEN SPECTRAL PROPERTIES OF ASYMPTOTIC MAPPINGS AND SOLUTIONS TO WIRELESS NETWORK PROBLEMS

Cavalcante, Renato L. G., Fraunhofer Heinrich Hertz Institute / TU Berlin, Germany Liao, Qi, Nokia Bell Labs, Germany Stanczak, Slawomir, Fraunhofer Heinrich Hertz Institute / TU Berlin, Germany

SPCOM-P5.11: ROBUST HYBRID PRECODING FOR INTERFERENCE EXPLOITATION IN MASSIVE MIMO SYSTEMS

Hegde, Ganapati, Technische Universität Darmstadt, Germany Masouros, Christos, University College London, United Kingdom Pesavento, Marius, Technische Universität Darmstadt, Germany

SPCOM-P5.12: DIFFERENTIALLY MODULATED SPECTRALLY EFFICIENT FREQUENCY-DIVISION MULTIPLEXING

Osaki, Seichiroh, Tokyo University of Agriculture and Technology, Japan Nakao, Miyu, Tokyo University of Agriculture and Technology, Japan Ishihara, Takumi, Tokyo University of Agriculture and Technology, Japan Sugiura, Shinya, University of Tokyo, Japan

Speech and Language Processing

Tuesday, 5 May, 11:30 - 13:30

SPE-L1 - End-to-end Speech Recognition I: Streaming

SPE-L1.1: A STREAMING ON-DEVICE END-TO-END MODEL SURPASSING SERVER-SIDE CONVENTIONAL MODEL QUALITY AND LATENCY

Sainath, Tara, Google, Inc., United States He, Yanzhang, Google, Inc., United States Li, Bo, Google, Inc., United States Narayanan, Arun, Google, Inc., United States Pang, Ruoming, Google, Inc., United States Bruguier, Antoine, Google, Inc., United States Chang, Shuo-yiin, Google, Inc., United States Li, Wei, Google, Inc., United States Alvarez, Raziel, Google, Inc., United States Chen, Zhifeng, Google, Inc., United States Chiu, Chung-cheng, Google, Inc., United States Garcia, David, Google, Inc., United States Gruenstein, Alex, Google, Inc., United States Hu, Ke, Google, Inc., United States Jin, Minho, Google, Inc., United States Kannan, Anjuli, Google, Inc., United States Liang, Qiao, Google, Inc., United States McGraw, Ian, Google, Inc., United States Peyser, Cal, Google, Inc., United States Prabhavalkar, Rohit, Google, Inc., United States Pundak, Golan, Google, Inc., United States Rybach, David, Google, Inc., United States Shangguan, Yuan, Google, Inc., United States Sheth, Yash, Google, Inc., United States Strohman, Trevor, Google, Inc., United States Visontai, Mirko, Google, Inc., United States Wu, Yonghui, Google, Inc., United States Zhang, Yu, Google, Inc., United States Zhao, Ding, Google, Inc., United States

SPE-L1.2: MINIMUM LATENCY TRAINING STRATEGIES FOR STREAMING SEQUENCE-TO-SEQUENCE ASR

Inaguma, Hirofumi, Kyoto University, Japan Gaur, Yashesh, Microsoft Corporation, Japan Lu, Liang, Microsoft Corporation, Japan Li, Jinyu, Microsoft Corporation, Japan Gong, Yifan, Microsoft Corporation, Japan

SPE-L1.3: TOWARDS FAST AND ACCURATE STREAMING END-TO-END ASR

Li, Bo, Google, Inc., United States Chang, Shuo-Yiin, Google, Inc., United States Sainath, Tara, Google, Inc., United States Pang, Ruoming, Google, Inc., United States He, Yanzhang, Google, Inc., United States Strohman, Trevor, Google, Inc., United States Wu, Yonghui, Google, Inc., United States

SPE-L1.4: STREAMING AUTOMATIC SPEECH RECOGNITION WITH THE TRANSFORMER MODEL

Moritz, Niko, Mitsubishi Electric Research Laboratories (MERL), United States Hori, Takaaki, Mitsubishi Electric Research Laboratories (MERL), United States Le Roux, Jonathan, Mitsubishi Electric Research Laboratories (MERL), United States

SPE-L1.5: CIF: CONTINUOUS INTEGRATE-AND-FIRE FOR END-TO-END SPEECH RECOGNITION

Dong, Linhao, Institute of Automation, Chinese Academy of Sciences, China Xu, Bo, Institute of Automation, Chinese Academy of Sciences, China

SPE-L1.6: TRANSFORMER-BASED ONLINE CTC/ATTENTION END-TO-END SPEECH RECOGNITION ARCHITECTURE

Miao, Haoran, Key Laboratory of Speech Acoustics and Content Understanding, China Cheng, Gaofeng, Key Laboratory of Speech Acoustics and Content Understanding, China Gao, Changfeng, Key Laboratory of Speech Acoustics and Content Understanding, China Zhang, Pengyuan, Key Laboratory of Speech Acoustics and Content Understanding, China Yan, Yonghong, Key Laboratory of Speech Acoustics and Content Understanding, China

Tuesday, 5 May, 11:30 - 13:30

SPE-L2 - Language Disorders

SPE-L2.1: DETECTING MULTIPLE SPEECH DISFLUENCIES USING A DEEP RESIDUAL NETWORK WITH BIDIRECTIONAL LONG SHORT-TERM MEMORY

Kourkounakis, Tedd, Queen's University, Canada Hajavi, Amirhossein, Queen's University, Canada Etemad, Ali, Queen's University, Canada

SPE-L2.2: EXPLORING APPROPRIATE ACOUSTIC AND LANGUAGE MODELLING CHOICES FOR CONTINUOUS DYSARTHRIC SPEECH RECOGNITION

Yue, Zhengjun, university of sheffield, United Kingdom Xiong, Feifei, university of sheffield, United Kingdom Christensen, Heidi, university of sheffield, United Kingdom Barker, Jon, university of sheffield, United Kingdom

SPE-L2.3: SYNTHETIC SPEECH REFERENCES FOR AUTOMATIC PATHOLOGICAL SPEECH INTELLIGIBILITY ASSESSMENT

Janbakhshi, Parvaneh, Idiap Research Institute, Switzerland Kodrasi, Ina, Idiap Research Institute, Switzerland Bourlard, Hervé, Idiap Research Institute, Switzerland

SPE-L2.4: TWO-STEP ACOUSTIC MODEL ADAPTATION FOR DYSARTHRIC SPEECH RECOGNITION

Takashima, Ryoichi, Kobe University, Japan Takiguchi, Tetsuya, Kobe University, Japan Ariki, Yasuo, Kobe University, Japan

SPE-L2.5: DYSARTHRIC SPEECH RECOGNITION WITH LATTICE-FREE MMI

Hermann, Enno, Idiap Research Institute, Switzerland Magimai.-Doss, Mathew, Idiap Research Institute, Switzerland

SPE-L2.6: IMPROVED SPEAKER INDEPENDENT DYSARTHRIA INTELLIGIBILITY CLASSIFICATION USING DEEPSPEECH POSTERIORS

Tripathi, Ayush, Tata Consultancy Services, India Bhosale, Swapnil, Tata Consultancy Services, India Kopparapu, Sunil Kumar, Tata Consultancy Services, India

Tuesday, 5 May, 16:30 - 18:30

SPE-L3 - End-to-end Speech Recognition II: New Models

SPE-L3.1: JOINT PHONEME-GRAPHEME MODEL FOR END-TO-END SPEECH RECOGNITION

Kubo, Yotaro, Google, Japan Bacchiani, Michiel, Google, Japan

SPE-L3.2: QUARTZNET: DEEP AUTOMATIC SPEECH RECOGNITION WITH 1D TIME-CHANNEL SEPARABLE CONVOLUTIONS

Kriman, Samuel, University of Illinois at Urbana-Champaign, United States Beliaev, Stanislav, University of Saint Petersburg, Russia Ginsburg, Boris, NVIDIA, United States Huang, Jocelyn, NVIDIA, United States Kuchaiev, Oleksii, NVIDIA, United States Lavrukhin, Vitaly, NVIDIA, United States Leary, Ryan, NVIDIA, United States Li, Jason, NVIDIA, United States Zhang, Yang, NVIDIA, United States

SPE-L3.3: END-TO-END MULTI-TALKER OVERLAPPING SPEECH RECOGNITION

Tripathi, Anshuman, Google, United States Lu, Han, Google, United States Sak, Hasim, Google, United States

SPE-L3.4: END-TO-END MULTI-SPEAKER SPEECH RECOGNITION WITH TRANSFORMER

Chang, Xuankai, Johns Hopkins University, United States Zhang, Wangyou, Shanghai Jiao Tong University, China Qian, Yanmin, Shanghai Jiao Tong University, China Le Roux, Jonathan, Mitsubishi Electric Research Laboratories (MERL), United States Watanabe, Shinji, Johns Hopkins University, United States

SPE-L3.5: HYBRID AUTOREGRESSIVE TRANSDUCER (HAT)

Variani, Ehsan, Google, United States Rybach, David, Google, United States Allauzen, Cyril, Google, United States Riley, Michael, Google, United States

SPE-L3.6: LIGHTWEIGHT AND EFFICIENT END-TO-END SPEECH RECOGNITION USING LOW-RANK TRANSFORMER

Winata, Genta Indra, Hong Kong University of Science and Technology, Hong Kong SAR of China Cahyawijaya, Samuel, Hong Kong University of Science and Technology, Hong Kong SAR of China Lin, Zhaojiang, Hong Kong University of Science and Technology, Hong Kong SAR of China Liu, Zihan, Hong Kong University of Science and Technology, Hong Kong SAR of China Fung, Pascale, Hong Kong University of Science and Technology, Hong Kong SAR of China

Tuesday, 5 May, 16:30 - 18:30

SPE-L4 - Machine Learning for Language Processing I

SPE-L4.1: SPOKEN LANGUAGE ACQUISITION BASED ON REINFORCEMENT LEARNING AND WORD UNIT SEGMENTATION

Gao, Shengzhou, Tokyo Institute of Technology, Japan Hou, Wenxin, Tokyo Institute of Technology, Japan Tanaka, Tomohiro, Tokyo Institute of Technology, Japan Shinozaki, Takahiro, Tokyo Institute of Technology, Japan

SPE-L4.2: HOW MUCH SELF-ATTENTION DO WE NEED? TRADING ATTENTION FOR FEED-FORWARD LAYERS

Irie, Kazuki, RWTH Aachen University, Germany Gerstenberger, Alexander, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-L4.3: LEARNING RECURRENT NEURAL NETWORK LANGUAGE MODELS WITH CONTEXT-SENSITIVE LABEL SMOOTHING FOR AUTOMATIC SPEECH RECOGNITION

Song, Minguang, University of Missouri, United States Zhao, Yunxin, University of Missouri, United States Wang, Shaojun, PAII Inc, United States Han, Mei, PAII Inc, United States

SPE-L4.4: SEMI-SUPERVISED LEARNING FOR TEXT CLASSIFICATION BY LAYER PARTITIONING

Li, Alexander Hanbo, Amazon, Inc., United States Sethy, Abhinav, Amazon, Inc., United States

SPE-L4.5: INTEGRATING DISCRETE AND NEURAL FEATURES VIA MIXED-FEATURE TRANS-DIMENSIONAL RANDOM FIELD LANGUAGE MODELS

Gao, Silin, Tsinghua University, China Ou, Zhijian, Tsinghua University, China Yang, Wei, State Grid Customer Service Center, China Xu, Huifang, China Electric Power Research Institute, China

SPE-L4.6: GATED ATTENTIVE CONVOLUTIONAL NETWORK DIALOGUE STATE TRACKER

Liu, Sihong, Beijing University Of Posts And Telecommunications, China Liu, Songyan, Beijing University of Posts and Telecommunications, China Xu, Weiran, Beijing University Of Posts And Telecommunications, China

Wednesday, 6 May, 09:00 - 11:00

SPE-L5 - Speech Synthesis and Voice Conversion I

SPE-L5.1: USING VAES AND NORMALIZING FLOWS FOR ONE-SHOT TEXT-TO-SPEECH SYNTHESIS OF EXPRESSIVE SPEECH

Aggarwal, Vatsal, Amazon, Inc., United Kingdom Cotescu, Marius, Amazon, Inc., United Kingdom Prateek, Nishant, Amazon, Inc., United Kingdom Lorenzo-Trueba, Jaime, Amazon, Inc., United Kingdom Barra-Chicote, Roberto, Amazon, Inc., United Kingdom

SPE-L5.2: ZERO-SHOT MULTI-SPEAKER TEXT-TO-SPEECH WITH STATE-OF-THE-ART NEURAL SPEAKER EMBEDDINGS

Cooper, Erica, National Institute of Informatics, Japan Lai, Cheng-I, Massachusetts Institute of Technology, United States Yasuda, Yusuke, National Institute of Informatics, Japan Fang, Fuming, National Institute of Informatics, Japan Wang, Xin, National Institute of Informatics, Japan Chen, Nanxin, Johns Hopkins University, United States Yamagishi, Junichi, National Institute of Informatics, Japan

SPE-L5.3: MELLOTRON: MULTISPEAKER EXPRESSIVE VOICE SYNTHESIS BY CONDITIONING ON RHYTHM, PITCH AND GLOBAL STYLE TOKENS

Valle, Rafael, NVIDIA, United States Li, Jason, NVIDIA, United States Prenger, Ryan, NVIDIA, United States Catanzaro, Bryan, NVIDIA, United States

SPE-L5.4: LOCATION-RELATIVE ATTENTION MECHANISMS FOR ROBUST LONG-FORM SPEECH SYNTHESIS

Battenberg, Eric, Google, United States Skerry-Ryan, RJ, Google, United States Mariooryad, Soroosh, Google, United States Stanton, Daisy, Google, United States Kao, David, Google, United States Shannon, Matt, Google, United States Bagby, Tom, Google, United States

SPE-L5.5: PARALLEL WAVEGAN: A FAST WAVEFORM GENERATION MODEL BASED ON GENERATIVE ADVERSARIAL NETWORKS WITH MULTI-RESOLUTION SPECTROGRAM

Yamamoto, Ryuichi, LINE Corporation, Japan Song, Eunwoo, Naver Corporation, Korea (South) Kim, Jae-Min, Naver Corporation, Korea (South)

SPE-L5.6: GAUSSIAN LPCNET FOR MULTISAMPLE SPEECH SYNTHESIS

Popov, Vadim, Huawei Technologies, Russia Kudinov, Mikhail, Huawei Technologies, Russia Sadekova, Tasnima, Huawei Technologies, Russia

Wednesday, 6 May, 09:00 - 11:00

SPE-L6 - Speech Enhancement II: Single Channel

SPE-L6.1: A COMPUTATIONALLY LIGHT ALGORITHM FOR BAYESIAN SPEECH ENHANCEMENT WITH SNR MARGINALIZATION

Thaleiser, Stefan, Ruhr-Universität Bochum, Germany Enzner, Gerald, Ruhr-Universität Bochum, Germany

SPE-L6.2: LOW-LATENCY SINGLE CHANNEL SPEECH ENHANCEMENT USING U-NET CONVOLUTIONAL NEURAL NETWORKS

Bulut, Ahmet E., Center for Robust Speech Systems, University of Texas at Dallas, United States Koishida, Kazuhito, Microsoft Corporation, United States

SPE-L6.3: A CROSS-TASK TRANSFER LEARNING APPROACH TO ADAPTING DEEP SPEECH ENHANCEMENT MODELS TO UNSEEN BACKGROUND NOISE USING PAIRED SENONE CLASSIFIERS

Wang, Sicheng, Georgia Institute of Technology, United States Li, Wei, Georgia Institute of Technology, United States Siniscalchi, Sabato Marco, Kore University of Enna, Italy Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-L6.4: MONAURAL SPEECH ENHANCEMENT USING INTRA-SPECTRAL RECURRENT LAYERS IN THE MAGNITUDE AND PHASE RESPONSES

Nayem, Khandokar Md., Indiana University, United States Williamson, Donald S., Indiana University, United States

SPE-L6.5: A MAXIMUM LIKELIHOOD APPROACH TO MULTI-OBJECTIVE LEARNING USING GENERALIZED GAUSSIAN DISTRIBUTIONS FOR DNN-BASED SPEECH ENHANCEMENT

Niu, Shu-Tong, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China Chai, Li, University of Science and Technology of China, China Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-L6.6: PAGAN: A PHASE-ADAPTED GENERATIVE ADVERSARIAL NETWORKS FOR SPEECH ENHANCEMENT

Li, Peishuo, Tsinghua University, China Jiang, Zihang, Tsinghua University, China Yin, Shouyi, Tsinghua University, China Song, Dandan, TsingMicro Co. Ltd., China Ouyang, Peng, TsingMicro Co. Ltd., China Liu, Leibo, Tsinghua University, China Wei, Shaojun, Tsinghua University, China

Wednesday, 6 May, 09:00 - 11:00

SPE-L7 - Speech Perception and Psychoacoustics

SPE-L7.1: HUMANGAN: GENERATIVE ADVERSARIAL NETWORK WITH HUMAN-BASED DISCRIMINATOR AND ITS EVALUATION IN SPEECH PERCEPTION MODELING

Fujii, Kazuki, National Institute of Technology, Tokuyama College, Japan Saito, Yuki, University of Tokyo, Japan Takamichi, Shinnosuke, University of Tokyo, Japan Baba, Yukino, University of Tsukuba, Japan Saruwatari, Hiroshi, University of Tokyo, Japan

SPE-L7.2: THE PROCESSING OF MANDARIN CHINESE TONAL ALTERNATIONS IN CONTEXTS: AN EYE-TRACKING STUDY

Tu, Jung-yueh, National Chengchi University, Taiwan Chien, Yu-Fu, Fudan University, China and DePaul University, United States

SPE-L7.3: ON THE IMPACT OF LANGUAGE FAMILIARITY IN TALKER CHANGE DETECTION

Sharma, Neeraj, Carnegie Mellon University, United States Krishnamohan, Venkat, Indian Institute of Science, India Ganapathy, Sriram, Indian Institute of Science, India Gangopadhayay, Ahana, Washington University in St. Louis, United States Fink, Lauren, University of California, Davis, United States

SPE-L7.4: EFFECTS OF SPECTRAL TILT ON LISTENERS' PREFERENCES AND INTELLIGIBILITY

Simantiraki, Olympia, University of the Basque Country, Spain Cooke, Martin, Ikerbasque (Basque Science Foundation), Spain Pantazis, Yannis, Institute of Applied and Computational Mathematics, FORTH, Greece

SPE-L7.5: EFFECT OF FRICATION DURATION AND FORMANT TRANSITIONS ON THE PERCEPTION OF FRICATIVES IN VCV UTTERANCES

Nataraj, K S, Indian Institute of Technology Bombay, India Pandey, Prem Chand, Indian Institute of Technology Bombay, India Dasgupta, Hirak, Indian Institute of Technology Bombay, India

SPE-L7.6: CURRICULUM LEARNING FOR SPEECH EMOTION RECOGNITION FROM CROWDSOURCED LABELS

Lotfian, Reza, Cogito, United States Busso, Carlos, University of Texas at Austin, United States

Wednesday, 6 May, 11:30 - 13:30

SPE-L8 - Speech Synthesis and Voice Conversion II

SPE-L8.1: FULLY-HIERARCHICAL FINE-GRAINED PROSODY MODELING FOR INTERPRETABLE SPEECH SYNTHESIS

Sun, Guangzhi, Cambridge University, United Kingdom Zhang, Yu, Google, United States Weiss, Ron, Google, United Kingdom Cao, Yuan, Google, United Kingdom Zen, Heiga, Google, United Kingdom Wu, Yonghui, Google, United Kingdom

SPE-L8.2: TRANSFERRING NEURAL SPEECH WAVEFORM SYNTHESIZERS TO MUSICAL INSTRUMENT SOUNDS GENERATION

Zhao, Yi, National Institute of Informatics, Japan Wang, Xin, National Institute of Informatics, Japan Juvela, Lauri, Aalto University, Finland Yamagishi, Junichi, National Institute of Informatics, Japan

SPE-L8.3: TEACHER-STUDENT TRAINING FOR ROBUST TACOTRON-BASED TTS

Liu, Rui, Inner Mongolia University, China Sisman, Berrak, National University of Singapore, Singapore Li, Jingdong, Inner Mongolia University, China Bao, Feilong, Inner Mongolia University, China Gao, Guanglai, Inner Mongolia University, China Li, Haizhou, National University of Singapore, Singapore

SPE-L8.4: MANY-TO-MANY VOICE CONVERSION USING CONDITIONAL CYCLE-CONSISTENT ADVERSARIAL NETWORKS

Lee, Shindong, Korea University, Korea (South) Ko, BongGu, Korea University, Korea (South) Lee, Keonnyeong, Korea University, Korea (South) Yoo, In-Chul, Korea University, Korea (South) Yook, Dongsuk, Korea University, Korea (South)

SPE-L8.5: F0-CONSISTENT MANY-TO-MANY NON-PARALLEL VOICE CONVERSION VIA CONDITIONAL AUTOENCODER

Qian, Kaizhi, University of Illinois at Urbana-Champaign, United States Jin, Zeyu, Adobe, United States Hasegawa-Johnson, Mark, University of Illinois at Urbana-Champaign, United States Mysore, Gautham, Adobe, United States

SPE-L8.6: END-TO-END ACCENT CONVERSION WITHOUT USING NATIVE UTTERANCES

Liu, Songxiang, Chinese University of Hong Kong, China Wang, Disong, Chinese University of Hong Kong, China Cao, Yuewen, Chinese University of Hong Kong, China Sun, Lifa, SpeechX Limited, China Wu, Xixin, Chinese University of Hong Kong, China Kang, Shiyin, Tencent, China Wu, Zhiyong, Tsinghua University,

China Liu, Xunying, Chinese University of Hong Kong, China Su, Dan, Tencent, China Yu, Dong, Tencent, China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China

Wednesday, 6 May, 11:30 - 13:30

SPE-L9 - Multimodal Processing of Language

SPE-L9.1: COGANS FOR UNSUPERVISED VISUAL SPEECH ADAPTATION TO NEW SPEAKERS

Fernandez-Lopez, Adriana, Pompeu Fabra University, Spain Karaali, Ali, Trinity College Dublin, Ireland Harte, Naomi, Trinity College Dublin, Ireland Sukno, Federico M., Pompeu Fabra University, Spain

SPE-L9.2: VISUALLY GUIDED SELF SUPERVISED LEARNING OF SPEECH REPRESENTATIONS

Shukla, Abhinav, Imperial College London, United Kingdom Vougioukas, Konstantinos, Imperial College London, United Kingdom Ma, Pingchuan, Imperial College London, United Kingdom Petridis, Stavros, Imperial College London, United Kingdom Pantic, Maja, Imperial College London, United Kingdom

SPE-L9.3: LOOKING ENHANCES LISTENING: RECOVERING MISSING SPEECH USING IMAGES

Srinivasan, Tejas, Carnegie Mellon University, United States Sanabria, Ramon, University of Edinburgh, United Kingdom Metze, Florian, Carnegie Mellon University, United States

SPE-L9.4: TOWARDS MULTILINGUAL SIGN LANGUAGE RECOGNITION

Tornay, Sandrine, Idiap Research Institute, Switzerland Razavi, Marzieh, Telepathy Labs GmbH, Switzerland Magimai.-Doss, Mathew, Idiap Research Institute, Switzerland

SPE-L9.5: AUTOMATIC IDENTIFICATION OF SPEAKERS FROM HEAD GESTURES IN A NARRATION

Vadiraj, Sanjeev Kadagathur, Indian Institute of Science, Bangalore, India Rao M V, Achuth, Indian Institute of Science, Bangalore, India Kumar Ghosh, Prasanta, Indian Institute of Science, Bangalore, India

SPE-L9.6: LIPREADING USING TEMPORAL CONVOLUTIONAL NETWORKS

Martinez, Brais, Samsung, United Kingdom Ma, Pingchuan, Imperial College London, United Kingdom Petridis, Stavros, Imperial College London, United Kingdom Pantic, Maja, Imperial College London and Samsung, United Kingdom

Thursday, 7 May, 09:00 - 11:00

SPE-L10 - Speech Recognition: Confidence, Errors and OOVs

SPE-L10.1: ON MODELING ASR WORD CONFIDENCE

Jeon, Woojay, Apple, United States Jordan, Maxwell, Apple, United States Krishnamoorthy, Mahesh, Apple, United States

SPE-L10.2: CONFIDENCE ESTIMATION FOR BLACK BOX AUTOMATIC SPEECH RECOGNITION SYSTEMS USING LATTICE RECURRENT NEURAL NETWORKS

Kastanos, Alexandros, University of Cambridge, United Kingdom Ragni, Anton, University of Sheffield, United Kingdom Gales, Mark, University of Cambridge, United Kingdom

SPE-L10.3: OOV RECOVERY WITH EFFICIENT 2ND PASS DECODING AND OPEN-VOCABULARY WORD-LEVEL RNNLM RESCORING FOR HYBRID ASR

Zhang, Xiaohui, Johns Hopkins University, United States Povey, Daniel, Johns Hopkins University, United States Khudanpur, Sanjeev, Johns Hopkins University, United States

SPE-L10.4: END TO END SPEECH RECOGNITION ERROR PREDICTION WITH SEQUENCE TO SEQUENCE LEARNING

Serai, Prashant, Ohio State University, United States Stiff, Adam, Ohio State University, United States Fosler-Lussier, Eric, Ohio State University, United States

SPE-L10.5: ASR ERROR CORRECTION AND DOMAIN ADAPTATION USING MACHINE TRANSLATION

Mani, Anirudh, Abridge AI, United States Palaskar, Shruti, Carnegie Mellon University, United States Venkat Meripo, Nimshi, Abridge AI, United States Konam, Sandeep, Abridge AI, United States Metze, Florian, Carnegie Mellon University, United States

SPE-L10.6: JOINT CONTEXTUAL MODELING FOR ASR CORRECTION AND LANGUAGE UNDERSTANDING

Weng, Yue, Uber Technologies Inc, United States Miryala, Sai Sumanth, Uber Technologies Inc, United States Khatri, Chandra, Uber Technologies Inc, United States Wang, Runze, Uber Technologies Inc, United States Zheng, Huaixiu, Uber Technologies Inc, United States Molino, Piero, Uber Technologies Inc, United States Namazifar, Mahdi, Uber Technologies Inc, United States Papangelis, Alexandros, Uber Technologies Inc, United States Williams, Hugh, Uber

Technologies Inc, United States Bell, Franziska, Uber Technologies Inc, United States Tur, Gokhan, Uber Technologies Inc, United States

Thursday, 7 May, 09:00 - 11:00

SPE-L11 - Speech Separation and Extraction I: Single Channel

SPE-L11.1: DEEP CASA FOR TALKER-INDEPENDENT MONAURAL SPEECH SEPARATION

Liu, Yuzhou, Ohio State University, United States Delfarah, Masood, Ohio State University, United States Wang, DeLiang, Ohio State University, United States

SPE-L11.2: DEMYSTIFYING TASNET: A DISSECTING APPROACH

Heitkaemper, Jens, Paderborn University, Germany Jakobeit, Darius, Paderborn University, Germany Boeddeker, Christoph, Paderborn University, Germany Drude, Lukas, Paderborn University, Germany Haeb-Umbach, Reinhold, Paderborn University, Germany

SPE-L11.3: FILTERBANK DESIGN FOR END-TO-END SPEECH SEPARATION

Pariente, Manuel, INRIA Nancy, France Cornell, Samuele, Università Politecnica delle Marche, Italy Deleforge, Antoine, INRIA Nancy, France Vincent, Emmanuel, INRIA Nancy, France

SPE-L11.4: INTERRUPTED AND CASCADED PERMUTATION INVARIANT TRAINING FOR SPEECH SEPARATION

Yang, Gene-Ping, National Taiwan University, Taiwan Wu, Szu-Lin, National Taiwan University, Taiwan Mao, Yao-Wen, National Taiwan University, Taiwan Lee, Hung-yi, National Taiwan University, Taiwan Lee, Lin-shan, National Taiwan University, Taiwan

SPE-L11.5: MIXUP-BREAKDOWN: A CONSISTENCY TRAINING METHOD FOR IMPROVING GENERALIZATION OF SPEECH SEPARATION MODELS

Lam, Max W. Y., Tencent AI Lab, China Wang, Jun, Tencent AI Lab, China Su, Dan, Tencent AI Lab, China Yu, Dong, Tencent AI Lab, United States

SPE-L11.6: AN ONLINE SPEAKER-AWARE SPEECH SEPARATION APPROACH BASED ON TIME-DOMAIN REPRESENTATION

Wang, Hui, University of Science and Technology of China, China Song, Yan, University of Science and Technology of China, China Li, Zeng-Xi, Microsoft China, China McLoughlin, Ian, School of Computing, University of Kent, United Kingdom Dai, Li-Rong, University of Science and Technology of China, China

Thursday, 7 May, 11:30 - 13:30

SPE-L12 - Speech Separation and Extraction II: Multi-channel

SPE-L12.1: BEAM-TASNET: TIME-DOMAIN AUDIO SEPARATION NETWORK MEETS FREQUENCY-DOMAIN BEAMFORMER

Ochiai, Tsubasa, NTT Communication Science Laboratories, Japan Delcroix, Marc, NTT Communication Science Laboratories, Japan Ikeshita, Rintaro, NTT Communication Science Laboratories, Japan Kinoshita, Keisuke, NTT Communication Science Laboratories, Japan Nakatani, Tomohiro, NTT Communication Science Laboratories, Japan Araki, Shoko, NTT Communication Science Laboratories, Japan

SPE-L12.2: ON END-TO-END MULTI-CHANNEL TIME DOMAIN SPEECH SEPARATION IN REVERBERANT ENVIRONMENTS

Zhang, Jisi, University of Sheffield, United Kingdom Zorila, Catalin, Toshiba Cambridge Research Laboratory, United Kingdom Doddipatla, Rama, Toshiba Cambridge Research Laboratory, United Kingdom Barker, Jon, University of Sheffield, United Kingdom

SPE-L12.3: END-TO-END MICROPHONE PERMUTATION AND NUMBER INVARIANT MULTI-CHANNEL SPEECH SEPARATION

Luo, Yi, Columbia University, United States Chen, Zhuo, Microsoft, United States Mesgarani, Nima, Columbia University, United States Yoshioka, Takuya, Microsoft, United States

SPE-L12.4: DNN-SUPPORTED MASK-BASED CONVOLUTIONAL BEAMFORMING FOR SIMULTANEOUS DENOISING, DEREVERBERATION, AND SOURCE SEPARATION

Nakatani, Tomohiro, NTT Corporation, Japan Takahashi, Riki, Tsukuba University, Japan Ochiai, Tsubasa, NTT Corporation, Japan Kinoshita, Keisuke, NTT Corporation, Japan Ikeshita, Rintaro, NTT Corporation, Japan Delcroix, Marc, NTT Corporation, Japan Araki, Shoko, NTT Corporation, Japan

SPE-L12.5: REAL-TIME BINAURAL SPEECH SEPARATION WITH PRESERVED SPATIAL CUES

Han, Cong, Columbia University, United States Luo, Yi, Columbia University, United States Mesgarani, Nima, Columbia University, United States

SPE-L12.6: SLOGD: SPEAKER LOCATION GUIDED DEFLATION APPROACH TO SPEECH SEPARATION

Sivasankaran, Sunit, Inria-Nancy, France Vincent, Emmanuel, Inria-Nancy, France
Fohr, Dominique, Loria, France

Thursday, 7 May, 16:30 - 18:30

SPE-L13 - Speech Recognition: Representations and Embeddings

SPE-L13.1: MULTILINGUAL ACOUSTIC WORD EMBEDDING MODELS FOR PROCESSING ZERO-RESOURCE LANGUAGES

Kamper, Herman, Stellenbosch University, South Africa Matusevych, Yevgen, University of Edinburgh, United Kingdom Goldwater, Sharon, University of Edinburgh, United Kingdom

SPE-L13.2: MOCKINGJAY: UNSUPERVISED SPEECH REPRESENTATION LEARNING WITH DEEP BIDIRECTIONAL TRANSFORMER ENCODERS

Liu, Andy T., National Taiwan University, Taiwan Yang, Shu-wen, National Taiwan University, Taiwan Chi, Po-Han, National Taiwan University, Taiwan Hsu, Po-chun, National Taiwan University, Taiwan Lee, Hung-yi, National Taiwan University, Taiwan

SPE-L13.3: RECURRENT NEURAL AUDIOVISUAL WORD EMBEDDINGS FOR SYNCHRONIZED SPEECH AND REAL-TIME MRI

Köse, Öykü Deniz, Boğaziçi University, Turkey Saraçlar, Murat, Boğaziçi University, Turkey

SPE-L13.4: DEEP CONTEXTUALIZED ACOUSTIC REPRESENTATIONS FOR SEMI-SUPERVISED SPEECH RECOGNITION

Ling, Shaoshi, Amazon, Inc., United States Liu, Yuzong, Amazon, Inc., United States Salazar, Julian, Amazon, Inc., United States Kirchhoff, Katrin, Amazon, Inc., United States

SPE-L13.5: WHAT DOES A NETWORK LAYER HEAR? ANALYZING HIDDEN REPRESENTATIONS OF END-TO-END ASR THROUGH SPEECH SYNTHESIS

Li, Chung-Yi, National Taiwan University, Taiwan Yuan, Pei-Chieh, National Taiwan University, Taiwan Lee, Hung-Yi, National Taiwan University, Taiwan

SPE-L13.6: LEARNING A SUBWORD INVENTORY JOINTLY WITH END-TO-END AUTOMATIC SPEECH RECOGNTION

Drexler, Jennifer, Massachusetts Institute of Technology, United States Glass, James, Massachusetts Institute of Technology, United States

Thursday, 7 May, 16:30 - 18:30

SPE-L14 - Speaker Recognition/Identification/Verification

SPE-L14.1: MULTIPLE POINTS INPUT FOR CONVOLUTIONAL NEURAL NETWORKS IN REPLAY ATTACK DETECTION

Yoon, Sung-Hyun, University of Seoul, Korea (South) Yu, Ha-Jin, University of Seoul, Korea (South)

SPE-L14.2: INFORMATION MAXIMIZED VARIATIONAL DOMAIN ADVERSARIAL LEARNING FOR SPEAKER VERIFICATION

Tu, Youzhi, Hong Kong Polytechnic University, Hong Kong SAR of China Mak, Man-Wai, Hong Kong Polytechnic University, Hong Kong SAR of China Chien, Jen-Tzung, National Chiao Tung University, Taiwan

SPE-L14.3: TEXT ADAPTATION FOR SPEAKER VERIFICATION WITH SPEAKER-TEXT FACTORIZED EMBEDDINGS

Yang, Yexin, Shanghai Jiao Tong University, China Wang, Shuai, Shanghai Jiao Tong University, China Gong, Xun, Shanghai Jiao Tong University, China Qian, Yanmin, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

SPE-L14.4: VOICEAI SYSTEMS TO NIST SRE19 EVALUATION: ROBUST SPEAKER RECOGNITION ON CONVERSATIONAL TELEPHONE SPEECH

Li, Rongjin, VoiceAI Technologies, Co. Ltd., China Chen, Dongpeng, VoiceAI Technologies, Co. Ltd., China Zhang, Weibin, VoiceAI Technologies, Co. Ltd., China

SPE-L14.5: MULTI-RESOLUTION MULTI-HEAD ATTENTION IN DEEP SPEAKER EMBEDDING

Wang, Zhiming, Ant Financial Services Group, China Yao, Kaisheng, Ant Financial Services Group, China Li, Xiaolong, Ant Financial Services Group, China Fang, Shuo, Ant Financial Services Group, China

SPE-L14.6: WITHIN-SAMPLE VARIABILITY-INVARIANT LOSS FOR ROBUST SPEAKER RECOGNITION UNDER NOISY ENVIRONMENTS

Cai, Danwei, Duke University, United States Cai, Weicheng, Duke Kunshan University, China Li, Ming, Duke University, United States

Friday, 8 May, 11:45 - 13:45

SPE-L15 - Emotion Recognition

SPE-L15.1: SPEECH EMOTION RECOGNITION WITH DUAL-SEQUENCE LSTM ARCHITECTURE

Wang, Jianyou, Duke University, United States Xue, Michael, Duke University, United States Culhane, Ryan, Duke University, United States Diao, Enmao, Duke University, United States Ding, Jie, University of Minnesota Twin Cities, United States Tarokh, Vahid, Duke University, United States

SPE-L15.2: A DIALOGICAL EMOTION DECODER FOR SPEECH EMOTION RECOGNITION IN SPOKEN DIALOG

Yeh, Sung-Lin, National Tsing Hua University, Taiwan Lin, Yun-Shao, National Tsing Hua University, Taiwan Lee, Chi-Chun, National Tsing Hua University, Taiwan

SPE-L15.3: FUSION APPROACHES FOR EMOTION RECOGNITION FROM SPEECH USING ACOUSTIC AND TEXT-BASED FEATURES

Pepino, Leonardo, Universidad de Buenos Aires-CONICET, Argentina Riera, Pablo, Universidad de Buenos Aires-CONICET, Argentina Ferrer, Luciana, Universidad de Buenos Aires-CONICET, Argentina Gravano, Agustín, Universidad de Buenos Aires, Argentina

SPE-L15.4: MULTI-TIME-SCALE CONVOLUTION FOR EMOTION RECOGNITION FROM SPEECH AUDIO SIGNALS

Guizzo, Eric, City, University of London, United Kingdom Weyde, Tillman, City, University of London, United Kingdom Barnett Leveson, Jack, City, University of London, United Kingdom

SPE-L15.5: ORDINAL LEARNING FOR EMOTION RECOGNITION IN CUSTOMER SERVICE CALLS

Han, Wenjing, Kuaishou Technology Corp., China Jiang, Tao, Kuaishou Technology Corp., China Li, Yan, Kuaishou Technology Corp., China Schuller, Björn, Imperial College London, United Kingdom Ruan, Huabin, Tsinghua University, China

SPE-L15.6: HGFM : A HIERARCHICAL GRAINED AND FEATURE MODEL FOR ACOUSTIC EMOTION RECOGNITION

Xu, Yunfeng, Hebei University of Science and Technology, China Xu, Hua, Tsinghua University, China Zou, Jiyun, Hebei University of Science and Technology, China

Friday, 8 May, 11:45 - 13:45

SPE-L16 - Speaker Diarization

SPE-L16.1: SPEAKER DIARIZATION USING LATENT SPACE CLUSTERING IN GENERATIVE ADVERSARIAL NETWORK

Pal, Monisankha, University of Southern California, United States Kumar, Manoj, University of Southern California, United States Peri, Raghuveer, University of Southern California, United States Park, Tae Jin, University of Southern California, United States Kim, So Hyun, Weill Cornell Medicine, United States Lord, Catherine, University of California, Los Angeles, United States Bishop, Somer, University of California, San Francisco, United States Narayanan, Shrikanth, University of Southern California, United States

SPE-L16.2: MULTIMODAL SPEAKER DIARIZATION OF REAL-WORLD MEETINGS USING D-VECTORS WITH SPATIAL FEATURES

Kang, Wonjune, Massachusetts Institute of Technology, United States Roy, Brandon, Massachusetts Institute of Technology, United States Chow, Wesley, Cortico, United States

SPE-L16.3: SPEAKER DIARIZATION WITH REGION PROPOSAL NETWORK

Huang, Zili, Johns Hopkins University, United States Watanabe, Shinji, Johns Hopkins University, United States Fujita, Yusuke, Hitachi, Japan Garcia, Paola, Johns Hopkins University, United States Shao, Yiwen, Johns Hopkins University, United States Povey, Daniel, Johns Hopkins University, United States Khudanpur, Sanjeev, Johns Hopkins University, United States

SPE-L16.4: OPTIMIZING BAYESIAN HMM BASED X-VECTOR CLUSTERING FOR THE SECOND DIHARD SPEECH DIARIZATION CHALLENGE

Diez, Mireia, Brno University of Technology, Czech Republic Burget, Lukáš, Brno University of Technology, Czech Republic Landini, Federico, Brno University of Technology, Czech Republic Wang, Shuai, Shanghai Jiao Tong University, China Cernocky, Honza, Brno University of Technology, Czech Republic

SPE-L16.5: A MEMORY AUGMENTED ARCHITECTURE FOR CONTINUOUS SPEAKER IDENTIFICATION IN MEETINGS

Flemotomos, Nikolaos, University of Southern California, United States Dimitriadis, Dimitrios, Microsoft, United States

SPE-L16.6: BUT SYSTEM FOR THE SECOND DIHARD SPEECH DIARIZATION CHALLENGE

Landini, Federico, Brno University of Technology, Czech Republic Wang, Shuai, Shanghai Jiao Tong University, China Diez, Mireia, Brno University of Technology, Czech Republic Burget, Lukáš, Brno University of Technology, Czech Republic Matějka, Pavel, Brno University of Technology, Czech Republic Žmolíková, Kateřina, Brno University of Technology, Czech Republic Mošner, Ladislav, Brno University of Technology, Czech Republic Silnova, Anna, Brno University of Technology, Czech Republic Plchot, Oldřich, Brno University of Technology, Czech Republic Novotný, Ondřej, Brno University of Technology, Czech Republic Zeinali, Hossein, Brno University of Technology, Czech Republic Rohdin, Johan, Brno University of Technology, Czech Republic

Friday, 8 May, 15:15 - 17:15

SPE-L17 - Paralinguistics Modeling

SPE-L17.1: ESTIMATING THE DEGREE OF SLEEPINESS BY INTEGRATING ARTICULATORY FEATURE KNOWLEDGE IN RAW WAVEFORM BASED CNNS

Fritsch, Julian, Idiap Research Institute, Switzerland Dubagunta, S. Pavankumar, Idiap Research Institute, Switzerland Magimai.-Doss, Mathew, Idiap Research Institute, Switzerland

SPE-L17.2: AUTOMATIC PREDICTION OF SUICIDAL RISK IN MILITARY COUPLES USING MULTIMODAL INTERACTION CUES FROM COUPLES CONVERSATIONS

Nallan Chakravarthula, Sandeep, University of Southern California, United States Nasir, Md, University of Southern California, United States Tseng, Shao-Yen, University of Southern California, United States Li, Haoqi, University of Southern California, United States Park, Tae Jin, University of Southern California, United States Baucom, Brian, University of Utah, United States J. Bryan, Craig, University of Utah, United States Narayanan, Shrikanth, University of Southern California, United States Georgiou, Panayiotis, University of Southern California, United States

SPE-L17.3: COMPARISON OF USER MODELS BASED ON GMM-UBM AND I-VECTORS FOR SPEECH, HANDWRITING, AND GAIT ASSESSMENT OF PARKINSON'S DISEASE PATIENTS

Vasquez-Correa, Juan Camilo, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Bocklet, Tobias, Technische Hochschule, Germany Orozco-Arroyave, Juan Rafael, University of Antioquia, Colombia Nöth, Elmar, Friedrich-Alexander Universität Erlangen-Nürnberg, Colombia

SPE-L17.4: EXPLOITING VOCAL TRACT COORDINATION USING DILATED CNNS FOR DEPRESSION DETECTION IN NATURALISTIC ENVIRONMENTS

Huang, Zhaocheng, University of New South Wales, Australia Epps, Julien, University of New South Wales, Australia Joachim, Dale, Sonde Health, United States

SPE-L17.5: DEEP LEARNING BASED PREDICTION OF HYPERNASALITY FOR CLINICAL APPLICATIONS

C Mathad, Vikram, Arizona State University, United States Chapman, Kathy, University of Utah, United States Liss, Julie, Arizona State University, United States Scherer, Nancy, Arizona State University, United States Berisha, Visar, Arizona State University, United States

SPE-L17.6: LANGUAGE INDEPENDENT GENDER IDENTIFICATION FROM RAW WAVEFORM USING MULTI-SCALE CONVOLUTIONAL NEURAL NETWORKS

D N, Krishna, Youplus India, India D, Amrutha, Youplus India, India Reddy, Sai Sumith, Youplus India, India Acharya, Anudeepa, Youplus India, India Aashish Garapati, Prabhu, Youplus India, India B J, Triveni, Youplus India, India

Tuesday, 5 May, 11:30 - 13:30

SPE-P1 - Adversarial/Discriminative Training and Spoofing for Speaker Recognition

SPE-P1.1: DEFENSE AGAINST ADVERSARIAL ATTACKS ON SPOOFING COUNTERMEASURES OF ASV

Wu, Haibin, National Taiwan University, China Liu, Songxiang, Chinese University of Hong Kong, China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China Lee, Hung-yi, National Taiwan University, Taiwan

SPE-P1.2: TEXT-INDEPENDENT SPEAKER VERIFICATION WITH ADVERSARIAL LEARNING ON SHORT UTTERANCES

Liu, Kai, Huawei Technologies Co Ltd, China Zhou, Huan, Huawei Technologies Co Ltd, China

SPE-P1.3: CHANNEL INVARIANT SPEAKER EMBEDDING LEARNING WITH JOINT MULTI-TASK AND ADVERSARIAL TRAINING

Chen, Zhengyang, Shanghai Jiao Tong University, China Wang, Shuai, Shanghai Jiao Tong University, China Qian, Yanmin, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

SPE-P1.4: ADVERSARIAL ATTACKS ON GMM I-VECTOR BASED SPEAKER VERIFICATION SYSTEMS

Li, Xu, Chinese University of Hong Kong, Hong Kong SAR of China Zhong, Jinghua, Chinese University of Hong Kong, Hong Kong SAR of China Wu, Xixin, Chinese University of Hong Kong, Hong Kong SAR of China Yu, Jianwei, Chinese University of Hong Kong, Hong Kong SAR of China Liu, Xunying, Chinese University of Hong Kong, Hong Kong SAR of China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China

SPE-P1.5: ORTHOGONAL TRAINING FOR TEXT-INDEPENDENT SPEAKER VERIFICATION

Zhu, Yingke, Hong Kong University of Science and Technology, Hong Kong SAR of China Mak, Brian, Hong Kong University of Science and Technology, Hong Kong SAR of China

SPE-P1.6: ASSESSING THE SCOPE OF GENERALIZED COUNTERMEASURES FOR ANTI-SPOOFING

Das, Rohan Kumar, National University of Singapore, Singapore Yang, Jichen, National University of Singapore, Singapore Li, Haizhou, National University of Singapore, Singapore

SPE-P1.7: IMPROVING SPEAKER-ATTRIBUTE ESTIMATION BY VOTING BASED ON SPEAKER CLUSTER INFORMATION

Tawara, Naohiro, NTT Communication Science Laboratories, Japan Kamiyama, Hosana, NTT Media Intelligence Laboratories, Japan Kobashikawa, Satoshi, NTT Media Intelligence Laboratories, Japan Ogawa, Atsunori, NTT Communication Science Laboratories, Japan

SPE-P1.8: AN ENSEMBLE BASED APPROACH FOR GENERALIZED DETECTION OF SPOOFING ATTACKS TO AUTOMATIC SPEAKER RECOGNIZERS

Monteiro, Joao, Institut National de la Recherche Scientifique, Canada Alam, Jahangir, Centre de Recherche Informatique de Montreal, Canada Falk, Tiago, Institut National de la Recherche Scientifique, Canada

SPE-P1.9: A DISCRIMINATIVE CONDITION-AWARE BACKEND FOR SPEAKER VERIFICATION

Ferrer, Luciana, UBA-CONICET, Argentina McLaren, Mitchell, SRI International, United States

SPE-P1.10: ADVERSARIAL MULTI-TASK LEARNING FOR SPEAKER NORMALIZATION IN REPLAY DETECTION

Suthokumar, Gajan, University of New South Wales, Australia Sethu, Vidhyasaharan, University of New South Wales, Australia Sriskandaraja, Kaavya, University of New South Wales, Australia Ambikairajah, Eliathamby, University of New South Wales, Australia

SPE-P1.11: ROBUST SPEAKER RECOGNITION USING UNSUPERVISED ADVERSARIAL INVARIANCE

Peri, Raghuveer, University of Southern California, United States Pal, Monisankha, University of Southern California, United States Jati, Arindam, University of Southern California, United States Somandepalli, Krishna, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

SPE-P1.12: A GENERALIZED FRAMEWORK FOR DOMAIN ADAPTATION OF PLDA IN SPEAKER RECOGNITION

Wang, Qiongqiong, NEC, Japan Okabe, Koji, NEC, Japan Lee, Kong Aik, NEC, Japan Koshinaka, Takafumi, NEC, Japan

Tuesday, 5 May, 11:30 - 13:30

SPE-P2 - Speech Enhancement I: Network Architectures

SPE-P2.1: CP-GAN: CONTEXT PYRAMID GENERATIVE ADVERSARIAL NETWORK FOR SPEECH ENHANCEMENT

Liu, Gang, Sun Yat-Sen University, China Gong, Ke, DarkMatter AI Research, China Liang, Xiaodan, Sun Yat-Sen University, China Chen, Zhiguang, Sun Yat-Sen University, China

SPE-P2.2: DENSELY CONNECTED NEURAL NETWORK WITH DILATED CONVOLUTIONS FOR REAL-TIME SPEECH ENHANCEMENT IN THE TIME DOMAIN

Pandey, Ashutosh, Ohio State University, United States Wang, DeLiang, Ohio State University, United States

SPE-P2.3: PAN: PHONEME-AWARE NETWORK FOR MONAURAL SPEECH ENHANCEMENT

Du, Zhihao, Harbin Institute of Technology, China Lei, Ming, Alibaba Group, China Han, Jiqing, Harbin Institute of Technology, China Zhang, Shiliang, Alibaba Group, China

SPE-P2.4: EFFICIENT TRAINABLE FRONT-ENDS FOR NEURAL SPEECH ENHANCEMENT

Casebeer, Jonah, University of Illinois at Urbana–Champaign, United States Isik, Umut, Amazon Web Services, United States Venkataramani, Shrikant, University of Illinois at Urbana–Champaign, United States Krishnaswamy, Arvindh, Amazon Web Services, United States

SPE-P2.5: INVERTIBLE DNN-BASED NONLINEAR TIME-FREQUENCY TRANSFORM FOR SPEECH ENHANCEMENT

Takeuchi, Daiki, Waseda University, Japan Yatabe, Kohei, Waseda University, Japan Koizumi, Yuma, NTT Corporation, Japan Oikawa, Yasuhiro, Waseda University, Japan Harada, Noboru, NTT Corporation, Japan

SPE-P2.6: T-GSA: TRANSFORMER WITH GAUSSIAN-WEIGHTED SELF-ATTENTION FOR SPEECH ENHANCEMENT

Kim, Jaeyoung, Google, United States El-Khamy, Mostafa, Samsung Semiconductor, Inc., United States Lee, Jungwon, Samsung Semiconductor, Inc., United States

SPE-P2.7: REDUNDANT CONVOLUTIONAL NETWORK WITH ATTENTION MECHANISM FOR MONAURAL SPEECH ENHANCEMENT

Lan, Tian, University of Electronic Science and Technology of China, China Lyu, Yilan, University of Electronic Science and Technology of China, China Hui, Guoqiang, University of Electronic Science and Technology of China, China Mokhosi, Refuoe, University of Electronic Science and Technology of China, China Li, Sen, University of Electronic Science and Technology of China, China Liu, Qiao, University of Electronic Science and Technology of China, China

SPE-P2.8: RESIDUAL RECURRENT NEURAL NETWORK FOR SPEECH ENHANCEMENT

Abdulbaqi, Jalal, Rutgers, The State University of New Jersey, United States Gu, Yue, Rutgers, The State University of New Jersey, United States Chen, Shuhong, Rutgers, The State University of New Jersey, United States Marsic, Ivan, Rutgers, The State University of New Jersey, United States

SPE-P2.9: 2D-TO-2D MASK ESTIMATION FOR SPEECH ENHANCEMENT BASED ON FULLY CONVOLUTIONAL NEURAL NETWORK

Tu, Yanhui, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-P2.10: SELF-SUPERVISED DENOISING AUTOENCODER WITH LINEAR REGRESSION DECODER FOR SPEECH ENHANCEMENT

Zezario, Ryandhimas Edo, Academia Sinica, Taiwan Hussain, Tassadaq, Academia Sinica, Taiwan Lu, Xugang, National Institute of Information and Communications Technology (NICT), Japan Wang, Hsin-Min, Academia Sinica, Taiwan Tsao, Yu, Academia Sinica, Taiwan

SPE-P2.11: FULLY CONVOLUTIONAL RECURRENT NETWORKS FOR SPEECH ENHANCEMENT

Strake, Maximilian, Technische Universität Braunschweig, Germany Defraene, Bruno, NXP Semiconductors, Belgium Fluyt, Kristoff, NXP Semiconductors, Belgium Tirry, Wouter, NXP Semiconductors, Belgium Fingscheidt, Tim, Technische Universität Braunschweig, Germany

SPE-P2.12: PHONETIC FEEDBACK FOR SPEECH ENHANCEMENT WITH AND WITHOUT PARALLEL SPEECH DATA

Plantinga, Peter, Ohio State University, United States Bagchi, Deblin, Ohio State University, United States Fosler-Lussier, Eric, Ohio State University, United States

Tuesday, 5 May, 16:30 - 18:30

SPE-P3 - Machine Learning for Speech Synthesis I

SPE-P3.1: SCALABLE MULTILINGUAL FRONTEND FOR TTS

Conkie, Alistair, Apple, United States Finch, Andrew, Apple, United States

SPE-P3.2: A UNIFIED SEQUENCE-TO-SEQUENCE FRONT-END MODEL FOR MANDARIN TEXT-TO-SPEECH SYNTHESIS

Pan, Junjie, ByteDance, China Yin, Xiang, ByteDance, China Zhang, Zhiling, Shanghai Jiao Tong University, China Liu, Shichao, ByteDance, China Zhang, Yang, ByteDance, China Ma, Zejun, ByteDance, China Wang, Yuxuan, ByteDance, China

SPE-P3.3: A HYBRID TEXT NORMALIZATION SYSTEM USING MULTI-HEAD SELF-ATTENTION FOR MANDARIN

Zhang, Junhui, Bytedance, China Pan, Junjie, Bytedance, China Yin, Xiang, Bytedance, China Li, Chen, Bytedance, China Liu, Shichao, Bytedance, China Zhang, Yang, Bytedance, China Wang, Yuxuan, Bytedance, China Ma, Zejun, Bytedance, China

SPE-P3.4: GENERATING DIVERSE AND NATURAL TEXT-TO-SPEECH SAMPLES USING A QUANTIZED FINE-GRAINED VAE AND AUTOREGRESSIVE PROSODY PRIOR

Sun, Guangzhi, Cambridge University, United Kingdom Zhang, Yu, Google, United States Weiss, Ron, Google, United States Cao, Yuan, Google, United States Zen, Heiga, Google, United States Rosenberg, Andrew, Google, United States Ramabhadran, Bhuvana, Google, United States Wu, Yonghui, Google, United States

SPE-P3.5: IMPROVING PROSODY WITH LINGUISTIC AND BERT DERIVED FEATURES IN MULTI-SPEAKER BASED MANDARIN CHINESE NEURAL TTS

Xiao, Yujia, Microsoft China, China He, Lei, Microsoft China, China Ming, Huaiping, Microsoft China, China Soong, Frank K., Microsoft Research Asia, China

SPE-P3.6: FOCUSING ON ATTENTION: PROSODY TRANSFER AND ADAPTATIVE OPTIMIZATION STRATEGY FOR MULTI-SPEAKER END-TO-END SPEECH SYNTHESIS

Fu, Ruibo, National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, China Tao, Jianhua, National Laboratory of

Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, China Wen, Zhengqi, National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, China Yi, Jiangyan, National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, China Wang, Tao, National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, China

SPE-P3.7: ALIGNTTS: EFFICIENT FEED-FORWARD TEXT-TO-SPEECH SYSTEM WITHOUT EXPLICIT ALIGNMENT

Zeng, Zhen, Ping An Technology (Shenzhen) Co., Ltd., China Wang, Jianzong, Ping An Technology (Shenzhen) Co., Ltd., China Cheng, Ning, Ping An Technology (Shenzhen) Co., Ltd., China Xia, Tian, Ping An Technology (Shenzhen) Co., Ltd., China Xiao, Jing, Ping An Technology (Shenzhen) Co., Ltd., China

SPE-P3.8: GRAPHTTS: GRAPH-TO-SEQUENCE MODELLING IN NEURAL TEXT-TO-SPEECH

Sun, Aolan, Ping An Technology (Shenzhen) Co., Ltd., China Wang, Jianzong, Ping An Technology (Shenzhen) Co., Ltd., China Cheng, Ning, Ping An Technology (Shenzhen) Co., Ltd., China Peng, Huayi, Ping An Technology (Shenzhen) Co., Ltd., China Zeng, Zhen, Ping An Technology (Shenzhen) Co., Ltd., China Xiao, Jing, Ping An Technology (Shenzhen) Co., Ltd., China

SPE-P3.9: EFFECT OF CHOICE OF PROBABILITY DISTRIBUTION, RANDOMNESS, AND SEARCH METHODS FOR ALIGNMENT MODELING IN SEQUENCE-TO-SEQUENCE TEXT-TO-SPEECH SYNTHESIS USING HARD ALIGNMENT

Yasuda, Yusuke, National Institute of Informatics, Japan Wang, Xin, National Institute of Informatics, Japan Yamagishi, Junichi, National Institute of Informatics, Japan

SPE-P3.10: TRANSFORMER-BASED TEXT-TO-SPEECH WITH WEIGHTED FORCED ATTENTION

Okamoto, Takuma, National Institute of Information and Communications Technology (NICT), Japan Toda, Tomoki, Nagoya University, Japan Shiga, Yoshinori, National Institute of Information and Communications Technology (NICT), Japan Kawai, Hisashi, National Institute of Information and Communications Technology (NICT), Japan

SPE-P3.11: IMPROVING END-TO-END SPEECH SYNTHESIS WITH LOCAL RECURRENT NEURAL NETWORK ENHANCED TRANSFORMER

Zheng, Yibin, Tencent, China Li, Xin-Hui, Tencent, China Xie, Fenglong, Tencent, China Lu, Li, Tencent, China

SPE-P3.12: AN EFFECTIVE STYLE TOKEN WEIGHT CONTROL TECHNIQUE FOR END-TO-END EMOTIONAL SPEECH SYNTHESIS

Kwon, Ohsung, Naver Corporation, Korea (South) Jang, Inseon, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Ahn, ChungHyun, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Kang, Hong-Goo, Yonsei University, Korea (South)

Tuesday, 5 May, 16:30 - 18:30

SPE-P4 - Speech Analysis and Coding

SPE-P4.1: GCI DETECTION FROM RAW SPEECH USING A FULLY-CONVOLUTIONAL NETWORK

Ardaillon, Luc, IRCAM, France Roebel, Axel, IRCAM, France

SPE-P4.2: FRAME-BASED OVERLAPPING SPEECH DETECTION USING CONVOLUTIONAL NEURAL NETWORKS

Yousefi, Midia, University of Texas at Dallas, United States Hansen, John H.L., University of Texas at Dallas, United States

SPE-P4.3: LEARNING DOMAIN INVARIANT REPRESENTATIONS FOR CHILD-ADULT CLASSIFICATION FROM SPEECH

Lahiri, Rimita, University of Southern California, United States Kumar, Manoj, University of Southern California, United States Bishop, Somer, University of California, San Francisco, United States Narayanan, Shrikanth, University of Southern California, United States

SPE-P4.4: SYLNET: AN ADAPTABLE END-TO-END SYLLABLE COUNT ESTIMATOR FOR SPEECH

Seshadri, Shreyas, Aalto University, Finland Räsänen, Okko, Tampere University of Technology, Finland

SPE-P4.5: SINGLE FREQUENCY FILTER BANK BASED LONG-TERM AVERAGE SPECTRA FOR HYPERNASALITY DETECTION AND ASSESSMENT IN CLEFT LIP AND PALATE SPEECH

Mohammad, Hashim Javid, International Institute of Information Technology, Hyderabad, India Gurugubelli, Krishna, International Institute of Information Technology, Hyderabad, India Vuppala, Anil Kumar, International Institute of Information Technology, Hyderabad, India

SPE-P4.6: AUTOREGRESSIVE PARAMETER ESTIMATION WITH DNN-BASED PRE-PROCESSING

Cui, Zihao, Beijing University of Technology, China Bao, Changchun, Beijing University of Technology, China Nielsen, Jesper Kjær, Aalborg University, Denmark Christensen, Mads Græsbøll, Aalborg University, Denmark

SPE-P4.7: ENHANCEMENT OF CODED SPEECH USING A MASK-BASED POST-FILTER

Korse, Srikanth, Fraunhofer Institute for Integrated Circuits IIS, Germany Gupta, Kishan, AudioLabs-IIS, Germany Fuchs, Guillaume, AudioLabs-IIS, Germany

SPE-P4.8: ROBUST LOW RATE SPEECH CODING BASED ON CLONED NETWORKS AND WAVENET

Lim, Felicia, Google, United States Kleijn, W. Bastiaan, Victoria University of Wellington, New Zealand Chinen, Michael, Google, United States Skoglund, Jan, Google, United States

SPE-P4.9: MIXTURE FACTORIZED AUTO-ENCODER FOR UNSUPERVISED HIERARCHICAL DEEP FACTORIZATION OF SPEECH SIGNAL

Peng, Zhiyuan, Chinese University of Hong Kong, Hong Kong SAR of China Feng, Siyuan, Chinese University of Hong Kong, Hong Kong SAR of China Lee, Tan, Chinese University of Hong Kong, Hong Kong SAR of China

SPE-P4.10: A NOVEL APPROACH FOR INTELLIGIBILITY ASSESSMENT IN DYSARTHRIC SUBJECTS

Tripathi, Ayush, Tata Consultancy Services, India Bhosale, Swapnil, Tata Consultancy Services, India Kopparapu, Sunil Kumar, Tata Consultancy Services, India

SPE-P4.11: VOICE BASED CLASSIFICATION OF PATIENTS WITH AMYOTROPHIC LATERAL SCLEROSIS, PARKINSON'S DISEASE AND HEALTHY CONTROLS WITH CNN-LSTM USING TRANSFER LEARNING

Mallela, Jhansi, Indian Institute of Science, India Illa, Aravind, Indian Institute of Science, India B N, Suhas, Indian Institute of Science, India Udupa, Sathvik, Indian Institute of Science, India Belur, Yamini, National Institute of Mental Health and Neuro Sciences, India Atchayaram, Nalini, National Institute of Mental Health and Neuro Sciences, India Yadav, Ravi, National Institute of Mental Health and Neuro Sciences, India Reddy, Pradeep, National Institute of Mental Health and Neuro Sciences, India Gope, Dipanjan, Indian Institute of Science, India Ghosh, Prasanta Kumar, Indian Institute of Science, India

SPE-P4.12: ANALYSIS OF ACOUSTIC FEATURES FOR SPEECH SOUND BASED CLASSIFICATION OF ASTHMATIC AND HEALTHY SUBJECTS

Yadav, Shivani, Indian Institute of Science, India Keerthana, Merugu, Rajiv Gandhi University of Knowledge Technologies, Kadapa, India Gope, Dipanjan, Indian Institute of Science, India Krishnaswamy, Uma Maheswari, St. Johns National Academy of Health Sciences, India Ghosh, Prasanta Kumar, Indian Institute of Science, India

Wednesday, 6 May, 09:00 - 11:00

SPE-P5 - Deep Speaker Recognition Models

SPE-P5.1: FREQUENCY AND TEMPORAL CONVOLUTIONAL ATTENTION FOR TEXT-INDEPENDENT SPEAKER RECOGNITION

Yadav, Sarthak, Staqu Technologies, India Rai, Atul, Staqu Technologies, India

SPE-P5.2: FRAME-LEVEL PHONEME-INVARIANT SPEAKER EMBEDDING FOR TEXT-INDEPENDENT SPEAKER RECOGNITION ON EXTREMELY SHORT UTTERANCES

Tawara, Naohiro, NTT Communication Science Laboratories, Japan Ogawa, Atsunori, NTT Communication Science Laboratories, Japan Iwata, Tomoharu, NTT Communication Science Laboratories, Japan Delcroix, Marc, NTT Communication Science Laboratories, Japan Ogawa, Tetsuji, Waseda University, Japan

SPE-P5.3: PROTOTYPICAL NETWORKS FOR SMALL FOOTPRINT TEXT-INDEPENDENT SPEAKER VERIFICATION

Ko, Tom, South University of Science and Technology, China Chen, Yangbin, City University of Hong Kong, Hong Kong SAR of China Li, Qing, Hong Kong Polytechnic University, Hong Kong SAR of China

SPE-P5.4: TDMF: TASK-DRIVEN MULTILEVEL FRAMEWORK FOR END-TO-END SPEAKER VERIFICATION

Chen, Chen, Harbin Institute of Technology, China Han, Jiqing, Harbin Institute of Technology, China

SPE-P5.5: AN IMPROVED DEEP NEURAL NETWORK FOR MODELING SPEAKER CHARACTERISTICS AT DIFFERENT TEMPORAL SCALES

Gu, Bin, University of Science and Technology of China, China Guo, Wu, University of Science and Technology of China, China Dai, Li-Rong, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China

SPE-P5.6: PARTIAL AUC OPTIMIZATION BASED DEEP SPEAKER EMBEDDINGS WITH CLASS-CENTER LEARNING FOR TEXT-INDEPENDENT SPEAKER VERIFICATION

Bai, Zhongxin, Northwestern Polytechnical University, China Zhang, Xiao-Lei, Northwestern Polytechnical University, China Chen, Jingdong, Northwestern Polytechnical University, China

SPE-P5.7: KNOWLEDGE DISTILLATION AND RANDOM ERASING DATA AUGMENTATION FOR TEXT-DEPENDENT SPEAKER VERIFICATION

Mingote, Victoria, University of Zaragoza, Spain Miguel, Antonio, University of Zaragoza, Spain Ribas, Dayana, University of Zaragoza, Spain Ortega, Alfonso, University of Zaragoza, Spain Lleida, Eduardo, University of Zaragoza, Spain

SPE-P5.8: DISENTANGLED SPEECH EMBEDDINGS USING CROSS-MODAL SELF-SUPERVISION

Nagrani, Arsha, Oxford University, United Kingdom Chung, Joon Son, Oxford University, United Kingdom Albanie, Samuel, Oxford University, United Kingdom Zisserman, Andrew, Oxford University, United Kingdom

SPE-P5.9: IMPROVING DEEP CNN NETWORKS WITH LONG TEMPORAL CONTEXT FOR TEXT-INDEPENDENT SPEAKER VERIFICATION

Zhao, Yong, Microsoft Corporation, United States Zhou, Tianyan, Microsoft Corporation, United States Chen, Zhuo, Microsoft Corporation, United States Wu, Jian, Microsoft Corporation, United States

SPE-P5.10: MULTI-LEVEL DEEP NEURAL NETWORK ADAPTATION FOR SPEAKER VERIFICATION USING MMD AND CONSISTENCY REGULARIZATION

Lin, Weiwei, Hong Kong Polytechnic University, Hong Kong SAR of China Mak, Man-Mai, Hong Kong Polytechnic University, China Li, Na, Tencent AI Lab, China Su, Dan, Tencent AI Lab, China Yu, Dong, Tencent AI Lab, China

SPE-P5.11: MULTI-TASK LEARNING FOR SPEAKER VERIFICATION AND VOICE TRIGGER DETECTION

Sigtia, Siddharth, Apple, United States Marchi, Erik, Apple, United States Kajarekar, Sachin, Apple, United States Naik, Devang, Apple, United States Bridle, John, Apple, United States

SPE-P5.12: STATISTICS POOLING TIME DELAY NEURAL NETWORK BASED ON X-VECTOR FOR SPEAKER VERIFICATION

Hong, Qian-Bei, National Cheng Kung University and Academia Sinica, Taiwan Wu, Chung-Hsien, National Cheng Kung University and Academia Sinica, Taiwan Wang, Hsin-Min, National Cheng Kung University and Academia Sinica, Taiwan Huang, Chien-Lin, Ping An Technology (Shenzhen) Co., Ltd., United States

Wednesday, 6 May, 09:00 - 11:00

SPE-P6 - Speech Recognition: Acoustic Modelling I

SPE-P6.1: SNDCNN: SELF-NORMALIZING DEEP CNNS WITH SCALED EXPONENTIAL LINEAR UNITS FOR SPEECH RECOGNITION

Huang, Zhen, Apple, United States Ng, Tim, Apple, United States Liu, Leo, Apple, United States Mason, Henry, Apple, United States Zhuang, Xiaodan, Apple, United States Liu, Daben, Apple, United States

SPE-P6.2: ROBUST MULTI-CHANNEL SPEECH RECOGNITION USING FREQUENCY ALIGNED NETWORK

Park, Taejin, University of Southern California, United States Kumatani, Kenichi, Amazon, Inc., United States Wu, Minhua, Amazon, Inc., United States Sundaram, Shiva, Amazon, Inc., United States

SPE-P6.3: FULLY LEARNABLE FRONT-END FOR MULTI-CHANNEL ACOUSTIC MODELING USING SEMI-SUPERVISED LEARNING

Wager, Sanna, Indiana University, United States Khare, Aparna, Amazon, Inc., United States Wu, Minhua, Amazon, Inc., United States Kumatani, Kenichi, Amazon, Inc., United States Sundaram, Shiva, Amazon, Inc., United States

SPE-P6.4: G2G: TTS-DRIVEN PRONUNCIATION LEARNING FOR GRAPHEMIC HYBRID ASR

Le, Duc, Facebook, United States Koehler, Thilo, Facebook, United States Fuegen, Christian, Facebook, United States Seltzer, Michael L., Facebook, United States

SPE-P6.5: TRANSFORMER-BASED ACOUSTIC MODELING FOR HYBRID SPEECH RECOGNITION

Wang, Yongqiang, Facebook, United States Mohamed, Abdelrahman, Facebook, United States Le, Duc, Facebook, United States Liu, Chunxi, Facebook, United States Xiao, Alex, Facebook, United States Mahadeokar, Jay, Facebook, United States Huang, Hongzhao, Facebook, United States Tjandra, Andros, Facebook, United States Zhang, Xiaohui, Facebook, United States Zhang, Frank, Facebook, United States Fuegen, Christian, Facebook, United States Zweig, Geoffrey, Facebook, United States Seltzer, Michael L., Facebook, United States

SPE-P6.6: SPECAUGMENT ON LARGE SCALE DATASETS

Park, Daniel, Google, Inc., United States Zhang, Yu, Google, Inc., United States Chiu, Chung-Cheng, Google, Inc., United States Chen, Youzheng, Google, Inc.,

China Li, Bo, Google, Inc., United States Chan, William, Google, Inc., Canada Le, Quoc, Google, Inc., United States Wu, Yonghui, Google, Inc., United States

SPE-P6.7: FAST TRAINING OF DEEP NEURAL NETWORKS FOR SPEECH RECOGNITION

Cong, Guojing, IBM, United States Kingsbury, Brian, IBM, United States Yang, Chih-Chieh, IBM, United States Liu, Tianyi, Georgia Institute of Technology, United States

SPE-P6.8: UNSUPERVISED PRE-TRAINING OF BIDIRECTIONAL SPEECH ENCODERS VIA MASKED RECONSTRUCTION

Wang, Weiran, Amazon, Inc., United States Tang, Qingming, Amazon, Inc., United States Livescu, Karen, TTI-Chicago, United States

SPE-P6.9: DISTILLING ATTENTION WEIGHTS FOR CTC-BASED ASR SYSTEMS

Moriya, Takafumi, NTT Corporation, Japan Sato, Hiroshi, NTT Corporation, Japan Tanaka, Tomohiro, NTT Corporation, Japan Ashihara, Takanori, NTT Corporation, Japan Masumura, Ryo, NTT Corporation, Japan Shinohara, Yusuke, NTT Corporation, Japan

SPE-P6.10: DEJA-VU: DOUBLE FEATURE PRESENTATION AND ITERATED LOSS IN DEEP TRANSFORMER NETWORKS

Tjandra, Andros, Nara Institute of Science and Technology, Japan Liu, Chunxi, Facebook AI, United States Zhang, Frank, Facebook AI, United States Zhang, Xiaohui, Facebook AI, United States Wang, Yongqiang, Facebook AI, United States Synnaeve, Gabriel, Facebook AI, United States Nakamura, Satoshi, Nara Institute of Science and Technology, Japan Zweig, Geoffrey, Facebook AI, United States

SPE-P6.11: FRAME-LEVEL MMI AS A SEQUENCE DISCRIMINATIVE TRAINING CRITERION FOR LVCSR

Michel, Wilfried, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-P6.12: CROSS LINGUAL TRANSFER LEARNING FOR ZERO-RESOURCE DOMAIN ADAPTATION

Abad, Alberto, INESC-ID/IST, Portugal Bell, Peter, CSTR/University of Edinburgh, United Kingdom Carmantini, Andrea, CSTR/University of Edinburgh, United Kingdom Renals, Steve, CSTR/University of Edinburgh, United Kingdom

Wednesday, 6 May, 11:30 - 13:30

SPE-P7 - Speech Enhancement III: Hearing Aids and other Applications

SPE-P7.1: IMPROVING ROBUSTNESS OF DEEP LEARNING BASED MONAURAL SPEECH ENHANCEMENT AGAINST PROCESSING ARTIFACTS

Tan, Ke, Ohio State University, United States Wang, DeLiang, Ohio State University, United States

SPE-P7.2: CAD-AEC: CONTEXT-AWARE DEEP ACOUSTIC ECHO CANCELLATION

Fazel, Amin, Samsung, United States El-Khamy, Mostafa, Samsung, United States Lee, Jungwon, Samsung, United States

SPE-P7.3: ARTIFICIAL BANDWIDTH EXTENSION USING CONDITIONAL VARIATIONAL AUTO-ENCODERS AND ADVERSARIAL LEARNING

Bachhav, Pramod, EURECOM, France Todisco, Massimiliano, EURECOM, France Evans, Nicholas, EURECOM, France

SPE-P7.4: USING AUTOMATIC SPEECH RECOGNITION AND SPEECH SYNTHESIS TO IMPROVE THE INTELLIGIBILITY OF COCHLEAR IMPLANT USERS IN REVERBERANT LISTENING ENVIRONMENTS

Chu, Kevin, Duke University, United States Collins, Leslie, Duke University, United States Mainsah, Boyla, Duke University, United States

SPE-P7.5: SPEECH INTELLIGIBILITY ENHANCEMENT BY EQUALIZATION FOR IN-CAR APPLICATIONS

Gentet, Enguerrand, Groupe PSA, France David, Bertrand, LTCI Télécom Paris, France Denjean, Sébastien, Groupe PSA, France Richard, Gaël, LTCI Télécom Paris, France Roussarie, Vincent, Groupe PSA, France

SPE-P7.6: MAXIMUM LIKELIHOOD ESTIMATION OF THE INTERFERENCE-PLUS-NOISE CROSS POWER SPECTRAL DENSITY MATRIX FOR OWN VOICE RETRIEVAL

Hoang, Poul, Aalborg University, Denmark Tan, Zheng-Hua, Aalborg University, Denmark Lunner, Thomas, Oticon A/S, Denmark de Haan, Jan Mark, Oticon A/S, Denmark Jensen, Jesper, Oticon A/S, Denmark

SPE-P7.7: A CONSTRAINED MAXIMUM LIKELIHOOD ESTIMATOR OF SPEECH AND NOISE SPECTRA WITH APPLICATION TO MULTI-MICROPHONE NOISE REDUCTION

Zahedi, Adel, Oticon A/S, Denmark Pedersen, Michael Syskind, Oticon A/S, Denmark Østergaard, Jan, Aalborg University, Denmark Bramsløw, Lars, Oticon A/S, Denmark Christiansen, Thomas Ulrich, Oticon A/S, Denmark Jensen, Jesper, Oticon A/S, Denmark

SPE-P7.8: CLCNET: DEEP LEARNING-BASED NOISE REDUCTION FOR HEARING AIDS USING COMPLEX LINEAR CODING

Schröter, Hendrik, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Rosenkranz, Tobias, Sivantos GmbH, Germany Escalante Banuelos, Alberto Nicolas, Sivantos GmbH, Germany Aubreville, Marc, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Maier, Andreas, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

SPE-P7.9: A TIME-FREQUENCY NETWORK WITH CHANNEL ATTENTION AND NON-LOCAL MODULES FOR ARTIFICIAL BANDWIDTH EXTENSION

Dong, Yuanjie, School of Computer Science and Technology, Wuhan University of Technology, China Li, Yaxing, School of Computer Science and Technology, Wuhan University of Technology, China Li, Xiaoqi, School of Computer Science and Technology, Wuhan University of Technology, China Xu, Shan, School of Computer Science and Technology, Wuhan University of Technology, China Wang, Dan, School of Computer Science and Technology, Wuhan University of Technology, China Zhang, Zhihui, School of Computer Science and Technology, Wuhan University of Technology, China Xiong, Shengwu, School of Computer Science and Technology, Wuhan University of Technology, China

SPE-P7.10: MASKING AND INPAINTING: A TWO-STAGE SPEECH ENHANCEMENT APPROACH FOR LOW SNR AND NON-STATIONARY NOISE

Hao, Xiang, Inner Mongolia University, China Su, Xiangdong, Inner Mongolia University, China Wen, Shixue, Sogou incorporated, China Wang, Zhiyu, Inner Mongolia University, China Pan, Yiqian, Sogou incorporated, China Bao, Feilong, Inner Mongolia University, China Chen, Wei, Sogou incorporated, China

SPE-P7.11: 3-D ACOUSTIC MODELING FOR FAR-FIELD MULTI-CHANNEL SPEECH RECOGNITION

Purushothaman, Anurenjan, Indian Institute of Science, Bangalore, India Sreeram, Anirudh, Indian Institute of Science, Bangalore, India Ganapathy, Sriram, Indian Institute of Science, Bangalore, India

Wednesday, 6 May, 11:30 - 13:30

SPE-P8 - Robust Speech Recognition

SPE-P8.1: IMPROVING REVERBERANT SPEECH TRAINING USING DIFFUSE ACOUSTIC SIMULATION

Tang, Zhenyu, University of Maryland, United States Chen, Lianwu, Tencent AI Lab, United States Wu, Bo, Tencent AI Lab, United States Yu, Dong, Tencent AI Lab, United States Manocha, Dinesh, University of Maryland, United States

SPE-P8.2: LOW-FREQUENCY COMPENSATED SYNTHETIC IMPULSE RESPONSES FOR IMPROVED FAR-FIELD SPEECH RECOGNITION

Tang, Zhenyu, University of Maryland, United States Meng, Hsien-Yu, University of Maryland, United States Manocha, Dinesh, University of Maryland, United States

SPE-P8.3: AIPNET: GENERATIVE ADVERSARIAL PRE-TRAINING OF ACCENT-INVARIANT NETWORKS FOR END-TO-END SPEECH RECOGNITION

Chen, Yi-Chen, National Taiwan University, Taiwan Yang, Zhaojun, Facebook, United States Yeh, Ching-Feng, Facebook, United States Jain, Mahaveer, Facebook, United States Seltzer, Michael L., Facebook, United States

SPE-P8.4: AUDIO-VISUAL RECOGNITION OF OVERLAPPED SPEECH FOR THE LRS2 DATASET

Yu, Jianwei, Chinese University of Hong Kong, Hong Kong SAR of China Zhang, Shi-Xiong, Tencent AI Lab, United States Wu, Jian, Tencent, China Ghorbani, Shahram, University of Texas at Dallas, United States Wu, Bo, Tencent, China Kang, Shiyin, Tencent, China Liu, Shansong, Chinese University of Hong Kong, Hong Kong SAR of China Liu, Xunying, Chinese University of Hong Kong, Hong Kong SAR of China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China Yu, Dong, Tencent, United States

SPE-P8.5: MULTI-TASK SELF-SUPERVISED LEARNING FOR ROBUST SPEECH RECOGNITION

Ravanelli, Mirco, Université de Montréal, Canada Zhong, Jianyuan, University of Rochester, United States Pascual, Santiago, Universitat Politecnica de Catalunya, Spain Swietojanski, Pawel, University of New South Wales, Australia Monteiro, Joao, Institut National de la Recherche Scientifique/Computer Research Institute of Montréal, Canada Trmal, Jan, Johns Hopkins University, Canada Bengio, Yoshua, Université de Montréal, Canada

SPE-P8.6: END-TO-END MULTI-PERSON AUDIO/VISUAL AUTOMATIC SPEECH RECOGNITION

Braga, Otavio, Google, United States Makino, Takaki, Google, United States Siohan, Olivier, Google, United States Liao, Hank, Google, United States

SPE-P8.7: END-TO-END AUTOMATIC SPEECH RECOGNITION INTEGRATED WITH CTC-BASED VOICE ACTIVITY DETECTION

Yoshimura, Takenori, Nagoya University, Japan Hayashi, Tomoki, Nagoya University, Japan Takeda, Kazuya, Nagoya University, Japan Watanabe, Shinji, Johns Hopkins University, United States

SPE-P8.8: END-TO-END TRAINING OF TIME DOMAIN AUDIO SEPARATION AND RECOGNITION

von Neumann, Thilo, Paderborn University, Germany Kinoshita, Keisuke, NTT, Japan Drude, Lukas, Paderborn University, Germany Boeddeker, Christoph, Paderborn University, Germany Delcroix, Marc, NTT, Japan Nakatani, Tomohiro, NTT, Japan Haeb-Umbach, Reinhold, Paderborn University, Germany

SPE-P8.9: IMPROVING NOISE ROBUST AUTOMATIC SPEECH RECOGNITIONWITH SINGLE-CHANNEL TIME-DOMAIN ENHANCEMENT NETWORK

Kinoshita, Keisuke, NTT, Japan Ochiai, Tsubasa, NTT, Japan Delcroix, Marc, NTT, Japan Nakatani, Tomohiro, NTT, Japan

SPE-P8.10: A PRACTICAL TWO-STAGE TRAINING STRATEGY FOR MULTI-STREAM END-TO-END SPEECH RECOGNITION

Li, Ruizhi, Johns Hopkins University, United States Sell, Gregory, Johns Hopkins University, United States Wang, Xiaofei, Microsoft, United States Watanabe, Shinji, Johns Hopkins University, United States Hermansky, Hynek, Johns Hopkins University, United States

SPE-P8.11: MULTI-SCALE OCTAVE CONVOLUTIONS FOR ROBUST SPEECH RECOGNITION

Rownicka, Joanna, University of Edinburgh, United Kingdom Bell, Peter, University of Edinburgh, United Kingdom Renals, Steve, University of Edinburgh, United Kingdom

SPE-P8.12: LEARNING NOISE INVARIANT FEATURES THROUGH TRANSFER LEARNING FOR ROBUST END-TO-END SPEECH RECOGNITION

Zhang, Shucong, University of Edinburgh, United Kingdom Do, Cong-Thanh, Toshiba Research Europe Limited Company, United Kingdom Doddipatla, Rama, Toshiba Research Europe Limited Company, United Kingdom Renals, Steve, University of Edinburgh, United Kingdom

Wednesday, 6 May, 16:30 - 18:30

SPE-P9 - End-to-end Speech Recognition III: General Topics

SPE-P9.1: IMPROVING SPEECH RECOGNITION USING CONSISTENT PREDICTIONS ON SYNTHESIZED SPEECH

Wang, Gary, Simon Fraser University, Canada Rosenberg, Andrew, Google, United States Chen, Zhehuai, Google, United States Zhang, Yu, Google, United States Ramabhadran, Bhuvana, Google, United States Wu, Yonghui, Google, United States Moreno, Pedro, Google, United States

SPE-P9.2: ATTENTION-BASED ASR WITH LIGHTWEIGHT AND DYNAMIC CONVOLUTIONS

Fujita, Yuya, Yahoo Japan Corporation, Japan Subramanian, Aswin Shanmugam, Johns Hopkins University, United States Omachi, Motoi, Yahoo Japan Corporation, Japan Watanabe, Shinji, Johns Hopkins University, United States

SPE-P9.3: AN ATTENTION-BASED JOINT ACOUSTIC AND TEXT ON-DEVICE END-TO-END MODEL

Sainath, Tara, Google, Inc., United States Pang, Ruoming, Google, Inc., United States Weiss, Ron, Google, Inc., United States He, Yanzhang, Google, Inc., United States Chiu, Chung-cheng, Google, Inc., United States Strohman, Trevor, Google, Inc., United States

SPE-P9.4: STRUCTURED SPARSE ATTENTION FOR END-TO-END AUTOMATIC SPEECH RECOGNITION

Xue, Jiabin, Harbin Institute of Technology, China Zheng, Tieran, Harbin Institute of Technology, China Han, Jiqing, Harbin Institute of Technology, China

SPE-P9.5: RNN-TRANSDUCER WITH STATELESS PREDICTION NETWORK

Ghodsi, Mohammadreza, Google, United States Liu, Xiaofeng, Google, United States Apfel, James, Google, United States Cabrera, Rodrigo, Google, United States Weinstein, Eugene, Google, United States

SPE-P9.6: SEQUENCE-LEVEL CONSISTENCY TRAINING FOR SEMI-SUPERVISED END-TO-END AUTOMATIC SPEECH RECOGNITION

Masumura, Ryo, NTT Corporation, Japan Ihori, Mana, NTT Corporation, Japan Takashima, Akihiko, NTT Corporation, Japan Moriya, Takafumi, NTT Corporation, Japan Ando, Atsushi, NTT Corporation, Japan Shinohara, Yusuke, NTT Corporation, Japan

SPE-P9.7: INDEPENDENT LANGUAGE MODELING ARCHITECTURE FOR END-TO-END ASR

Pham, Van Tung, Nanyang Technological University, Singapore Xu, Haihua, Nanyang Technological University, Singapore Khassanov, Yerbolat, Nazarbayev University, Kazakhstan Zeng, Zhiping, Nanyang Technological University, Singapore Chng, Eng Siong, Nanyang Technological University, Singapore Ni, Chongjia, Alibaba Group, Singapore Ma, Bin, Alibaba Group, Singapore Li, Haizhou, National University of Singapore, Singapore

SPE-P9.8: SPEAKER-AWARE TRAINING OF ATTENTION-BASED END-TO-END SPEECH RECOGNITION USING NEURAL SPEAKER EMBEDDINGS

Rouhe, Aku, Aalto University, Finland Kaseva, Tuomas, Aalto University, Finland Kurimo, Mikko, Aalto University, Finland

SPE-P9.9: GENERATING SYNTHETIC AUDIO DATA FOR ATTENTION-BASED SPEECH RECOGNITION SYSTEMS

Rossenbach, Nick, RWTH Aachen University, Germany Zeyer, Albert, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-P9.10: CORRECTION OF AUTOMATIC SPEECH RECOGNITION WITH TRANSFORMER SEQUENCE-TO-SEQUENCE MODEL

Hrinchuk, Oleksii, Moscow Institute of Physics and Technology, NVIDIA, Russia Popova, Mariya, Carnegie Mellon University and NVIDIA, United States Ginsburg, Boris, NVIDIA, United States

SPE-P9.11: EXPLORING PRE-TRAINING WITH ALIGNMENTS FOR RNN TRANSDUCER BASED END-TO-END SPEECH RECOGNITION

Hu, Hu, Georgia Institute of Technology, United States Zhao, Rui, Microsoft, United States Li, Jinyu, Microsoft, United States Lu, Liang, Microsoft, United States Gong, Yifan, Microsoft, United States

SPE-P9.12: SELF-TRAINING FOR END-TO-END SPEECH RECOGNITION

Kahn, Jacob, Facebook, United States Lee, Ann, Facebook, United States Hannun, Awni, Facebook, United States

Thursday, 7 May, 09:00 - 11:00

SPE-P10 - Speaker Diarization and Characterization

SPE-P10.1: TOWARD BETTER SPEAKER EMBEDDINGS: AUTOMATED COLLECTION OF SPEECH SAMPLES FROM UNKNOWN DISTINCT SPEAKERS

Pham, Minh, Worcester Polytechnic Institute, United States Li, Zeqian, Worcester Polytechnic Institute, United States Whitehill, Jacob, Worcester Polytechnic Institute, United States

SPE-P10.2: CHANNEL ADVERSARIAL TRAINING FOR SPEAKER VERIFICATION AND DIARIZATION

Luu, Chau, University of Edinburgh, United Kingdom Bell, Peter, University of Edinburgh, United Kingdom Renals, Steve, University of Edinburgh, United Kingdom

SPE-P10.3: PROGRESSIVE MULTI-TARGET NETWORK BASED SPEECH ENHANCEMENT WITH SNR-PRESELECTION FOR ROBUST SPEAKER DIARIZATION

Sun, Lei, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China Zhang, Xueyang, IFLYTEK Research, China Gao, Tian, IFLYTEK Research, China Fang, Xin, IFLYTEK Research, China Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-P10.4: IMPROVED LARGE-MARGIN SOFTMAX LOSS FOR SPEAKER DIARISATION

Fathullah, Yassir, University of Cambridge, United Kingdom Zhang, Chao, University of Cambridge, United Kingdom Woodland, Philip, University of Cambridge, United Kingdom

SPE-P10.5: SPEAKER DIARIZATION WITH SESSION-LEVEL SPEAKER EMBEDDING REFINEMENT USING GRAPH NEURAL NETWORKS

Wang, Jixuan, University of Toronto, Canada Xiao, Xiong, Microsoft, Canada Wu, Jian, Microsoft, Canada Ramamurthy, Ranjani, Microsoft, Canada Rudzicz, Frank, University of Toronto, Canada Brudno, Michael, University of Toronto, Canada

SPE-P10.6: OVERLAP-AWARE DIARIZATION: RESEGMENTATION USING NEURAL END-TO-END OVERLAPPED SPEECH DETECTION

Bullock, Latané, Rice University, United States Bredin, Hervé, LIMSI, CNRS, Univ. Paris-Sud, Universite Paris-Saclay, France Perera, Leibny Paola Garcia, Johns Hopkins University, United States

SPE-P10.7: ON THE IMPORTANCE OF VOCAL TRACT CONSTRICTION FOR SPEAKER CHARACTERIZATION: THE WHISPERED SPEECH STUDY

Das, Rohan Kumar, National University of Singapore, Singapore Li, Haizhou, National University of Singapore, Singapore

SPE-P10.8: PYANNOTE.AUDIO: NEURAL BUILDING BLOCKS FOR SPEAKER DIARIZATION

Bredin, Hervé, LIMSI, CNRS, Université Paris-Saclay, France Yin, Ruiqing, LIMSI, CNRS, Université Paris-Saclay, France Coria, Juan Manuel, LIMSI, CNRS, Univ. Paris-Sud, Université Paris-Saclay, France Gelly, Gregory, LIMSI, CNRS, France Korshunov, Pavel, Idiap Research Institute, Switzerland Lavechin, Marvin, Ecole Normale Supérieure/INRIA, France Fustes, Diego, Toptal LLC, Spain Titeux, Hadrien, Université PSL, France Bouaziz, Wassim, Ecole Normale Supérieure/INRIA, France Gill, Marie-Philippe, Ecole de Technologie Supérieure, Université du Québec, Canada

SPE-P10.9: SPEAKER EMBEDDINGS INCORPORATING ACOUSTIC CONDITIONS FOR DIARIZATION

Higuchi, Yosuke, Waseda University, Japan Suzuki, Masayuki, IBM, Japan Kurata, Gakuto, IBM, Japan

SPE-P10.10: SUPERVISED ONLINE DIARIZATION WITH SAMPLE MEAN LOSS FOR MULTI-DOMAIN DATA

Fini, Enrico, PerVoice, Italy Brutti, Alessio, Fondazione Bruno Kessler, Italy

SPE-P10.11: INVESTIGATION OF SPECAUGMENT FOR DEEP SPEAKER EMBEDDING LEARNING

Wang, Shuai, Shanghai Jiao Tong University, China Rohdin, Johan, Brno University of Technology, Czech Republic Plchot, Oldřich, Brno University of Technology, Czech Republic Burget, Lukáš, Brno University of Technology, Czech Republic Yu, Kai, Shanghai Jiao Tong University, China Cernocky, Jan, Brno University of Technology, Czech Republic

Thursday, 7 May, 09:00 - 11:00

SPE-P11 - Emotion

SPE-P11.1: SPEAKER-INVARIANT AFFECTIVE REPRESENTATION LEARNING VIA ADVERSARIAL TRAINING

Li, Haoqi, University of Southern California, United States Tu, Ming, JD AI Research, United States Huang, Jing, JD AI Research, United States Narayanan, Shrikanth, University of Southern California, United States Georgiou, Panayiotis, University of Southern California, United States

SPE-P11.2: SPEECH SENTIMENT ANALYSIS VIA PRE-TRAINED FEATURES FROM END-TO-END ASR MODELS

Lu, Zhiyun, University of Southern California, United States Cao, Liangliang, Google, Inc.,, United States Zhang, Yu, Google, Inc.,, United States Chiu, Chung-Cheng, Google, Inc.,, United States Fan, James, Google, Inc.,, United States

SPE-P11.3: GENDER DIFFERENCES ON THE PERCEPTION AND PRODUCTION OF UTTERANCES WITH WILLINGNESS AND RELUCTANCE IN CHINESE

Li, Wenqian, Shanghai Jiao Tong University, China Wong, Janice Wing-Sze, Hong Kong Baptist University, Hong Kong SAR of China Tu, Jung-yueh, National Chengchi University, Taiwan

SPE-P11.4: HIERARCHICAL ATTENTION TRANSFER NETWORKS FOR DEPRESSION ASSESSMENT FROM SPEECH

Zhao, Ziping, Tianjin Normal University, China Bao, Zhongtian, Tianjin Normal University, China Zhang, Zixing, Imperial College London, United Kingdom Cummins, Nicholas, University of Augsburg, Germany Wang, Haishuai, Fairfield University, United States and Tianjin Normal University, China Schuller, Björn, Imperial College London, United Kingdom and University of Augsburg, Germany

SPE-P11.5: DETECTING EMOTION PRIMITIVES FROM SPEECH AND THEIR USE IN DISCERNING CATEGORICAL EMOTIONS

Kowtha, Vasudha, University of Maryland, College Park, United States Mitra, Vikramjit, Apple, United States Bartels, Chris, Apple, United States Marchi, Erik, Apple, United States Booker, Sue, Apple, United States Caruso, William, Apple, United States Kajarekar, Sachin, Apple, United States Naik, Devang, Apple, United States

SPE-P11.6: X-VECTORS MEET EMOTIONS: A STUDY ON DEPENDENCIES BETWEEN EMOTION AND SPEAKER RECOGNITION

Pappagari, Raghavendra, Johns Hopkins University, United States Wang, Tianzi, Johns Hopkins University, United States Villalba, Jesús, Johns Hopkins University, United States Chen, Nanxin, Johns Hopkins University, United States Dehak, Najim, Johns Hopkins University, United States

SPE-P11.7: SPEECH EMOTION RECOGNITION WITH LOCAL-GLOBAL AWARE DEEP REPRESENTATION LEARNING

Liu, Jiaxing, Tianjin University, China Liu, Zhilei, Tianjin University, China Wang, Longbiao, Tianjin University, China Guo, Lili, Tianjin University, China Dang, Jianwu, Japan Advanced Institute of Science and Technology, Japan

SPE-P11.8: MULTI-HEAD ATTENTION FOR SPEECH EMOTION RECOGNITION WITH AUXILIARY LEARNING OF GENDER RECOGNITION

Nediyanchath, Anish, Samsung R&D Institute India - Bangalore, India Paramasivam, Periyasamy, Samsung R&D Institute India - Bangalore, India Yenigalla, Promod, Samsung R&D Institute India - Bangalore, India

SPE-P11.9: GENERATING AND PROTECTING AGAINST ADVERSARIAL ATTACKS FOR DEEP SPEECH-BASED EMOTION RECOGNITION MODELS

Ren, Zhao, University of Augsburg, Germany Baird, Alice, University of Augsburg, Germany Han, Jing, University of Augsburg, Germany Zhang, Zixing, Imperial College London, United Kingdom Schuller, Björn, Imperial College London, United Kingdom and University of Augsburg, Germany

SPE-P11.10: DEEP ENCODED LINGUISTIC AND ACOUSTIC CUES FOR ATTENTION BASED END TO END SPEECH EMOTION RECOGNITION

Bhosale, Swapnil, TCS Research and Innovation, India Chakraborty, Rupayan, TCS Research and Innovation, India Kopparapu, Sunil Kumar, TCS Research and Innovation, India

SPE-P11.11: MULTI-CONDITIONING AND DATA AUGMENTATION USING GENERATIVE NOISE MODEL FOR SPEECH EMOTION RECOGNITION IN NOISY CONDITIONS

Tiwari, Upasana, TCS Research and Innovation, India Soni, Meet, TCS Research and Innovation, India Chakraborty, Rupayan, TCS Research and Innovation, India Panda, Ashish, TCS Research and Innovation, India Kopparapu, Sunil Kumar, TCS Research and Innovation, India

SPE-P11.12: A SELF-ATTENTIVE EMOTION RECOGNITION NETWORK

Partaourides, Harris, Cyprus University of Technology, Cyprus Papadamou, Kostantinos, Cyprus University of Technology, Cyprus Kourtellis, Nicolas,

Telefonica Research, Spain Leontiades, Ilias, Samsung AI, United Kingdom
Chatzis, Sotirios, Cyprus University of Technology, Cyprus

Thursday, 7 May, 11:30 - 13:30

SPE-P12 - Machine Learning for Speech Synthesis II

SPE-P12.1: EFFICIENT SHALLOW WAVENET VOCODER USING MULTIPLE SAMPLES OUTPUT BASED ON LAPLACIAN DISTRIBUTION AND LINEAR PREDICTION

Lumban Tobing, Patrick, Nagoya University, Japan Wu, Yi-Chiao, Nagoya University, Japan Hayashi, Tomoki, Nagoya University, Japan Kobayashi, Kazuhiro, Nagoya University, Japan Toda, Tomoki, Nagoya University, Japan

SPE-P12.2: FLOW-TTS: A NON-AUTOREGRESSIVE NETWORK FOR TEXT TO SPEECH BASED ON FLOW

Miao, Chenfeng, Ping An Technology (Shenzhen) Co., Ltd., China Liang, Shuang, Ping An Technology (Shenzhen) Co., Ltd., China Chen, Minchuan, Ping An Technology (Shenzhen) Co., Ltd., China Ma, Jun, Ping An Technology (Shenzhen) Co., Ltd., China Wang, Shaojun, Ping An Technology (Shenzhen) Co., Ltd., China Xiao, Jing, Ping An Technology (Shenzhen) Co., Ltd., China

SPE-P12.3: WAVEFFJORD: FFJORD-BASED VOCODER FOR STATISTICAL PARAMETRIC SPEECH SYNTHESIS

Wu, Ning-Qian, University of Science and Technology of China, China Ling, Zhen-Hua, University of Science and Technology of China, China

SPE-P12.4: IMPROVING LPCNET-BASED TEXT-TO-SPEECH WITH LINEAR PREDICTION-STRUCTURED MIXTURE DENSITY NETWORK

Hwang, Min-Jae, Yonsei university, Korea (South) Song, Eunwoo, Naver corporation, Korea (South) Yamamoto, Ryuichi, LINE Corporation, Japan Soong, Frank K., Microsoft Research Asia, China Kang, Hong-Goo, Yonsei university, Korea (South)

SPE-P12.5: DISENTANGLING TIMBRE AND SINGING STYLE WITH MULTI-SINGER SINGING SYNTHESIS SYSTEM

Lee, Juheon, Seoul National University, Korea (South) Choi, Hyeong-Seok, Seoul National University, Korea (South) Koo, Junghyun, Seoul National University, Korea (South) Lee, Kyogu, Seoul National University, Korea (South)

SPE-P12.6: SEQUENCE-TO-SEQUENCE SINGING SYNTHESIS USING THE FEED-FORWARD TRANSFORMER

Blaauw, Merlijn, Universitat Pompeu Fabra, Spain Bonada, Jordi, Universitat Pompeu Fabra, Spain

SPE-P12.7: KOREAN SINGING VOICE SYNTHESIS BASED ON AUTO-REGRESSIVE BOUNDARY EQUILIBRIUM GAN

Choi, Soonbeom, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Kim, Wonil, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Park, Saebyul, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Yong, Sangeon, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Nam, Juhan, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

SPE-P12.8: FAST AND HIGH-QUALITY SINGING VOICE SYNTHESIS SYSTEM BASED ON CONVOLUTIONAL NEURAL NETWORKS

Nakamura, Kazuhiro, Techno-Speech, Japan Takaki, Shinji, Techno-Speech, Japan Hashimoto, Kei, Techno-Speech, Japan Oura, Keiichiro, Techno-Speech, Japan Nankaku, Yoshihiko, Nagoya Institute of Technology, Japan Tokuda, Keiichi, Techno-Speech, Japan

SPE-P12.9: HYBRID NEURAL-PARAMETRIC F0 MODEL FOR SINGING SYNTHESIS

Bonada, Jordi, Universitat Pompeu Fabra, Spain Blaauw, Merlijn, Universitat Pompeu Fabra, Spain

SPE-P12.10: UTTERANCE-LEVEL SEQUENTIAL MODELING FOR DEEP GAUSSIAN PROCESS BASED SPEECH SYNTHESIS USING SIMPLE RECURRENT UNIT

Koriyama, Tomoki, University of Tokyo, Japan Saruwatari, Hiroshi, University of Tokyo, Japan

SPE-P12.11: EMOTIONAL SPEECH SYNTHESIS WITH RICH AND GRANULARIZED CONTROL

Um, Se-Yun, Yonsei University, Korea (South) Oh, Sangshin, Yonsei University, Korea (South) Byun, Kyungguen, Yonsei University, Korea (South) Jang, Inseon, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Ahn, Chunghyun, Electronics and Telecommunications Research Institute (ETRI), Korea (South) Kang, Hong-Goo, Yonsei University, Korea (South)

SPE-P12.12: TOWARDS UNSUPERVISED SPEECH RECOGNITION AND SYNTHESIS WITH QUANTIZED SPEECH REPRESENTATION LEARNING

Liu, Alexander H., National Taiwan University, Taiwan Tu, Tao, National Taiwan University, Taiwan Lee, Hung-yi, National Taiwan University, Taiwan Lee, Lin-shan, National Taiwan University, Taiwan

Thursday, 7 May, 11:30 - 13:30

SPE-P13 - Speech Separation and Extraction III

SPE-P13.1: AN EMPIRICAL STUDY OF CONV-TASNET

Kadioglu, Berkan, Northeastern University, United States Horgan, Michael, Dolby Laboratories, United States Liu, Xiaoyu, Dolby Laboratories, United States Pons, Jordi, Dolby Laboratories, United States Darcy, Dan, Dolby Laboratories, United States Kumar, Vivek, Dolby Laboratories, United States

SPE-P13.2: MASK-DEPENDENT PHASE ESTIMATION FOR MONAURAL SPEAKER SEPARATION

Ni, Zhaoheng, Graduate Center, City University of New York, United States I Mandel, Michael, Brooklyn College, City University of New York, United States

SPE-P13.3: JOINT PHONEME ALIGNMENT AND TEXT-INFORMED SPEECH SEPARATION ON HIGHLY CORRUPTED SPEECH

Schulze-Forster, Kilian, LTCI, Télécom Paris, Institut Polytechnique de Paris, France Doire, Clement S. J., Audionamix, France Richard, Gaël, LTCI, Télécom Paris, Institut Polytechnique de Paris, France Badeau, Roland, LTCI, Télécom Paris, Institut Polytechnique de Paris, France

SPE-P13.4: SINGLE-CHANNEL SPEECH SEPARATION INTEGRATING PITCH INFORMATION BASED ON A MULTI TASK LEARNING FRAMEWORK

Li, Xiang, Peking University, China Liu, Rui, Peking University, China Song, Tao, Peking University, China Wu, Xihong, Peking University, China Chen, Jing, Peking University, China

SPE-P13.5: CONTINUOUS SPEECH SEPARATION: DATASET AND ANALYSIS

Chen, Zhuo, Microsoft, United States Yoshioka, Takuya, Microsoft, United States Lu, Liang, Microsoft, United States Zhou, Tianyan, Microsoft, United States Meng, Zhong, Microsoft, United States Luo, Yi, Microsoft, United States Wu, Jian, Microsoft, United States Xiao, Xiong, Microsoft, United States Li, Jinyu, Microsoft, United States

SPE-P13.6: THE SOUND OF MY VOICE: SPEAKER REPRESENTATION LOSS FOR TARGET VOICE SEPARATION

Mun, Seongkyu, Naver Corporation, Korea (South) Choe, Soyeon, Naver Corporation, Korea (South) Huh, Jaesung, Naver Corporation, Korea (South) Chung, Joon Son, Naver Corporation, Korea (South)

SPE-P13.7: SPEAKER-AWARE TARGET SPEAKER ENHANCEMENT BY JOINTLY LEARNING WITH SPEAKER EMBEDDING EXTRACTION

Ji, Xuan, Tencent, China Yu, Meng, Tencent, United States Zhang, Chunlei, Tencent, United States Su, Dan, Tencent, China Yu, Tao, Tencent, United States Liu, Xiaoyu, Tencent, China Yu, Dong, Tencent, United States

SPE-P13.8: FAR-FIELD LOCATION GUIDED TARGET SPEECH EXTRACTION USING END-TO-END SPEECH RECOGNITION OBJECTIVES

Subramanian, Aswin Shanmugam, Johns Hopkins University, United States Weng, Chao, Tencent AI, United States Yu, Meng, Tencent AI, United States Zhang, Shi-Xiong, Tencent AI Lab, United States Xu, Yong, Tencent AI, United States Watanabe, Shinji, Johns Hopkins University, United States Yu, Dong, Tencent AI, United States

SPE-P13.9: A STUDY OF CHILD SPEECH EXTRACTION USING JOINT SPEECH ENHANCEMENT AND SEPARATION IN REALISTIC CONDITIONS

Wang, Xin, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China Cristia, Alejandrina, Laboratoire de Sciences Cognitives et Psycholinguistique, France Sun, Lei, University of Science and Technology of China, China Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-P13.10: AN ANALYSIS OF SPEECH ENHANCEMENT AND RECOGNITION LOSSES IN LIMITED RESOURCES MULTI-TALKER SINGLE CHANNEL AUDIO-VISUAL ASR

Pasa, Luca, University of Padova, Italy Morrone, Giovanni, University of Modena and Reggio Emilia, Italy Badino, Leonardo, Istituto Italiano di Tecnologia (IIT), Italy

SPE-P13.11: DEEP AUDIO-VISUAL SPEECH SEPARATION WITH ATTENTION MECHANISM

Li, Chenda, Shanghai Jiao Tong University, China Qian, Yanmin, Shanghai Jiao Tong University, China

SPE-P13.12: ENHANCING END-TO-END MULTI-CHANNEL SPEECH SEPARATION VIA SPATIAL FEATURE LEARNING

Gu, Rongzhi, Peking University Shenzhen Graduate School, China Zhang, Shi-Xiong, Tencent AI Lab, United States Chen, Lianwu, Tencent, China Xu, Yong, Tencent, United States Yu, Meng, Tencent, United States Su, Dan, Tencent, China Zou, Yuexian, Peking University Shenzhen Graduate School, China Yu, Dong, Tencent, United States

Thursday, 7 May, 16:30 - 18:30

SPE-P14 - Speech Production

SPE-P14.1: DETECTION AND ANALYSIS OF T/D DELETION IN LIBRISPEECH

Yuan, Jiahong, Baidu Research, United States Lin, Hui, LAIX Inc., China Liu, Yang, Amazon Alexa AI, United States

SPE-P14.2: PREDICTION OF VOICING AND THE F0 CONTOUR FROM ELECTROMAGNETIC ARTICULOGRAPHY DATA FOR ARTICULATION-TO-SPEECH SYNTHESIS

Stone, Simon, Technische Universität Dresden, Germany Schmidt, Philipp, Technische Universität Dresden, Germany Birkholz, Peter, Technische Universität Dresden, Germany

SPE-P14.3: A COMPARATIVE STUDY OF ESTIMATING ARTICULATORY MOVEMENTS FROM PHONEME SEQUENCES AND ACOUSTIC FEATURES

Singh, Abhayjeet, Indian Institute of Science, India Illa, Aravind, Indian Institute of Science, India Ghosh, Prasanta Kumar, Indian Institute of Science, India

SPE-P14.4: AUTOMATIC VOCAL TRACT LANDMARK TRACKING IN RTMRI USING FULLY CONVOLUTIONAL NETWORKS AND KALMAN FILTER

Asadiabadi, Sasan, Koc University, Turkey Erzin, Engin, Koc University, Turkey

SPE-P14.5: SPEECH-BASED PARAMETER ESTIMATION OF AN ASYMMETRIC VOCAL FOLD OSCILLATION MODEL AND ITS APPLICATION IN DISCRIMINATING VOCAL FOLD PATHOLOGIES

Zhao, Wenbo, Carnegie Mellon University, United States Singh, Rita, Carnegie Mellon University, United States

SPE-P14.6: END-TO-END ARTICULATORY MODELING FOR DYSARTHRIC ARTICULATORY ATTRIBUTE DETECTION

Lin, Yuqin, Tianjin University, China Wang, Longbiao, Tianjin University, China Dang, Jianwu, Tianjin University, China Li, Sheng, National Institute of Information and Communications Technology (NICT), Japan Ding, Chenchen, National Institute of Information and Communications Technology (NICT), Japan

SPE-P14.7: VOCAL TRACT ARTICULATORY CONTOUR DETECTION IN REAL-TIME MAGNETIC RESONANCE IMAGES USING SPATIO-TEMPORAL CONTEXT

Hebbar, S Ashwin, National Institute of Technology Karnataka, India Sharma, Rahul, University of Southern California, United States Somandepalli, Krishna,

University of Southern California, United States Toutios, Asterios, University of Southern California, United States Narayanan, Shrikanth, University of Southern California, United States

SPE-P14.8: RETRIEVING VOCAL-TRACT RESONANCE AND ANTI-RESONANCE FROM HIGH-PITCHED VOWELS USING A RAHMONIC SUBTRACTION TECHNIQUE

Zhang, Zhao, Tianjin University, China Honda, Kiyoshi, Tianjin University, China Wei, Jianguo, Tianjin University, China

SPE-P14.9: EPOCH EXTRACTION FROM A SPEECH SIGNAL USING GAMMATONE WAVELETS IN A SCATTERING NETWORK

Kulkarni, Pavan, Indian Institute of Science, India Sadasivan, Jishnu, Indian Institute of Science, India Adiga, Aniruddha, University of Virginia, United States Seelamantula, Chandra Sekhar, Indian Institute of Science, India

SPE-P14.10: STUDY OF CLOSED PHASE RESONANCE BANDWIDTHS FOR ORAL AND NASAL TRACTS USING ZERO TIME WINDOWING

Abbas, Haala Deeba, International Institute of Information Technology, Hyderabad, India Prasad, RaviShankar, Idiap Research Institute, Switzerland Nellore, Bhanu teja, International Institute of Information Technology, Hyderabad, India Gangashetty, Suryakanth V, International Institute of Information Technology, Hyderabad, India

SPE-P14.11: ALGORITHMIC EXPLORATION OF AMERICAN ENGLISH DIALECTS

Aksënova, Alëna, Stony Brook University, United States Bruguier, Antoine, Google LLC, United States Ritchart-Scott, Amanda, Google LLC, United States Mendlovic, Uri, Google LLC, Israel

SPE-P14.12: COMPARISON OF GLOTTAL CLOSURE INSTANTS DETECTION ALGORITHMS FOR EMOTIONAL SPEECH

Kadiri, Sudarsana Reddy, Aalto University, Finland Alku, Paavo, Aalto University, Finland B, Yegnanarayana, Indian Institute of Technology Hyderabad, India

Thursday, 7 May, 16:30 - 18:30

SPE-P15 - Speech Recognition: Adaptation

SPE-P15.1: UNSUPERVISED SPEAKER ADAPTATION USING ATTENTION-BASED SPEAKER MEMORY FOR END-TO-END ASR

Sari, Leda, University of Illinois at Urbana-Champaign, United States Moritz, Niko, Mitsubishi Electric Research Laboratories (MERL), United States Hori, Takaaki, Mitsubishi Electric Research Laboratories (MERL), United States Le Roux, Jonathan, Mitsubishi Electric Research Laboratories (MERL), United States

SPE-P15.2: L-VECTOR: NEURAL LABEL EMBEDDING FOR DOMAIN ADAPTATION

Meng, Zhong, Microsoft Corporation, United States Hu, Hu, Georgia Institute of Technology, United States Li, Jinyu, Microsoft Corporation, United States Liu, Changliang, Microsoft Corporation, United States Huang, Yan, Microsoft Corporation, United States Gong, Yifan, Microsoft Corporation, United States Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-P15.3: ACOUSTIC MODEL ADAPTATION FOR PRESENTATION TRANSCRIPTION AND INTELLIGENT MEETING ASSISTANT SYSTEMS

Huang, Yan, Microsoft Corporation, United States Gong, Yifan, Microsoft Corporation, United States

SPE-P15.4: USING PERSONALIZED SPEECH SYNTHESIS AND NEURAL LANGUAGE GENERATOR FOR RAPID SPEAKER ADAPTATION

Huang, Yan, Microsoft Corporation, United States He, Lei, Microsoft Corporation, United States Wei, Wenning, Microsoft Corporation, United States Gale, William, Microsoft Corporation, United States Li, Jinyu, Microsoft Corporation, United States Gong, Yifan, Microsoft Corporation, United States

SPE-P15.5: ATTENTION-BASED GATED SCALING ADAPTIVE ACOUSTIC MODEL FOR CTC-BASED SPEECH RECOGNITION

Ding, Fenglin, University of Science and Technology of China, China Guo, Wu, University of Science and Technology of China, China Dai, Li-Rong, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China

SPE-P15.6: ADAPTIVE KNOWLEDGE DISTILLATION BASED ON ENTROPY

Kwon, Kisoo, Samung Electronics, Korea (South) Na, Hwidong, Samung Electronics, Korea (South) Lee, Hoshik, Samung Electronics, Korea (South) Kim, Nam Soo, Seoul national university, Korea (South)

SPE-P15.7: UNSUPERVISED PRETRAINING TRANSFERS WELL ACROSS LANGUAGES

Rivière, Morgane, Facebook, France Joulin, Armand, Facebook, France Mazaré, Pierre-Emmanuel, Facebook, France Dupoux, Emmanuel, Facebook, France

SPE-P15.8: INCREMENTAL SEMI-SUPERVISED LEARNING FOR MULTI-GENRE SPEECH RECOGNITION

Khonglah, Banriskhem K., Idiap Research Institute, Switzerland Madikeri, Srikanth, Idiap Research Institute, Switzerland Dey, Subhadeep, Idiap Research Institute, Switzerland Bourlard, Hervé, Idiap Research Institute, Switzerland Motlicek, Petr, Idiap Research Institute, Switzerland Billa, Jayadev, Information Sciences Institute, University of Southern California, United States

SPE-P15.9: SOURCE DOMAIN DATA SELECTION FOR IMPROVED TRANSFER LEARNING TARGETING DYSARTHRIC SPEECH RECOGNITION

Xiong, Feifei, University of Sheffield, United Kingdom Barker, Jon, University of Sheffield, United Kingdom Yue, Zhengjun, University of Sheffield, United Kingdom Christensen, Heidi, University of Sheffield, United Kingdom

SPE-P15.10: STUDY OF FORMANT MODIFICATION FOR CHILDREN ASR

Kathania, Hemant Kumar, Aalto University, Finland Reddy Kadiri, Sudarsana, Aalto University, Finland Alku, Paavo, Aalto University, Finland Kurimo, Mikko, Aalto University, Finland

SPE-P15.11: PSEUDO LIKELIHOOD CORRECTION TECHNIQUE FOR LOW RESOURCE ACCENTED ASR

Rajpal, Avni, Indian Institute of Science, India Rao M V, Achuth, Indian Institute of Science, India Yarra, Chiranjeevi, Indian Institute of Science, India Aggarwal, Ritu, Indian Institute of Science, India Kumar Ghosh, Prasanta, Indian Institute of Science, India

SPE-P15.12: LIBRI-ADAPT: A NEW SPEECH DATASET FOR UNSUPERVISED DOMAIN ADAPTATION

Mathur, Akhil, University College London and Nokia Bell Labs, United Kingdom Kawsar, Fahim, Nokia Bell Labs, United Kingdom Berthouze, Nadia, University College London, United Kingdom Lane, Nicholas, University of Oxford, United Kingdom

Friday, 8 May, 08:00 - 10:00

SPE-P16 - Word Spotting

SPE-P16.1: MINING EFFECTIVE NEGATIVE TRAINING SAMPLES FOR KEYWORD SPOTTING

Hou, Jingyong, Northwestern Polytechnical University, China Shi, Yangyang, Mobvoi AI Lab, United States Ostendorf, Mari, University of Washington, United States Hwang, Mei-Yuh, Mobvoi AI Lab, United States Xie, Lei, Northwestern Polytechnical University, China

SPE-P16.2: MULTI-TASK LEARNING FOR VOICE TRIGGER DETECTION

Sigtia, Siddharth, Apple, United States Clark, Pascal, Apple, United States Haynes, Rob, Apple, United States Richards, Hywel, Apple, United States Bridle, John, Apple, United States

SPE-P16.3: SMALL-FOOTPRINT KEYWORD SPOTTING ON RAW AUDIO DATA WITH SINC-CONVOLUTIONS

Mittermaier, Simon, Technische Universität München, Germany Kürzinger, Ludwig, Technische Universität München, Germany Waschneck, Bernd, Infineon Technologies AG, Germany Rigoll, Gerhard, Technische Universität München, Germany

SPE-P16.4: LATTICE-BASED IMPROVEMENTS FOR VOICE TRIGGERING USING GRAPH NEURAL NETWORKS

Dighe, Pranay, Apple, United States Adya, Saurabh, Apple, United States Li, Nuoyu, Apple, United States Vishnubhotla, Srikanth, Apple, United States Naik, Devang, Apple, United States Sagar, Adithya, Apple, United States Ma, Ying, Apple, United States Pulman, Stephen, Apple, United States Williams, Jason, Apple, United States

SPE-P16.5: INTEGRATION OF MULTI-LOOK BEAMFORMERS FOR MULTI-CHANNEL KEYWORD SPOTTING

Ji, Xuan, Tencent, China Yu, Meng, Tencent, United States Chen, Jie, Tencent, China Zheng, Jimeng, Tencent, China Su, Dan, Tencent, China Yu, Dong, Tencent, United States

SPE-P16.6: FAST LATTICE-FREE KEYWORD FILTERING FOR ACCELERATED SPOKEN TERM DETECTION

Wintrode, Jonathan, Raytheon Applied Signal Technology, United States Wilkes, Jenny, Raytheon Applied Signal Technology, United States

SPE-P16.7: TRAINING KEYWORD SPOTTERS WITH LIMITED AND SYNTHESIZED SPEECH DATA

Lin, James, Google Research, Switzerland Kilgour, Kevin, Google Research, Switzerland Roblek, Dominik, Google Research, Switzerland Sharifi, Matt, Google Research, Switzerland

SPE-P16.8: TOWARDS DATA-EFFICIENT MODELING FOR WAKE WORD SPOTTING

Gao, Yixin, Amazon, Inc., United States Mishchenko, Yuriy, Amazon, Inc., United States Shah, Anish, Amazon, Inc., United States Matsoukas, Spyros, Amazon, Inc., United States Vitaladevuni, Shiv, Amazon, Inc., United States

SPE-P16.9: ADAPTATION OF RNN TRANSDUCER WITH TEXT-TO-SPEECH TECHNOLOGY FOR KEYWORD SPOTTING

Sharma, Eva, Khoury College of Computer Sciences, Northeastern University, United States Ye, Guoli, Speech and Language Group, Microsoft, United States Wei, Wenning, Microsoft China, China Zhao, Rui, Speech and Language Group, Microsoft, United States Tian, Yao, Microsoft China, China Wu, Jian, Speech and Language Group, Microsoft, United States He, Lei, Microsoft China, China Lin, Ed, Microsoft China, China Gong, Yifan, Speech and Language Group, Microsoft, United States

SPE-P16.11: CRNN-CTC BASED MANDARIN KEYWORDS SPOTTING

Yan, Haikang, South China University of Technology, China He, Qianhua, South China University of Technology, China Xie, Wei, South China University of Technology, China

Friday, 8 May, 08:00 - 10:00

SPE-P17 - Speech Enhancement IV

SPE-P17.1: UNSUPERVISED NEURAL MASK ESTIMATOR FOR GENERALIZED EIGEN-VALUE BEAMFORMING BASED ASR

Kumar, Rohit, Indian Institute Science, India Sreeram, Anirudh, Indian Institute Science, India Purushothaman, Anurenjan, Indian Institute Science, India Ganapathy, Sriram, Indian Institute Science, India

SPE-P17.2: SPATIAL ATTENTION FOR FAR-FIELD SPEECH RECOGNITION WITH DEEP BEAMFORMING NEURAL NETWORKS

He, Weipeng, Idiap Research Institute, Switzerland Lu, Lu, Facebook, United States Zhang, Biqiao, Facebook, United States Mahadeokar, Jay, Facebook, United States Kalgaonkar, Kaustubh, Facebook, United States Fuegen, Christian, Facebook, United States

SPE-P17.3: TENSOR-TO-VECTOR REGRESSION FOR MULTI-CHANNEL SPEECH ENHANCEMENT BASED ON TENSOR-TRAIN NETWORK

Qi, Jun, Georgia Institute of Technology, United States Hu, Hu, Georgia Institute of Technology, United States Wang, Yannan, Tencent, China Yang, Chao-Han Huck, Georgia Institute of Technology, United States Siniscalchi, Marco, University of Enna, Italy Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-P17.4: TRUTH-TO-ESTIMATE RATIO MASK: A POST-PROCESSING METHOD FOR SPEECH ENHANCEMENT DIRECT AT LOW SIGNAL-TO-NOISE RATIOS

Chen, Bohan, Hong Kong University of Science and Technology Shenzhen Research Institute, China Wang, He, Hong Kong University of Science and Technology Shenzhen Research Institute, China Wei, Yue, Incus Company Limited, China So, Richard H.Y., Hong Kong University of Science and Technology, China

SPE-P17.5: GEOMETRY CONSTRAINED PROGRESSIVE LEARNING FOR LSTM-BASED SPEECH ENHANCEMENT

Tang, Xin, University of Science and Technology of China, China Du, Jun, University of Science and Technology of China, China Chai, Li, University of Science and Technology of China, China Wang, Yannan, Tencent Technology(Shenzhen) Company Limited, China Wang, Qing, Tencent Technology(Shenzhen) Company Limited, China Lee, Chin-Hui, Georgia Institute of Technology, United States

SPE-P17.6: USING SEPARATE LOSSES FOR SPEECH AND NOISE IN MASK-BASED SPEECH ENHANCEMENT

Xu, Ziyi, Technische Universität Braunschweig, Germany Elshamy, Samy, Technische Universität Braunschweig, Germany Fingscheidt, Tim, Technische Universität Braunschweig, Germany

SPE-P17.7: STABLE TRAINING OF DNN FOR SPEECH ENHANCEMENT BASED ON PERCEPTUALLY-MOTIVATED BLACK-BOX COST FUNCTION

Kawanaka, Masaki, National Institute of Technology, Tokuyama College, Japan Koizumi, Yuma, NTT Corporation, Japan Miyazaki, Ryoichi, National Institute of Technology, Tokuyama College, Japan Yatabe, Kohei, Waseda University, Japan

SPE-P17.8: A ROBUST AUDIO-VISUAL SPEECH ENHANCEMENT MODEL

Wang, Wupeng, Huawei Noah's Ark Lab, China Xing, Chao, Huawei Noah's Ark Lab, China Wang, Dong, Tsinghua University, China Chen, Xiao, Huawei Noah's Ark Lab, China Sun, Fengyu, Huawei Technologies CO. LTD, China

SPE-P17.9: ROBUST UNSUPERVISED AUDIO-VISUAL SPEECH ENHANCEMENT USING A MIXTURE OF VARIATIONAL AUTOENCODERS

Sadeghi, Mostafa, Inria, Grenoble Alpes, France Alameda-Pineda, Xavier, Inria, Grenoble Alpes, France

SPE-P17.10: AV(SE)^2: AUDIO-VISUAL SQUEEZE-EXCITE SPEECH ENHANCEMENT

Iuzzolino, Michael, University of Colorado Boulder, United States Koishida, Kazuhito, Microsoft Corporation, United States

SPE-P17.11: SPECTROGRAMS FUSION WITH MINIMUM DIFFERENCE MASKS ESTIMATION FOR MONAURAL SPEECH DEREVERBERATION

Shi, Hao, Tianjin University, China Wang, Longbiao, Tianjin University, China Ge, Meng, Tianjin University, China Li, Sheng, National Institute of Information and Communications Technology (NICT), Japan Dang, Jianwu, Tianjin University, China

SPE-P17.12: A RETURN TO DEREVERBERATION IN THE FREQUENCY DOMAIN USING A JOINT LEARNING APPROACH

Li, Yuying, Indiana University Bloomington, United States Williamson, Donald S., Indiana University, United States

Friday, 8 May, 08:00 - 10:00

SPE-P18 - Speaker Recognition Systems, Data and Features

SPE-P18.1: IN-DOMAIN AND OUT-OF-DOMAIN DATA AUGMENTATION TO IMPROVE CHILDREN'S SPEAKER VERIFICATION SYSTEM IN LIMITED DATA SCENARIO

Shahnawazuddin, Syed, National Institute of Technology Patna, India Ahmad, Waquar, National Institute of Technology Calicut, India Adiga, Nagaraj, University of Crete, Greece Kumar, Avinash, National Institute of Technology Sikkim, India

SPE-P18.2: JHU-HLTCOE SYSTEM FOR THE VOXSRC SPEAKER RECOGNITION CHALLENGE

Garcia-Romero, Daniel, Johns Hopkins University, United States McCree, Alan, Johns Hopkins University, United States Snyder, David, Johns Hopkins University, United States Sell, Gregory, Johns Hopkins University, United States

SPE-P18.3: DETECTION OF SPEECH EVENTS AND SPEAKER CHARACTERISTICS THROUGH PHOTO-PLETHYSMOGRAPHIC SIGNAL NEURAL PROCESSING

Cámbara, Guillermo, Telefónica, Spain Luque, Jordi, Telefónica, Spain Farrús, Mireia, Universitat Pompeu Fabra, Spain

SPE-P18.4: XMU-TS SYSTEMS FOR NIST SRE19 CTS CHALLENGE

Lu, Hao, Xiamen University, China Zhou, Jianfeng, Xiamen University, China Zhao, Miao, Xiamen University, China Lei, Wendian, Xiamen Talentedsoft, China Hong, Qingyang, Xiamen University, China Li, Lin, Xiamen University, China

SPE-P18.5: I-VECTOR TRANSFORMATION USING K-NEAREST NEIGHBORS FOR SPEAKER VERIFICATION

Khan, Umair, Universitat Politecnica de Catalunya, Spain India, Miquel, Universitat Politecnica de Catalunya, Spain Hernando, Javier, Universitat Politecnica de Catalunya, Spain

SPE-P18.6: H-VECTORS: UTTERANCE-LEVEL SPEAKER EMBEDDING USING A HIERARCHICAL ATTENTION MODEL

Shi, Yanpei, University of Sheffield, United Kingdom Huang, Qiang, University of Sheffield, United Kingdom Hain, Thomas, University of Sheffield, United Kingdom

SPE-P18.7: FEATURE ENHANCEMENT WITH DEEP FEATURE LOSSES FOR SPEAKER VERIFICATION

Kataria, Saurabh, Johns Hopkins University, United States Nidadavolu, Phani Sankar, Johns Hopkins University, United States Villalba, Jesús, Johns Hopkins University, United States Chen, Nanxin, Johns Hopkins University, United States García-Perera, Paola, Johns Hopkins University, United States Dehak, Najim, Johns Hopkins University, United States

SPE-P18.8: COMBINING DEEP EMBEDDINGS OF ACOUSTIC AND ARTICULATORY FEATURES FOR SPEAKER IDENTIFICATION

Hong, Qian-Bei, National Cheng Kung University and Academia Sinica, Taiwan Wu, Chung-Hsien, National Cheng Kung University and Academia Sinica, Taiwan Wang, Hsin-Min, National Cheng Kung University and Academia Sinica, Taiwan Huang, Chien-Lin, Ping An Technology (Shenzhen) Co., Ltd., United States

SPE-P18.9: BAYESIAN ESTIMATION OF PLDA WITH NOISY TRAINING LABELS, WITH APPLICATIONS TO SPEAKER VERIFICATION

Borgstrom, Bengt, MIT Lincoln Laboratory, United States Torres-Carrasquillo, Pedro, MIT Lincoln Laboratory, United States

SPE-P18.10: UNSUPERVISED FEATURE ENHANCEMENT FOR SPEAKER VERIFICATION

Nidadavolu, Phani Sankar, Johns Hopkins University, United States Kataria, Saurabh, Johns Hopkins University, United States Villalba, Jesús, Johns Hopkins University, United States García-Perera, Paola, Johns Hopkins University, United States Dehak, Najim, Johns Hopkins University, United States

SPE-P18.11: CN-CELEB: A CHALLENGING CHINESE SPEAKER RECOGNITION DATASET

Fan, Yue, Tsinghua University, China Kang, Jiawen, Tsinghua University, China Li, Lantian, Tsinghua University, China Li, Kaicheng, Tsinghua University, China Chen, Haolin, Tsinghua University, China Cheng, Sitong, Tsinghua University, China Zhang, Pengyuan, Tsinghua University, China Zhou, Ziya, Tsinghua University, China Cai, Yunqi, Tsinghua University, China Wang, Dong, Tsinghua University, China

SPE-P18.12: HI-MIA : A FAR-FIELD TEXT-DEPENDENT SPEAKER VERIFICATION DATABASE AND THE BASELINES

Qin, Xiaoyi, Duke Kunshan University, China Bu, Hui, Beijing Shell Shell Technology Co. Ltd., China Li, Ming, Duke Kunshan University, China

Friday, 8 May, 11:45 - 13:45

SPE-P19 - Machine Learning for Speech Synthesis III

SPE-P19.1: END-TO-END CODE-SWITCHING TTS WITH CROSS-LINGUAL LANGUAGE MODEL

Zhou, Xuehao, National University of Singapore, Singapore Tian, Xiaohai, National University of Singapore, Singapore Lee, Grandee, National University of Singapore, Singapore Das, Rohan Kumar, National University of Singapore, Singapore Li, Haizhou, National University of Singapore, Singapore

SPE-P19.2: CODE-SWITCHED SPEECH SYNTHESIS USING BILINGUAL PHONETIC POSTERIORGRAM WITH ONLY MONOLINGUAL CORPORA

Cao, Yuewen, Chinese University of Hong Kong, China Liu, Songxiang, Chinese University of Hong Kong, China Wu, Xixin, Chinese University of Hong Kong, China Kang, Shiyin, Tencent, China Liu, Peng, Tencent, China Wu, Zhiyong, Tsinghua University, China Xliu, Xunying, Chinese University of Hong Kong, Hong Kong SAR of China Su, Dan, Tencent, China Yu, Dong, Tencent, China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China

SPE-P19.3: GENERATING MULTILINGUAL VOICES USING SPEAKER SPACE TRANSLATION BASED ON BILINGUAL SPEAKER DATA

Maiti, Soumi, City University of New York, United States Marchi, Erik, Apple, United States Conkie, Alistair, Apple, United States

SPE-P19.4: SPEAKER ADAPTATION OF A MULTILINGUAL ACOUSTIC MODEL FOR CROSS-LANGUAGE SYNTHESIS

Himawan, Ivan, ObEN, United States Aryal, Sandesh, ObEN, United States Ouyang, Iris, ObEN, United States Kang, Sam, ObEN, United States Lanchantin, Pierre, ObEN, United States King, Simon, University of Edinburgh, United Kingdom

SPE-P19.5: SEMI-SUPERVISED SPEAKER ADAPTATION FOR END-TO-END SPEECH SYNTHESIS WITH PRETRAINED MODELS

Inoue, Katsuki, Okayama university, Japan Hara, Sunao, Okayama university, Japan Abe, Masanobu, Okayama university, Japan Hayashi, Tomoki, Nagoya university, Japan Yamamoto, Ryuichi, LINE Corporation, Japan Watanabe, Shinji, Johns Hopkins university, United States

SPE-P19.6: BOFFIN TTS: FEW-SHOT SPEAKER ADAPTATION BY BAYESIAN OPTIMIZATION

Moss, Henry, Lancaster University, United Kingdom Aggarwal, Vatsal, Amazon, Inc., United Kingdom Prateek, Nishant, Amazon, Inc., United Kingdom Gonzalez, Javier, Amazon, Inc., United Kingdom Barra-Chicote, Roberto, Amazon, Inc., United Kingdom

SPE-P19.7: SEMI-SUPERVISED LEARNING BASED ON HIERARCHICAL GENERATIVE MODELS FOR END-TO-END SPEECH SYNTHESIS

Fujimoto, Takato, Nagoya Institute of Technology, Japan Takaki, Shinji, Nagoya Institute of Technology, Japan Hashimoto, Kei, Nagoya Institute of Technology, Japan Oura, Keiichiro, Nagoya Institute of Technology, Japan Nankaku, Yoshihiko, Nagoya Institute of Technology, Japan Tokuda, Keiichi, Nagoya Institute of Technology, Japan

SPE-P19.8: BREATHING AND SPEECH PLANNING IN SPONTANEOUS SPEECH SYNTHESIS

Székely, Éva, KTH Royal Institute of Technology, Sweden Henter, Gustav Eje, KTH Royal Institute of Technology, Sweden Beskow, Jonas, KTH Royal Institute of Technology, Sweden Gustafson, Joakim, KTH Royal Institute of Technology, Sweden

SPE-P19.9: ESPNET-TTS: UNIFIED, REPRODUCIBLE, AND INTEGRATABLE OPEN SOURCE END-TO-END TEXT-TO-SPEECH TOOLKIT

Hayashi, Tomoki, Nagoya University, Japan Yamamoto, Ryuichi, LINE Corporation, Japan Inoue, Katsuki, Okayama University, Japan Yoshimura, Takenori, Nagoya University, Japan Watanabe, Shinji, Johns Hopkins University, United States Toda, Tomoki, Nagoya University, Japan Takeda, Kazuya, Nagoya University, Japan Zhang, Yu, Google AI, United States Tan, Xu, Microsoft Research Asia, China

SPE-P19.10: EXTRACTING UNIT EMBEDDINGS USING SEQUENCE-TO-SEQUENCE ACOUSTIC MODELS FOR UNIT SELECTION SPEECH SYNTHESIS

Zhou, Xiao, University of Science and Technology of China, China Ling, Zhen-Hua, University of Science and Technology of China, China Dai, Li-Rong, University of Science and Technology of China, China

SPE-P19.11: AUDIO-ASSISTED IMAGE INPAINTING FOR TALKING FACES

Koumparoulis, Alexandros, University of Thessaly, Greece Potamianos, Gerasimos, University of Thessaly, Greece Thomas, Samuel, IBM, United States Morais, Edmilson da Silva, IBM, Brazil

Friday, 8 May, 11:45 - 13:45

SPE-P20 - Speech Recognition: Acoustic Modelling II

SPE-P20.1: LIBRI-LIGHT: A BENCHMARK FOR ASR WITH LIMITED OR NO SUPERVISION

Kahn, Jacob, Facebook, United States Rivière, Morgane, Facebook, United States Zheng, Weiyi, Facebook, United States Kharitonov, Eugene, Facebook, United States Xu, Qiantong, Facebook, United States Mazaré, Pierre-Emmanuel, Facebook, France Karadayi, Julien, ENS, France Liptchinsky, Vitaly, Facebook, United States Collobert, Ronan, Facebook, United States Fuegen, Christian, Facebook, United States Likhomanenko, Tatiana, Facebook, United States Synnaeve, Gabriel, Facebook, United States Joulin, Armand, Facebook, United States Mohamed, Abdelrahman, Facebook, United States Dupoux, Emmanuel, Facebook / EHESS, France

SPE-P20.2: A COMPREHENSIVE STUDY OF RESIDUAL CNNS FOR ACOUSTIC MODELING IN ASR

Bozheniuk, Vitalii, RWTH Aachen University, Germany Zeyer, Albert, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-P20.3: LAYER-NORMALIZED LSTM FOR HYBRID-HMM AND END-TO-END ASR

Zeineldeen, Mohammad, RWTH Aachen University, Germany Zeyer, Albert, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-P20.5: IMPROVING SEQUENCE-TO-SEQUENCE SPEECH RECOGNITION TRAINING WITH ON-THE-FLY DATA AUGMENTATION

Nguyen, Thai Son, Karlsruhe Institute of Technology, Germany Stueker, Sebastian, Karlsruhe Institute of Technology, Germany Niehues, Jan, Maastricht University, Netherlands Waibel, Alex, Karlsruhe Institute of Technology, Germany

SPE-P20.6: EFFECTIVENESS OF SELF-SUPERVISED PRE-TRAINING FOR ASR

Baevski, Alexei, Facebook, United States Mohamed, Abdelrahman, Facebook, United States

SPE-P20.7: HIGH-ACCURACY AND LOW-LATENCY SPEECH RECOGNITION WITH TWO-HEAD CONTEXTUAL LAYER TRAJECTORY LSTM MODEL

Li, Jinyu, Microsoft, United States Zhao, Rui, Microsoft, United States Sun, Eric, Microsoft, United States Wong, Jeremy, Microsoft, United States Das, Amit,

Microsoft, United States Meng, Zhong, Microsoft, United States Gong, Yifan, Microsoft, United States

SPE-P20.8: DFSMN-SAN WITH PERSISTENT MEMORY MODEL FOR AUTOMATIC SPEECH RECOGNITION

You, Zhao, Tencent, China Su, Dan, Tencent, China Chen, Jie, Tencent, China Weng, Chao, Tencent, United States Yu, Dong, Tencent, United States

SPE-P20.9: DYNAMIC TEMPORAL RESIDUAL LEARNING FOR SPEECH RECOGNITION

Xie, Jiaqi, Tsinghua University, China Yan, Ruijie, Tsinghua University, China Xiao, Shanyu, Tsinghua University, China Peng, Liangrui, Tsinghua University, China Johnson, Michael T., University of Kentucky, United States Zhang, Wei-Qiang, Tsinghua University, China

SPE-P20.10: E2E-SINCNET: TOWARD FULLY END-TO-END SPEECH RECOGNITION

Parcollet, Titouan, University of Oxford, United Kingdom Morchid, Mohamed, University of Avignon, France Linarès, Georges, University of Avignon, France

SPE-P20.11: SPEAKER AUGMENTATION FOR LOW RESOURCE SPEECH RECOGNITION

Du, Chenpeng, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

SPE-P20.12: CGCNN: COMPLEX GABOR CONVOLUTIONAL NEURAL NETWORK ON RAW SPEECH

Noé, Paul-Gauthier, Avignon Université, France Parcollet, Titouan, University of Oxford, France Morchid, Mohamed, Avignon Université, France

Friday, 8 May, 15:15 - 17:15

SPE-P21 - Voice Conversion

SPE-P21.1: ONE-SHOT VOICE CONVERSION USING STAR-GAN

Wang, Ruobai, Netease Inc., China Ding, Yu, Netease Inc., China Li, Lincheng, Netease Inc., China Fan, Changjie, Netease Inc., China

SPE-P21.2: ONE-SHOT VOICE CONVERSION BY VECTOR QUANTIZATION

Wu, Da-Yi, National Taiwan University, Taiwan Lee, Hung-yi, National Taiwan University, Taiwan

SPE-P21.3: NEUTRAL TO LOMBARD SPEECH CONVERSION WITH DEEP LEARNING

Gentet, Enguerrand, Groupe PSA, France David, Bertrand, LTCI, Télécom Paris, Institut Polytechnique de Paris, France Denjean, Sébastien, Groupe PSA, France Richard, Gaël, LTCI, Télécom Paris, Institut Polytechnique de Paris, France Roussarie, Vincent, Groupe PSA, France

SPE-P21.4: END-TO-END VOICE CONVERSION VIA CROSS-MODAL KNOWLEDGE DISTILLATION FOR DYSARTHRIC SPEECH RECONSTRUCTION

Wang, Disong, Chinese University of Hong Kong, Hong Kong SAR of China Yu, Jianwei, Chinese University of Hong Kong, Hong Kong SAR of China Wu, Xixin, Chinese University of Hong Kong, Hong Kong SAR of China Liu, Songxiang, Chinese University of Hong Kong, Hong Kong SAR of China Sun, Lifa, SpeechX Limited, China Liu, Xunying, Chinese University of Hong Kong, Hong Kong SAR of China Meng, Helen, Chinese University of Hong Kong, Hong Kong SAR of China

SPE-P21.5: PITCHNET: UNSUPERVISED SINGING VOICE CONVERSION WITH PITCH ADVERSARIAL NETWORK

Deng, Chengqi, Zhejiang University, China Yu, Chengzhu, Tencent, United States Lu, Heng, Tencent, United States Weng, Chao, Tencent, United States Yu, Dong, Tencent, United States

SPE-P21.6: AN IMPROVED FRAME-UNIT-SELECTION BASED VOICE CONVERSION SYSTEM WITHOUT PARALLEL TRAINING DATA

Xie, Feng-Long, Tencent, China Li, Xin-Hui, Tencent, China Liu, Bo, Tencent, China Zheng, Yi-Bin, Tencent, China Meng, Li, Tencent, China Lu, Li, Tencent, China Soong, Frank K., Microsoft Research Asia, China

SPE-P21.7: VOICE CONVERSION WITH TRANSFORMER NETWORK

Liu, Ruolan, Samsung Research China-Beijing, China Chen, Xiao, Samsung Research China-Beijing, China Wen, Xue, Samsung Research China-Beijing, China

SPE-P21.8: MSPEC-NET : MULTI-DOMAIN SPEECH CONVERSION NETWORK

Malaviya, Harshit, Dhirubhai Ambani Institute of Information and Communication Technology, India Shah, Jui, Dhirubhai Ambani Institute of Information and Communication Technology, India Patel, Maitreya, Dhirubhai Ambani Institute of Information and Communication Technology, India Munshi, Jalansh, Dhirubhai Ambani Institute of Information and Communication Technology, India Patil, Hemant, Dhirubhai Ambani Institute of Information and Communication Technology, India

SPE-P21.9: MULTI-SPEAKER AND MULTI-DOMAIN EMOTIONAL VOICE CONVERSION USING FACTORIZED HIERARCHICAL VARIATIONAL AUTOENCODER

Elgaar, Mohamed, Humelo Inc. and Korea Advanced Institute of Science and Technology, Korea (South) Park, Jung Bae, Humelo Inc. and Korea Advanced Institute of Science and Technology, Korea (South) Lee, Sang Wan, Humelo Inc. and Korea Advanced Institute of Science and Technology, KAIST Institute for Artificial Intelligence, KAIST Center for Neuroscience-inspired Artificial Intelligence, Korea (South)

SPE-P21.10: EMOTIONAL VOICE CONVERSION USING MULTITASK LEARNING WITH TEXT-TO-SPEECH

Kim, Tae-Ho, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Cho, Sungjae, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Choi, Shinkook, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Park, Sejik, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Lee, Soo-Young, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

SPE-P21.11: EFFECTIVE WAVENET ADAPTATION FOR VOICE CONVERSION WITH LIMITED DATA

Du, Hongqiang, Northwestern Polytechnical University, Singapore Tian, Xiaohai, National University of Singapore, Singapore Xie, Lei, Northwestern Polytechnical University, China Li, Haizhou, National University of Singapore, Singapore

SPE-P21.12: LIFTER TRAINING AND SUB-BAND MODELING FOR COMPUTATIONALLY EFFICIENT AND HIGH-QUALITY VOICE CONVERSION USING SPECTRAL DIFFERENTIALS

Saeki, Takaaki, University of Tokyo, Japan Saito, Yuki, University of Tokyo, Japan Takamichi, Shinnosuke, University of Tokyo, Japan Saruwatari, Hiroshi, University of Tokyo, Japan

Friday, 8 May, 15:15 - 17:15

SPE-P22 - Large Vocabulary Continuous Speech Recognition and Search

SPE-P22.1: IMPROVING PROPER NOUN RECOGNITION IN END-TO-END ASR BY CUSTOMIZATION OF THE MWER LOSS CRITERION

Peyser, Cal, Google, Inc., United States Sainath, Tara, Google, Inc., United States Pundak, Golan, Google, Inc., United States

SPE-P22.2: NEURAL LATTICE SEARCH FOR SPEECH RECOGNITION

Ma, Rao, Shanghai Jiao Tong University, China Li, Hao, Shanghai Jiao Tong University, China Liu, Qi, Shanghai Jiao Tong University, China Chen, Lu, Shanghai Jiao Tong University, China Yu, Kai, Shanghai Jiao Tong University, China

SPE-P22.3: DELIBERATION MODEL BASED TWO-PASS END-TO-END SPEECH RECOGNITION

Hu, Ke, Google, Inc., United States Sainath, Tara, Google, Inc., United States Pang, Ruoming, Google, Inc., United States Prabhavalkar, Rohit, Google, Inc., United States

SPE-P22.4: ALIGNMENT-LENGTH SYNCHRONOUS DECODING FOR RNN TRANSDUCER

Saon, George, IBM Research AI, United States Tuske, Zoltan, IBM Research AI, United States Audhkhasi, Kartik, IBM Research AI, United States

SPE-P22.5: INCORPORATING WRITTEN DOMAIN NUMERIC GRAMMARS INTO END-TO-END CONTEXTUAL SPEECH RECOGNITION SYSTEMS FOR IMPROVED RECOGNITION OF NUMERIC SEQUENCES

Haynor, Ben, Google, Inc., United States Aleksic, Petar, Google, Inc., United States

SPE-P22.6: LSTM-BASED ONE-PASS DECODER FOR LOW-LATENCY STREAMING

Jorge, Javier, Universitat Politècnica de València, Spain Giménez, Adrià, Universitat Politècnica de València, Spain Iranzo-Sánchez, Javier, Universitat Politècnica de València, Spain Silvestre-Cerdà, Joan Albert, Universitat Politècnica de València, Spain Civera, Jorge, Universitat Politècnica de València, Spain Sanchis, Albert, Universitat Politècnica de València, Spain Juan, Alfons, Universitat Politècnica de València, Spain

SPE-P22.7: MULTISTATE ENCODING WITH END-TO-END SPEECH RNN TRANSDUCER NETWORK

Wu, Zelin, Google LLC, United States Li, Bo, Google LLC, United States Zhang, Yu, Google LLC, United States Aleksic, Petar, Google LLC, United States Sainath, Tara, Google LLC, United States

SPE-P22.8: NEURAL ORACLE SEARCH ON N-BEST HYPOTHESES

Variani, Ehsan, Google, United States Chen, Tongzhou, Google, United States Apfel, James, Google, United States Ramabhadran, Bhuvana, Google, United States Lee, Seungji, Google, United States Moreno, Pedro, Google, United States

SPE-P22.10: TRANSFORMER TRANSDUCER: A STREAMABLE SPEECH RECOGNITION MODEL WITH TRANSFORMER ENCODERS AND RNN-T LOSS

Zhang, Qian, Google, United States Lu, Han, Google, United States Sak, Hasim, Google, United States Tripathi, Anshuman, Google, United States McDermott, Erik, Google, United States Koo, Stephen, Google, United States Kumar, Shankar, Google, United States

SPE-P22.11: FULL-SUM DECODING FOR HYBRID HMM BASED SPEECH RECOGNITION USING LSTM LANGUAGE MODEL

Zhou, Wei, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-P22.12: THE RWTH ASR SYSTEM FOR TED-LIUM RELEASE 2: IMPROVING HYBRID HMM WITH SPECAUGMENT

Zhou, Wei, RWTH Aachen University, Germany Michel, Wilfried, RWTH Aachen University, Germany Irie, Kazuki, RWTH Aachen University, Germany Kitza, Markus, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

Friday, 8 May, 15:15 - 17:15

SPE-P23 - Speech Recognition: General Topics

SPE-P23.1: META LEARNING FOR END-TO-END LOW-RESOURCE SPEECH RECOGNITION

Hsu, Jui-Yang, National Taiwan University, Taiwan Chen, Yuan-Jui, National Taiwan University, Taiwan Lee, Hung-yi, National Taiwan University, Taiwan

SPE-P23.2: CROSS-SPEAKER SILENT-SPEECH COMMAND WORD RECOGNITION USING ELECTRO-OPTICAL STOMATOGRAPHY

Stone, Simon, Technische Universität Dresden, Germany Birkholz, Peter, Technische Universität Dresden, Germany

SPE-P23.3: EXPLORING A ZERO-ORDER DIRECT HMM BASED ON LATENT ATTENTION FOR AUTOMATIC SPEECH RECOGNITION

Bahar, Parnia, RWTH Aachen University, Germany Makarov, Nikita, RWTH Aachen University, Germany Zeyer, Albert, RWTH Aachen University, Germany Schlüter, Ralf, RWTH Aachen University, Germany Ney, Hermann, RWTH Aachen University, Germany

SPE-P23.4: IMPROVING DEVICE DIRECTEDNESS CLASSIFICATION OF UTTERANCES WITH SEMANTIC LEXICAL FEATURES

Gillespie, Kellen, Amazon, Inc., United States Konstantakopoulos, Ioannis, Amazon, Inc., United States Guo, Xingzhi, Stony Brook University, United States Thanvantri Vasudevan, Vishal, Amazon, Inc., United States Sethy, Abhinav, Amazon, Inc., United States

SPE-P23.5: TRAINING ASR MODELS BY GENERATION OF CONTEXTUAL INFORMATION

Singh, Kritika, Facebook AI, United States Okhonko, Dmytro, Facebook AI, United States Liu, Jun, Facebook AI, United States Wang, Yongqiang, Facebook AI, United States Zhang, Frank, Facebook AI, United States Girshick, Ross, Facebook AI, United States Edunov, Sergey, Facebook AI, United States Peng, Fuchun, Facebook AI, United States Saraf, Yatharth, Facebook AI, United States Zweig, Geoffrey, Facebook AI, United States Mohamed, Abdelrahman, Facebook AI, United States

SPE-P23.6: SPEECH RECOGNITION MODEL COMPRESSION

Sakthi, Madhumitha, University of Texas at Austin, United States Tewfik, Ahmed, University of Texas at Austin, United States Pawate, Raj, Cadence Design Systems Inc., United States

SPE-P23.7: GPU-ACCELERATED VITERBI EXACT LATTICE DECODER FOR BATCHED ONLINE AND OFFLINE SPEECH RECOGNITION

Braun, Hugo, NVIDIA, United States Luitjens, Justin, NVIDIA, United States Leary, Ryan, NVIDIA, United States Kaldewey, Tim, NVIDIA, United States Povey, Daniel, Self, United States

SPE-P23.8: SEQUENCE-TO-SEQUENCE AUTOMATIC SPEECH RECOGNITION WITH WORD EMBEDDING REGULARIZATION AND FUSED DECODING

Liu, Alexander H., National Taiwan University, Taiwan Sung, Tzu-Wei, University of California, San Diego, Taiwan Chuang, Shun-Po, National Taiwan University, Taiwan Lee, Hung-yi, National Taiwan University, Taiwan Lee, Lin-shan, National Taiwan University, Taiwan

SPE-P23.9: SYNCHRONOUS TRANSFORMERS FOR END-TO-END SPEECH RECOGNITION

Tian, Zhengkun, Institute of Automation, Chinese Academy of Sciences, China Yi, Jiangyan, Institute of Automation, Chinese Academy of Sciences, China Bai, Ye, Institute of Automation, Chinese Academy of Sciences, China Tao, Jianhua, Institute of Automation, Chinese Academy of Sciences, China Zhang, Shuai, Institute of Automation, Chinese Academy of Sciences, China Wen, Zhengqi, Institute of Automation, Chinese Academy of Sciences, China

SPE-P23.10: INVESTIGATION OF METHODS TO IMPROVE THE RECOGNITION PERFORMANCE OF TAMIL-ENGLISH CODE-SWITCHED DATA IN TRANSFORMER FRAMEWORK

Sagaya Mary N J, Metilda, Indian Institute of Technology Madras, India M. Shetty, Vishwas, Indian Institute of Technology Madras, India Umesh, Srinivasan, Indian Institute of Technology Madras, India

SPE-P23.11: BANGLA VOICE COMMAND RECOGNITION IN END-TO-END SYSTEM USING TOPIC MODELING BASED CONTEXTUAL RESCORING

Sadeq, Nafis, Bangladesh University of Engineering and Technology, Bangladesh Ahmed, Shafayat, Bangladesh University of Engineering and Technology, Bangladesh Saha Shubha, Sudipta, Bangladesh University of Engineering and Technology, Bangladesh Islam, Md. Nahidul, Bangladesh University of Engineering and Technology, Bangladesh Adnan, Muhammad Abdullah, Bangladesh University of Engineering and Technology, Bangladesh

SPE-P23.12: LEARNING TO DETECT KEYWORD PARTS AND WHOLE BY SMOOTHED MAX POOLING

Park, Hyun-Jin, Google, United States Violette, Patrick, Google, United States
Subrahmanya, Niranjan, Google, United States

Signal Processing Theory and Methods

Tuesday, 5 May, 11:30 - 13:30

SPTM-L1 - Estimation Theory and Methods I

SPTM-L1.1: STATE-SPACE GAUSSIAN PROCESS FOR DRIFT ESTIMATION IN STOCHASTIC DIFFERENTIAL EQUATIONS

Zhao, Zheng, Aalto University, Finland Tronarp, Filip, Aalto University, Finland Hostettler, Roland, Uppsala University, Sweden Särkkä, Simo, Aalto University, Finland

SPTM-L1.2: COMPUTING HILBERT TRANSFORM AND SPECTRAL FACTORIZATION FOR SIGNAL SPACES OF SMOOTH FUNCTIONS

Boche, Holger, Technische Universität München, Germany Pohl, Volker, Technische Universität München, Germany

SPTM-L1.3: M-ESTIMATORS OF SCATTER WITH EIGENVALUE SHRINKAGE

Ollila, Esa, Aalto University, Finland Palomar, Daniel, Hong Kong University of Science and Technology, Hong Kong SAR of China Pascal, Frédéric, CentraleSupelec, France

SPTM-L1.4: A MULTITAPER REASSIGNED SPECTROGRAM FOR INCREASED TIME-FREQUENCY LOCALIZATION PRECISION

Sandsten, Maria, Lund University, Sweden Reinhold, Isabella, Lund University, Sweden Anderson, Rachele, Lund University, Sweden

SPTM-L1.5: STOCHASTIC ML ESTIMATION FOR HYPERSPECTRAL UNMIXING UNDER ENDMEMBER VARIABILITY AND NONLINEAR MODELS

Li, Yuening, Chinese University of Hong Kong, Hong Kong SAR of China Wu, Ruiyuan, Chinese University of Hong Kong, Hong Kong SAR of China Ma, Wing-Kin, Chinese University of Hong Kong, Hong Kong SAR of China

SPTM-L1.6: ROBUST PHASE RETRIEVAL WITH OUTLIERS

Jiang, Xue, Shanghai Jiao Tong University, China So, Hing Cheung, City University of Hong Kong, Hong Kong SAR of China Liu, Xingzhao, Shanghai Jiao Tong University, China

Tuesday, 5 May, 11:30 - 13:30

SPTM-L2 - Graph Representations and Analysis

SPTM-L2.1: NODE-ASYNCHRONOUS SPECTRAL CLUSTERING ON DIRECTED GRAPHS

Teke, Oguzhan, California Institute of Technology, United States Vaidyanathan, P. P., California Institute of Technology, United States

SPTM-L2.2: ESTIMATING CENTRALITY BLINDLY FROM LOW-PASS FILTERED GRAPH SIGNALS

He, Yiran, Chinese University of Hong Kong, Hong Kong SAR of China Wai, Hoi To, Chinese University of Hong Kong, Hong Kong SAR of China

SPTM-L2.3: BLIND INFERENCE OF CENTRALITY RANKINGS FROM GRAPH SIGNALS

Roddenberry, T. Mitchell, Rice University, United States Segarra, Santiago, Rice University, United States

SPTM-L2.4: A LOW-DIMENSIONALITY METHOD FOR DATA-DRIVEN GRAPH LEARNING

Stankovic, Ljubisa, University of Montenegro, Montenegro Dakovic, Milos, University of Montenegro, Montenegro Mandic, Danilo P., Imperial College London, United Kingdom Brajovic, Milos, University of Montenegro, Montenegro Scalzo-Dees, Bruno, Imperial College London, United Kingdom Constantinides, Anthony G., Imperial College London, United Kingdom

SPTM-L2.5: METRIC REPRESENTATIONS OF NETWORKS: A UNIQUENESS RESULT

Segarra, Santiago, Rice University, United States Roddenberry, T. Mitchell, Rice University, United States Memoli, Facundo, Ohio State University, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPTM-L2.6: ON THE STABILITY OF POLYNOMIAL SPECTRAL GRAPH FILTERS

Kenlay, Henry, University of Oxford, United Kingdom Thanou, Dorina, Swiss Data Science Center, United Kingdom Dong, Xiaowen, University of Oxford, United Kingdom

Wednesday, 6 May, 09:00 - 11:00

SPTM-L3 - Estimation and Detection

SPTM-L3.1: ON CRAMÉR-RAO LOWER BOUNDS WITH RANDOM EQUALITY CONSTRAINTS

Prévost, Clémence, Université de Lorraine, France Chaumette, Eric, Université de Toulouse, France Usevich, Konstantin, Université de Lorraine, France Brie, David, Université de Lorraine, France Comon, Pierre, Univ. Grenoble Alpes, France

SPTM-L3.2: ON HARMONIC APPROXIMATIONS OF INHARMONIC SIGNALS

Elvander, Filip, Lund University, Sweden Ding, Jie, Harbin Engineering University, China Jakobsson, Andreas, Lund University, Sweden

SPTM-L3.3: A GENERAL TEST FOR THE LINEAR STRUCTURE OF COVARIANCE MATRICES OF GAUSSIAN POPULATIONS

Xiao, Yu-Hang, Paderborn University, Germany Ram´ırez, David, University Carlos III of Madrid, Spain Schreier, Peter, Paderborn University, Germany

SPTM-L3.4: SEQUENTIAL JOINT DETECTION AND ESTIMATION WITH AN APPLICATION TO JOINT SYMBOL DECODING AND NOISE POWER ESTIMATION

Reinhard, Dominik, Technische Universität Darmstadt, Germany Fauß, Michael, Princeton University, United States Zoubir, Abdelhak M., Technische Universität Darmstadt, Germany

SPTM-L3.5: A LINEAR TIME PARTITIONING ALGORITHM FOR FREQUENCY WEIGHTED IMPURITY FUNCTIONS

Nguyen, Thuan, Oregon State University, United States Nguyen, Thinh, Oregon State University, United States

SPTM-L3.6: FINITE SAMPLE DEVIATION AND VARIANCE BOUNDS FOR FIRST ORDER AUTOREGRESSIVE PROCESSES

González, Rodrigo, KTH Royal Institute of Technology, Sweden Rojas, Cristian R., KTH Royal Institute of Technology, Sweden

Wednesday, 6 May, 09:00 - 11:00

SPTM-L4 - Optimization Techniques I

SPTM-L4.1: BALANCING RATES AND VARIANCE VIA ADAPTIVE BATCH-SIZES IN FIRST-ORDER STOCHASTIC OPTIMIZATION

Gao, Zhan, University of Pennsylvania, United States Koppel, Alec, U.S. Army Research Laboratory, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPTM-L4.2: A GREEDY SPARSE APPROXIMATION ALGORITHM BASED ON L1-NORM SELECTION RULES

Ben mhenni, Ramzi, Ecole Centrale de Nantes, France Bourguignon, Sébastien, Ecole Centrale de Nantes, France Idier, Jérome, Ecole Centrale de Nantes, France

SPTM-L4.3: EXACT SPARSE NONNEGATIVE LEAST SQUARES

Nadisic, Nicolas, University of Mons, Belgium Vandaele, Arnaud, University of Mons, Belgium Gillis, Nicolas, University of Mons, Belgium Cohen, Jeremy, CNRS, Université de Rennes, Inria, IRISA., France

SPTM-L4.4: EPIGRAPHICAL REFORMULATION FOR NON-PROXIMABLE MIXED NORMS

Kyochi, Seisuke, University of Kitakyushu, Japan Ono, Shunsuke, Tokyo Institute of Technology, Japan Selesnick, Ivan, New York University, United States

SPTM-L4.5: FORWARD-BACKWARD SPLITTING FOR OPTIMAL TRANSPORT BASED PROBLEMS

Ortiz-Jiménez, Guillermo, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland El Gheche, Mireille, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Simou, Effrosyni, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Petric Maretic, Hermina, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Frossard, Pascal, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SPTM-L4.6: SSGD: SPARSITY-PROMOTING STOCHASTIC GRADIENT DESCENT ALGORITHM FOR UNBIASED DNN PRUNING

Lee, Ching-Hua, University of California, San Diego, United States Fedorov, Igor, ARM, United States Rao, Bhaskar D., University of California, San Diego, United States Garudadri, Harinath, University of California, San Diego, United States

Thursday, 7 May, 09:00 - 11:00

SPTM-L5 - Signal Processing Emerging Topics

SPTM-L5.1: LOW-RANK TENSOR RING MODEL FOR COMPLETING MISSING VISUAL DATA

Asif, M. Salman, University of California, Riverside, United States Prater-Bennette, Ashley, Air Force Research Laboratory, United States

SPTM-L5.2: SEQUENTIAL SEMI-ORTHOGONAL MULTI-LEVEL NMF WITH NEGATIVE RESIDUAL REDUCTION FOR NETWORK EMBEDDING

Hashimoto, Riku, University of Electro-Communications, Japan Kasai, Hiroyuki, Waseda University, Japan

SPTM-L5.3: A FAST PROXIMAL POINT ALGORITHM FOR GENERALIZED GRAPH LAPLACIAN LEARNING

Deng, Zengde, Chinese University of Hong Kong, Hong Kong SAR of China So, Anthony Man-Cho, Chinese University of Hong Kong, Hong Kong SAR of China

SPTM-L5.4: RECONSTRUCTION OF FRI SIGNALS USING DEEP NEURAL NETWORK APPROACHES

Leung, Vincent C. H., Imperial College London, United Kingdom Huang, Jun-Jie, Imperial College London, United Kingdom Dragotti, Pier Luigi, Imperial College London, United Kingdom

SPTM-L5.5: ADAPTIVE PREDICTION OF FINANCIAL TIME-SERIES FOR DECISION-MAKING USING A TENSORIAL AGGREGATION APPROACH

Campello, Betania, University of Campinas, Brazil Duarte, Leonardo, University of Campinas, Brazil Romano, João, University of Campinas, Brazil

Thursday, 7 May, 09:00 - 11:00

SPTM-L6 - Tracking and Adaptive Signal Processing

SPTM-L6.1: DATA SELECTION KERNEL CONJUGATE GRADIENT ALGORITHM

Diniz, Paulo, Federal University of Rio de Janeiro, Brazil Ferreira, Jonathas, Federal University of Rio de Janeiro, Brazil Kuhfuss, Marcele, Federal University of Rio de Janeiro, Brazil Ferreira, Tadeu, Fluminense Federal University, Brazil

SPTM-L6.2: NORMALIZED LEAST-MEAN-SQUARE ALGORITHMS WITH MINIMAX CONCAVE PENALTY

Kaneko, Hiroyuki, Keio University, Japan Yukawa, Masahiro, Keio University, Japan

SPTM-L6.3: STEEPENING SQUARED ERROR FUNCTION FACILITATES ONLINE ADAPTATION OF GAUSSIAN SCALES

Takizawa, Masa-aki, Keio University, Japan Yukawa, Masahiro, Keio University, Japan

SPTM-L6.4: INDOOR ALTITUDE ESTIMATION OF UNMANNED AERIAL VEHICLES USING A BANK OF KALMAN FILTERS

Yang, Liu, Stony Brook University, United States Wang, Hechuan, Stony Brook University, United States El-Laham, Yousef, Stony Brook University, United States Ignacio Lamas Fonte, José, Avansig S. L., Spain Trillo Pérez, David, Avansig S. L., Spain Bugallo, Mónica F., Stony Brook University, United States

SPTM-L6.5: UNDERWATER TRACKING BASED ON THE SUM-PRODUCT ALGORITHM ENHANCED BY A NEURAL NETWORK DETECTIONS CLASSIFIER

Soldi, Giovanni, NATO STO Centre for Maritime Research and Experimentation, Italy Gaglione, Domenico, NATO STO Centre for Maritime Research and Experimentation, Italy De Magistris, Giovanni, NATO STO Centre for Maritime Research and Experimentation, Italy Braca, Paolo, NATO STO Centre for Maritime Research and Experimentation, Italy Stinco, Pietro, NATO STO Centre for Maritime Research and Experimentation, Italy Ferri, Gabriele, NATO STO Centre for Maritime Research and Experimentation, Italy Tesei, Alessandra, NATO STO Centre for Maritime Research and Experimentation, Italy Le Page, Kevin, NATO STO Centre for Maritime Research and Experimentation, Italy

SPTM-L6.6: FEATURE AFFINE PROJECTION ALGORITHMS

Yazdanpanah, Hamed, University of São Paulo, Brazil

Friday, 8 May, 11:45 - 13:45

SPTM-L7 - Bayesian Signal Processing II

SPTM-L7.1: APPROXIMATE BAYESIAN COMPUTATION WITH THE SLICED-WASSERSTEIN DISTANCE

Nadjahi, Kimia, Telecom Paris, France De Bortoli, Valentin, Ecole normale supérieure Paris-Saclay, France Durmus, Alain, Ecole normale supérieure Paris-Saclay, France Badeau, Roland, Telecom Paris, France Simsekli, Umut, Telecom Paris and University of Oxford, France

SPTM-L7.2: ENHANCED MIXTURE POPULATION MONTE CARLO VIA STOCHASTIC OPTIMIZATION AND MARKOV CHAIN MONTE CARLO SAMPLING

El-Laham, Yousef, Stony Brook University, United States Djuric, Petar, Stony Brook University, United States Bugallo, Mónica F., Stony Brook University, United States

SPTM-L7.3: BETTER SAFE THAN SORRY: RISK-AWARE NONLINEAR BAYESIAN ESTIMATION

Kalogerias, Dionysios, University of Pennsylvania, United States Chamon, Luiz, University of Pennsylvania, United States Pappas, George, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPTM-L7.4: PARTICLE FILTERING ON THE COMPLEX STIEFEL MANIFOLD WITH APPLICATION TO SUBSPACE TRACKING

Bordin, Claudio, Universidade Federal do ABC, Brazil Bruno, Marcelo, Instituto Tecnológico de Aeronáutica, Brazil

SPTM-L7.5: BAYESIAN MULTIPLE CHANGE-POINT DETECTION WITH LIMITED COMMUNICATION

Halme, Topi, Aalto University, Finland Nitzan, Eyal, Aalto University, Finland Poor, H. Vincent, Princeton University, United States Koivunen, Visa, Aalto University, Finland

SPTM-L7.6: WHAT DID YOUR ADVERSARY BELIEVE? OPTIMAL FILTERING AND SMOOTHING IN COUNTER-ADVERSARIAL AUTONOMOUS SYSTEMS

Mattila, Robert, KTH Royal Institute of Technology, Sweden Lourenço, Inês, KTH Royal Institute of Technology, Sweden Krishnamurthy, Vikram, Cornell University, United States Rojas, Cristian R., KTH Royal Institute of Technology, Sweden Wahlberg, Bo, KTH Royal Institute of Technology, Sweden

Friday, 8 May, 11:45 - 13:45

SPTM-L8 - Sparsity-Aware Processing II

SPTM-L8.1: ROBUST PARAMETER ESTIMATION OF CONTAMINATED DAMPED EXPONENTIALS

Xie, Youye, Colorado School of Mines, United States Liu, Dehong, Mitsubishi Electric Research Laboratories (MERL), United States Mansour, Hassan, Mitsubishi Electric Research Laboratories (MERL), United States Boufounos, Petros T., Mitsubishi Electric Research Laboratories (MERL), United States

SPTM-L8.2: COMPUTATION OF "BEST" INTERPOLANTS IN THE LP SENSE

Bohra, Pakshal, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Unser, Michael, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SPTM-L8.3: PRECISE PERFORMANCE ANALYSIS OF THE BOX-ELASTIC NET UNDER MATRIX UNCERTAINTIES

Alrashdi, Ayed, King Abdullah University of Science and Technology (KAUST), Saudi Arabia Ben Atitallah, Ismail, Harvard University, United States Al-Naffouri, Tareq, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

SPTM-L8.4: FAST BLOCK-SPARSE ESTIMATION FOR VECTOR NETWORKS

Yue, Zuogong, University of New South Wales, Australia Sundaram, Padmavathi, Harvard Medical School, United States Solo, Victor, University of New South Wales, Australia

SPTM-L8.5: RELATIVE COST BASED MODEL SELECTION FOR SPARSE HIGH-DIMENSIONAL LINEAR REGRESSION MODELS

B. Gohain, Prakash, KTH Royal Institute of Technology, Sweden Jansson, Magnus, KTH Royal Institute of Technology, Sweden

SPTM-L8.6: CUMULANT SLICE RECONSTRUCTION FROM COMPRESSIVE MEASUREMENTS AND ITS APPLICATION TO LINE SPECTRUM ESTIMATION

Wang, Yanbo, George Mason University, United States Tian, Zhi, George Mason University, United States

Tuesday, 5 May, 16:30 - 18:30

SPTM-P1 - Adaptation and Learning over Graphs

SPTM-P1.1: ADAPTATION AND LEARNING IN MULTI-TASK DECISION SYSTEMS

Marano, Stefano, university of salerno, Italy Sayed, Ali H., Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SPTM-P1.2: GRAPH METRIC LEARNING VIA GERSHGORIN DISC ALIGNMENT

Yang, Cheng, York University, Canada Cheung, Gene, York University, Canada Hu, Wei, Peking University, China

SPTM-P1.3: LEARNING GRAPH INFLUENCE FROM SOCIAL INTERACTIONS

Matta, Vincenzo, University of Salerno, Italy Bordignon, Virginia, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Santos, Augusto, [None], Portugal Sayed, Ali H., Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SPTM-P1.4: SOCIAL LEARNING WITH PARTIAL INFORMATION SHARING

Bordignon, Virginia, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Matta, Vincenzo, University of Salerno, Italy Sayed, Ali H., Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SPTM-P1.5: NON-PARAMETRIC COMMUNITY CHANGE-POINTS DETECTION IN STREAMING GRAPH SIGNALS

Ferrari, André, Université Côte d'Azur, France Richard, Cédric, Université Côte d'Azur, France

SPTM-P1.6: SPATIAL GATING STRATEGIES FOR GRAPH RECURRENT NEURAL NETWORKS

Ruiz, Luana, University of Pennsylvania, United States Gama, Fernando, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPTM-P1.7: LEARNING CONNECTIVITY AND HIGHER-ORDER INTERACTIONS IN RADIAL DISTRIBUTION GRIDS

Yang, Qiuling, Beijing Institute of Technology, China Coutino, Mario, Delft University of Technology, Netherlands Wang, Gang, University of Minnesota, United States Giannakis, Georgios B., University of Minnesota, United States Leus, Geert, Delft University of Technology, Netherlands

SPTM-P1.8: SEMI-SUPERVISED LEARNING OF PROCESSES OVER MULTI-RELATIONAL GRAPHS

Lu, Qin, University of Minnesota, United States Ioannidis, Vassilis N., University of Minnesota, United States Giannakis, Georgios B., University of Minnesota, United States

SPTM-P1.9: RECURSIVE PREDICTION OF GRAPH SIGNALS WITH INCOMING NODES

Venkitaraman, Arun, KTH Royal Institute of Technology, Sweden Chatterjee, Saikat, KTH Royal Institute of Technology, Sweden Wahlberg, Bo, KTH Royal Institute of Technology, Sweden

SPTM-P1.10: LEARNING SIGNED GRAPHS FROM DATA

Matz, Gerald, Technische Universität Wien, Austria Dittrich, Thomas, Technische Universität Wien, Austria

SPTM-P1.11: FORECASTING MULTI-DIMENSIONAL PROCESSES OVER GRAPHS

Natali, Alberto, Delft University of Technology, Netherlands Isufi, Elvin, Delft University of Technology, Netherlands Leus, Geert, Delft University of Technology, Netherlands

SPTM-P1.12: A REGULARIZATION FRAMEWORK FOR LEARNING OVER MULTITASK GRAPHS

Nassif, Roula, American University of Beirut, Lebanon Vlaski, Stefan, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Richard, Cédric, Universite de Nice Sophia-Antipolis, France Sayed, Ali H., Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Tuesday, 5 May, 16:30 - 18:30

SPTM-P2 - Sampling Theory, Analysis and Methods

SPTM-P2.1: DISTRIBUTED QUANTIZATION FOR SPARSE TIME SEQUENCES

Cohen, Alejandro, Massachusetts Institute of Technology, United States Shlezinger, Nir, Weizmann Institute of Science, Israel Salamatian, Salman, Massachusetts Institute of Technology, United States C. Eldar, Yonina, Weizmann Institute of Science, Israel Medard, Muriel, Massachusetts Institute of Technology, United States

SPTM-P2.2: A TIME-BASED SAMPLING FRAMEWORK FOR FINITE-RATE-OF-INNOVATION SIGNALS

Rudresh, Sunil, Indian Institute of Science, India Kamath, Abijith Jagannath, Indian Institute of Science, India Seelamantula, Chandra Sekhar, Indian Institute of Science, India

SPTM-P2.3: EFFECTIVE APPROXIMATION OF BANDLIMITED SIGNALS AND THEIR SAMPLES

Boche, Holger, Technische Universität München, Germany Mönich, Ullrich, Technische Universität München, Germany

SPTM-P2.4: RECEIVER DESIGN AND AGC OPTIMIZATION WITH SELF INTERFERENCE INDUCED SATURATION

Sheemar, Chandan, EURECOM, France Slock, Dirk, EURECOM, France

SPTM-P2.5: D-SLAM: DIFFUSION SOURCE LOCALIZATION AND TRAJECTORY MAPPING

Alexandru, Roxana, Imperial College London, United Kingdom Blu, Thierry, Chinese University of Hong Kong, Hong Kong SAR of China Dragotti, Pier Luigi, Imperial College London, United Kingdom

SPTM-P2.6: TRIGGERLESS RANDOM INTERLEAVED SAMPLING

Rupniewski, Marek, Warsaw University of Technology, Poland

SPTM-P2.7: THE FRACTIONAL QUATERNION FOURIER NUMBER TRANSFORM

da Silva Jr., Luiz, Federal University of Pernambuco, Brazil de Oliveira Neto, José, Federal University of Pernambuco, Brazil Lima, Juliano, Federal University of Pernambuco, Brazil

SPTM-P2.8: SHORT AND SQUEEZED: ACCELERATING THE COMPUTATION OF ANTISPARSE REPRESENTATIONS WITH SAFE SQUEEZING

Elvira, Clément, Univ Rennes, Inria, CNRS, IRISA, France Herzet, Cédric, Univ Rennes, Inria, CNRS, IRISA, France

SPTM-P2.9: DECENTRALIZED EXPECTED CONSISTENT SIGNAL RECOVERY FOR QUANTIZATION MEASUREMENTS

Wang, Chang-Jen, National Chiao Tung University, Taiwan Wen, Chao-Kai, National Sun Yat-sen University, Taiwan Tsai, Shang-Ho, National Chiao Tung University, Taiwan Jin, Shi, Southeast University, China

SPTM-P2.11: LIE GROUP STATE ESTIMATION VIA OPTIMAL TRANSPORT

Wang, Zhichao, University of New South Wales, Australia Solo, Victor, University of New South Wales, Australia

Wednesday, 6 May, 09:00 - 11:00

SPTM-P3 - Signal and Information Processing over Graphs

SPTM-P3.1: SMOOTHING GRAPH SIGNALS VIA RANDOM SPANNING FORESTS

Pilavci, Yusuf Yigit, University Grenoble-Alpes, Grenoble-INP, France Amblard, Pierre-Olivier, CNRS, France Barthelmé, Simon, CNRS, France Tremblay, Nicolas, CNRS, France

SPTM-P3.2: DIAGONALIZABLE SHIFT AND FILTERS FOR DIRECTED GRAPHS BASED ON THE JORDAN-CHEVALLEY DECOMPOSITION

Misiakos, Panagiotis, National Technical University of Athens, Greece Wendler, Chris, ETH Zurich, Switzerland Püschel, Markus, ETH Zurich, Switzerland

SPTM-P3.3: GAUSSIAN PROCESSES OVER GRAPHS

Venkitaraman, Arun, KTH Royal Institute of Technology, Sweden Chatterjee, Saikat, KTH Royal Institute of Technology, Sweden Handel, Peter, KTH Royal Institute of Technology, Sweden

SPTM-P3.4: BLIND SOURCE SEPARATION OF GRAPH SIGNALS

Miettinen, Jari, Aalto University, Finland Vorobyov, Sergiy A., Aalto University, Finland Ollila, Esa, Aalto University, Finland

SPTM-P3.5: GRAPHICAL EVOLUTIONARY GAME THEORETIC ANALYSIS OF SUPER USERS IN INFORMATION DIFFUSION

Li, Yuejiang, Tsinghua University, China Li, Yaxin, Michigan State University, United States Hu, Hong, Tsinghua University, China Zhao, H. Vicky, Tsinghua University, China Chen, Yan, University of Electronic Science and Technology of China, China

SPTM-P3.6: GRADIENT-BASED ALGORITHM WITH SPATIAL REGULARIZATION FOR OPTIMAL SENSOR PLACEMENT

Ghayem, Fateme, University of Grenoble, France Rivet, Bertrand, University of Grenoble, France Cabral Farias, Rodrigo, Univ. Cote dAzur, France Jutten, Christian, University of Grenoble, France

SPTM-P3.7: THE GRAPHON FOURIER TRANSFORM

Ruiz, Luana, University of Pennsylvania, United States F. O. Chamon, Luiz, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPTM-P3.8: LEARNING PRODUCT GRAPHS FROM MULTIDOMAIN SIGNALS

Kadambari, Sai Kiran, Indian Institute of Science, India Chepuri, Sundeep Prabhakar, Indian Institute of Science, India

SPTM-P3.9: GRAPH VERTEX SAMPLING WITH ARBITRARY GRAPH SIGNAL HILBERT SPACES

Girault, Benjamin, University of Southern California, United States Ortega, Antonio, University of Southern California, United States Narayayan, Shrikanth, University of Southern California, United States

SPTM-P3.10: ESTIMATION OF INFORMATION IN PARALLEL GAUSSIAN CHANNELS VIA MODEL ORDER SELECTION

Lopez, Carlos Alejandro, Technical University of Catalonia, Spain de Cabrera, Ferran, Technical University of Catalonia, Spain Riba, Jaume, Technical University of Catalonia, Spain

SPTM-P3.11: GENERALIZED GRAPH SPECTRAL SAMPLING WITH STOCHASTIC PRIORS

Hara, Junya, Tokyo University of Agriculture and Technology, Japan Tanaka, Yuichi, Tokyo University of Agriculture and Technology, Japan Eldar, Yonina, Weizmann Institute of Science, Israel

Wednesday, 6 May, 11:30 - 13:30

SPTM-P4 - Sparsity-Aware Processing I

SPTM-P4.1: ANOMALYDAE: DUAL AUTOENCODER FOR ANOMALY DETECTION ON ATTRIBUTED NETWORKS

Fan, Haoyi, Harbin University of Science and Technology, China Zhang, Fengbin, Harbin University of Science and Technology, China Li, Zuoyong, Minjiang University, China

SPTM-P4.2: ON THE DEGREES OF FREEDOM IN TOTAL VARIATION MINIMIZATION

Xue, Feng, National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, China Blu, Thierry, Chinese University of Hong Kong, Hong Kong SAR of China

SPTM-P4.3: ATOMIC NORM DENOISING IN BLIND TWO-DIMENSIONAL SUPER-RESOLUTION

Suliman, Mohamed A., Imperial College London, United Kingdom Dai, Wei, Imperial College London, United Kingdom

SPTM-P4.4: DYNAMIC CHANNEL PRUNING FOR CORRELATION FILTER BASED OBJECT TRACKING

Yelluru Gopal, Goutam, Concordia University, Canada Amer, Maria A., Concordia University, Canada

SPTM-P4.5: POSITIVE SEMIDEFINITE MATRIX FACTORIZATION: A LINK TO PHASE RETRIEVAL AND A BLOCK GRADIENT ALGORITHM

Lahat, Dana, IRIT, Université de Toulouse, CNRS, France Févotte, Cédric, IRIT, Université de Toulouse, CNRS, France

SPTM-P4.6: REALIZABILITY OF PLANAR POINT EMBEDDINGS FROM ANGLE MEASUREMENTS

Dümbgen, Frederike, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland El Helou, Majed, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Scholefield, Adam, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SPTM-P4.7: SPARSE RECOVERY WITH NON-LINEAR FOURIER FEATURES

Ozcelikkale, Ayca, Uppsala University, Sweden

SPTM-P4.8: EFFICIENT SUPER-RESOLUTION TWO-DIMENSIONAL HARMONIC RETRIEVAL VIA ENHANCED LOW-RANK STRUCTURED COVARIANCE RECONSTRUCTION

Wang, Yue, George Mason University, United States Zhang, Yu, Nanjing University of Aeronautics and Astronautics, China Tian, Zhi, George Mason University, United States Leus, Geert, Delft University of Technology, Netherlands Zhang, Gong, Nanjing University of Aeronautics and Astronautics, China

SPTM-P4.9: EFFECT OF UNDERSAMPLING ON NON-NEGATIVE BLIND DECONVOLUTION WITH AUTOREGRESSIVE FILTERS

Sarangi, Pulak, University of California, San Diego, United States Hucumenoglu, Mehmet Can, University of California, San Diego, United States Pal, Piya, University of California, San Diego, United States

SPTM-P4.10: MANIFOLD GRADIENT DESCENT SOLVES MULTI-CHANNEL SPARSE BLIND DECONVOLUTION PROVABLY AND EFFICIENTLY

Shi, Laixi, Carnegie Mellon University, United States Chi, Yuejie, Carnegie Mellon University, United States

SPTM-P4.11: SELF-TUNING ALGORITHMS FOR MULTISENSOR-MULTITARGET TRACKING USING BELIEF PROPAGATION

Soldi, Giovanni, Centre for Maritime Research and Experimentation (CMRE), Italy Meyer, Florian, University of California, San Diego, United States Braca, Paolo, Centre for Maritime Research and Experimentation (CMRE), Italy Hlawatsch, Franz, Technische Universität Wien, Austria

Wednesday, 6 May, 11:30 - 13:30

SPTM-P5 - Optimization Techniques II

SPTM-P5.1: SPARSE BRANCH AND BOUND FOR EXACT OPTIMIZATION OF L0-NORM PENALIZED LEAST SQUARES

Ben Mhenni, Ramzi, Ecole Centrale de Nantes, France Bourguignon, Sébastien, Ecole Centrale de Nantes, France Mongeau, Marcel, Ecole Nationale de l'Aviation Civile, Université de Toulouse, France Ninin, Jordan, École nationale supérieure de techniques avancées Bretagne, France Hervé, Carfantan, Université Toulouse III Paul Sabatier, France

SPTM-P5.2: A PROXIMAL DUAL CONSENSUS METHOD FOR LINEARLY COUPLED MULTI-AGENT NON-CONVEX OPTIMIZATION

Zhang, Jiawei, Chinese University of Hong Kong, Shenzhen, China Ge, Songyang, Chinese University of Hong Kong, Shenzhen, China Chang, Tsung-Hui, Chinese University of Hong Kong, Shenzhen, China Luo, Zhi-Quan, Chinese University of Hong Kong, Shenzhen, China

SPTM-P5.3: A PENALTY ALTERNATING DIRECTION METHOD OF MULTIPLIERS FOR DECENTRALIZED COMPOSITE OPTIMIZATION

Zhang, Jiaojiao, Chinese University of Hong Kong, China So, Anthony Man-Cho, Chinese University of Hong Kong, China Ling, Qing, Sun Yat-Sen University, China

SPTM-P5.4: WIRTINGER FLOW ALGORITHMS FOR PHASE RETRIEVAL FROM BINARY MEASUREMENTS

Kishore, Vinith, Indian Institute of Science, Bangalore, India Seelamantula, Chandra Sekhar, Indian Institute of Science, Bangalore, India

SPTM-P5.5: DECENTRALIZED MIN-MAX OPTIMIZATION: FORMULATIONS, ALGORITHMS AND APPLICATIONS IN NETWORK POISONING ATTACK

Tsaknakis, Ioannis, University of Minnesota Twin Cities, United States Hong, Mingyi, University of Minnesota Twin Cities, United States Liu, Sijia, IBM Research, United States

SPTM-P5.6: AN EFFICIENT AUGMENTED LAGRANGIAN-BASED METHOD FOR LINEAR EQUALITY-CONSTRAINED LASSO

Deng, Zengde, Chinese University of Hong Kong, Hong Kong SAR of China Yue, Man-Chung, Hong Kong Polytechnic University, Hong Kong SAR of China So, Anthony Man-Cho, Chinese University of Hong Kong, Hong Kong SAR of China

SPTM-P5.7: CONTROL OF LINEAR DYNAMICAL SYSTEMS USING SPARSE INPUTS

Sriram, Chandrasekhar, Indian Institute of Science, India Joseph, Geethu, Indian Institute of Science, India Murthy, Chandra R., Indian Institute of Science, India

SPTM-P5.8: DECENTRALIZED STOCHASTIC NON-CONVEX OPTIMIZATION OVER WEAKLY CONNECTED TIME-VARYING DIGRAPHS

Lu, Songtao, IBM, United States Wu, Chai Wah, IBM, United States

SPTM-P5.10: RECOVERY OF BINARY SPARSE SIGNALS FROM COMPRESSED LINEAR MEASUREMENTS VIA POLYNOMIAL OPTIMIZATION

Fosson, Sophie M., Politecnico di Torino, Italy Abuabiah, Mohammad, Politecnico di Torino, Italy

Wednesday, 6 May, 16:30 - 18:30

SPTM-P6 - Sampling, Multirate Signal Processing and Digital Signal Processing

SPTM-P6.1: PACO AND PACO-DCT: PATCH CONSENSUS AND ITS APPLICATION TO INPAINTING

Ramírez, Ignacio, Universidad de la República, Uruguay Hounie, Ignacio, Universidad de la República, Uruguay

SPTM-P6.2: IMAGE RECOVERY FROM ROTATIONAL AND TRANSLATIONAL INVARIANTS

Marshall, Nicholas, Princeton University, United States Lan, Ti-Yen, Princeton University, United States Bendory, Tamir, Tel Aviv University, Israel Singer, Amit, Princeton University, United States

SPTM-P6.3: OPTIMAL WINDOW DESIGN FOR JOINT SPATIAL-SPECTRAL DOMAIN FILTERING OF SIGNALS ON THE SPHERE

Aslam, Adeem, Lahore University of Management Sciences, Pakistan Khalid, Zubair, Lahore University of Management Sciences, Pakistan

SPTM-P6.4: FILTERING OUT TIME-FREQUENCY AREAS USING GABOR MULTIPLIERS

Kreme, Ama Marina, Aix-Marseille Université, France Emiya, Valentin, Aix-Marseille Université, France Chaux, Caroline, Aix-Marseille Université, France Torrésani, Bruno, Aix-Marseille Université, France

SPTM-P6.5: $\BETA$-NMF AND SPARSITY PROMOTING REGULARIZATIONS FOR COMPLEX MIXTURE UNMIXING. APPLICATION TO 2D HSQC NMR.

Cherni, Afef, Aix-Marseille Univ, CNRS, Centrale Marseille, I2M, France Anthoine, Sandrine, Aix-Marseille Univ, CNRS, Centrale Marseille, I2M, France Chaux, Caroline, Aix-Marseille Univ, CNRS, Centrale Marseille, I2M, France

SPTM-P6.6: FIR FILTERING OF DISCONTINUOUS SIGNALS: A RANDOM-STRATIFIED SAMPLING APPROACH

Darawsheh, Hikmat, University of Westminster, United Kingdom Tarczynski, Andrzej, University of Westminster, United Kingdom

SPTM-P6.7: MESSAGE TRANSMISSION THROUGH UNDERSPREAD TIME-VARYING LINEAR CHANNELS

Kaplan, Alihan, Technische Universität München, Germany Lee, Dae Gwan, Catholic University of Eichstätt-Ingolstadt, Germany Pohl, Volker, Technische Universität München, Germany

SPTM-P6.8: THE DISCRETE STOCKWELL TRANSFORMS FOR INFINITE-LENGTH SIGNALS AND THEIR REAL-TIME IMPLEMENTATIONS

Yan, Yusong, Beijing Institute of Technology, China Zhu, Hongmei, York University, Canada

SPTM-P6.9: LOW-RANK APPROXIMATION OF MATRICES VIA A RANK-REVEALING FACTORIZATION WITH RANDOMIZATION

Kaloorazi, Maboud, Northwestern Polytechnical University, China Chen, Jie, Northwestern Polytechnical University, China

SPTM-P6.10: TIME-SCALE SYNTHESIS FOR LOCALLY STATIONARY SIGNALS

Meynard, Adrien, Duke University, United States Torrésani, Bruno, Aix-Marseille Université, France

SPTM-P6.11: MAXIMALLY ENERGY-CONCENTRATED DIFFERENTIAL WINDOW FOR PHASE-AWARE SIGNAL PROCESSING USING INSTANTANEOUS FREQUENCY

Kusano, Tsubasa, Waseda University, Japan Yatabe, Kohei, Waseda University, Japan Oikawa, Yasuhiro, Waseda University, Japan

SPTM-P6.12: ON THE USE OF RÉNYI ENTROPY FOR OPTIMAL WINDOW SIZE COMPUTATION IN THE SHORT-TIME FOURIER TRANSFORM

Meignen, Sylvain, University Grenoble Alpes, France Colominas, Marcelo A., CONICET, Argentina Pham, Duong-Hung, University of Toulouse, France

Wednesday, 6 May, 16:30 - 18:30

SPTM-P7 - Bayesian Signal Processing I

SPTM-P7.1: DATA-DRIVEN MODEL SET DESIGN FOR MODEL AVERAGED PARTICLE FILTER

Liu, Bin, Nanjing University of Posts and Telecommunications, China

SPTM-P7.2: GRAPHEM: EM ALGORITHM FOR BLIND KALMAN FILTERING UNDER GRAPHICAL SPARSITY CONSTRAINTS

Chouzenoux, Emilie, CVN, CentraleSupélec, INRIA Saclay, France Elvira, Víctor, University of Edinburgh, United Kingdom

SPTM-P7.3: ON DESIGN OF OPTIMAL SMART METER PRIVACY CONTROL STRATEGY AGAINST ADVERSARIAL MAP DETECTION

Avula, Ramana Reddy, KTH Royal Institute of Technology, Sweden Oechtering, Tobias, KTH Royal Institute of Technology, Sweden

SPTM-P7.4: APPROXIMATE INFERENCE BY KULLBACK-LEIBLER TENSOR BELIEF PROPAGATION

Wijnings, Patrick W.A., Eindhoven University of Technology, Netherlands Stuijk, Sander, Eindhoven University of Technology, Netherlands de Vries, Bert, Eindhoven University of Technology, Netherlands Corporaal, Henk, Eindhoven University of Technology, Netherlands

SPTM-P7.5: A PARTICLE GIBBS SAMPLING APPROACH TO TOPOLOGY INFERENCE IN GENE REGULATORY NETWORKS

Iloska, Marija, Stony Brook University, United States El-Laham, Yousef, Stony Brook University, United States Bugallo, Mónica F., Stony Brook University, United States

SPTM-P7.6: PARTICLE FILTER WITH REJECTION CONTROL AND UNBIASED ESTIMATOR OF THE MARGINAL LIKELIHOOD

Kudlicka, Jan, Uppsala University, Sweden Murray, Lawrence M., Uber AI, United States Schön, Thomas B., Uppsala University, Sweden Lindsten, Fredrik, Linköping University, Sweden

SPTM-P7.7: PARTICLE GROUP METROPOLIS METHODS FOR TRACKING THE LEAF AREA INDEX

Martino, Luca, Universidad Rey Juan Carlos, Spain Elvira, Víctor, University of Edinburgh, United Kingdom Camps-Valls, Gustau, Universitat de Valencia, Spain

SPTM-P7.8: UNSUPERVISED VARIATIONAL BAYESIAN KALMAN FILTERING FOR LARGE-DIMENSIONAL GAUSSIAN SYSTEMS

Ait-El-Fquih, Boujemaa, King Abdullah University of Science and Technology (KAUST), Saudi Arabia Rodet, Thomas, Ecole Normale Supérieure de Cachan, France Hoteit, Ibrahim, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

SPTM-P7.9: LEVENBERG-MARQUARDT AND LINE-SEARCH EXTENDED KALMAN SMOOTHERS

Särkkä, Simo, Aalto University, Finland Svensson, Lennart, Chalmers University of Technology, Sweden

SPTM-P7.10: LAPLACE STATE SPACE FILTER WITH EXACT INFERENCE AND MOMENT MATCHING

Neri, Julian, McGill University, Canada Depalle, Philippe, McGill University, Canada Badeau, Roland, Telecom Paris, France

SPTM-P7.11: PROBABILISTIC FILTER AND SMOOTHER FOR VARIATIONAL INFERENCE OF BAYESIAN LINEAR DYNAMICAL SYSTEMS

Neri, Julian, McGill University, Canada Badeau, Roland, Telecom Paris, France Depalle, Philippe, McGill University, Canada

SPTM-P7.12: OPTIMUM KERNEL PARTICLE FILTER FOR ASYMMETRIC LAPLACE NOISE

Andersson, Ulrika, University of Cambridge, United Kingdom Godsill, Simon, University of Cambridge, United Kingdom

Thursday, 7 May, 11:30 - 13:30

SPTM-P8 - Signal Processing over Networks

SPTM-P8.2: CONVEX OPTIMISATION-BASED PRIVACY-PRESERVING DISTRIBUTED AVERAGE CONSENSUS IN WIRELESS SENSOR NETWORKS

Li, Qiongxiu, Aalborg university, Denmark Heusdens, Richard, Delft University of Technology, Netherlands Christensen, Mads Græsbøll, Aalborg university, Denmark

SPTM-P8.3: PROXIMAL MULTITASK LEARNING OVER DISTRIBUTED NETWORKS WITH JOINTLY SPARSE STRUCTURE

Jin, Danqi, Northwestern Polytechnical University, China Chen, Jie, Northwestern Polytechnical University, China Richard, Cédric, Université de la Cote d'Azur, France Chen, Jingdong, Northwestern Polytechnical University, China

SPTM-P8.4: OPTIMAL SAMPLING RATE AND BANDWIDTH OF BANDLIMITED SIGNALS - AN ALGORITHMIC PERSPECTIVE

Boche, Holger, Technische Universität München, Germany Mönich, Ullrich, Technische Universität München, Germany

SPTM-P8.5: RESILIENT TO BYZANTINE ATTACKS FINITE-SUM OPTIMIZATION OVER NETWORKS

Wu, Zhaoxian, Sun Yat-Sen University, China Ling, Qing, Sun Yat-Sen University, China Chen, Tianyi, Rensselaer Polytechnic Institute, United States Giannakis, Georgios B., University of Minnesota, United States

SPTM-P8.6: EXPLOITING SPARSITY FOR ROBUST SENSOR NETWORK LOCALIZATION IN MIXED LOS/NLOS ENVIRONMENTS

Jin, Di, Technische Universität Darmstadt, Germany Yin, Feng, Chinese University of Hong Kong, China Fauß, Michael, Princeton University, United States Muma, Michael, Technische Universität Darmstadt, Germany Zoubir, Abdelhak M., Technische Universität Darmstadt, Germany

SPTM-P8.7: A LOW-COMPLEXITY MAP DETECTOR FOR DISTRIBUTED NETWORKS

Feitosa, Allan, Universidade de São Paulo, Brazil Nascimento, Vítor, Universidade de São Paulo, Brazil Lopes, Cássio, Universidade de São Paulo, Brazil

SPTM-P8.8: QUICKEST CHANGE DETECTION IN ANONYMOUS HETEROGENEOUS SENSOR NETWORKS

Sun, Zhongchang, University at Buffalo, State University of New York, United States Zou, Shaofeng, University at Buffalo, State University of New York, United States Li, Qunwei, Ant Financial Services Group, China

SPTM-P8.9: OPTIMAL POWER FLOW USING GRAPH NEURAL NETWORKS

Owerko, Damian, University of Pennsylvania, United States Gama, Fernando, University of Pennsylvania, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SPTM-P8.10: BYZANTINE-ROBUST DECENTRALIZED STOCHASTIC OPTIMIZATION

Peng, Jie, Sun Yat-Sen University, China Ling, Qing, Sun Yat-Sen University, China

SPTM-P8.11: FEDERATED TRUTH INFERENCE OVER DISTRIBUTED CROWDSOURCING PLATFORMS

Yang, Ming-Hsun, National Chiao Tung University, Taiwan Liu, Gin-Hao, National Tsing Hua University, Taiwan Hong, Y.-W. Peter, National Tsing Hua University, Taiwan

SPTM-P8.12: CLOCK SYNCHRONIZATION OVER NETWORKS USING SAWTOOTH MODELS

del Aguila Pla, Pol, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Pellaco, Lissy, KTH Royal Institute of Technology, Sweden Dwivedi, Satyam, Ericsson Research, Sweden Handel, Peter, KTH Royal Institute of Technology, Sweden Jaldén, Joakim, KTH Royal Institute of Technology, Sweden

Thursday, 7 May, 11:30 - 13:30

SPTM-P9 - Estimation Theory and Methods II

SPTM-P9.1: AN ANALYTICAL SOLUTION TO JACOBSEN ESTIMATOR FOR WINDOWED SIGNALS

Murakami, Takahiro, Meiji University, Japan Wang, Wenwu, University of Surrey, United Kingdom

SPTM-P9.2: REGULARIZED PARTIAL PHASE SYNCHRONY INDEX APPLIED TO DYNAMICAL FUNCTIONAL CONNECTIVITY ESTIMATION

Frusque, Gaëtan, Ecole Normal Supérieur de Lyon, France Jung, Julien, Hospice Civil de lyon, Neuroscience Hospital & INSERM, France Borgnat, Pierre, CNRS, France Gonçalves, Paulo, Inria, France

SPTM-P9.3: THE MATCHED REASSIGNED CROSS-SPECTROGRAM FOR PHASE ESTIMATION

Sandsten, Maria, Lund University, Sweden Anderson, Rachele, Lund University, Sweden Reinhold, Isabella, Lund University, Sweden Brynolfsson, Johan, Lund University, Sweden

SPTM-P9.4: LINE SPECTRAL ESTIMATION WITH PALINDROMIC KERNELS

Verbeke, Dieter, Vrije Universiteit Brussel, Belgium Markovsky, Ivan, Vrije Universiteit Brussel, Belgium

SPTM-P9.5: LATENT FUSED LASSO

Feng, Yining, New York University, United States Selesnick, Ivan, New York University, United States

SPTM-P9.6: ADVERSARIAL ATTACKS ON DEEP UNFOLDED NETWORKS FOR SPARSE CODING

Wang, Yulu, Tsinghua University, China Wu, Kailun, Tsinghua University, China Zhang, Changshui, Tsinghua University, China

SPTM-P9.7: RIEMANNIAN FRAMEWORK FOR ROBUST COVARIANCE MATRIX ESTIMATION IN SPIKED MODELS

Bouchard, Florent, Univ. Savoie Mont Blanc, France Breloy, Arnaud, Univ. Paris Nanterre, France Ginolhac, Guillaume, Univ. Savoie Mont Blanc, France Pascal, Frédéric, CentraleSupélec, Univ. Paris-Saclay, France

SPTM-P9.8: ROBUST MATRIX COMPLETION VIA LP-GREEDY PURSUITS

Jiang, Xue, Shanghai Jiao Tong University, China Zoubir, Abdelhak M., Technische Universität Darmstadt, Germany Liu, Xingzhao, Shanghai Jiao Tong University, China

SPTM-P9.9: MAXIMUM LIKELIHOOD ESTIMATION OF A LOW-RANK PROBABILITY MASS TENSOR FROM PARTIAL OBSERVATIONS

Yeredor, Arie, Tel Aviv University, Israel Haardt, Martin, Ilmenau University of Technology, Germany

SPTM-P9.10: SEPARABLE OPTIMIZATION FOR JOINT BLIND DECONVOLUTION AND DEMIXING

Weitzner, Dana, Tel Aviv University, Israel Giryes, Raja, Tel Aviv University, Israel

SPTM-P9.11: MISSPECIFIED CRAMER-RAO BOUND FOR DELAY ESTIMATION WITH A MISMATCHED WAVEFORM: A CASE STUDY

Roemer, Florian, Fraunhofer Institute for Nondestructive Testing IZFP, Germany

Friday, 8 May, 08:00 - 10:00

SPTM-P10 - Detection and Classification

SPTM-P10.1: PRIVACY-AWARE QUICKEST CHANGE DETECTION

Lau, Tze Siong, Nanyang Technological University, Singapore Tay, Wee Peng, Nanyang Technological University, Singapore

SPTM-P10.2: SOURCE ENUMERATION VIA TOEPLITZ MATRIX COMPLETION

Garg, Vaibhav, University of Cantabria, Spain Giménez-Febrer, Pere, University of Cantabria, Spain Pagès-Zamora, Alba, Universitat Politècnica de Catalunya, Spain Santamaria, Ignacio, University of Cantabria, Spain

SPTM-P10.3: SEQUENTIAL METHODS FOR DETECTING A CHANGE IN THE DISTRIBUTION OF AN EPISODIC PROCESS

Banerjee, Taposh, University of Texas at San Antonio, United States Adib, Edmond, University of Texas at San Antonio, United States Taha, Ahmad, University of Texas at San Antonio, United States John, Eugene, University of Texas at San Antonio, United States

SPTM-P10.4: DISTRIBUTION OF THE PRODUCT OF A COMPLEX GAUSSIAN MATRIX AND VECTOR AND ITS SUM WITH A COMPLEX GAUSSIAN VECTOR

Shi, Wanxin, University of Electronic Science and Technology of China, China Li, Yang, University of Electronic Science and Technology of China, China He, Qian, University of Electronic Science and Technology of China, China

SPTM-P10.5: PRINCIPAL ANGLE DETECTOR FOR SUBSPACE SIGNAL WITH STRUCTURED UNKNOWN INTERFERENCE

Xu, Xingyu, Tsinghua University, China Jiao, Yuchen, Tsinghua University, China Gu, Yuantao, Tsinghua University, China

SPTM-P10.6: A ROBUST SPEAKER CLUSTERING METHOD BASED ON DISCRETE TIED VARIATIONAL AUTOENCODER

Feng, Chen, Ping An Technology (Shenzhen) Co., Ltd., China Wang, Jianzong, Ping An Technology (Shenzhen) Co., Ltd., China Li, Tongxu, Ping An Technology (Shenzhen) Co., Ltd., China Peng, Junqing, Ping An Technology (Shenzhen) Co., Ltd., China Xiao, Jing, Ping An Technology (Shenzhen) Co., Ltd., China

SPTM-P10.7: TRACK-BEFORE-DETECT FOR SUB-NYQUIST RADAR

Na, Siqi, Tsinghua University, China Huang, Tianyao, Tsinghua University, China Liu, Yimin, Tsinghua University, China Wang, Xiqin, Tsinghua University, China

SPTM-P10.8: OPTIMAL TRANSPORT BASED CHANGE POINT DETECTION AND TIME SERIES SEGMENT CLUSTERING

Cheng, Kevin, Tufts University, United States Aeron, Shuchin, Tufts University, United States Hughes, Michael, Tufts University, United States Hussey, Erika, CCDC-Soldier Center, United States Miller, Eric, Tufts University, United States

SPTM-P10.9: MULTI-VIEW WASSERSTEIN DISCRIMINANT ANALYSIS WITH ENTROPIC REGULARIZED WASSERSTEIN DISTANCE

Kasai, Hiroyuki, Waseda University, Japan

SPTM-P10.10: LARGE-SCALE TIME SERIES CLUSTERING WITH K-ARS

Yue, Zuogong, University of New South Wales, Australia Solo, Victor, University of New South Wales, Australia

SPTM-P10.11: DETERMINISTIC FEATURE DECOUPLING BY SURFING INVARIANCE MANIFOLDS

Martinez-Enriquez, Eduardo, Consejo Superior de Investigaciones Cientificas, Spain Portilla, Javier, Consejo Superior de Investigaciones Cientificas, Spain

SPTM-P10.12: UNSUPERVISED AUTO-ENCODING MULTIPLE-OBJECT TRACKER FOR CONSTRAINT-CONSISTENT COMBINATORIAL PROBLEM

Kawachi, Yuta, DENSO IT Laboratory, Inc., Japan Suzuki, Teppei, DENSO IT Laboratory, Inc., Japan

Special Sessions

Tuesday, 5 May, 11:30 - 13:30

SS-L1 - Active Control of Acoustic Noise over Spatial Regions

SS-L1.1: SPATIAL ACTIVE NOISE CONTROL BASED ON KERNEL INTERPOLATION WITH DIRECTIONAL WEIGHTING

Ito, Hayato, University of Tokyo, Japan Koyama, Shoichi, University of Tokyo, Japan Ueno, Natsuki, University of Tokyo, Japan Saruwatari, Hiroshi, University of Tokyo, Japan

SS-L1.2: ACTIVE NOISE CONTROL OVER MULTIPLE REGIONS: PERFORMANCE ANALYSIS

Zhang, Jihui, Australian National University, Australia Sun, Huiyuan, Australian National University, Australia Samarasinghe, Prasanga N., Australian National University, Australia Abhayapala, Thushara D., Australian National University, Australia

SS-L1.3: ARRAY-GEOMETRY-AWARE SPATIAL ACTIVE NOISE CONTROL BASED ON DIRECTION-OF-ARRIVAL WEIGHTING

Maeno, Yu, Sony Corporation, Japan Takida, Yuhta, Sony Corporation, Japan Murata, Naoki, Sony Corporation, Japan Mitsufuji, Yuki, Sony Corporation, Japan

SS-L1.4: MULTICHANNEL ACTIVE NOISE CONTROL WITH SPATIAL DERIVATIVE CONSTRAINTS TO ENLARGE THE QUIET ZONE

Shi, Dongyuan, Nanyang Technological University, Singapore Lam, Bhan, Nanyang Technological University, Singapore Wen, Shulin, Nanyang Technological University, Singapore Gan, Woon-Seng, Nanyang Technological University, Singapore

SS-L1.5: AN ACOUSTIC MODELLING BASED REMOTE ERROR SENSING APPROACH FOR QUIET ZONE GENERATION IN A NOISY ENVIRONMENT

Zhu, Qiaoxi, University of Technology Sydney, Australia Qiu, Xiaojun, University of Technology Sydney, Australia Burnett, Ian, University of Technology Sydney, Australia

SS-L1.6: DISTRIBUTED WAVE-DOMAIN ACTIVE NOISE CONTROL BASED ON THE DIFFUSION STRATEGY

Dong, Yuchen, Northwestern Polytechnical University, China Chen, Jie, Northwestern Polytechnical University, China Zhang, Wen, Northwestern Polytechnical University, China

Tuesday, 5 May, 11:30 - 13:30

SS-L2 - Signal Processing Methods for Finance Applications

SS-L2.1: A THEORETICAL BASIS FOR PRACTITIONERS HEURISTIC 1/N AND LONG-ONLY QUINTILE PORTFOLIO

Zhou, Rui, Hong Kong University of Science and Technology, Hong Kong SAR of China Palomar, Daniel, Hong Kong University of Science and Technology, Hong Kong SAR of China

SS-L2.2: A RECURSIVE BAYESIAN SOLUTION FOR THE EXCESS OVER THRESHOLD DISTRIBUTION WITH STOCHASTIC PARAMETERS

Johnston, Douglas, Farmingdale State College, United States Djuric, Petar, Stony Brook University, United States

SS-L2.3: GAUSSIAN PROCESS IMPUTATION OF MULTIPLE FINANCIAL SERIES

de Wolff, Taco, CMM, Universidad de Chile, Chile Cuevas, Alejandro, CMM, Universidad de Chile, Chile Tobar, Felipe, CMM, Universidad de Chile, Chile

SS-L2.4: ROBUST COVARIANCE MATRIX ESTIMATION AND PORTFOLIO ALLOCATION: THE CASE OF NON-HOMOGENEOUS ASSETS

Jay, Emmanuelle, Quanted & Fideas Capital, France Soler, Thibault, Fideas Capital & Université Paris 1 Panthéon Sorbonne, France Ovarlez, Jean-Philippe, DEMR/ONERA, France De Peretti, Philippe, Centre d'Economie de la Sorbonne, France Chorro, Christophe, Centre d'Economie de la Sorbonne, France

SS-L2.5: PORTFOLIO CUTS: A GRAPH-THEORETIC FRAMEWORK TO DIVERSIFICATION

Scalzo-Dees, Bruno, Imperial College London, United Kingdom Stankovic, Ljubisa, University of Montenegro, Montenegro Constantinides, Anthony G., Imperial College London, United Kingdom Mandic, Danilo P., Imperial College London, United Kingdom

SS-L2.6: CORRGAN: SAMPLING REALISTIC FINANCIAL CORRELATION MATRICES USING GENERATIVE ADVERSARIAL NETWORKS

Marti, Gautier, Shell Street Labs, Hong Kong SAR of China

Tuesday, 5 May, 11:30 - 13:30

SS-L3 - A Signal-Processing View of Graph Neural Networks

SS-L3.1: GRAPH NEURAL NET USING ANALYTICAL GRAPH FILTERS AND TOPOLOGY OPTIMIZATION FOR IMAGE DENOISING

Su, Wengtai, National Tsing Hua University, Taiwan Cheung, Gene, York University, Taiwan Wildes, Richard P., York University, Taiwan Lin, Chia-Wen, National Tsing Hua University, Taiwan

SS-L3.2: DEFENDING GRAPH CONVOLUTIONAL NETWORKS AGAINST ADVERSARIAL ATTACKS

Ioannidis, Vassilis N., University of Minnesota, United States Giannakis, Georgios B., University of Minnesota, United States

SS-L3.3: CONSTRAINED SPECTRAL CLUSTERING FOR DYNAMIC COMMUNITY DETECTION

Karaaslanli, Abdullah, Michigan State University, United States Aviyente, Selin, Michigan State University, United States

SS-L3.4: TOWARDS AN EFFICIENT AND GENERAL FRAMEWORK OF ROBUST TRAINING FOR GRAPH NEURAL NETWORKS

Xu, Kaidi, Northeastern University, United States Liu, Sijia, IBM Research, United States Chen, Pin-Yu, IBM Research, United States Sun, Mengshu, Northeastern University, United States Ding, Caiwen, University of Connecticut, United States Kailkhura, Bhavya, Lawrence Livermore National Laboratory, United States Lin, Xue, Northeastern University, United States

SS-L3.5: DEEP GEOMETRIC KNOWLEDGE DISTILLATION WITH GRAPHS

Lassance, Carlos, IMT Atlantique, France Bontonou, Myriam, IMT Atlantique, France Boukli Hacene, Ghouthi, IMT Atlantique, France Gripon, Vincent, IMT Atlantique, France Tang, Jian, HEC Montreal/Mila, Canada Ortega, Antonio, University of Southern California, France

SS-L3.6: ON THE CHOICE OF GRAPH NEURAL NETWORK ARCHITECTURES

Vignac, Clément, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Ortiz-Jiménez, Guillermo, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Frossard, Pascal, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Tuesday, 5 May, 16:30 - 18:30

SS-L4 - End-to-End Approaches for Spoken Language Understanding

SS-L4.1: MULTITASK LEARNING WITH CAPSULE NETWORKS FOR SPEECH-TO-INTENT APPLICATIONS

Poncelet, Jakob, Katholieke Universiteit Leuven, Belgium Van hamme, Hugo, Katholieke Universiteit Leuven, Belgium

SS-L4.2: USING SPEECH SYNTHESIS TO TRAIN END-TO-END SPOKEN LANGUAGE UNDERSTANDING MODELS

Lugosch, Loren, McGill University / Mila, Canada Meyer, Brett H., McGill University, Canada Nowrouzezahrai, Derek, McGill University / Mila, Canada Ravanelli, Mirco, Université de Montréal / Mila, Canada

SS-L4.3: IMPROVED END-TO-END SPOKEN UTTERANCE CLASSIFICATION WITH A SELF-ATTENTION ACOUSTIC CLASSIFIER

Price, Ryan, Interactions, LLC., United States Mehrabani, Mahnoosh, Interactions, LLC., United States Bangalore, Srinivas, Interactions, LLC., United States

SS-L4.4: DIALOGUE HISTORY INTEGRATION INTO END-TO-END SIGNAL-TO-CONCEPT SPOKEN LANGUAGE UNDERSTANDING SYSTEMS

Tomashenko, Natalia, University of Avignon, France Raymond, Christian, Rennes/IRISA, France Caubrière, Antoine, Le Mans Université, France De Mori, Renato, McGill University, France Estève, Yannick, Avignon Université, France

SS-L4.5: ERROR ANALYSIS APPLIED TO END-TO-END SPOKEN LANGUAGE UNDERSTANDING

Caubrière, Antoine, Le Mans Université, France Ghannay, Sahar, LIMSI, CNRS, Univ. Paris-Sud, Univ. Paris-Saclay, France Tomashenko, Natalia, Avignon Université, France De Mori, Renato, Avignon Université, France Laurent, Antoine, Le Mans Université, France Morin, Emmanuel, Nantes Université, France Estève, Yannick, Avignon Université, France

SS-L4.6: A DATA EFFICIENT END-TO-END SPOKEN LANGUAGE UNDERSTANDING ARCHITECTURE

Dinarelli, Marco, LIG, France Kapoor, Nikita, LIG, India Jabaian, Bassam, LIA, France Besacier, Laurent, LIG, France

Tuesday, 5 May, 16:30 - 18:30

SS-L5 - Spike-based Neuromorphic Information Representation, Processing and Learning

SS-L5.1: FEDERATED NEUROMORPHIC LEARNING OF SPIKING NEURAL NETWORKS FOR LOW-POWER EDGE INTELLIGENCE

Skatchkovsky, Nicolas, King's College London, United Kingdom Jang, Hyeryung, King's College London, United Kingdom Simeone, Osvaldo, King's College London, United Kingdom

SS-L5.2: TEMPORAL CODING IN SPIKING NEURAL NETWORKS WITH ALPHA SYNAPTIC FUNCTION

Comsa, Iulia M., Google Research, Switzerland Potempa, Krzysztof, Google Research, Switzerland Versari, Luca, Google Research, Switzerland Fischbacher, Thomas, Google Research, Switzerland Gesmundo, Andrea, Google Research, Switzerland Alakuijala, Jyrki, Google Research, Switzerland

SS-L5.3: EVENT-DRIVEN SIGNAL PROCESSING WITH NEUROMORPHIC COMPUTING SYSTEMS

Blouw, Peter, Applied Brain Research Inc., Canada Eliasmith, Chris, Applied Brain Research Inc., Canada

SS-L5.4: CHALLENGES AND PERSPECTIVES IN NEUROMORPHIC-BASED VISUAL IOT SYSTEMS AND NETWORKS

Martini, Maria G., Kingston University, United Kingdom Khan, Nabeel, Kingston University, United Kingdom Bi, Yin, University College London, United Kingdom Andreopoulos, Yiannis, University College London, United Kingdom Saki, Hadi, King's College London, United Kingdom Shikh-Bahaei, Mohammad, King's College London, United Kingdom

SS-L5.5: SPIKING NEURAL NETWORKS TRAINED WITH BACKPROPAGATION FOR LOW POWER NEUROMORPHIC IMPLEMENTATION OF VOICE ACTIVITY DETECTION

Martinelli, Flavio, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Dellaferrera, Giorgia, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Mainar, Pablo, Logitech Europe, Switzerland Cernak, Milos, Logitech Europe, Switzerland

SS-L5.6: TRAINING DEEP SPIKING NEURAL NETWORKS FOR ENERGY-EFFICIENT NEUROMORPHIC COMPUTING

Srinivasan, Gopalakrishnan, Purdue University, United States Lee, Chankyu, Purdue University, United States Sengupta, Abhronil, Pennsylvania State University, United States Panda, Priyadarshini, Yale University, United States Sarwar, Syed Shakib, Purdue University, United States Roy, Kaushik, Purdue University, United States

Tuesday, 5 May, 16:30 - 18:30

SS-L6 - Machine Learning for Communications II

SS-L6.1: DEEP LEARNING FOR ROBUST POWER CONTROL FOR WIRELESS NETWORKS

Cui, Wei, University of Toronto, Canada Shen, Kaiming, University of Toronto, Canada Yu, Wei, University of Toronto, Canada

SS-L6.2: FEEDBACK TURBO AUTOENCODER

Jiang, Yihan, University of Washington, United States Kim, Hyeji, Samsung AI Research Cambridge, United Kingdom Asnani, Himanshu, Tata Institute of Fundamental Research, India Oh, Sewoong, University of Washington, United States Kannan, Sreeram, University of Washington, United States Viswanath, Pramod, University of Illinois at Urbana Champaign, United States

SS-L6.3: EXPLOITING CHANNEL LOCALITY FOR ADAPTIVE MASSIVE MIMO SIGNAL DETECTION

Khani, Mehrdad, Massachusetts Institute of Technology, United States Alizadeh, Mohammad, Massachusetts Institute of Technology, United States Hoydis, Jakob, Nokia Bell Labs, France Fleming, Phil, Independent Consultant, United States

SS-L6.4: DEEP LEARNING-BASED BEAM ALIGNMENT IN MMWAVE VEHICULAR NETWORKS

Myers, Nitin Jonathan, University of Texas at Austin, United States Wang, Yuyang, University of Texas at Austin, United States González-Prelcic, Nuria, University of Texas at Austin, United States Heath Jr., Robert W., University of Texas at Austin, United States

SS-L6.5: JOINT SOURCE-CHANNEL CODING AND BAYESIAN MESSAGE PASSING DETECTION FOR GRANT-FREE RADIO ACCESS IN IOT

Dommel, Johannes, Fraunhofer Heinrich Hertz Institute, Germany Utkovski, Zoran, Fraunhofer Heinrich Hertz Institute, Germany Stanczak, Slawomir, Fraunhofer Heinrich Hertz Institute, Germany Simeone, Osvaldo, King's College London, United Kingdom

SS-L6.6: CNN-BASED ANALOG CSI FEEDBACK IN FDD MIMO-OFDM SYSTEMS

Boloursaz Mashhadi, Mahdi, Imperial College London, United Kingdom Yang, Qianqian, Imperial College London, United Kingdom Gündüz, Deniz, Imperial College London, United Kingdom

Tuesday, 5 May, 16:30 - 18:30

SS-L7 - Learning and Optimization in Non-Convex Environments

SS-L7.1: SCALABLE LEARNING-BASED SAMPLING OPTIMIZATION FOR COMPRESSIVE DYNAMIC MRI

Sanchez, Thomas, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Gözcü, Baran, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland van Heeswijk, Ruud B., Centre Hospitalier Universitaire Vaudois, Switzerland Eftekhari, Armin, Umeå university, Sweden Ilıcak, Efe, Bilkent University, Sweden Çukur, Tolga, Bilkent University, Sweden Cevher, Volkan, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SS-L7.2: LINEAR SPEEDUP IN SADDLE-POINT ESCAPE FOR DECENTRALIZED NON-CONVEX OPTIMIZATION

Vlaski, Stefan, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Sayed, Ali H., Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SS-L7.3: ON DISTRIBUTED STOCHASTIC GRADIENT ALGORITHMS FOR GLOBAL OPTIMIZATION

Swenson, Brian, Princeton University, United States Sridhar, Anirudh, Princeton University, United States Poor, H. Vincent, Princeton University, United States

SS-L7.4: DISTRIBUTED TENSOR COMPLETION OVER NETWORKS

Battiloro, Claudio, Sapienza University of Rome, Italy Di Lorenzo, Paolo, Sapienza University of Rome, Italy

SS-L7.5: LOOKAHEAD CONVERGES TO STATIONARY POINTS OF SMOOTH NON-CONVEX FUNCTIONS

Wang, Jianyu, Carnegie Mellon University, United States Tantia, Vinayak, Facebook AI Research, Canada Ballas, Nicolas, Facebook AI Research, Canada Rabbat, Michael, Facebook AI Research, Canada

SS-L7.6: COMMUNICATION CONSTRAINED LEARNING WITH UNCERTAIN MODELS

Hare, James, U.S. Army Research Laboratory, United States Uribe, Cesar, Massachusetts Institute of Technology, United States Kaplan, Lance, U.S. Army Research Laboratory, United States Jadbabaie, Ali, Massachusetts Institute of Technology, United States

Wednesday, 6 May, 09:00 - 11:00

SS-L8 - Recent Advances in Automotive Radar Systems

SS-L8.1: A SPARSE LINEAR ARRAY APPROACH IN AUTOMOTIVE RADARS USING MATRIX COMPLETION

Sun, Shunqiao, University of Alabama, United States Petropulu, Athina, Rutgers University, United States

SS-L8.2: A LOW-RESOLUTION ADC PROOF-OF-CONCEPT DEVELOPMENT FOR A FULLY-DIGITAL MILLIMETER-WAVE JOINT COMMUNICATION-RADAR

Kumari, Preeti, University of Texas at Austin, United States Mezghani, Amine, University of Manitoba, Canada W. Heath Jr., Robert, University of Texas at Austin, United States

SS-L8.3: PERFORMANCE BOUNDS FOR DISPLACED SENSOR AUTOMOTIVE RADAR IMAGING

Wang, Guohua, Hertzwell Pte Ltd, Singapore Mishra, Kumar Vijay, Hertzwell Pte Ltd, Singapore

SS-L8.4: SPATIAL AND TEMPORAL SMOOTHING FOR COVARIANCE ESTIMATION IN SUPER-RESOLUTION ANGLE ESTIMATION IN AUTOMOTIVE RADARS

Ertan, Ali Erdem, Uhnder Inc., United States Ali, Murtaza, Uhnder Inc., United States

SS-L8.5: SLOW-TIME MIMO-FMCW AUTOMOTIVE RADAR DETECTION WITH IMPERFECT WAVEFORM SEPARATION

Wang, Pu, Mitsubishi Electric Research Laboratories (MERL), United States Boufounos, Petros T., Mitsubishi Electric Research Laboratories (MERL), United States Mansour, Hassan, Mitsubishi Electric Research Laboratories (MERL), United States Orlik, Philip V., Mitsubishi Electric Research Laboratories (MERL), United States

SS-L8.6: ON BINARY SEQUENCE SET DESIGN WITH APPLICATIONS TO AUTOMOTIVE RADAR

Lin, Ronghao, University of Science and Technology of China, China Li, Jian, University of Science and Technology of China, China

Wednesday, 6 May, 09:00 - 11:00

SS-L9 - Learning Based Inversion

SS-L9.1: OPTIMAL TRANSPORT STRUCTURE OF CYCLEGAN FOR UNSUPERVISED LEARNING FOR INVERSE PROBLEMS

Sim, Byeongsu, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Oh, Gyutaek, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Ye, Jong Chul, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

SS-L9.2: LIGHT-FIELD RECONSTRUCTION AND DEPTH ESTIMATION FROM FOCAL STACK IMAGES USING CONVOLUTIONAL NEURAL NETWORKS

Huang, Zhengyu, University of Michigan, United States Fessler, Jeffrey, University of Michigan, United States Norris, Theodore, University of Michigan, United States Chun, Il Yong, University of Hawai'i at Mānoa, United States

SS-L9.3: JOINT LEARNING OF CARTESIAN UNDERSAMPLING AND RECONSTRUCTION FOR ACCELERATED MRI

Weiss, Tomer, Technion - Israel Institute of Technology, Israel Vedula, Sanketh, Technion - Israel Institute of Technology, Israel Senouf, Ortal, Technion - Israel Institute of Technology, Israel Michailovich, Oleg, University of Waterloo, Canada Zibulevsky, Michael, Technion - Israel Institute of Technology, Israel Bronstein, Alex, Technion - Israel Institute of Technology, Israel

SS-L9.4: BUILDING FIRMLY NONEXPANSIVE CONVOLUTIONAL NEURAL NETWORKS

Terris, Matthieu, Heriot-Watt University, United Kingdom Repetti, Audrey, Heriot-Watt University, United Kingdom Pesquet, Jean-Christophe, Université Paris-Saclay, CentraleSupélec, Inria, France Wiaux, Yves, Heriot-Watt University, United Kingdom

SS-L9.5: CONFIRMNET: CONVOLUTIONAL FIRMNET AND APPLICATION TO IMAGE DENOISING AND INPAINTING

Pokala, Praveen Kumar, Indian Institute of Science, India Uttam, Prakash Kumar, Indian Institute of Science, India Seelamantula, Chandra Sekhar, Indian Institute of Science, India

SS-L9.6: LEARNING DIFFERENTIABLE SPARSE AND LOW RANK NETWORKS FOR AUDIO-VISUAL OBJECT LOCALIZATION

Pu, Jie, Imperial College London, United Kingdom Panagakis, Yannis, University of Athens, Greece Pantic, Maja, Imperial College London, United Kingdom

Wednesday, 6 May, 11:30 - 13:30

SS-L10 - Signal Processing for Emerging Wireless Hardware Architectures

SS-L10.1: SPHERICAL LARGE INTELLIGENT SURFACES

Hu, Sha, Huawei Sweden, Sweden Rusek, Fredrik, Lund University, Sweden

SS-L10.2: PATHLOSS PREDICTION USING DEEP LEARNING WITH APPLICATIONS TO CELLULAR OPTIMIZATION AND EFFICIENT D2D LINK SCHEDULING

Levie, Ron, Technische Universität Berlin, Germany Yapar, Cagkan, Technische Universität Berlin, Germany Kutyniok, Gitta, Technische Universität Berlin, Germany Caire, Giuseppe, Technische Universität Berlin, Germany

SS-L10.3: BEAMFORMING IN INTELLIGENT ENVIRONMENTS BASED ON ULTRA-MASSIVE MIMO PLATFORMS IN MILLIMETER WAVE AND TERAHERTZ BANDS

Nie, Shuai, Georgia Institute of Technology, United States Akyildiz, Ian, Georgia Institute of Technology, United States

SS-L10.4: A SINGLE-RF ARCHITECTURE FOR MULTIUSER MASSIVE MIMO VIA REFLECTING SURFACES

Bereyhi, Ali, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Jamali, Vahid, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Müller, Ralf R., Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Tulino, Antonia M., Nokia Bell Labs and University degli Studi di Napoli Federico II, United States Fischer, Georg, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Schober, Robert, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

SS-L10.5: HYBRID PRECODING FOR SECURE TRANSMISSION IN REFLECT-ARRAY-ASSISTED MASSIVE MIMO SYSTEMS

Asaad, Saba, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany Schaefer, Rafael F., Technische Universität Berlin, Germany Poor, H. Vincent, Princeton University, United States

SS-L10.6: WIDEBAND CHANNEL TRACKING FOR MILLIMETER WAVE MASSIVE MIMO SYSTEMS WITH HYBRID BEAMFORMING RECEPTION

Alexandropoulos, George, National and Kapodistrian University of Athens, Greece Vlachos, Evangelos, University of Edinburgh, United Kingdom Thompson, John, University of Edinburgh, United Kingdom

Wednesday, 6 May, 11:30 - 13:30

SS-L11 - Neural and Audio Signal Processing for Hearing Devices

SS-L11.1: IMPROVING AUDITORY ATTENTION DECODING PERFORMANCE OF LINEAR AND NON-LINEAR METHODS USING STATE-SPACE MODEL

Aroudi, Ali, University of Oldenburg, Germany de Taillez, Tobias, University of Oldenburg, Germany Doclo, Simon, University of Oldenburg, Germany

SS-L11.2: TOWARDS DECODING SELECTIVE ATTENTION FROM SINGLE-TRIAL EEG DATA IN COCHLEAR IMPLANT USERS BASED ON DEEP NEURAL NETWORKS

Nogueira, Waldo, Medical University Hannover, Germany Dolhopiatenko, Hanna, Medical University Hannover, Germany

SS-L11.3: HARMONIC/PERCUSSIVE SOUND SEPARATION AND SPECTRAL COMPLEXITY REDUCTION OF MUSIC SIGNALS FOR COCHLEAR IMPLANT LISTENERS

Lentz, Benjamin, Ruhr-Universität Bochum, Germany Nagathil, Anil, Ruhr-Universität Bochum, Germany Gauer, Johannes, Ruhr-Universität Bochum, Germany Martin, Rainer, Ruhr-Universität Bochum, Germany

SS-L11.4: BIO-MIMETIC ATTENTIONAL FEEDBACK IN MUSIC SOURCE SEPARATION

Bellur, Ashwin, LCAP, Johns Hopkins University, United States Elhilali, Mounya, LCAP, Johns Hopkins University, United States

SS-L11.5: TALKER-INDEPENDENT SPEAKER SEPARATION IN REVERBERANT CONDITIONS

Delfarah, Masood, Ohio State University, United States Liu, Yuzhou, Ohio State University, United States Wang, DeLiang, Ohio State University, United States

SS-L11.6: EVALUATION OF JOINT AUDITORY ATTENTION DECODING AND ADAPTIVE BINAURAL BEAMFORMING APPROACH FOR HEARING DEVICES WITH ATTENTION SWITCHING

Pu, Wenqiang, Shenzhen Research Institute of Big Data, Chinese University of Hong Kong, Shenzhen, China Zan, Peng, University of Maryland, United States Xiao, Jinjun, Starkey Hearing Technologies, United States Zhang, Tao, Starkey Hearing Technologies, United States Luo, Zhi-Quan, Shenzhen Research Institute of Big Data, Chinese University of Hong Kong, Shenzhen, China

Wednesday, 6 May, 11:30 - 13:30

SS-L12 - Machine Learning for Physical Layer Security and Privacy

SS-L12.1: ROBUST PRICING MECHANISM FOR RESOURCE SUSTAINABILITY UNDER PRIVACY CONSTRAINT IN COMPETITIVE ONLINE LEARNING MULTI-AGENT SYSTEMS

Tampubolon, Ezra, Technische Universität München, Germany Boche, Holger, Technische Universität München, Germany

SS-L12.2: NEURAL NETWORK WIRETAP CODE DESIGN FOR MULTI-MODE FIBER OPTICAL CHANNELS

Besser, Karl-Ludwig, Technische Universität Braunschweig, Germany Lonnstrom, Andrew, Technische Universität Braunschweig, Germany Jorswieck, Eduard A., Technische Universität Braunschweig, Germany

SS-L12.3: AGE-BASED SCHEDULING POLICY FOR FEDERATED LEARNING IN MOBILE EDGE NETWORKS

Yang, Howard, Singapore University of Technology and Design, Singapore Arafa, Ahmed, University of North Carolina - Charlotte, United States Quek, Tony, Singapore University of Technology and Design, Singapore Poor, H. Vincent, Princeton University, United States

SS-L12.4: ADVERSARIAL NETWORKS FOR SECURE WIRELESS COMMUNICATIONS

Marchioro, Thomas, University of Padova, Italy Laurenti, Nicola, University of Padova, Italy Gündüz, Deniz, Imperial College London, United Kingdom

SS-L12.5: LATENCY-MINIMIZED DESIGN OF SECURE TRANSMISSIONS IN UAV-AIDED COMMUNICATIONS

Wu, Xiongwei, Chinese University of Hong Kong, Hong Kong SAR of China Li, Qiang, University of Electronic Science and Technology of China, China Lu, Yawei, Tsinghua University, China Poor, H. Vincent, Princeton University, United States Leung, Victor C. M., Shenzhen University, China Ching, P. C., Chinese University of Hong Kong, Hong Kong SAR of China

SS-L12.6: DETECT INSIDER ATTACKS USING CNN IN DECENTRALIZED OPTIMIZATION

Li, Gangqiang, College of Electronic and Information Engineering, Shenzhen University, China Wu, Sissi Xiaoxiao, College of Electronic and Information Engineering, Shenzhen University, China Zhang, Shengli, College of Electronic and Information Engineering, Shenzhen University, China Li, Qiang, School of

Info. and Commun. Engineering, University of Electronic Science and
Technology of China, China

Wednesday, 6 May, 11:30 - 13:30

SS-L13 - Random Matrix Theory and High-Dimensional Statistical Signal Processing

SS-L13.1: RISK CONVERGENCE OF CENTERED KERNEL RIDGE REGRESSION WITH LARGE DIMENSIONAL DATA

Elkhalil, Khalil, Duke university, United States Kammoun, Abla, King Abdullah University of Science and Technology (KAUST), Saudi Arabia Zhang, Xiangliang, King Abdullah University of Science and Technology (KAUST), Saudi Arabia Alouini, Mohamed-Slim, King Abdullah University of Science and Technology (KAUST), Saudi Arabia Al-Naffouri, Tareq, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

SS-L13.2: A WHITENESS TEST BASED ON THE SPECTRAL MEASURE OF LARGE NON-HERMITIAN RANDOM MATRICES

Bose, Arup, Indian Statistical Institute, India Hachem, Walid, CNRS / Université Paris-Est Marne-la-Vallée, France

SS-L13.3: ON THE LIMIT DISTRIBUTION OF THE CANONICAL CORRELATION COEFFICIENTS BETWEEN THE PAST AND THE FUTURE OF A HIGH-DIMENSIONAL WHITE NOISE

Tieplova, Daria, Université Paris-Est/Marne la Vallée, France Loubaton, Philippe, Université Paris-Est/Marne la Vallée, France Pastur, Leonid, Institute of Low Temperature Physics and Engineering, Ukraine

SS-L13.4: POSITIVE SOLUTIONS FOR LARGE RANDOM LINEAR SYSTEMS

Bizeul, Pierre, Sorbonne Université, France Clenet, Maxime, Université Paris Est Marne-La-Vallée, France Najim, Jamal, Université Paris Est Marne-La-Vallée et Centre National de la Recherche Scientifique, France

SS-L13.5: ON THE FREQUENCY DOMAIN DETECTION OF HIGH DIMENSIONAL TIME SERIES

Rosuel, Alexis, Université Paris-Est Marne-la-Vallée, France Vallet, Pascal, Université de Bordeaux, France Loubaton, Philippe, Université Paris-Est Marne-la-Vallée, France Mestre, Xavier, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain

SS-L13.6: LARGE DIMENSIONAL ASYMPTOTICS OF MULTI-TASK LEARNING

Tiomoko, Malik, Université Paris Sud/ Gipsa Lab, France Louart, Cosme, Gipsa Lab / CEA LIST, France Couillet, Romain, Gipsa-Lab / Centrale-Supélec, France

Wednesday, 6 May, 16:30 - 18:30

SS-L14 - Signal Processing and Machine Learning for Satellite and Space Communications

SS-L14.1: ROBUST HYBRID BEAMFORMING FOR SATELLITE-TERRESTRIAL INTEGRATED NETWORKS

Lin, Zhi, Army Engineering University, China Lin, Min, Nanjing University of Posts and Telecommunications, China Champagne, Benoit, McGill University, Canada Zhu, Wei-Ping, Concordia University, Canada Al-Dhahir, Naofal, University of Texas at Austin, United States

SS-L14.2: IN-NETWORK CACHING FOR HYBRID SATELLITE-TERRESTRIAL NETWORKS USING DEEP REINFORCEMENT LEARNING

Garg, Navneet, Heriot-Watt University, United Kingdom Sellathurai, Mathini, Heriot-Watt University, United Kingdom Ratnarajah, Tharmalingam, University of Edinburgh, United Kingdom

SS-L14.3: MULTIGRAPH SPECTRAL CLUSTERING FOR JOINT CONTENT DELIVERY AND SCHEDULING IN BEAM-FREE SATELLITE COMMUNICATIONS

Vázquez, Miguel Ángel, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Pérez-Neira, Ana Isabel, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Universitat Politecnica de Catalunya (UPC), Spain

SS-L14.4: CONSTANT-ENVELOPE PRECODING FOR SATELLITE SYSTEMS

Tsinos, Christos, University of Luxembourg, Luxembourg Arora, Aakash, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SS-L14.5: RESOURCE MANAGEMENT IN THE MULTIBEAM NOMA-BASED SATELLITE DOWNLINK

Ramirez, Tomás, University of Vigo, Spain Mosquera, Carlos, University of Vigo, Spain

SS-L14.6: GENETIC ALGORITHM OPTIMIZED SUPPORT VECTOR MACHINE IN NOMA-BASED SATELLITE NETWORKS WITH IMPERFECT CSI

Yan, Xiaojuan, Beibu Gulf University, China An, Kang, National University of Defense Technology, China Wang, Cheng-Xiang, Southeast University, China Zhu, Wei-Ping, Concordia University, Canada Li, Yusheng, National University of Defense Technology, China Feng, Zhiqiang, Beibu Gulf University, China

Wednesday, 6 May, 16:30 - 18:30

SS-L15 - Signal Processing and Coding for Macromolecular Storage and Computing

SS-L15.1: OVERCOMING HIGH NANOPORE BASECALLER ERROR RATES FOR DNA STORAGE VIA BASECALLER-DECODER INTEGRATION AND CONVOLUTIONAL CODES

Chandak, Shubham, Stanford University, United States Neu, Joachim, Stanford University, United States Tatwawadi, Kedar, Stanford University, United States Mardia, Jay, Stanford University, United States Lau, Billy, Stanford University, United States Kubit, Matthew, Berkeley Lights, Inc., United States Hulett, Reyna, Stanford University, United States Griffin, Peter, Stanford University, United States Wootters, Mary, Stanford University, United States Weissman, Tsachy, Stanford University, United States Ji, Hanlee, Stanford University, United States

SS-L15.2: EFFICIENT CONSTRAINED ENCODERS CORRECTING A SINGLE NUCLEOTIDE EDIT IN DNA STORAGE

Cai, Kui, Singapore University of Technology and Design, Singapore He, Xuan, Singapore University of Technology and Design, Singapore Kiah, Han Mao, Nanyang Technological University, Singapore Nguyen, Tuan Thanh, Singapore University of Technology and Design, Singapore

SS-L15.3: IMAGE PROCESSING IN DNA

Pan, Chao, University of Illinois at Urbana–Champaign, United States Tabatabaei Yazdi, S. M. Hossein, Dorna Robotics, United States Tabatabaei, S Kasra, University of Illinois at Urbana–Champaign, United States Hernandez, Alvaro G., University of Illinois at Urbana–Champaign, United States Schroeder, Charles, University of Illinois at Urbana–Champaign, United States Milenkovic, Olgica, University of Illinois at Urbana–Champaign, United States

SS-L15.4: CONCENTRATION-BASED POLYNOMIAL CALCULATIONS ON NICKED DNA

Chen, Tonglin, University of Minnesota, United States Riedel, Marc, University of Minnesota, United States

SS-L15.5: CAPACITY OF THE ERASURE SHUFFLING CHANNEL

Shin, Seiyun, University of Illinois at Urbana-Champaign, United States Heckel, Reinhard, Technische Universität München, Germany Shomorony, Ilan, University of Illinois at Urbana-Champaign, United States

SS-L15.6: ACHIEVING THE CAPACITY OF THE DNA STORAGE CHANNEL

Lenz, Andreas, Technische Universität München, Germany Siegel, Paul, University of California, San Diego, United States Wachter-Zeh, Antonia, Technische Universität München, Germany Yaakobi, Eitan, Technion - Israel Institute of Technology, Israel

Thursday, 7 May, 09:00 - 11:00

SS-L16 - Distributed Machine Learning on Wireless Networks

SS-L16.1: FEDERATED LEARNING WITH QUANTIZATION CONSTRAINTS

Shlezinger, Nir, Weizmann Institute of Science, Israel Chen, Mingzhe, Princeton University, United States Eldar, Yonina, Weizmann Institute of Science, Israel Poor, H. Vincent, Princeton University, United States Cui, Shuguang, Chinese University of Hong Kong, China

SS-L16.2: COOPERATIVE LEARNING VIA FEDERATED DISTILLATION OVER FADING CHANNELS

Ahn, Jin-Hyun, Korea Advanced Institute of Science and Technology (KAIST), Korea (South) Simeone, Osvaldo, King's College London, United Kingdom Kang, Joonhyuk, Korea Advanced Institute of Science and Technology (KAIST), Korea (South)

SS-L16.3: ON THE BYZANTINE ROBUSTNESS OF CLUSTERED FEDERATED LEARNING

Sattler, Felix, Fraunhofer Heinrich Hertz Institute, Germany Müller, Klaus-Robert, Technische Universität Berlin, Germany Wiegand, Thomas, Fraunhofer Heinrich Hertz Institute, Germany Samek, Wojciech, Fraunhofer Heinrich Hertz Institute, Germany

SS-L16.4: HIERARCHICAL FEDERATED LEARNING ACROSS HETEROGENEOUS CELLULAR NETWORKS

Abad, Mehdi Salehi Haydar, Sabanci University, Turkey Ozfatura, Emre, Imperial College London, United Kingdom Gündüz, Deniz, Imperial College London, United Kingdom Ercetin, Ozgur, Sabanci University, Turkey

SS-L16.5: OVERLAP LOCAL-SGD: AN ALGORITHMIC APPROACH TO HIDE COMMUNICATION DELAYS IN DISTRIBUTED SGD

Wang, Jianyu, Carnegie Mellon University, United States Liang, Hao, Carnegie Mellon University, United States Joshi, Gauri, Carnegie Mellon University, United States

SS-L16.6: Q-GADMM: QUANTIZED GROUP ADMM FOR COMMUNICATION EFFICIENT DECENTRALIZED MACHINE LEARNING

Elgabli, Anis, University of Oulu, Finland Park, Jihong, University of Oulu, Finland Bedi, Amrit S., Indian Institute of Technology Kanpur, India Bennis, Mehdi, University of Oulu, Finland Aggarwal, Vaneet, Purdue University, United States

Thursday, 7 May, 11:30 - 13:30

SS-L17 - Model Based Deep Learning

SS-L17.1: DEEP SOFT INTERFERENCE CANCELLATION FOR MIMO DETECTION

Shlezinger, Nir, Weizmann Institute of Science, Israel Fu, Rong, Tsinghua University, China Eldar, Yonina, Weizmann Institute of Science, Israel

SS-L17.2: AN EMPIRICAL BAYES APPROACH TO PARTIALLY LABELED AND SHUFFLED DATA SETS

Dytso, Alex, Princeton University, United States Poor, H. Vincent, Princeton University, United States

SS-L17.3: REINFORCED DEPTH-AWARE DEEP LEARNING FOR SINGLE IMAGE DEHAZING

Guo, Tiantong, Pennsylvania State University, United States Monga, Vishal, Pennsylvania State University, United States

SS-L17.4: LEARNING PLUG-AND-PLAY PROXIMAL QUASI-NEWTON DENOISERS

Al-Shabili, Abdullah, New York University, United States Mansour, Hassan, Mitsubishi Electric Research Laboratories (MERL), United States Boufounos, Petros T., Mitsubishi Electric Research Laboratories (MERL), United States

SS-L17.5: JOINT OPTIMIZATION OF SAMPLING PATTERNS AND DEEP PRIORS FOR IMPROVED PARALLEL MRI

Aggarwal, Hemant Kumar, University of Iowa, United States Jacob, Mathews, University of Iowa, United States

SS-L17.6: LEARNING SAMPLING AND MODEL-BASED SIGNAL RECOVERY FOR COMPRESSED SENSING MRI

Huijben, Iris A.M., Eindhoven University of Technology, Netherlands Veeling, Bastiaan S., University of Amsterdam, Netherlands van Sloun, Ruud J.G., Eindhoven University of Technology, Netherlands

Thursday, 7 May, 11:30 - 13:30

SS-L18 - Anomaly Detection and Intent Inference in Object Tracking

SS-L18.1: INFERRING DYNAMIC GROUP LEADERSHIP USING SEQUENTIAL BAYESIAN METHODS

Li, Qing, University of Cambridge, United Kingdom Godsill, Simon, University of Cambridge, United Kingdom Liang, Jiaming, University of Cambridge, United Kingdom Ahmad, Bashar, University of Cambridge, United Kingdom

SS-L18.2: SCALABLE DETECTION AND TRACKING OF EXTENDED OBJECTS

Meyer, Florian, University of California, San Diego, United States Williams, Jason L., Commonwealth Scientific and Industrial Research Organisation, Australia

SS-L18.3: ADVERSARIAL ANOMALY DETECTION FOR MARKED SPATIO-TEMPORAL STREAMING DATA

Zhu, Shixiang, Georgia Institute of Technology, United States Yuchi, Henry Shaowu, Georgia Institute of Technology, United States Xie, Yao, Georgia Institute of Technology, United States

SS-L18.4: QUICKEST DETECTION OF GROWING DYNAMIC ANOMALIES IN NETWORKS

Rovatsos, Georgios, University of Illinois at Urbana-Champaign, United States Veeravalli, Venugopal, University of Illinois at Urbana-Champaign, United States Towsley, Don, University of Massachusetts, Amherst, United States Swami, Ananthram, Army Research Lab, United States

SS-L18.5: IMAGE SEGMENTATION BASED PRIVACY-PRESERVING HUMAN ACTION RECOGNITION FOR ANOMALY DETECTION

Yan, Jiawei, Newcastle University, United Kingdom Angelini, Federico, Newcastle University, United Kingdom Naqvi, Syed Mohsen, Newcastle University, United Kingdom

SS-L18.6: PREDICTION OF VESSEL TRAJECTORIES FROM AIS DATA VIA SEQUENCE-TO-SEQUENCE RECURRENT NEURAL NETWORKS

Forti, Nicola, NATO STO Centre for Maritime Research and Experimentation, Italy Millefiori, Leonardo M., NATO STO Centre for Maritime Research and Experimentation, Italy Braca, Paolo, NATO STO Centre for Maritime Research and Experimentation, Italy Willett, Peter, University of Connecticut, United States

Thursday, 7 May, 16:30 - 18:30

SS-L19 - Hardware-Efficient Large-Scale Antenna Arrays: The Stage for Symbol-Level Precoding

SS-L19.1: NEAR-OPTIMAL INTERFERENCE EXPLOITATION 1-BIT MASSIVE MIMO PRECODING VIA PARTIAL BRANCH-AND-BOUND

Li, Ang, University of Sydney, Australia Liu, Fan, University College London, United Kingdom Masouros, Christos, University College London, United Kingdom Li, Yonghui, University of Sydney, Australia Vucetic, Branka, University of Sydney, Australia

SS-L19.2: SECURE SYMBOL-LEVEL MISO PRECODING

Xu, Qian, Xi'an Jiaotong University, China Ren, Pinyi, Xi'an Jiaotong University, China Swindlehurst, A. Lee, University of California, Irvine, United States

SS-L19.3: ROBUST SYMBOL-LEVEL PRECODING VIA AUTOENCODER-BASED DEEP LEARNING

Sohrabi, Foad, University of Toronto, Canada Cheng, Hei Victor, University of Toronto, Canada Yu, Wei, University of Toronto, Canada

SS-L19.4: CONSTANT ENVELOPE MASSIVE MIMO-OFDM PRECODING: AN IMPROVED FORMULATION AND SOLUTION

Domouchtsidis, Stavros, University of Luxembourg, Luxembourg Tsinos, Christos, University of Luxembourg, Luxembourg Chatzinotas, Symeon, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SS-L19.5: PASSIVE INTELLIGENT SURFACE ASSISTED MIMO POWERED SUSTAINABLE IOT

Mishra, Deepak, University of New South Wales, Australia Larsson, Erik G., Linköping University, Sweden

SS-L19.6: MULTIUSER MASSIVE MIMO DOWNLINK PRECODING USING SECOND-ORDER SPATIAL SIGMA-DELTA MODULATION

Shao, Mingjie, Chinese University of Hong Kong, China Ma, Wing-Kin, Chinese University of Hong Kong, China Swindlehurst, Lee, University of California, Irvine, United States

Thursday, 7 May, 16:30 - 18:30

SS-L20 - Sustainable Networking and Computing through Machine Learning

SS-L20.1: ALLOCATION OF COMPUTING TASKS IN DISTRIBUTED MEC SERVERS CO-POWERED BY RENEWABLE SOURCES AND THE POWER GRID

Cecchinato, Davide, University of Padova, Italy Berno, Michele, University of Padova, Italy Esposito, Flavio, Saint Louis University, United States Rossi, Michele, University of Padova, Italy

SS-L20.2: MULTI-AGENT DEEP REINFORCEMENT LEARNING FOR DISTRIBUTED HANDOVER MANAGEMENT IN DENSE MMWAVE NETWORKS

Sana, Mohamed, Commissariat à l'énergie atomique et aux énergies alternatives - Laboratoire d'électronique et de technologie de l'information (CEA-Leti), France de Domenico, Antonio, Commissariat à l'énergie atomique et aux énergies alternatives - Laboratoire d'électronique et de technologie de l'information (CEA-Leti), France Calvanese Strinati, Emilio, Commissariat à l'énergie atomique et aux énergies alternatives - Laboratoire d'électronique et de technologie de l'information (CEA-Leti), France Clemente, Antonio, Commissariat à l'énergie atomique et aux énergies alternatives - Laboratoire d'électronique et de technologie de l'information (CEA-Leti), France

SS-L20.3: INTERPRETABLE MACHINE LEARNING IN SUSTAINABLE EDGE COMPUTING: A CASE STUDY OF SHORT-TERM PHOTOVOLTAIC POWER OUTPUT PREDICTION

Chang, Xiaomin, University of Sydney, Australia Li, Wei, University of Sydney, Australia Ma, Jin, University of Sydney, Australia Yang, Ting, Tianjin University, China Zomaya, Albert, University of Sydney, Australia

SS-L20.4: LOAD MANAGEMENT WITH PREDICTIONS OF SOLAR ENERGY PRODUCTION FOR CLOUD DATA CENTERS

Floridia, Maurizio, Politecnico di Torino, Italy Laganà, Demetrio, Eco4Cloud, Italy Mastroianni, Carlo, CNR, Italy Meo, Michela, Politecnico di Torino, Italy Renga, Daniela, Politecnico di Torino, Italy

SS-L20.5: SPECTRUM ALLOCATION IN WIRELESS NETWORKS FOR CROWD LABELLING

Li, Xiaoyang, University of Hong Kong, Hong Kong SAR of China Zhu, Guangxu, Shenzhen Research Institute of Big Data, China Shen, Kaiming, University of

Toronto, Canada Gong, Yi, Southern University of Science and Technology, China Huang, Kaibin, University of Hong Kong, Hong Kong SAR of China

SS-L20.6: MODELING THE ENVIRONMENT IN DEEP REINFORCEMENT LEARNING: THE CASE OF ENERGY HARVESTING BASE STATIONS

Piovesan, Nicola, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Miozzo, Marco, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain Dini, Paolo, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain

Thursday, 7 May, 16:30 - 18:30

SS-L21 - Advances in Signal Processing for Environmental Studies

SS-L21.1: A DIFFERENTIAL APPROACH FOR RAIN FIELD TOMOGRAPHIC RECONSTRUCTION USING MICROWAVE SIGNALS FROM LEO SATELLITES

Shen, Xi, University of Western Australia, Australia Huang, Defeng (David), University of Western Australia, Australia Vincent, Claire, University of Melbourne, Australia Wang, Wenxiao, University of Western Australia, Australia Togneri, Roberto, University of Western Australia, Australia

SS-L21.2: UNCERTAINTIES IN SHORT COMMERCIAL MICROWAVE LINKS FADING DUE TO RAIN

Habi, Hai Victor, Tel Aviv University, Israel Messer, Hagit, Tel Aviv University, Israel

SS-L21.3: ON THE OPPORTUNISTIC USE OF COMMERCIAL KU AND KA BAND SATCOM NETWORKS FOR RAIN RATE ESTIMATION: POTENTIALS AND CRITICAL ISSUES

Giannetti, Filippo, Università di Pisa, Italy Moretti, Marco, Università di Pisa, Italy Reggiannini, Ruggero, Università di Pisa, Italy Vaccaro, Attilio, MBI SRL, Italy Scarfone, Simone, Università di Pisa, Italy Ortolani, Alberto, LaMMA Consortium, Italy

SS-L21.4: PERFORMANCE ANALYSIS FOR PATH ATTENUATION ESTIMATION OF MICROWAVE SIGNALS DUE TO RAINFALL AND BEYOND

Song, Boming, University of Western Australia, Australia Huang, Defeng (David), University of Western Australia, Australia Shen, Xi, University of Western Australia, Australia Togneri, Roberto, University of Western Australia, Australia

SS-L21.5: DEEP RAINRATE ESTIMATION FROM HIGHLY ATTENUATED DOWNLINK SIGNALS OF GROUND-BASED COMMUNICATIONS SATELLITE TERMINALS

Mishra, Kumar Vijay, University of Luxembourg, Luxembourg Shankar M. R., Bhavani, University of Luxembourg, Luxembourg Ottersten, Björn, University of Luxembourg, Luxembourg

SS-L21.6: STATISTICAL SIGNAL PROCESSING APPROACH FOR RAIN ESTIMATION BASED ON MEASUREMENTS FROM NETWORK MANAGEMENT SYSTEMS

Ostrometzky, Jonatan, Columbia University, United States Messer, Hagit, Tel Aviv University, United States

Friday, 8 May, 08:00 - 10:00

SS-L22 - Signal Processing for IoT

SS-L22.1: DYNAMIC OVERSAMPLING IN 1-BIT QUANTIZED ASYNCHRONOUS LARGE-SCALE MULTIPLE-ANTENNA SYSTEMS FOR SUSTAINABLE IOT NETWORKS

Shao, Zhichao, Pontifical Catholic University of Rio de Janeiro, Brazil Landau, Lukas T. N., Pontifical Catholic University of Rio de Janeiro, Brazil de Lamare, Rodrigo C., Pontifical Catholic University of Rio de Janeiro, Brazil

SS-L22.2: DYNAMIC RESOURCE ALLOCATION FOR WIRELESS EDGE MACHINE LEARNING WITH LATENCY AND ACCURACY GUARANTEES

Merluzzi, Mattia, Sapienza University of Rome, Italy Di Lorenzo, Paolo, Sapienza University of Rome, Italy Barbarossa, Sergio, Sapienza University of Rome, Italy

SS-L22.3: FEDERATING SOLAR, STORAGE AND COMMUNICATIONS IN THE ELECTRIC GRID AND INTERNET OF THINGS

Ramakrishna, Raksha, Arizona State University, United States Karakoc, Nurullah, Arizona State University, United States Hreinsson, Kari, Arizona State University, United States Scaglione, Anna, Arizona State University, United States

SS-L22.4: NON-GAUSSIAN BLE-BASED INDOOR LOCALIZATION VIA GAUSSIAN SUM FILTERING COUPLED WITH WASSERSTEIN DISTANCE

Malekzadeh, Parvin, Concordia University, Canada Mehryar, Shervin, University of Toronto, Canada Spachos, Petros, University of Guelph, Canada Plataniotis, Konstantinos N., University of Toronto, Canada Mohammadi, Arash, Concordia University, Canada

SS-L22.5: OPTIMAL JOINT CHANNEL ESTIMATION AND DATA DETECTION BY L1-NORM PCA FOR STREETSCAPE IOT

Sklivanitis, George, Florida Atlantic University, United States Tountas, Konstantinos, Florida Atlantic University, United States Tsagkarakis, Nicholas, Ericsson AB, Sweden Pados, Dimitris, Florida Atlantic University, United States Batalama, Stella, Florida Atlantic University, United States

SS-L22.6: ON MEASURING DOPPLER SHIFTS BETWEEN TAGS IN A BACKSCATTERING TAG-TO-TAG NETWORK WITH APPLICATIONS IN TRACKING

Ahmad, Abeer, Stony Brook University, United States Huang, Yuanfei, Stony Brook University, United States Sha, Xiao, Stony Brook University, United States Athalye, Akshay, Stony Brook University, United States Stanacevic, Milutin, Stony

Brook University, United States Das, Samir R., Stony Brook University, United States Djuric, Petar, Stony Brook University, United States

Friday, 8 May, 08:00 - 10:00

SS-L23 - Deep Graph Learning

SS-L23.1: EFFICIENT BELIEF PROPAGATION FOR GRAPH MATCHING

Onaran, Efe, New York University, United States Villar, Soledad, New York University, United States

SS-L23.2: SUPERVISED GRAPH REPRESENTATION LEARNING FOR MODELING THE RELATIONSHIP BETWEEN STRUCTURAL AND FUNCTIONAL BRAIN CONNECTIVITY

Li, Yang, University of Rochester, United States Shafipour, Rasoul, University of Rochester, United States Mateos, Gonzalo, University of Rochester, United States Zhang, Zhengwu, University of Rochester, United States

SS-L23.3: STABILITY OF GRAPH NEURAL NETWORKS TO RELATIVE PERTURBATIONS

Gama, Fernando, University of Pennsylvania, United States Bruna, Joan, New York University, United States Ribeiro, Alejandro, University of Pennsylvania, United States

SS-L23.4: ACTIVE SEMI-SUPERVISED LEARNING FOR DIFFUSIONS ON GRAPHS

Das, Bishwadeep, Delft University of Technology, Netherlands Isufi, Elvin, Delft University of Technology, Netherlands Leus, Geert, Delft University of Technology, Netherlands

SS-L23.5: STOCHASTIC GRAPH NEURAL NETWORKS

Gao, Zhan, University of Pennsylvania, United States Isufi, Elvin, Delft University of Technology, Netherlands Ribeiro, Alejandro, University of Pennsylvania, United States

SS-L23.6: GENERATIVE ADVERSARIAL NETWORKS FOR GRAPH DATA IMPUTATION FROM SIGNED OBSERVATIONS

Madapu, Amarlingam, Indian Institute of Science, India Segarra, Santiago, Rice University, United States Chepuri, Sundeep Prabhakar, Indian Institute of Science, India Marques, Antonio, King Juan Carlos University, Spain

Friday, 8 May, 08:00 - 10:00

SS-L24 - AMP and other Approximate Bayesian Inference Techniques

SS-L24.1: JOINT FREQUENCY DOMAIN CHANNEL ESTIMATION AND EQUALIZATION BASED ON EXPECTATION PROPAGATION FOR SINGLE CARRIER TRANSMISSIONS

Şahin, Serdar, Thales, France Cipriano, Antonio Maria, Thales, France Poulliat, Charly, Toulouse INP - IRIT, France Boucheret, Marie-Laure, Toulouse INP - IRIT, France

SS-L24.2: BP-VB-EP BASED STATIC AND DYNAMIC SPARSE BAYESIAN LEARNING WITH KRONECKER STRUCTURED DICTIONARIES

Kurisummoottil Thomas, Christo, EURECOM, India Slock, Dirk, EURECOM, India

SS-L24.3: ROBUSTNESS OF SPARSE BAYESIAN LEARNING IN CORRELATED ENVIRONMENTS

Pote, Rohan R., University of California, San Diego, United States Rao, Bhaskar D., University of California, San Diego, United States

SS-L24.4: A SIMPLE DERIVATION OF AMP AND ITS STATE EVOLUTION VIA FIRST-ORDER CANCELLATION

Schniter, Philip, Ohio State University, United States

SS-L24.5: VAMP WITH VECTOR-VALUED DIAGONALIZATION

Fischer, Robert, Ulm University, Germany Sippel, Carmen, Ulm University, Germany Goertz, Norbert, Technische Universität Wien, Austria

SS-L24.6: DISTRIBUTED VERIFICATION OF BELIEF PRECISIONS CONVERGENCE IN GAUSSIAN BELIEF PROPAGATION

Li, Bin, Beijing Institute of Technology, China Wu, Nan, Beijing Institute of Technology, China Wu, Yik-Chung, University of Hong Kong, China

Friday, 8 May, 11:45 - 13:45

SS-L25 - Advances in Low-Resolution Sampling and Signal Processing

SS-L25.1: ADMM-BASED ONE-BIT QUANTIZED SIGNAL DETECTION FOR MASSIVE MIMO SYSTEMS WITH HARDWARE IMPAIRMENTS

Demir, Özlem Tugfe, Linköping University, Sweden Björnson, Emil, Linköping University, Sweden

SS-L25.2: LEARNING TASK-BASED ANALOG-TO-DIGITAL CONVERSION FOR MIMO RECEIVERS

Shlezinger, Nir, Weizmann Institute of Science, Israel van Sloun, Ruud J.G., Eindhoven University of Technology, Netherlands Huijben, Iris A.M., Eindhoven University of Technology, Netherlands Tsintsadze, Georgee, Weizmann Institute of Science, Israel Eldar, Yonina, Weizmann Institute of Science, Israel

SS-L25.3: ONE-BIT NORMALIZED SCATTER MATRIX ESTIMATION FOR COMPLEX ELLIPTICALLY SYMMETRIC DISTRIBUTIONS

Liu, Chun-Lin, National Taiwan University, Taiwan Vaidyanathan, P. P., California Institute of Technology, United States

SS-L25.4: ONE-BIT DOA ESTIMATION VIA SPARSE LINEAR ARRAYS

Sedighi, Saeid, University of Luxembourg, Luxembourg Shankar M. R., Bhavani, University of Luxembourg, Luxembourg Soltanalian, Mojtaba, University of Illinois at Chicago, United States Ottersten, Björn, University of Luxembourg, Luxembourg

SS-L25.5: ONE-BIT SAMPLING IN FRACTIONAL FOURIER DOMAIN

Bhandari, Ayush, Imperial College London, United Kingdom Graf, Olga, Technische Universität München, Germany Krahmer, Felix, Technische Universität München, Germany Zayed, Ahmed, DePaul University, United States

SS-L25.6: TARGET PARAMETER ESTIMATION VIA ONE-BIT PMCW RADAR

Zhu, Heng, University of Science and Technology of China, China Shang, Xiaolei, University of Science and Technology of China, China Li, Jian, University of Florida, United States

Friday, 8 May, 15:15 - 17:15

SS-L26 - Signal Processing for Beyond 5G Communications

SS-L26.1: MOBILITY-AWARE BEAM STEERING IN METASURFACE-BASED PROGRAMMABLE WIRELESS ENVIRONMENTS

Liaskos, Christos, Foundation for Research and Technology-Hellas (FORTH), Greece Nie, Shuai, Georgia Institute of Technology, United States Tsioliaridou, Ageliki, Foundation for Research and Technology-Hellas (FORTH), Greece Pitsillides, Andreas, University of Cyprus, Cyprus Ioannidis, Sotiris, Foundation for Research and Technology-Hellas (FORTH), Greece Akyildiz, Ian, Georgia Institute of Technology, United States

SS-L26.2: DYNAMIC METASURFACE ANTENNAS FOR BIT-CONSTRAINED MIMO-OFDM RECEIVERS

Wang, Hanqing, Southeast University, China Shlezinger, Nir, Weizmann Institute of Science, Israel Jin, Shi, Southeast University, China Eldar, Yonina, Weizmann Institute of Science, Israel Yoo, Insang, Duke University, United States Imani, Mohammadreza, Duke University, United States Smith, David, Duke University, United States

SS-L26.3: USING INTELLIGENT REFLECTING SURFACES FOR RANK IMPROVEMENT IN MIMO COMMUNICATIONS

Özdogan, Özgecan, Linköping University, Sweden Björnson, Emil, Linköping University, Sweden Larsson, Erik G., Linköping University, Sweden

SS-L26.4: OPTIMIZING BACKSCATTERING COEFFICIENT DESIGN FOR MINIMIZING BER AT MONOSTATIC MIMO READER

Mishra, Deepak, University of New South Wales, Australia Yuan, Jinhong, University of New South Wales, Australia

SS-L26.6: A HARDWARE ARCHITECTURE FOR RECONFIGURABLE INTELLIGENT SURFACES WITH MINIMAL ACTIVE ELEMENTS FOR EXPLICIT CHANNEL ESTIMATION

Alexandropoulos, George, National and Kapodistrian University of Athens, Greece Vlachos, Evangelos, University of Edinburgh, United Kingdom

Friday, 8 May, 15:15 - 17:15

SS-L27 - Signal Processing for Sensing, Information Fusion, and Situational Awareness in Autonomous Systems

SS-L27.1: CONDITIONAL DENSITY DRIVEN GRID DESIGN IN POINT-MASS FILTER

Dunik, Jindrich, University of West Bohemia, Czech Republic Straka, Ondrej, University of West Bohemia, Czech Republic Matousek, Jakub, University of West Bohemia, Czech Republic

SS-L27.2: ENHANCED SAFETY OF AUTONOMOUS DRIVING BY INCORPORATING TERRESTRIAL SIGNALS OF OPPORTUNITY

Maaref, Mahdi, University of California, Irvine, United States Khalife, Joe, University of California, Irvine, United States Kassas, Zaher, University of California, Irvine, United States

SS-L27.3: OPPORTUNISTIC USE OF GNSS SIGNALS TO CHARACTERIZE THE ENVIRONMENT BY MEANS OF MACHINE LEARNING BASED PROCESSING

Dovis, Fabio, Politecnico di Torino, Italy Imam, Rayan, Politecnico di Torino, Italy Qin, Wenjian, Politecnico di Torino, Italy Savas, Caner, Politecnico di Torino, Italy Visser, Hans, Fugro Innovation & Technology B.V., Netherlands

SS-L27.4: AN OPTIMAL SYMMETRIC THRESHOLD STRATEGY FOR REMOTE ESTIMATION OVER THE COLLISION CHANNEL

Zhang, Xu, Beijing Institute of Technology, China Vasconcelos, Marcos, University of Southern California, United States Cui, Wei, Beijing Institute of Technology, China Mitra, Urbashi, University of Southern California, United States

SS-L27.5: AUTOMOTIVE COLLISION RISK ESTIMATION UNDER COOPERATIVE SENSING

Lachapelle, Daniel, University of Texas at Austin, United States Humphreys, Todd, University of Texas at Austin, United States Narula, Lakshay, University of Texas at Austin, United States Iannucci, Peter, University of Texas at Austin, United States Moradi-Pari, Ehsan, Honda R&D Americas, Inc., United States

SS-L27.6: EXPLOITATION OF 3D CITY MAPS FOR HYBRID 5G RTT AND GNSS POSITIONING SIMULATIONS

del Peral-Rosado, José A., IEEC-CERES, Universitat Autònoma de Barcelona (UAB), Spain Gunnarsson, Fredrik, Ericsson Research, Sweden Dwivedi, Satyam, Ericsson Research, Sweden Razavi, Sara Modarres, Ericsson Research, Sweden

Renaudin, Olivier, IEEC-CERES, Universitat Autònoma de Barcelona (UAB), Spain López-Salcedo, José A., IEEC-CERES, Universitat Autònoma de Barcelona (UAB), Spain Seco-Granados, Gonzalo, IEEC-CERES, Universitat Autònoma de Barcelona (UAB), Spain

Thursday, 7 May, 16:30 - 18:30

SS-P1 - Signal Processing Education: Trends and Innovations

SS-P1.1: A DATASET FOR MEASURING READING LEVELS IN INDIA AT SCALE

Agarwal, Dolly, Pratham Education Foundation, India Gupchup, Jayant, Microsoft Corporation, United States Baghel, Nishant, Pratham Education Foundation, United States

SS-P1.2: NOISE-ROBUST KEY-PHRASE DETECTORS FOR AUTOMATED CLASSROOM FEEDBACK

Zylich, Brian, Worcester Polytechnic Institute, United States Whitehill, Jacob, Worcester Polytechnic Institute, United States

SS-P1.3: EXPERIMENTS IN CREATING ONLINE COURSE CONTENT FOR SIGNAL PROCESSING EDUCATION

Jansson, Carl-Gustav, KTH Royal Institute of Technology, Sweden Thottappillil, Rajeev, KTH Royal Institute of Technology, Sweden Hillmann, Stefan, Technische Universität Berlin, Germany Möller, Sebastian, Technische Universität Berlin, Germany KVS, Hari, Indian Institute of Science, India Sundaresan, Rajesh, Indian Institute of Science, India

SS-P1.4: TEACHING SIGNALS AND SYSTEMS - A FIRST COURSE IN SIGNAL PROCESSING

Rakhashia, Nikhar, Indian Institute of Technology Bombay, India Bhurane, Ankit, Indian Institute of Information Technology Nagpur, India Gadre, Vikram, Indian Institute of Technology Bombay, India

SS-P1.5: COCHLEAR SIGNAL PROCESSING: A PLATFORM FOR LEARNING THE FUNDAMENTALS OF DIGITAL SIGNAL PROCESSING

Ambikairajah, Eliathamby, University of New South Wales, Australia Sethu, Vidhyasaharan, University of New South Wales, Australia

SS-P1.6: MULTIMODAL LEARNING FOR CLASSROOM ACTIVITY DETECTION

Li, Hang, TAL AI Lab, China Kang, Yu, TAL AI Lab, China Ding, Wenbiao, TAL AI Lab, China Yang, Song, TAL AI Lab, China Yang, Songfan, TAL AI Lab, China Huang, Gale Yan, TAL AI Lab, China Liu, Zitao, TAL AI Lab, China

SS-P1.7: AUTOMATIC FLUENCY EVALUATION OF SPONTANEOUS SPEECH USING DISFLUENCY-BASED FEATURES

Deng, Huaijin, University of Tsukuba, Japan Lin, Youchao, University of Tsukuba, Japan Utsuro, Takehito, University of Tsukuba, Japan Kobayashi, Akio, Tsukuba University of Technology, Japan Nishizaki, Hiromitsu, University of Yamanashi, Japan Hoshino, Junichi, University of Tsukuba, Japan

SS-P1.8: INTELLIGENT STUDENT BEHAVIOR ANALYSIS SYSTEM FOR REAL CLASSROOMS

Zheng, Rui, Shanghai Jiao Tong University, China Jiang, Fei, Shanghai Jiao Tong University, China Shen, Ruimin, Shanghai Jiao Tong University, China

Friday, 8 May, 11:45 - 13:45

SS-P2 - Unconventional Sensing

SS-P2.1: CODED ILLUMINATION AND MULTIPLEXING FOR LENSLESS IMAGING

Zhang, Yucheng, University of California, Riverside, United States Zheng, Rongjia, University of California, Riverside, United States Asif, M. Salman, University of California, Riverside, United States

SS-P2.2: SPARSE CONVOLUTIONAL BEAMFORMING FOR WIRELESS ULTRASOUND

Mamistvalov, Alon, Weizmann Institute of Science, Israel Eldar, Yonina, Weizmann Institute of Science, Israel

SS-P2.3: DIVERGENCE-BASED ADAPTIVE EXTREME VIDEO COMPLETION

El Helou, Majed, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Zhou, Ruofan, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Schmutz, Frank, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Guibert, Fabrice, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Süsstrunk, Sabine, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SS-P2.4: ENCODING AND DECODING MIXED BANDLIMITED SIGNALS USING SPIKING INTEGRATE-AND-FIRE NEURONS

Adam, Karen, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Scholefield, Adam, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland Vetterli, Martin, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

SS-P2.5: ON THE EFFECT OF REFLECTANCE ON PHASOR FIELD NON-LINE-OF-SIGHT IMAGING

Guillén, Ibón, Universidad de Zaragoza, Spain Liu, Xiaochun, University of Wisconsin-Madison, United States Velten, Andreas, University of Wisconsin-Madison, United States Gutierrez, Diego, Universidad de Zaragoza, Spain Jarabo, Adrian, Universidad de Zaragoza, Spain

SS-P2.6: SIGNAL SENSING AND RECONSTRUCTION PARADIGMS FOR A NOVEL MULTI-SOURCE STATIC COMPUTED TOMOGRAPHY SYSTEM

Kotwal, Alankar, Carnegie Mellon University, United States Cramer, Avilash, Massachusetts Institute of Technology, United States Wu, Dufan, Massachusetts General Hospital, United States Yang, Kai, Massachusetts General Hospital, United States Krull, Wolfgang, Massachusetts General Hospital, United States

Gkioulekas, Ioannis, Carnegie Mellon University, United States Gupta, Rajiv, Massachusetts General Hospital, United States

SS-P2.7: SAMPLING CLASSES OF NON-BANDLIMITED SIGNALS USING INTEGRATE-AND-FIRE DEVICES: AVERAGE CASE ANALYSIS

Alexandru, Roxana, Imperial College London, United Kingdom Thao, Nguyen T., City College of New York, United States Rzepka, Dominik, AGH University of Science and Technology, Poland Dragotti, Pier Luigi, Imperial College London, United Kingdom

SS-P2.8: TOWARDS AN INTELLIGENT MICROSCOPE: ADAPTIVELY LEARNED ILLUMINATION FOR OPTIMAL SAMPLE CLASSIFICATION

Chaware, Amey, Duke University, United States Cooke, Colin, Duke University, United States Kim, Kanghyun, Duke University, United States Horstmeyer, Roarke, Duke University, United States

SS-P2.9: HIGH DYNAMIC RANGE IMAGING USING DEEP IMAGE PRIORS

Jagatap, Gauri, Iowa State University, United States Hegde, Chinmay, Iowa State University, United States

SS-P2.10: KERNEL COMPUTATIONS FROM LARGE-SCALE RANDOM FEATURES OBTAINED BY OPTICAL PROCESSING UNITS

Ohana, Ruben, Ecole Normale Supérieure, France Wacker, Jonas, EURECOM, France Dong, Jonathan, Ecole Normale Supérieure, France Marmin, Sébastien, EURECOM, France Krzakala, Florent, Ecole Normale Supérieure, France Filippone, Maurizio, EURECOM, France Daudet, Laurent, LightOn, France

SS-P2.11: MULTI-DEPTH COMPUTATIONAL PERISCOPY WITH AN ORDINARY CAMERA

Saunders, Charles, Boston University, United States Bose, Rishabh, Stockdale High School, United States Murray-Bruce, John, Boston University, United States Goyal, Vivek, Boston University, United States

SS-P2.12: SUPER-RESOLUTION WITH NOISY MEASUREMENTS: RECONCILING UPPER AND LOWER BOUNDS

Qiao, Heng, University of California, San Diego, United States Shahsavari, Sina, University of California, San Diego, United States Pal, Piya, University of California, San Diego, United States