28th European Signal Processing Conference

Technical Program

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Opening/awards ceremony: Tuesday, 19 January, 9:00 – 10:00

Sponsorship session: Facebook Reality Labs: Tuesday, 19 January, 11:00 – 11:30, 15:30 – 16:00

Sponsorship session: Elsevier: Wednesday, 20 January, 12:30 – 13:30

Sponsorship session: Springer Nature, Thursday, 21 January, 12:30 – 13:30

3MT competition: Friday, 22 January, 12:30 – 13:30

Closing: Friday, 22 January, 13:30 – 14:00

Monday, 18 January, 9:00 – 12:30

Tutorial T1: Nonconvex Optimization for High-Dimensional Signal Estimation: Spectral and Iterative Methods

Tutorial T2: Statistical Relational Artificial Intelligence for Unified Music Understanding and Creation

Tutorial T3: Advances in Massive MIMO Hybrid Beamforming: From Optimization to Learning

Tutorial T4: A Unified Framework for Underdetermined and Determined Blind Audio Source Separation

Monday, 18 January, 13:30 – 17:00

Tutorial T5: Four decades of array signal processing research: an optimization relaxation technique perspective

Tutorial T6: Machine Learning and Wireless Communications

Tutorial T7: Adaptive Optimization Methods for Machine Learning and Signal Processing

Keynote talks:

Keynote KN1: Stephen McLaughlin, Tuesday, 19 January, 10:00 – 11:00

Challenges in imaging and sensing in photon-starved regimes

Keynote KN2: Michael Unser, Wednesday, 20 January, 11:30 – 12:30

Deep splines

Keynote KN3: Rebecca Willett, Thursday, 21 January, 11:30 – 12:30

Model Adaptation for Inverse Problems in Imaging

Keynote KN4: Robert W. Heath Jr., Friday, 22 January, 11:30 – 12:30

What is next in signal processing for MIMO communication?

Stephen McLaughlin
Heriot Watt University

Challenges in imaging and sensing in photon-starved regimes

How many photons per pixel do we need to construct an image? This apparently simple question is rather complicated to answer as it is dependent on what you want to use the image for. Computational imaging and sensing combines measurement and computational methods often when the measurement conditions are weak, few in number, or highly indirect (e.g. when the measurements are few in number, the information of interest is indirectly observed, or in challenging observation conditions). The recent surge in the development of sensors, together with a new wave of algorithms allowing on-chip, scalable and robust data processing, has induced an increase of activity with notable results in the domain of low flux imaging and sensing.

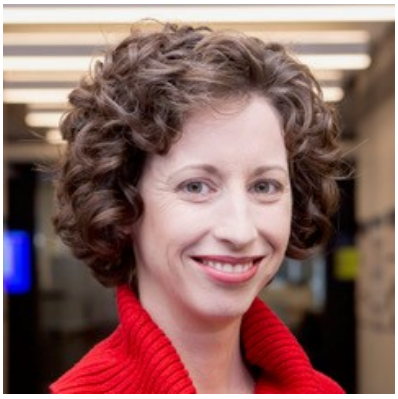
In this talk, I will provide an overview of the major challenges encountered in low-illumination (e.g., ultrafast) imaging and how these problems have recently been addressed for a range of applications in extreme conditions. The applications considered ranging from the identification of radionuclide signatures from weak sources in the presence of a high radiation background to single-photon lidar 3D imaging of complex outdoor scenes in broad daylight from distances up to 320 metres.

Michael Unser
EPFL, Switzerland

Deep Splines

We present a unifying functional framework for the implementation and training of deep neural networks (DNN) with free-form activation functions. To make the problem well posed, we constrain the shape of the trainable activations (neurons) by penalizing their second-order total-variations. We prove that the optimal activations are adaptive piecewise-linear splines, which allows us to recast the problem as a parametric optimization.
We then specify some corresponding trainable B-spline-based activation units. These modules can be inserted in deep neural architectures and optimized efficiently using standard tools. We provide experimental results that demonstrate the benefit of our approach.

Joint work with Pakshal Bohra, Joaquim Campos, Harshit Gupta, Shayan Aziznejad.



Rebecca Willett
University of Chicago

Model Adaptation for Inverse Problems in Imaging

Many challenging image processing tasks can be described by an ill-posed linear inverse problem: deblurring, deconvolution, inpainting, compressed sensing, and superresolution all lie in this framework. Traditional inverse problem solvers minimize a cost function consisting of a data-fit term, which measures how well an image matches the observations, and a regularizer, which reflects prior knowledge and promotes images with desirable properties like smoothness. Recent advances in machine learning and image processing have illustrated that it is often possible to learn a regularizer from training data that can outperform more traditional regularizers. In this talk, I describe the central prevailing themes of this emerging area and present a taxonomy that can be used to categorize different problems and reconstruction methods. We will also explore the lack of robustness of such methods to misspecification of the forward model: if at test time the forward model varies (even slightly) from the one the network was trained on, the network performance can degrade substantially. I will describe novel retraining procedures that adapt the network to reconstruct measurements from a perturbed forward model, even without full knowledge of the perturbation.

Robert W. Heath Jr.
North Carolina State University

What is next in signal processing for MIMO communication?

In the last 20 years, MIMO wireless communication has gone from concept to commercial deployments in millions of devices. Two flavours of MIMO — massive and mmWave — are key components of 5G. In this talk, I will examine aspects of MIMO communication that may influence the next decade of wireless communications. I will start by highlighting, from a signal processing perspective, what was interesting about taking MIMO to higher carrier frequencies at mmWave. Then I will speculate about forthcoming directions for MIMO communication research. I will discuss the implications of going to mmWave about 100 GHz to terahertz frequencies, including implications on the channel assumptions and array architectures. I will make the case that it may be relevant to go back to signals from a circuits perspective, to make physically consistent MIMO models that work with large bandwidths. Finally, I will talk about how other advancements in circuits, antennas, and materials may change the models and assumptions that are used in MIMO signal processing.

Tuesday, 19 January, 11:30 - 13:30 ASMSP-L1

ASMSP-L1 **ASMSP-L1: Detection and Classification of Acoustic Scenes and Events** (Lecture)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: L1
Chair: Konrad Kowalczyk, AGH University of Science and Technology, Poland

11:30 - 11:50
ASMSP-L1.1 LEARNING TO SEPARATE: SOUNDSCAPE CLASSIFICATION USING FOREGROUND AND BACKGROUND
Dhanunjaya Varma Devalraju, Padmanabhan Rajan, Dileep A.D, Indian Institute of Technology, Mandi, India

11:50 - 12:10
ASMSP-L1.2 TECHNIQUES IMPROVING THE ROBUSTNESS OF DEEP LEARNING MODELS FOR INDUSTRIAL SOUND ANALYSIS
David S. Johnson, Fraunhofer Institute for Digital Media Technology (IDMT), Germany; Sascha Grollmisch, Technische Universität Ilmenau, Germany

12:10 - 12:30
ASMSP-L1.3 UNSUPERVISED DOMAIN ADAPTATION FOR ACOUSTIC SCENE CLASSIFICATION USING BAND-WISE STATISTICS MATCHING
Alessandro Ilic Mezza, Politecnico di Milano, Italy; Emanuël A. P. Habets, Meinard Müller, International Audio Laboratories Erlangen, Germany; Augusto Sarti, Politecnico di Milano, Italy

12:30 - 12:50
ASMSP-L1.4 SELD-TCN: SOUND EVENT LOCALIZATION & DETECTION VIA TEMPORAL CONVOLUTIONAL NETWORKS
Karim Guirguis, Christoph Schorn, Andre Guntoro, Robert Bosch GmbH, Germany; Sherif Abdulatif, Bin Yang, University of Stuttgart, Germany

12:50 - 13:10
ASMSP-L1.5 FEATURE OVERVIEW FOR JOINT MODELING OF SOUND EVENT DETECTION AND LOCALIZATION USING A MICROPHONE ARRAY
Daniel Krause, AGH University of Science and Technology, Poland; Archontis Politis, Tampere University, Finland; Konrad Kowalczyk, AGH University of Science and Technology, Poland

13:10 - 13:30
ASMSP-L1.6 ROBUST DRONE DETECTION FOR ACOUSTIC MONITORING APPLICATIONS
Mattes Ohlenbusch, Aike Ahrens, Christian Rollwage, Fraunhofer Institute for Digital Media Technology, Germany; Jörg Bitzer, Jade Hochschule Wilhelmshaven, Oldenburg, Elsfleth, Germany

Tuesday, 19 January, 11:30 - 13:30 TMTSP-L1

TMTSP-L1 **TMTSP-L1: Robust Signal Processing** (Lecture)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: L2
Chair: Stephen McLaughlin, Heriot-Watt University, UK

11:30 - 11:50
TMTSP-L1.1 DISTRIBUTED SEQUENTIAL JOINT DETECTION AND ESTIMATION FOR NON-GAUSSIAN NOISE
Dominik Reinhard, Abdelhak M. Zoubir, Techniche Universität Darmstadt, Germany

11:50 - 12:10
TMTSP-L1.2 PROPERTIES OF A NEW R-ESTIMATOR OF SHAPE MATRICES
Stefano Fortunati, Alexandre Renaux, Frédéric Pascal, Université Paris-Saclay, CNRS, CentraleSupeléc, France

12:10 - 12:30
TMTSP-L1.3 ROBUST CLUSTERING AND OUTLIER REJECTION USING THE MAHALANOBIS DISTANCE DISTRIBUTION
Violeta Roizman, Université Paris-Saclay, CNRS, CentraleSupélec, Laboratoire des signaux et systèmes., France; Matthieu Jonckheere, Instituto de Calculo, Universidad de Buenos Aires, CONICET, Argentina; Frédéric Pascal, Université Paris-Saclay, CNRS, CentraleSupélec, Laboratoire des signaux et systèmes, France

12:30 - 12:50
TMTSP-L1.4 ROBUST VARIABLE SELECTION AND DISTRIBUTED INFERENCE USING TAU-BASED ESTIMATORS FOR LARGE-SCALE DATA
EMADALDIN MOZAFARI MAJD, VISA KOIVUNEN, AALTO UNIVERSITY, Finland

12:50 - 13:10
TMTSP-L1.5 JOINT ROBUST LINEAR REGRESSION AND ANOMALY DETECTION IN POISSON NOISE USING EXPECTATION-PROPAGATION
Dan Yao, Yoann Altmann, Stephen McLaughlin, Heriot-Watt University, United Kingdom; Michael E Davies, University of Edinburgh, United Kingdom

13:10 - 13:30
TMTSP-L1.6 SEA TARGET CLASSIFICATION BASED ON AN A PRIORI MOTION MODEL
Jimmy Bondu, Thales Defense Mission Systems, France; Éric Grivel, Audrey Giremus, University of Bordeaux - INP Bordeaux ENSEIRB-MATMECA - IMS - UMR CNRS 5218, France; Pierrick Legrand, University of Bordeaux - IMB - UMR CNRS 5251 - Inria Bordeaux Sud-Ouest, France; Vincent Corretja, Marie Pommier, Thales Defense Mission Systems, France

Tuesday, 19 January, 11:30 - 13:30 SiG-DML-L1

SiG-DML-L1 **SiG-DML-L1: Interpretable Machine Learning** (Lecture)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: L3
Co-Chairs: Nikos Deligiannis, Vrije Universiteit Brussel, Belgium and Thomas Moreau, Inria, France

11:30 - 11:50
SiG-DML-L1.1 GRAD-LAM: VISUALIZATION OF DEEP NEURAL NETWORKS FOR UNSUPERVISED LEARNING
Alexander Bartler, Darius Hinderer, Bin Yang, University of Stuttgart, Germany

11:50 - 12:10
SiG-DML-L1.2 UNSUPERVISED INTERPRETABLE REPRESENTATION LEARNING FOR SINGING VOICE SEPARATION
Stylianos Mimilakis, Fraunhofer-IDMT, Germany; Konstantinos Drossos, Tampere University, Finland; Gerald Schuller, Technical University of Ilmenau, Germany

12:10 - 12:30
SiG-DML-L1.3 WAVELETS IN THE DEEP LEARNING ERA
Zaccharie Ramzi, Inria Saclay, France; Jean-Luc Starck, CEA, France; Thomas Moreau, Philippe Ciuciu, Inria, France

12:30 - 12:50
SiG-DML-L1.4 CAPTURING AND EXPLAINING TRAJECTORY SINGULARITIES USING COMPOSITE SIGNAL NEURAL NETWORKS
Hippolyte Dubois, Patrick Le Callet, Antoine Coutrot, Université de Nantes, Centre National de la Recherche Scientifique, Laboratoire des Sciences du Numérique de Nantes, France

12:50 - 13:10
SiG-DML-L1.5 STUDY ON THE INFLUENCE OF MULTIPLE IMAGE INPUTS OF A MULTI-VIEW FUSION NEURAL NETWORK BASED ON GRAD-CAM AND MASKED IMAGE INPUTS
Stephan Tilgner, Daniel Wagner, Kathrin Kalischewski, Jan-Christoph Schmitz, Anton Kummert, University of Wuppertal, Germany

13:10 - 13:30
SiG-DML-L1.6 A DEEP-UNFOLDED REFERENCE-BASED RPCA NETWORK FOR VIDEO FOREGROUND-BACKGROUND SEPARATION
Huynh Van Luong, Boris Joukovsky, Vrije Universiteit Brussel, Belgium; Yonina Eldar, Weizmann Institute of Science, Israel; Nikos Deligiannis, Vrije Universiteit Brussel, Belgium

Tuesday, 19 January, 11:30 - 13:30 BISA-L1

BISA-L1 **BISA-L1: Biomedical Signal Processing I** (Lecture)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: L4
Chair: Baharah Abdikivanani, Delft University of Technology, The Netherlands

11:30 - 11:50
BISA-L1.1 A DYNAMIC MODE DECOMPOSITION BASED APPROACH FOR EPILEPTIC EEG CLASSIFICATION
Sude Pehlivan, Ozlem Karabiber Cura, Mehmet Akif Ozdemir, Izmir Katip Celebi University, Turkey; Aydin Akan, Izmir University of Economics, Turkey

11:50 - 12:10
BISA-L1.2 ROBUST EEG SOURCE LOCALIZATION USING SUBSPACE PRINCIPAL VECTOR PROJECTION TECHNIQUE
Amita Giri, Lalan Kumar, Tapan Gandhi, Indian Institute of Technology, Delhi (IITD), India

12:10 - 12:30
BISA-L1.3 MULTI-MODEL DEEP LEARNING ENSEMBLE FOR ECG HEARTBEAT ARRHYTHMIA CLASSIFICATION
Ehab Essa, Xianghua Xie, Swansea University, United Kingdom

12:30 - 12:50
BISA-L1.4 A DEEP LEARNING MODEL FOR AUTOMATIC SLEEP SCORING USING MULTIMODALITY TIME SERIES
Rui Yan, University of Jyväskylä, Finland; Fan Li, Dalian University of Technology, China; DongDong Zhou, Tapani Ristaniemi, University of Jyväskylä, Finland; Fengyu Cong, Dalian University of Technology, China

12:50 - 13:10
BISA-L1.5 EPILEPTIC SEIZURE DETECTION AND ANTICIPATION USING DEEP LEARNING WITH ORDERED ENCODING OF SPECTROGRAM FEATURES
Sameer Ranjan Sahu, Rama Krishna Sai Subrahmanyam Gorthi, Subrahmanyam Gorthi, Indian Institute of Technology Tirupati, India

13:10 - 13:30
BISA-L1.6 ESTIMATION OF CONSECUTIVELY MISSED SAMPLES IN FETAL HEART RATE RECORDINGS
Guanchao Feng, Petar Djuric, Stony Brook Univeristy, United States; Cassandra Heiselman, J. Gerald Quirk, Stony Brook University Hospital, United States

Tuesday, 19 January, 11:30 - 13:30 SS-L1

SS-L1 **SS-L1: Signal processing in Network Physiology**
(Special Session)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: L5
Co-Chairs: Carolina Varon, KU Leuven, Belgium, Luca Faes, Department of Engineering, University of Palermo, Italy and Plamen Ch. Ivanov, Boston University, USA

11:30 - 11:50
SS-L1.1 INFORMATION-THEORETIC CHARACTERIZATION OF CONCURRENT ACTIVITY OF NEURAL SPIKE TRAINS
Gorana Mijatovic, Tatjana Loncar-Turukalo, Faculty of Technical Sciences, University of Novi Sad, Serbia, Serbia; Nebojsa Bozanic, Department of Neurosurgery, Stanford University, CA, United States, United States; Luca Faes, Department of Engineering, University of Palermo, Italy, Italy

11:50 - 12:10
SS-L1.2 INCLUSION OF INSTANTANEOUS INFLUENCES IN THE SPECTRAL DECOMPOSITION OF CAUSALITY: APPLICATION TO THE CONTROL MECHANISMS OF HEART RATE VARIABILITY
Davide Nuzzi, University of Bari, Italy; Luca Faes, University of Palermo, Italy; Michal Javorka, Cornelius University in Bratislava, Slovakia; Daniele Marinazzo, Ghent University, Belgium; Sebastiano Stramaglia, University of Bari, Italy

12:10 - 12:30
SS-L1.3 ANALYSIS OF BRAIN-HEART COUPLINGS IN EPILEPSY: DEALING WITH THE HIGHLY COMPLEX STRUCTURE OF RESULTING INTERACTION PATTERN
Karin Schiecke, Jena University Hospital, Germany; Franz Benninger, Martha Feucht, Medical University Vienna, Austria

12:30 - 12:50
SS-L1.4 TESTING DIFFERENT METHODOLOGIES FOR GRANGER CAUSALITY ESTIMATION: A SIMULATION STUDY
Yuri Antonacci, Laura Astolfi, Sapienza University of Rome, Italy; Luca Faes, University of Palermo, Italy

12:50 - 13:10
SS-L1.5 SIGNAL PROCESSING IN NETWORK PHYSIOLOGY: QUANTIFYING NETWORK DYNAMICS OF ORGAN INTERACTIONS
Plamen Ch. Ivanov, Jilin W.J.L. Wang, Boston University, United States; Xiyun Zhang, Jinan University, China

Tuesday, 19 January, 11:30 - 13:30 **SS-P1**

SS-P1 **SS-P1: Trends in Graph Signal Processing** (Poster)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: P1

Poster Board: P1.1

SS-P1.1 **STATE-SPACE BASED NETWORK TOPOLOGY IDENTIFICATION**
Mario Coutino, Elvin Isufi, Delft University of Technology, Netherlands; Takanori Maehara, AIP Riken, Japan; Geert Leus, Delft University of Technology, Netherlands

Poster Board: P1.2

SS-P1.2 **UNSUPERVISED CLUSTERING ON SIGNED GRAPHS WITH UNKNOWN NUMBER OF CLUSTERS**
Thomas Dittrich, Gerald Matz, TU Wien, Austria

Tuesday, 19 January, 11:30 - 13:30 **VIP-P1**

VIP-P1 **VIP-P1: Video and Multimedia Coding** (Poster)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: P2
Chair: William Puech, Université Montpellier, France

Poster Board: P2.1
VIP-P1.1 **A GENERAL FRAMEWORK FOR DIRECTIONAL INTRA PREDICTION WITH VARYING ANGLE FOR VIDEO CODING**
Gagan Rath, Fabien Racape, Fabrice Urban, Fabrice Leleannec, Franck Galpin, Karam Naser, InterDigital Inc., France

Poster Board: P2.2
VIP-P1.2 **ESA360 - EARLY SKIP MODE DECISION ALGORITHM FOR FAST ERP 360 VIDEO CODING**
Iago Storch, Guilherme Correa, Bruno Zatt, Luciano Agostini, Daniel Palomino, Federal University of Pelotas, Brazil

Poster Board: P2.3
VIP-P1.3 **FAST BLOCK SIZE DECISION FOR HEVC ENCODERS WITH ON-THE-FLY TRAINED CLASSIFIERS**
Guilherme Correa, Pargles Dall'Oglio, Daniel Palomino, Luciano Agostini, Federal University of Pelotas, Brazil

Poster Board: P2.4
VIP-P1.4 **AFFINE INTRA-PREDICTION FOR VERSATILE VIDEO CODING**
Jayasingam Adhuran, University of Surrey, United Kingdom; Gosala Kulupana, Saverio Blasi, British Broadcasting Corperation, United Kingdom; Anil Fernando, University of Surrey, United Kingdom

Poster Board: P2.5
VIP-P1.5 **LOW-COMPLEXITY HEVC TRANSRATING BASED ON PREDICTION UNIT MODE INHERITANCE**
Matheus Lindino, Thiago Bubolz, Bruno Zatt, Daniel Palomino, Guilherme Correa, Federal University of Pelotas, Brazil

Poster Board: P2.6
VIP-P1.6 **FAST VP9-TO-AV1 TRANSCODING BASED ON BLOCK PARTITIONING INHERITANCE**
Alex Borges, Daniel Palomino, Bruno Zatt, Marcelo Porto, Guilherme Correa, Federal University of Pelotas, Brazil

Poster Board: P2.7
VIP-P1.7 **HARDWARE ARCHITECTURE FOR THE REGULAR INTERPOLATION FILTER OF THE AV1 VIDEO CODING STANDARD**
Daiane Freitas, Catholic University of Pelotas (UCPel), Brazil; Rafael Silva, Federal University of Rio Grande do Sul (UFRGS), Brazil; Ícaro Siqueira, Cláudio Diniz, Catholic University of Pelotas (UCPel), Brazil; Ricardo Reis, Federal University of Rio Grande do Sul (UFRGS), Brazil; Mateus Grellert, Federal University of Santa Catarina (UFSC), Brazil

SPMuS-P1 **SPMuS-P1: Localization and Tracking** (Poster)
Time: Tuesday, 19 January, 11:30 - 13:30
Place: P3
Chair: Alexander Jung, Aalto University, Finland

Poster Board: P3.1

SPMuS-P1.1 **NEAR-FIELD SOURCE LOCALIZATION OF QUASI-STATIONARY SIGNALS WITH INCREASED DEGREES OF FREEDOM**
Jingjing PAN, Meng Sun, Nanjing University of Aeronautics and Astronautics, China; Yide Wang, University of Nantes, France

Poster Board: P3.2

SPMuS-P1.2 **UAV MAPPING FOR MULTIPLE PRIMARY USERS LOCALIZATION**
Zhuyin LI, RMIT University, Australia; Andrea Giorgetti, University of Bologna, Italy; Sithamparanathan Kandeepan, RMIT University, Australia

Poster Board: P3.3

SPMuS-P1.3 **MIGRATING MONARCH BUTTERFLY LOCALIZATION USING MULTI-MODAL SENSOR FUSION NEURAL NETWORKS**
Mingyu Yang, Roger Hsiao, Gordy Carichner, Katherine Ernst, Jaechan Lim, Delbert Green, University of Michigan, United States; Inhee Lee, University of Pittsburgh, United States; David Blaauw, Hun-Seok Kim, University of Michigan, United States

Poster Board: P3.4

SPMuS-P1.4 **A GEOMETRIC INTERPRETATION OF TRILATERATION FOR RSS-BASED LOCALIZATION**
Minh Hoang Le, Jean-Pierre Rossi, Orange Labs - Sophia Antipolis - France, France; Dirk Slock, EURECOM - France, France

Poster Board: P3.5

SPMuS-P1.5 **ROBUST 2D INDOOR POSITIONING ALGORITHM IN THE PRESENCE OF NON-LINE-OF-SIGHT SIGNALS**
Mohammed AlSharif, Mohanad Ahmed, Abdulwahab Felemban, King Abdullah University of Science & Technology (KAUST), Saudi Arabia; Abdullah Zayat, Ali Muqaibel, Mudassir Masood, King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia; Tareq Al-Naffouri, King Abdullah University of Science & Technology (KAUST), Saudi Arabia

Poster Board: P3.6

SPMuS-P1.6 **SENSOR COMMISSIONING DETECTION IN SINGLE-PIXEL THERMOPILE SENSING SYSTEMS**
Erik Hagenaars, Ashish Pandharipande, Emmanuel Frimout, Signify, Netherlands; Geert Leus, Delft University of Technology, Netherlands

Poster Board: P3.7

SPMuS-P1.7 **A NEW ITERATIVE METHOD FOR PASSIVE DOPPLER GEOLOCATION BASED ON SEMI-DEFINITE PROGRAMMING**
Mustafa Atahan Nuhoglu, Yasar Kemal Alp, Aydin Bayri, ASELSAN A.S, Turkey; Hakan Ali Cirpan, Istanbul Technical University, Turkey

Poster Board: P3.8

SPMuS-P1.8 **TARGET TRACKING ON SENSING SURFACE WITH ELECTRICAL IMPEDANCE TOMOGRAPHY**
Timo Huuhtanen, Aalto University, Finland; Antti Lankinen, Imperial College, United Kingdom; Alexander Jung, Aalto University, Finland

Tuesday, 19 January, 13:30 - 15:30 ASMSP-L2

ASMSP-L2 **ASMSP-L2: Modeling, Analysis and Synthesis of Acoustic Environments** (Lecture)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: L1
Chair: Sharon Gannot, Bar-Ilan University, Israel

13:30 - 13:50
ASMSP-L2.1 FAST SOURCE-ROOM-RECEIVER ACOUSTICS MODELING
Yuancheng Luo, Wontak Kim, Amazon, United States

13:50 - 14:10
ASMSP-L2.2 INFERRING THE LOCATION OF REFLECTING SURFACES EXPLOITING LOUDSPEAKER DIRECTIVITY
Vincenzo Zaccà, Delft University of Technology, Netherlands; Pablo Martínez-Nuevo, Martin Møller, Bang & Olufsen, Denmark; Jorge Martínez, Richard Heusdens, Delft University of Technology, Netherlands

14:10 - 14:30
ASMSP-L2.3 A METHODOLOGY FOR THE ESTIMATION OF PROPAGATION SPEED OF LONGITUDINAL WAVES IN TONE WOOD
Luca Villa, Mirco Pezzoli, Fabio Antonacci, Augusto Sarti, Politecnico di Milano, Italy

14:30 - 14:50
ASMSP-L2.4 HIGH-RESOLUTION SPEAKER COUNTING IN REVERBERANT ROOMS USING CRNN WITH AMBISONICS FEATURES
Pierre-Amaury Grumiaux, Srdjan Kitic, Orange Labs, France; Laurent Girin, Univ. Grenoble Alpes, GIPSA-lab, Grenoble-INP, CNRS, France; Alexandre Guérin, Orange Labs, France

14:50 - 15:10
ASMSP-L2.5 SPEECH PRIVACY PROTECTION BASED ON OPTIMAL CONTROLLING ESTIMATED SPEECH TRANSMISSION INDEX IN NOISY REVERBERANT ENVIRONMENTS
suradej Doungpummet, Japan Advanced Institute of Science and Technology, Japan; Phrimphissa Kraikhun, Chatrin Phunruangsakao, Sirindhorn International Institute of Technology, Thammasat University, Thailand; Jessada Karnjana, National Science and Technology Development Agency, Thailand; Masashi Unoki, Japan Advanced Institute of Science and Technology, Japan; Waree Kongprawechnon, Sirindhorn International Institute of Technology, Thammasat University, Thailand

15:10 - 15:30
ASMSP-L2.6 MIRAGE: MULTICHANNEL DATABASE OF ROOM IMPULSE RESPONSES MEASURED ON HIGH-RESOLUTION CUBE-SHAPED GRID
Jaroslav Cmejla, Tomas Kounovsky, Technical University of Liberec, Czech Republic; Sharon Gannot, Bar-Ilan University, Israel; Zbynek Koldovsky, Technical University of Liberec, Czech Republic; Pinchas Tandeitnik, Bar-Ilan University, Israel

Tuesday, 19 January, 13:30 - 15:30 TMTSP-L2

TMTSP-L2 **TMTSP-L2: Sparsity-Aware Processing I** (Lecture)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: L2
Chair: Dirk Slock, Eurecom, France

13:30 - 13:50
TMTSP-L2.1 A ROBUST DEEP UNFOLDED NETWORK FOR SPARSE SIGNAL RECOVERY FROM NOISY BINARY MEASUREMENTS
Yuqing Yang, Peng Xiao, Vrije Universiteit Brussel, Belgium; Bin Liao, Shenzhen University, China; Nikos Deligiannis, Vrije Universiteit Brussel, Belgium

13:50 - 14:10
TMTSP-L2.2 ROBUST JOINTLY-SPARSE SIGNAL RECOVERY BASED ON MINIMAX CONCAVE LOSS FUNCTION
Kyohei Suzuki, Masahiro Yukawa, Keio university, Japan

14:10 - 14:30
TMTSP-L2.3 GENERALIZED SWEPT APPROXIMATE MESSAGE PASSING BASED KALMAN FILTERING FOR DYNAMIC SPARSE BAYESIAN LEARNING
Christo Kurisummoottil Thomas, Dirk Slock, Eurecom, France

14:30 - 14:50
TMTSP-L2.4 AUGMENTED SIGMA-POINT LAGRANGIAN SPLITTING METHOD FOR SPARSE NONLINEAR STATE ESTIMATION
RUI GAO, Simo Särkkä, Aalto university, Finland

14:50 - 15:10
TMTSP-L2.5 SUB-NYQUIST SAMPLING IN SHIFT-INVARIANT SPACES
Tin Vlaši , Damir Serši , University of Zagreb Faculty of Electrical Engineering and Computing, Croatia (Hrvatska)

15:10 - 15:30
TMTSP-L2.6 GPX-ADMM-NET: ADMM-BASED NEURAL NETWORK WITH GENERALIZED PROXIMAL OPERATOR
Shih-Wei Hu, Gang-Xuan Lin, Chun-Shien Lu, Academia Sinica, Taiwan

Tuesday, 19 January, 13:30 - 15:30 SPCN-L3

SPCN-L3 **SPCN-L3: Baseband Signal Processing for Communications** (Lecture)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: L3
Chair: Luca Sanguinetti, University of Pisa, Italy

13:30 - 13:50
SPCN-L3.1 FULL-DUPLEX MMWAVE COMMUNICATION WITH HYBRID PRECODING AND COMBINING
Roberto Lopez-Valcarce, Marcos Martinez-Cotelo, Universidade de Vigo, Spain

13:50 - 14:10
SPCN-L3.2 ONLINE SWITCH-BASED HYBRID BEAMFORMING FOR MASSIVE MIMO SYSTEMS
Hamed Nosrati, Elias Aboutanios, UNSW, Australia; David Smith, Data61 CSIRO, Australia

14:10 - 14:30
SPCN-L3.3 ANALYSIS OF BASEBAND IQ DATA COMPRESSION METHODS FOR CENTRALIZED RAN
Aya Shehata, Matthieu Crussière, Philippe Mary, Univ Rennes, INSA Rennes, CNRS, IETR-UMR 6164, F-35000 Rennes, France

14:30 - 14:50
SPCN-L3.4 GENERIC COMPRESSION OF OFF-THE-AIR RADIO FREQUENCY SIGNALS WITH GROUPED-BIN FFT QUANTISATION
Damien Muir, Louise Crockett, Robert Stewart, University of Strathclyde, United Kingdom

14:50 - 15:10
SPCN-L3.5 MULTIPLICATION-FREE DETECTION ALGORITHM OF THE PRIMARY SYNCHRONIZATION SIGNAL IN LTE
Mohammad Hussein Nassralla, American University of Beirut, Lebanon; Hassan Ayoub, -, Lebanon; Naeem Akl, Qualcomm R&D, United States; Rida Jichi, Arm, UK, United Kingdom; Mohammad Mansour, American University of Beirut, Lebanon

15:10 - 15:30
SPCN-L3.6 A MULTIPLE-INPUT MULTIPLE-OUTPUT EXTENSION OF THE MUELLER AND MÜLLER TIMING ERROR DETECTOR
Elnaz Banan Sadeghian, Stevens Institute of Technology, United States

Tuesday, 19 January, 13:30 - 15:30 BISA-L2

BISA-L2 **BISA-L2: Biomedical Image Analysis** (Lecture)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: L4
Chair: Cesar Caballero, BCBL, San Sebastien, Spain

13:30 - 13:50
BISA-L2.1 DEEP LEARNING METHODS FOR IMAGE DECOMPOSITION OF CERVICAL CELLS
Tayebeh Lotfi Mahyari, Richard M. Dansereau, Carleton University, Canada

13:50 - 14:10
BISA-L2.2 MRI VOCAL TRACT SAGITTAL SLICES ESTIMATION DURING SPEECH PRODUCTION OF CV
Ioannis Douros, Ajinkya Kulkarni, University of Lorraine, France; Yu Xie, Zhongnan Hospital of Wuhan University, China; Chrysanthi Dourou, National Technical University of Athens, Greece; Jacques Felblinger, Centre D'investigation Clinical - Innovation Technological, France; Karyna Isaieva, Pierre-Andre Vuissoz, IMAGERIE ADAPTATIVE DIAGNOSTIQUE ET INTERVENTIONNELLE, France; Yves Laprie, Centre national de la recherche scientifique, France

14:10 - 14:30
BISA-L2.3 SEMI-SUPERVISED RIEMANNIAN DIMENSIONALITY REDUCTION AND CLASSIFICATION USING A MANIFOLD-BASED RANDOM WALKER GRAPH
Faezeh Fallah, Felix Wiewel, Bin Yang, University of Stuttgart, Germany

14:30 - 14:50
BISA-L2.4 SHAPE-BASED GLIOMA MUTATION PREDICTION USING MAGNETIC RESONANCE IMAGING
Sjir Schielen, Eindhoven University of Technology, Netherlands; Jochem Spoor, Erasmus Medical Center, Netherlands; Jeroen Verheul, Elisabeth-TweeSteden hospital, Netherlands; Sieger Leenstra, Erasmus Medical Center, Netherlands; Sveta Zinger, Eindhoven University of Technology, Netherlands

14:50 - 15:10
BISA-L2.5 DEEP VIDEO CANONICAL CORRELATION ANALYSIS FOR STEADY STATE MOTION VISUAL EVOKED POTENTIAL FEATURE EXTRACTION
Raika Karimi, Arash Mohammadi, Laura Rosero, Amir Asif, Concordia University, Canada

Tuesday, 19 January, 13:30 - 15:30 VIP-L1

VIP-L1 **VIP-L1: Image Coding and Compression** (Lecture)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: L5
Chair: Adrian Munteanu, Vrije Universiteit Brussel, Belgium

13:30 - 13:50
VIP-L1.1 END-TO-END LEARNED IMAGE COMPRESSION WITH CONDITIONAL LATENT SPACE MODELING FOR ENTROPY CODING
Aziz Berkay Yesilyurt, Fatih Kamisli, Middle East Technical University, Turkey

13:50 - 14:10
VIP-L1.2 OPTIMIZING AN IMAGE CODING FRAMEWORK WITH DEEP LEARNING-BASED PRE- AND POST-PROCESSING
Paulo Eusébio, João Ascenso, Fernando Pereira, IST-IT, Portugal

14:10 - 14:30
VIP-L1.3 COMPRESSING PIECEWISE SMOOTH IMAGES WITH THE MUMFORD-SHAH CARTOON MODEL
Ferdinand Jost, Pascal Peter, Joachim Weickert, Saarland University, Germany

14:30 - 14:50
VIP-L1.4 IMAGE STORAGE IN DNA USING VECTOR QUANTIZATION
Melpomeni Dimopoulou, Marc Antonini, Université Côte d'Azur, CNRS, I3S, France

14:50 - 15:10
VIP-L1.5 A STUDY OF DEEP-LEARNING-BASED PREDICTION METHODS FOR LOSSLESS CODING
Ionut Schiopu, Hongyue Huang, Adrian Munteanu, Vrije Universiteit Brussel, Belgium

15:10 - 15:30
VIP-L1.6 SUBJECTIVE QUALITY EVALUATION OF LIGHT FIELD DATA UNDER CODING DISTORTIONS
Emanuele Palma, Tampere University, Finland; Federica Battisti, Marco Carli, Università degli studi Roma TRE, Italy; Pekka Astola, Ioan Tabus, Tampere University, Finland

Tuesday, 19 January, 13:30 - 15:30 **BForSec-P1**

BForSec-P1 BForSec-P1: Information Forensics and Security (Poster)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: P1
Chair: Patrizio Campisi, Roma Tre University, Italy

Poster Board: P1.1
BForSec-P1.1 PRNU-LEAKS: FACTS AND REMEDIES
Fernando Pérez-González, University of Vigo, Spain; Samuel Fernández-Meduiña, Imperial College, United Kingdom

Poster Board: P1.2
BForSec-P1.2 HIERARCHICAL HIGH CAPACITY DATA HIDING IN JPEG CRYPTO-COMPRESSED IMAGES
Pauline Puteaux, LIRMM - Univ. Montpellier / CNRS, France; Zichi Wang, Xinpeng Zhang, School of Communication and Information Engineering, Shanghai University, China; William Puech, LIRMM - Univ. Montpellier / CNRS, France

Poster Board: P1.3
BForSec-P1.3 A CONTENT-BASED IMAGE RETRIEVAL SCHEME USING COMPRESSIBLE ENCRYPTED IMAGES
Kenta Iida, Hitoshi Kiya, Tokyo Metropolitan University, Japan

Poster Board: P1.4
BForSec-P1.4 IDRISS: INTRUSION DETECTION FOR IT SYSTEMS SECURITY TOWARD A SEMANTIC MODELLING OF SIDE-CHANNEL SIGNALS
Fred Maurice Ngolè Mboula, Commissariat à l'énergie atomique, France; Erwan Nogues, Université de Rennes, France

Poster Board: P1.5
BForSec-P1.5 AIRCRAFT FINGERPRINTING USING DEEP LEARNING
Alessandro Nicolussi, Simon Tanner, Roger Wattenhofer, ETH Zurich, Switzerland

Poster Board: P1.6
BForSec-P1.6 A GAN-BASED IMAGE TRANSFORMATION SCHEME FOR PRIVACY-PRESERVING DEEP NEURAL NETWORKS
Warit Sirichotedumrong, Hitoshi Kiya, Tokyo Metropolitan University, Japan

Poster Board: P1.7
BForSec-P1.7 LOSS FUNCTIONS FOR CNN-BASED BIOMETRIC VEIN RECOGNITION
Rıdvan Salih Kuzu, Emanuele Maiorana, Patrizio Campisi, Roma Tre University, Italy

Poster Board: P1.8
BForSec-P1.8 DISTRIBUTED SEMI-PRIVATE IMAGE CLASSIFICATION BASED ON INFORMATION-BOTTLENECK PRINCIPLE
Shideh Rezaeifar, Maurits Diephuis, Behrooz Razeghi, Denis Ullmann, Olga Taran, Slava Voloshynovskiy, University of Geneva, Switzerland

Tuesday, 19 January, 13:30 - 15:30 **SiG-DML-P1**

SiG-DML-P1 SiG-DML-P1: Pattern Recognition and Classification (Poster)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: P2
Co-Chairs: Anastasios Tefas, Aristotle University of Thessaloniki, Greece and Patrice Abry, ENS de Lyon, France

Poster Board: P2.1
SiG-DML-P1.1 SCALE-FREE TEXTURE SEGMENTATION: EXPERT FEATURE-BASED VERSUS DEEP LEARNING STRATEGIES
Barbara Pascal, Vincent Mauduit, Nelly Pustelnik, Patrice Abry, Univ Lyon, ENS de Lyon, Univ Claude Bernard Lyon 1, CNRS, Laboratoire de Physique, France

Poster Board: P2.2
SiG-DML-P1.2 FEW-SHOT LEARNING OF SIGNAL MODULATION RECOGNITION BASED ON ATTENTION RELATION NETWORK
Zilin Zhang, Yan Li, Meiguo Gao, Beijing Institute of Technology, China

Poster Board: P2.3
SiG-DML-P1.3 QUALITY CONTROL AND FAULT CLASSIFICATION OF LASER WELDED HAIRPINS IN ELECTRICAL MOTORS
Johannes Vater, BMW Group, Germany; Matthias Pollach, Claus Lenz, Cognition Factory, Germany; Daniel Winkle, BMW Group, Germany; Alois Knoll, Technical University Munich, Germany

Poster Board: P2.4
SiG-DML-P1.4 DETECTION OF OBSTRUCTIVE SLEEP APNOEA BY ECG SIGNALS USING DEEP LEARNING ARCHITECTURES
Haifa Almutairi, Ghulam Mubashar Hassan, Amitava Datta, The University of Western Australia, Australia

Poster Board: P2.5
SiG-DML-P1.5 ONE AND TWO DIMENSIONAL CONVOLUTIONAL NEURAL NETWORKS FOR SEIZURE DETECTION USING EEG SIGNALS
Xiaoshuang Wang, Fengyu Cong, Dalian University of Technology, China; Tapani Ristaniemi, University of Jyväskylä, Finland

Poster Board: P2.6
SiG-DML-P1.6 ROBUST HYPERSPHERE-BASED WEIGHT IMPRINTING FOR FEW-SHOT LEARNING
Nikolaos Passalis, Aristotle University of Thessaloniki, Greece; Alexandros Iosifidis, Aarhus University, Denmark; Moncef Gabbouj, Tampere University, Finland; Anastasios Tefas, Aristotle University of Thessaloniki, Greece

Poster Board: P2.7
SiG-DML-P1.7 ROBUST FAST SUBCLASS DISCRIMINANT ANALYSIS
Kateryna Chumachenko, Tampere University, Finland; Alexandros Iosifidis, Aarhus University, Denmark; Moncef Gabbouj, Tampere University, Finland

Poster Board: P2.8
SiG-DML-P1.8 A SMALL-SCALE NETWORK FOR SEISMIC PATTERNS CLASSIFICATION
monacer da silva, jean charlety, IFP Energies Nouvelles, France; Aurélia Fraysse, University Paris-Sud, France; Jean-Christophe Pesquet, CentraleSupélec, France

Tuesday, 19 January, 13:30 - 15:30 **SS-P2**

SS-P2 **SS-P2: Bias in Biometrics** (Special Session)
Time: Tuesday, 19 January, 13:30 - 15:30
Place: P3
Co-Chairs: Pawel Drozdowski, pawel.drozdowski@h-da.de, Antitza Dantcheva, INRIA, Sophia Antipolis, France and Naser Damer, Fraunhofer Institute for Computer Graphics, Germany

Poster Board: P3.1
SS-P2.1 **DEMOGRAPHIC BIAS: A CHALLENGE FOR FINGERVEIN RECOGNITION SYSTEMS?**
Pawel Drozdowski, Hochschule Darmstadt, Germany; Bernhard Prommegger, Georg Wimmer, Rudolf Schraml, University of Salzburg, Austria; Christian Rathgeb, Hochschule Darmstadt, Austria; Andreas Uhl, University of Salzburg, Austria; Christoph Busch, Hochschule Darmstadt, Austria

Poster Board: P3.2
SS-P2.2 **ANALYSIS OF RACE AND GENDER BIAS IN DEEP AGE ESTIMATION MODELS**
Andraž Puc, Vitomir Štruc, Klemen Grm, University of Ljubljana, Slovenia

Poster Board: P3.3
SS-P2.3 **DEMOGRAPHIC BIAS IN PRESENTATION ATTACK DETECTION OF IRIS RECOGNITION SYSTEMS**
Meiling Fang, Naser Damer, Florian Kirchbuchner, Arjan Kuijper, Fraunhofer Institute for Computer Graphics Research IGD and TU Darmstadt, Germany

Poster Board: P3.4
SS-P2.4 **ASSESSING RISKS OF BIASES IN COGNITIVE DECISION SUPPORT SYSTEMS**
Kenneth Lai, Helder Oliveira, University of Calgary, Canada; Ming Hou, Defence Research and Development Canada, Canada; Svetlana Yanushkevich, Vlad Shmerko, University of Calgary, Canada

Tuesday, 19 January, 16:00 - 18:00 ASMSP-L3

ASMSP-L3 **ASMSP-L3: Bioacoustics and Medical Acoustics** (Lecture)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: L1
Chair: Mads Christensen, Aalborg University, Denmark

16:00 - 16:20
ASMSP-L3.1 DEMENTIA CLASSIFICATION USING ACOUSTIC DESCRIPTORS DERIVED FROM SUBSAMPLED SIGNALS
Ayush Triapthi, Rupayan Chakraborty, Sunil Kumar Kopparapu, TCS Research and Innovation - Mumbai, India

16:20 - 16:40
ASMSP-L3.2 PERFORMANCE REQUIREMENTS FOR COUGH CLASSIFIERS IN REAL-WORLD APPLICATIONS
Bert den Brinker, Philips Research, Netherlands; Mara Coman, Fontys University of Applied Sciences, Netherlands; Okke Ouweltjes, Philips Research, Netherlands; Susannah Thackray-Nocera, Michael Crooks, Alyn H. Morice, Hull York Medical School, United Kingdom

16:40 - 17:00
ASMSP-L3.3 WEAK SPEECH SUPERVISION: A CASE STUDY OF DYSARTHRIA SEVERITY CLASSIFICATION
Mirali Purohit, Dhirubhai Ambani Institute of Information and Communication Technology, India; Mihir Parmar, Arizona State University, United States; Maitreya Patel, Harshit Malaviya, Hemant Patil, Dhirubhai Ambani Institute of Information and Communication Technology, India

17:00 - 17:20
ASMSP-L3.4 METHODS TO IMPROVE THE ROBUSTNESS OF RIGHT WHALE DETECTION USING CNNS IN CHANGING CONDITIONS
William Vickers, Ben Milner, Artjom Gorpincenko, University of East Anglia, United Kingdom; Robert Lee, Gardline, United Kingdom

17:20 - 17:40
ASMSP-L3.5 A UNIVERSAL SYSTEM FOR COUGH DETECTION IN DOMESTIC ACOUSTIC ENVIRONMENTS
Nikonas Simou, Nikolaos Stefanakis, Foundation for Research and Technology, Greece; Panagiotis Zervas, Hellenic Mediterranean University, Greece

17:40 - 18:00
ASMSP-L3.6 AUTOMATED DYSARTHRIA SEVERITY CLASSIFICATION USING DEEP LEARNING FRAMEWORKS
Amlu Anna Joshy, Rajeev Rajan, College of Engineering, Trivandrum, India

Tuesday, 19 January, 16:00 - 18:00 SS-L2

SS-L2 **SS-L2: Learning over Graphs** (Special Session)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: L2
Co-Chairs: Elvin Isufi, Delft University of Technology, The Netherlands and Geert Leus, Delft University of Technology, The Netherlands

16:00 - 16:20
SS-L2.1 NODE VARYING REGULARIZATION FOR GRAPH SIGNALS
Maosheng Yang, Mario Coutino, Elvin Isufi, Geert Leus, Delft University of Technology,, Netherlands

16:20 - 16:40
SS-L2.2 ONLINE GRAPH-BASED CHANGE POINT DETECTION IN MULTIBAND IMAGE SEQUENCES
Ricardo Borsoi, Cédric Richard, André Ferrari, Université Côte D'Azur, Brazil; Jie Chen, Northwestern Polytechnical University, China; José Bermudez, Federal University of Santa Catarina, Brazil

16:40 - 17:00
SS-L2.3 OVERPARAMETRIZED DEEP ENCODER-DECODER SCHEMES FOR INPUTS AND OUTPUTS DEFINED OVER GRAPHS
Samuel Rey, Victor Tenorio, Sergio Rozada, Luca Martino, Antonio G. Marques, Universidad Rey Juan Carlos, Spain

17:00 - 17:20
SS-L2.4 GRAPHON POOLING IN GRAPH NEURAL NETWORKS
Alejandro Parada-Mayorga, Luana Rubini Ruiz, Alejandro Ribeiro, University of Pennsylvania, United States

17:20 - 17:40
SS-L2.5 ONLINE PROXIMAL GRADIENT FOR LEARNING GRAPHS FROM STREAMING SIGNALS
Rasoul Shafipour, Gonzalo Mateos, University of Rochester, United States

Tuesday, 19 January, 16:00 - 18:00 SiG-DML-L2

SiG-DML-L2 **SiG-DML-L2: Bayesian Learning and Signal Processing** (Lecture)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: L3
Chair: Sorin Olaru, CentraleSupélec, Université Paris-Saclay, France

16:00 - 16:20
SiG-DML-L2.1 GAUSSIAN PROCESSES REGRESSION WITH JOINT LEARNING OF PRECISION MATRIX
Xiaoyu Miao, Aimin Jiang, Ning Xu, Hohai University, China

16:20 - 16:40
SiG-DML-L2.2 STOCHASTIC COMPLEX-VALUED NEURAL NETWORKS FOR RADAR
Othmane-Latif Ouabi, UMI 2958 GeorgiaTech-CNRS, France; Radmila Pribi , Thales Nederland BV, Netherlands; Sorin Olaru, CentraleSupélec, Université Paris-Saclay, CNRS, LSS, France

16:40 - 17:00
SiG-DML-L2.3 GAUSSIAN PROCESS LATENT VARIABLE MODELS APPLIED TO STUDY MARITIME TRAFFIC PATTERNS FROM VIIRS DATA
Raffaele Grasso, CMRE, Italy

17:00 - 17:20
SiG-DML-L2.4 GAUSSIAN PROCESS WITH PHYSICAL LAWS FOR 3D CARDIAC MODELING
Masahiro Nakano, Ryohei Shibue, Kunio Kashino, Shingo Tsukada, Hitonobu Tomoike, NTT corporation, Japan

17:20 - 17:40
SiG-DML-L2.5 CONSTRAINED CLUSTERING USING GAUSSIAN PROCESSES
Panagiotis A. Traganitis, Georgios B. Giannakis, University of Minnesota, United States

17:40 - 18:00
SiG-DML-L2.6 GAUSSIAN PROCESS STATE-SPACE MODELS WITH TIME-VARYING PARAMETERS AND INDUCING POINTS
Yuhao Liu, Petar Djuric, Stony Brook University, United States

Tuesday, 19 January, 16:00 - 18:00 SPCN-L2

SPCN-L2 **SPCN-L2: Signal Processing for Wireless Networks** (Lecture)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: L4
Chair: Andreas Burg, EPFL, Switzerland

16:00 - 16:20
SPCN-L2.1 MANAGING SINGLE OR MULTI-USERS CHANNEL ALLOCATION FOR THE PRIORITY COGNITIVE ACCESS
Mahmoud Almasri, Ali Mansour, École nationale supérieure de techniques avancées Bretagne, France; Christophe Moy, Univ Rennes, France; Ammar Assoum, Lebanese University, Faculty of sciences, Lebanon; Denis Lejeune, Christophe Osswald, École nationale supérieure de techniques avancées Bretagne, France

16:20 - 16:40
SPCN-L2.2 ALMOST-ZERO DUALITY GAPS IN MODEL-FREE RESOURCE ALLOCATION FOR WIRELESS SYSTEMS
Dionysios Kalogerias, University of Pennsylvania, United States; Mark Eisen, Intel Corporation, United States; George Pappas, Alejandro Ribeiro, University of Pennsylvania, United States

16:40 - 17:00
SPCN-L2.3 COLLISION RESILIENT V2X COMMUNICATION VIA GRANT-FREE NOMA
Bashar Tahir, Stefan Schwarz, Markus Rupp, TU Wien, Austria

17:00 - 17:20
SPCN-L2.4 DISTRIBUTED RESOURCE ALLOCATION ALGORITHMS FOR MULTI-OPERATOR COGNITIVE COMMUNICATION SYSTEMS
Ehsan Tohidi, David Gesbert, EURECOM, France; Philippe CIBLAT, Telecom Paris, France

17:20 - 17:40
SPCN-L2.5 USER ACTIVITY AND DATA DETECTION FOR MIMO UPLINK C-RAN USING BAYESIAN LEARNING
Anupama Rajoriya, Vidushi Katiyar, Rohit Budhiraja, Indian Institute of Technology, Kanpur, India, India

17:40 - 18:00
SPCN-L2.6 BLIND TRAFFIC CLASSIFICATION IN WIRELESS NETWORKS
Enrico Testi, Lorenzo Pucci, Elia Favarelli, Andrea Giorgetti, Alma Mater Studiorum University of Bologna, Italy

Tuesday, 19 January, 16:00 - 18:00 **SPMuS-L1**

SPMuS-L1 **SPMuS-L1: Beamforming** (Lecture)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: L5
Chair: Visa Koivunen, Aalto University, Finland

16:00 - 16:20
SPMuS-L1.1 TRANSMIT BEAMPATTERN SYNTHESIS FOR MIMO RADAR WITH ONE-BIT DACS
Tong Wei, Bin Liao, Shenzhen University, China; Ziyang Cheng, University of Electronic Science and Technology of China, China

16:20 - 16:40
SPMuS-L1.2 SPARSE ARRAY RECEIVER BEAMFORMER DESIGN FOR MULTI-FUNCTIONAL ANTENNA
Syed Ali Hamza, Moeness Amin, Villanova University, United States

16:40 - 17:00
SPMuS-L1.3 MANIFOLD OPTIMIZATION BASED BEAMFORMING FOR DOA AND DOD ESTIMATION WITH A SINGLE MULTI-MODE ANTENNA
Robert Pöhlmann, Siwei Zhang, Armin Dammann, German Aerospace Center (DLR), Germany; Peter A. Hoeher, University of Kiel, Germany

17:00 - 17:20
SPMuS-L1.4 LOW-COMPLEXITY ROBUST BEAMFORMING FOR A MOVING SOURCE
Moaaz Mahdi, Tarig Ballal, King Abdullah University of Science and Technology, Saudi Arabia; Mohammad Moinuddin, King Abdulaziz University, Saudi Arabia; Tareq Y. Al-Naffouri, King Abdullah University of Science and Technology, Saudi Arabia; Ubaid Al-Saggaf, King Abdulaziz University, Saudi Arabia

17:20 - 17:40
SPMuS-L1.5 A MULTI-STAGE PARALLEL LMS STRUCTURE AND ITS STABILITY ANALYSIS USING TRANSFER FUNCTION APPROXIMATION
Ghattas Akkad, Ali Mansour, ENSTA Bretagne, France; Bachar ElHassan, Lebanese University, Lebanon; Elie Inaty, University of Balamand, Lebanon

17:40 - 18:00
SPMuS-L1.6 PHASE-COHERENT MULTICHANNEL SDR - SPARSE ARRAY BEAMFORMING
Mikko Laakso, Robin Rajamäki, Risto Wichman, Visa Koivunen, Aalto University, Finland

Tuesday, 19 January, 16:00 - 18:00 **ASMSP-P1**

ASMSP-P1 **ASMSP-P1: Deep Learning-based Acoustic Scene Analysis** (Poster)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: P1
Chair: Emanuël Habets, International Audio Laboratories Erlangen, Germany

Poster Board: P1.1
ASMSP-P1.1 ROBUST ACOUSTIC SCENE CLASSIFICATION TO MULTIPLE DEVICES USING MAXIMUM CLASSIFIER DISCREPANCY AND KNOWLEDGE DISTILLATION
Saori Takeyama, Tokyo Institute of Technology, LINE corporation, Japan; Tatsuya Komatsu, LINE corporation, Japan; Koichi Miyazaki, Nagoya University, LINE corporation, Japan; Masahito Togami, LINE corporation, Japan; Shunsuke Ono, Tokyo Institute of Technology, Japan

Poster Board: P1.2
ASMSP-P1.2 HODGE AND PODGE: HYBRID SUPERVISED SOUND EVENT DETECTION WITH MULTI-HOT MIXMATCH AND COMPOSITION CONSISTENCE TRAINING
Ziqiang Shi, Liu Liu, Rujie Liu, Fujitsu R&D Center, China

Poster Board: P1.3
ASMSP-P1.3 PROGRESSIVE TRAINING OF CONVOLUTIONAL NEURAL NETWORKS FOR ACOUSTIC EVENTS CLASSIFICATION
Federico Colangelo, Federica Battisti, Alessandro Neri, Università degli studi Roma Tre, Italy

Poster Board: P1.4
ASMSP-P1.4 TYPE/POSITION CLASSIFICATION OF INTER-FLOOR NOISE IN RESIDENTIAL BUILDINGS WITH A SINGLE MICROPHONE VIA SUPERVISED LEARNING
Hwiyong Choi, Haesang Yang, Seungjun Lee, Woojae Seong, Seoul National University, Korea (South)

Poster Board: P1.5
ASMSP-P1.5 DEEP RECURRENT NEURAL NETWORKS FOR AUDIO CLASSIFICATION IN CONSTRUCTION SITES
Michele Scarpiniti, Danilo Comminiello, Aurelio Uncini, Sapienza University of Rome, Italy; Yong-Cheol Lee, Louisiana State University, United States

Poster Board: P1.6
ASMSP-P1.6 TOWARDS DOMAIN INDEPENDENCE IN CNN-BASED ACOUSTIC LOCALIZATION USING DEEP CROSS CORRELATIONS
Juan Manuel Vera-Diaz, Daniel Pizarro, Javier Macias-Guarasa, University of Alcala, Spain

Poster Board: P1.7
ASMSP-P1.7 SOUND EVENT LOCALIZATION AND DETECTION USING CONVOLUTIONAL RECURRENT NEURAL NETWORKS AND GATED LINEAR UNITS
Tatsuya Komatsu, Masahito Togami, Tsubasa Takahashi, LINE Corporation, Japan

Poster Board: P1.8
ASMSP-P1.8 AUTOMATIC OBJECT CLASSIFICATION WITH ACTIVE SONAR USING UNSUPERVISED ANOMALY DETECTION
Pietro Stinco, Giovanni De Magistris, Alessandra Tesei, Kevin D. LePage, NATO STO CMRE - Centre for Maritime Research and Experimentation, Italy

Tuesday, 19 January, 16:00 - 18:00 **BISA-P1**

BISA-P1 **BISA-P1: Biomedical Signal Processing II** (Poster)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: P2
Chair: Fabienne Porée, Univ Rennes, France

Poster Board: P2.1
BISA-P1.1 EXPLORATION OF MODE DECOMPOSITION FOR CONCURRENT CARDIOPULMONARY MONITORING USING DUAL RADAR
Arindam Ray, Anwesha Khasnobish, Smriti Rani, Arijit Chowdhury, Tapas Chakravarty, Tata Consultancy Services, India

Poster Board: P2.2
BISA-P1.2 CANONICAL POLYADIC AND BLOCK TERM DECOMPOSITIONS TO FUSE EEG, PHENOTYPIC SCORES, AND STRUCTURAL MRI OF CHILDREN WITH EARLY-ONSET EPILEPSY
Noramon Dron, University of Edinburgh, United Kingdom; Richard FM. Chin, Royal Hospital for Sick Children, United Kingdom; Javier Escudero, University of Edinburgh, United Kingdom

Poster Board: P2.3
BISA-P1.3 A NOVEL NON-PARAMETRIC APPROACH OF TREMOR DETECTION USING WRIST-BASED PHOTOPLETHYSMOGRAPH
Nasimuddin Ahmed, Chirayata Bhattacharyya, Avik Ghose, TCS Research & Innovation, India

Poster Board: P2.4
BISA-P1.4 EMOTIONAL RESPONSE ANALYSIS USING ELECTRODERMAL ACTIVITY, ELECTROCARDIOGRAM AND EYE TRACKING SIGNALS IN DRIVERS WITH VARIOUS CAR SETUPS
Pamela Zontone, Antonio Affanni, Riccardo Bernardini, University of Udine, Italy; Leonida Del Linz, VI-grade Srl, Italy; Alessandro Piras, Roberto Rinaldo, University of Udine, Italy

Poster Board: P2.5
BISA-P1.5 AUTOREGULATORY EFFICIENCY ASSESSMENT IN KIDNEYS USING DEEP LEARNING
Sebastian Alphonse, Illinois Institute of Technology, United States; Aaron Polichnowski, East Tennessee State University, United States; Karen Griffin, Anil Bidani, Loyola University Medical Center, United States; Geoffrey Williamson, Illinois Institute of Technology, United States

Poster Board: P2.6
BISA-P1.6 ROBUST END-TO-END SPEAKER VERIFICATION USING EEG
Yan Han, Gautam Krishna, Co Tran, Mason Carnahan, Ahmed Tewfik, UT Austin, United States

Poster Board: P2.7
BISA-P1.7 MODELING THE RELATIONSHIP BETWEEN ACOUSTIC STIMULUS AND EEG WITH A DILATED CONVOLUTIONAL NEURAL NETWORK
Bernd Accou, Mohammad Jalilpour Monesi, Jair Montoya Martinez, Hugo Van hamme, Tom Francart, KU Leuven, Belgium

Tuesday, 19 January, 16:00 - 18:00 **TMTSP-P1**

TMTSP-P1 **TMTSP-P1: Signal Analysis, Modeling and Estimation** (Poster)
Time: Tuesday, 19 January, 16:00 - 18:00
Place: P3
Chair: Andreas Jakobsson, Lund University, Sweden

Poster Board: P3.1
TMTSP-P1.1 **SIGNAL ANALYSIS USING LOCAL POLYNOMIAL APPROXIMATIONS**
Reto A. Wildhaber, ETH Zurich & Bern University of Applied Sciences, Switzerland; Elizabeth Ren, ETH Zurich, Switzerland; Frédéric Waldmann, ETH Zurich & Bern University of Applied Sciences, Switzerland; Hans-Andrea Loeliger, ETH Zurich, Switzerland

Poster Board: P3.2
TMTSP-P1.2 **PIECEWISE LINEAR REGRESSION UNDER NOISE LEVEL VARIATION VIA CONVEX OPTIMIZATION**
Hiroki Kuroda, Jun Ogata, National Institute of Advanced Industrial Science and Technology, Japan

Poster Board: P3.3
TMTSP-P1.3 **DASP IMPLEMENTATION OF CONTINUOUS-TIME, FINITE-IMPULSE-RESPONSE SYSTEMS**
Andrzej Tarczynski, Hikmat Darawsheh, University of Westminster, United Kingdom

Poster Board: P3.4
TMTSP-P1.4 **APPLICATION OF THE SINGULAR SPECTRUM ANALYSIS TO THE TIME VARIATIONS OF THE AMPLITUDE OF SCHUMANN RESONANCE MEASUREMENTS**
Jesús Rodríguez-Camacho, David Blanco-Navarro, Juan Francisco Gómez-Lopera, Mª Carmen Carrión, University of Granada, Spain

Poster Board: P3.5
TMTSP-P1.5 **ARBITRARY LENGTH REDUCIBLE AND IRREDUCIBLE PERFECT GAUSSIAN INTEGER SEQUENCES WITH A PRE-GIVEN GAUSSIAN INTEGER**
Soo-Chang Pei, National Taiwan University, Taiwan; Kuo-Wei Chang, Chunghwa Telecom Laboratories, Taiwan

Poster Board: P3.6
TMTSP-P1.6 **ON TWO-DIMENSIONAL POLYNOMIAL PREDICTORS**
Jaakko Astola, Tampere University, Finland; Yrjo Neuvo, Aalto University, Finland; Corneliu Rusu, Technical University of Cluj-Napoca, Romania

Poster Board: P3.7
TMTSP-P1.7 **CONTROLLED ACCURACY FOR DISCRETE CHEBYSHEV POLYNOMIALS**
Bert den Brinker, Philips Research, Netherlands

Poster Board: P3.8
TMTSP-P1.8 **GRADIENT OF MUTUAL INFORMATION IN LINEAR VECTOR GAUSSIAN CHANNELS IN THE PRESENCE OF INPUT NOISE**
Fraser Kenneth Coutts, John Thompson, Bernard Mulgrew, University of Edinburgh, United Kingdom

Poster Board: P3.9
TMTSP-P1.9 **RANGE-BASED RADAR MODEL STRUCTURE SELECTION**
Andreas Jansson, Lund University/Acconeer, Sweden; Filip Elvander, Lund University, Sweden; Peter Almers, Acconeer, Sweden; Andreas Jakobsson, Lund University, Sweden

Poster Board: P3.10
TMTSP-P1.10 **CHAOTIC SIGNALS REPRESENTATION AND SPECTRAL CHARACTERIZATION USING LINEAR DISCRETE-TIME FILTERS**
Rafael Alves da Costa, Marcio Eisencraft, University of São Paulo, Brazil

Wednesday, 20 January, 09:00 - 11:00 ASMSP-L4

ASMSP-L4 **ASMSP-L4: Music Signal Analysis and Processing** (Lecture)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: L1
Chair: Alberto Bernardini, Politecnico di Milano, Italy

09:00 - 09:20
ASMSP-L4.1 MULTIPITCH TRACKING IN MUSIC SIGNALS USING ECHO STATE NETWORKS
Peter Steiner, Simon Stone, Peter Birkholz, Technische Universität Dresden, Germany; Azarakhsh Jalalvand, Ghent University -- imec, Germany

09:20 - 09:40
ASMSP-L4.2 AUTOMATIC DIFFERENTIATING WAVE DIGITAL FILTERS WITH MULTIPLE NONLINEARITIES
Lech Kolonko, Jörg Velten, Anton Kummert, University of Wuppertal, Germany

09:40 - 10:00
ASMSP-L4.3 TOWARD THE WAVE DIGITAL REAL-TIME EMULATION OF AUDIO CIRCUITS WITH MULTIPLE NONLINEARITIES
Alessandro Proverbio, Alberto Bernardini, Augusto Sarti, Politecnico di Milano, Italy

10:00 - 10:20
ASMSP-L4.4 COMPARING REPRESENTATIONS FOR AUDIO SYNTHESIS USING GENERATIVE ADVERSARIAL NETWORKS
Javier Nistal, Stefan Lattner, Sony Computer Science Laboratories, France; Gaël Richard, Institut Polytechnique de Paris, France

10:20 - 10:40
ASMSP-L4.5 COMPUTATIONAL APPROACH TO TRACK BEATS IN IMPROVISATIONAL MUSIC PERFORMANCE
Xianghui Xie, Jared Houghtaling, Katrien Foubert, Toon van Waterschoot, KU Leuven, Belgium

10:40 - 11:00
ASMSP-L4.6 AUGMENTATION METHODS ON MONOPHONIC AUDIO FOR INSTRUMENT CLASSIFICATION IN POLYPHONIC MUSIC
Agelos Kratimenos, Kleanthis Avramidis, Christos Garoufis, Athanasia Zlatintsi, Petros Maragos, National Technical University of Athens, Greece

Wednesday, 20 January, 09:00 - 11:00 TMTSP-L3

TMTSP-L3 **TMTSP-L3: Time-frequency and time-scale analysis** (Lecture)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: L2
Chair: Michael Muma, Darmstadt University, Germany

09:00 - 09:20
TMTSP-L3.1 THE SMOOTHED REASSIGNED SPECTROGRAM FOR ROBUST ENERGY ESTIMATION
Erik Månsson, Acconeer AB, Sweden; Maria Sandsten, Lund University, Sweden

09:20 - 09:40
TMTSP-L3.2 ONE OR TWO FREQUENCIES? THE SCATTERING TRANSFORM ANSWERS
Vincent Lostanlen, New York University, France; Alice Cohen-Hadria, University of Toulouse, France; Juan Pablo Bello, New York University, France

09:40 - 10:00
TMTSP-L3.3 FRACTIONAL SUPERLETS
Harald Bârzan, Transylvainan Institute of Neuroscience, Technical University of Cluj-Napoca, Romania; Vasile Vlad Moca, Transylvainan Institute of Neuroscience, Romania; Ana-Maria Ichim, Transylvainan Institute of Neuroscience, Technical University of Cluj-Napoca, Romania; Raul Cristian Mure an, Transylvainan Institute of Neuroscience, Romania

10:00 - 10:20
TMTSP-L3.4 ON THE DETERMINISTIC ESTIMATON OF MULTISCALE PERMUTATION ENTROPY OF HIGH-ORDER AUTOREGRESSIVE-MOVING-AVERAGE PROCESSES AS A FUNCTION OF ARMA PARAMETERS
Antonio Davalos, Meryem Jabloun, Philippe Ravier, Olivier Buttelli, Université d'Orléans, France

10:20 - 10:40
TMTSP-L3.5 SECOND-ORDER HORIZONTAL SYNCHROSQUEEZING OF THE S-TRANSFORM: A SPECIFIC WAVELET CASE STUDY
Dominique Fourer, IBISC - University of Evry/Paris-Saclay, France; François Auger, IREENA - University of Nantes, France

10:40 - 11:00
TMTSP-L3.6 SIGNAL-ADAPTED ANALYTIC WAVELET PACKETS IN ARBITRARY DIMENSIONS
Matthias Bächle, Maximilian Schambach, Fernando Puente León, Karlsruhe Institute of Technology, Germany

Wednesday, 20 January, 09:00 - 11:00 SiG-DML-L3

SiG-DML-L3 SiG-DML-L3: Learning Theory and Algorithms (Lecture)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: L3
Co-Chairs: Vasileios Belagiannis, Universität Ulm, Germany and Konstantinos Slavakis, University at Buffalo, USA

09:00 - 09:20
SiG-DML-L3.1 ADVERSARIAL SIGNAL DENOISING WITH ENCODER-DECODER NETWORKS
Leslie Casas, Technische Universität München, Germany; Attila Klimmek, Universität Ulm, Germany; Nassir Navab, Technische Universität München, Germany; Vasileios Belagiannis, Universität Ulm, Germany

09:20 - 09:40
SiG-DML-L3.2 CONSISTENCY-AWARE AND INCONSISTENCY-AWARE GRAPH-BASED MULTI-VIEW CLUSTERING
Mitsuhiko Horie, WASEDA University, Japan; Hiroyuki Kasai, Waseda University, Japan

09:40 - 10:00
SiG-DML-L3.3 KERNEL BI-LINEAR MODELING FOR RECONSTRUCTING DATA ON MANIFOLDS: THE DYNAMIC-MRI CASE
Gaurav Shetty, Konstantinos Slavakis, University at Buffalo, United States; Ukash Nakarmi, Stanford University, United States; Gesualdo Scutari, Leslie Ying, Purdue University, United States

10:00 - 10:20
SiG-DML-L3.4 RECONSTRUCTION OF FINITE RATE OF INNOVATION SPHERICAL SIGNALS IN THE PRESENCE OF NOISE USING DEEP LEARNING ARCHITECTURE
Muhammad Osama Tarar, Zubair Khalid, LUMS, Pakistan

10:20 - 10:40
SiG-DML-L3.5 TUCKER-REGULARIZED TENSOR BREGMAN CO-CLUSTERING
Pedro Forero, Paul Baxley, Naval Information Warfare Center Pacific, United States

10:40 - 11:00
SiG-DML-L3.6 SORN-BASED CASCADE SUPPORT VECTOR MACHINE
Nils Hülsmeier, Moritz Bärthel, Jochen Rust, Steffen Paul, University of Bremen, Germany

Wednesday, 20 January, 09:00 - 11:00 BISA-L3

BISA-L3 BISA-L3: Biomedical Signal Classification (Lecture)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: L4
Chair: Aydin Akan, Univ Izmir, Turkey

09:00 - 09:20
BISA-L3.1 A GRAPH SIGNAL PROCESSING FRAMEWORK FOR THE CLASSIFICATION OF TEMPORAL BRAIN DATA
Sarah Itani, University of Mons, Belgium; Dorina Thanou, Swiss Data Science Center, EPFL and ETH Zürich, Switzerland

09:20 - 09:40
BISA-L3.2 SPECTROGRAM-BASED FUNDAMENTAL FREQUENCY TRACKING OF SPONTANEOUS CRIES IN PRETERM NEWBORNS
Bertille Met-Montot, Sandie Cabon, Guy Carrault, Fabienne Porée, Université Rennes 1, France

09:40 - 10:00
BISA-L3.3 COMBINING ACOUSTIC FEATURES AND MEDICAL DATA IN DEEP LEARNING NETWORKS FOR VOICE PATHOLOGY CLASSIFICATION
Ioanna Miliaresi, Kyriakos Poutos, Aggelos Pikrakis, University of Piraeus, Greece

10:00 - 10:20
BISA-L3.4 CLASSIFYING IMAGINARY VOWELS FROM FRONTAL LOBE EEG VIA DEEP LEARNING
Megha Parhi, Ahmed H. Tewfik, The University of Texas at Austin, United States

10:20 - 10:40
BISA-L3.5 AUTOMATIC EXTRACTION OF SPONTANEOUS CRIES OF PRETERM NEWBORNS IN NEONATAL INTENSIVE CARE UNITS
Sandie Cabon, Bertille Met-Montot, Fabienne Porée, Univ Rennes, Inserm, LTSI - UMR 1099, France; Olivier Rosec, Voxygen, France; Antoine Simon, Guy Carrault, Univ Rennes, Inserm, LTSI - UMR 1099, France

10:40 - 11:00
BISA-L3.6 DIAGNOSIS OF ATTENTION DEFICIT AND HYPERACTIVITY DISORDER (ADHD) USING HIDDEN MARKOV MODELS
Maria Camila Maya Piedrahita, David Augusto Cárdenas Peña, Alvaro Angel Orozco Gutierrez, Universidad Tecnológica de Pereira, Colombia

Wednesday, 20 January, 09:00 - 11:00 VIP-L2

VIP-L2 **VIP-L2: Image Feature Extraction and Analysis**
(Lecture)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: L5
Chair: Abdel Boudraa, French Naval Academy IRENav, France

09:00 - 09:20
VIP-L2.1 **AM-FM IMAGE ANALYSIS BASED ON SPARSE CODING FREQUENCY SEPARATION APPROACH**
El Hadji Diop, University of Thies, Senegal; Karl Skretting, University of Stavanger, Norway; Abdel Boudraa, French Naval Academy IRENav, France

09:20 - 09:40
VIP-L2.2 **EXPLICIT QUATERNION KRAWTCHOUK MOMENT INVARIANTS FOR FINGER-SPELLING SIGN LANGUAGE RECOGNITION**
Ilham Elouariachi, Rachid Benouini, Khalid Zenkouar, Arsalane Zarghili, University Sidi Mohamed Ben Abdellah, Faculty of Sciences and Technology., Morocco; Hakim El Fadili, University Sidi Mohamed Ben Abdellah, National Engineering School of Applied Sciences (ENSA)., Morocco

09:40 - 10:00
VIP-L2.3 **COMPARISON OF LIGHT-WEIGHT MULTI-SCALE CNNS FOR TEXTURE REGRESSION IN AGRICULTURAL CONTEXT**
Tilo Strutz, Alexander Leipnitz, Leipzig University of Telecommunications, Germany

10:00 - 10:20
VIP-L2.4 **CURRICULUM LEARNING FOR FACE RECOGNITION**
Barı Büyükta , Özye in University, Turkey; Çi dem Erdem, Marmara University, Turkey; Tanju Erdem, Özye in University, Turkey

10:20 - 10:40
VIP-L2.5 **CBL: A CLOTHING BRAND LOGO DATASET AND A NEW METHOD FOR CLOTHING BRAND RECOGNITION**
Kuan-Hsien Liu, National Taichung University of Science and Technology, Taiwan; Tsung-Jung Liu, Fei Wang, National Chung Hsing University, Taiwan

Wednesday, 20 January, 09:00 - 11:00 **ASMSP-P2**

ASMSP-P2 ASMSP-P2: Microphone Array Processing (Poster)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: P1
Chair: Daniele Giacobello, Sonos

Poster Board: P1.1
ASMSP-P2.1 CLOCK-OFFSET AND MICROPHONE GAIN MISMATCH INVARIANT BEAMFORMING
Sofia-Eirini Kotti, TNO, Netherlands; Richard Heusdens, Delft University of Technology/NLDA, Netherlands; Richard Hendriks, Delft University of Technology, Netherlands

Poster Board: P1.2
ASMSP-P2.2 RTF BASED LCMV BEAMFORMER WITH MULTIPLE REFERENCE MICROPHONES
Amos Schreibman, Anna Barnov, Alex Gendelman, Eli Tzirkel, General Motors, Israel

Poster Board: P1.3
ASMSP-P2.3 A FAST RAY SPACE TRANSFORM FOR WAVE FIELD PROCESSING USING ACOUSTIC ARRAYS
Federico Borra, Mirco Pezzoli, Luca Comanducci, Alberto Bernardini, Fabio Antonacci, Stefano Tubaro, Augusto Sarti, Politecnico di Milano, Italy

Poster Board: P1.4
ASMSP-P2.4 INSTANTANEOUS PSD ESTIMATION FOR SPEECH ENHANCEMENT BASED ON GENERALIZED PRINCIPAL COMPONENTS
Thomas Dietzen, Marc Moonen, Toon van Waterschoot, KU Leuven, Belgium

Poster Board: P1.5
ASMSP-P2.5 MULTICHANNEL ACOUSTIC ECHO CANCELLATION APPLIED TO MICROPHONE LEAKAGE REDUCTION IN MEETINGS
Patrick Meyer, Samy Elshamy, Jan Franzen, Tim Fingscheidt, Technische Universität Braunschweig, Germany

Poster Board: P1.6
ASMSP-P2.6 DISTRIBUTED COMBINED ACOUSTIC ECHO CANCELLATION AND NOISE REDUCTION USING GEVD-BASED DISTRIBUTED ADAPTIVE NODE SPECIFIC SIGNAL ESTIMATION WITH PRIOR KNOWLEDGE
Santiago Ruiz, Toon van Waterschoot, Marc Moonen, KU Leuven, Belgium

Poster Board: P1.7
ASMSP-P2.7 AN ITERATIVE MULTICHANNEL WIENER FILTER BASED ON A KRONECKER PRODUCT DECOMPOSITION
Jacob Benesty, INRS-EMT, University of Quebec, Canada; Constantin Paleologu, Claudia-Cristina Oprea, Silviu Ciochina, University Politehnica of Bucharest, Romania

Poster Board: P1.8
ASMSP-P2.8 DILATED U-NET BASED APPROACH FOR MULTICHANNEL SPEECH ENHANCEMENT FROM FIRST-ORDER AMBISONICS RECORDINGS
Amélie Bosca, Alexandre Guérin, Lauréline Perotin, Srdan Kitic, Orange Labs, France

Poster Board: P1.9
ASMSP-P2.9 SPEECH DEREVERBERATION PERFORMANCE OF A POLYNOMIAL-EVD SUBSPACE APPROACH
Vincent W. Neo, Imperial College London, United Kingdom; Christine Evers, University of Southampton, United Kingdom; Patrick A. Naylor, Imperial College London, United Kingdom

Wednesday, 20 January, 09:00 - 11:00 **SS-P3**

SS-P3 **SS-P3: Mathematical Foundations and Algorithms for Ptychography** (Poster)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: P2
Co-Chairs: Felix Krahmer, Technical University of Munich, Germany and Frank Filbir, Helmholtz Zentrum München, Germany

Poster Board: P2.1
SS-P3.1 A PROVABLY ACCURATE ALGORITHM FOR RECOVERING COMPACTLY SUPPORTED SMOOTH FUNCTIONS FROM SPECTROGRAM MEASUREMENTS
Michael Perlmutter, Michigan State University, United States; Nada Sissouno, Technical University of Munich, Germany; Aditya Viswantathan, University of Michigan-Dearborn, United States; Mark Iwen, Michigan State University, United States

Poster Board: P2.2
SS-P3.2 STABLE PTYCHOGRAPHIC PHASE RETRIEVAL VIA LOST SUBSPACE COMPLETION
Oleh Melnyk, Helmholtz Center Munich, TU Munich, Germany; Anton Forstner, Felix Krahmer, Technical University of Munich, Germany; Nada Sissouno, Technical University of Munich, Helmholtz Center Munich, Germany

Poster Board: P2.3
SS-P3.3 FAST 2D PHASE RETRIEVAL USING BANDLIMITED MASKS
Cyril Cordor, University of Michigan - Ann Arbor, United States; Brendan Williams, Yulia Hristova, Aditya Viswanathan, University of Michigan - Dearborn, United States

Wednesday, 20 January, 09:00 - 11:00 **SPCN-P1**

SPCN-P1 **SPCN-P1: Signal Processing for MIMO Communications** (Poster)
Time: Wednesday, 20 January, 09:00 - 11:00
Place: P3
Chair: Eduard Jorswieck, TU Dresden, Germany

Poster Board: P3.1
SPCN-P1.1 RATE REGION OF THE K-USER MIMO INTERFERENCE CHANNEL WITH IMPERFECT TRANSMITTERS
Mohammad Soleymani, Universität Paderborn, Germany; Ignacio Santamaria, University of Cantabria, Spain; Behrouz Maham, Nazarbayev University, Kazakhstan; Peter J. Schreier, Universität Paderborn, Germany

Poster Board: P3.2
SPCN-P1.2 ITERATIVE CHANNEL ESTIMATION FOR LARGE SCALE MIMO WITH HIGHLY QUANTIZED MEASUREMENTS IN 5G
Zeyang Zhang, Michael McGuire, Mihai Sima, University of Victoria, Canada

Poster Board: P3.3
SPCN-P1.3 SPECTRAL EFFICIENCY FOR MASSIVE MIMO MULTI-RELAY NOMA SYSTEMS WITH CSI ERRORS
Vikalp Mandawaria, Ekant Sharma, Rohit Budhiraja, Indian Institute of Technology Kanpur, India, India

Poster Board: P3.4
SPCN-P1.4 DYNAMIC RESOLUTION ADC/DAC MASSIVE MIMO FD RELAYING SYSTEM OVER CORRELATED RICIAN CHANNEL
Sauradeep Dey, Ekant Sharma, Rohit Budhiraja, IIT Kanpur, India

Poster Board: P3.5
SPCN-P1.5 DECISION-FEEDBACK DIFFERENTIAL DETECTION WITH OPTIMUM DETECTION ORDER METRIC FOR NONCOHERENT MASSIVE MIMO SYSTEMS
George Yammine, Robert Fischer, Ulm University, Germany

Poster Board: P3.6
SPCN-P1.6 HARDWARE ARCHITECTURE FOR ULTRA-WIDEBAND CHANNEL IMPULSE RESPONSE MEASUREMENTS USING COMPRESSED SENSING
Christoph W. Wagner, Sebastian Semper, Florian Römer, Anna Schönfeld, Giovanni Del Galdo, Technische Universität Ilmenau, Germany

Wednesday, 20 January, 13:30 - 15:30 ASMSP-L5

ASMSP-L5 **ASMSP-L5: Acoustic Source Localization and Tracking** (Lecture)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: L1
Chair: Shoko Araki, NTT Corporation, Japan

13:30 - 13:50
ASMSP-L5.1 EXPLOITING ATTENTION-BASED SEQUENCE-TO-SEQUENCE ARCHITECTURES FOR SOUND EVENT LOCALIZATION
Christopher Schymura, Ruhr University Bochum, Germany; Tsubasa Ochiai, Marc Delcroix, Keisuke Kinoshita, Tomohiro Nakatani, Shoko Araki, NTT Corporation, Japan; Dorothea Kolossa, Ruhr University Bochum, Germany

13:50 - 14:10
ASMSP-L5.2 SEQUENTIAL SENSOR PLACEMENT USING BAYESIAN COMPRESSED SENSING FOR SOURCE LOCALIZATION
Milan Courcoux-Caro, Charles Vanwynsberghe, ENSTA Bretagne, France; Cédric Herzet, INRIA Rennes, France; Alexandre Baussard, Université de Technologie de Troyes, France

14:10 - 14:30
ASMSP-L5.3 OPTIMAL MICROPHONE PLACEMENT FOR LOCALIZING TONAL SOUND SOURCES
Maria Juhlin, Andreas Jakobsson, Lund University, Sweden

14:30 - 14:50
ASMSP-L5.4 DECOUPLED DIRECTION-OF-ARRIVAL ESTIMATIONS USING RELATIVE HARMONIC COEFFICIENTS
Yonggang Hu, Thushara Abhayapala, Prasanga N. Samarasinghe, Australian National University, Australia; Sharon Gannot, Bar-Ilan University, Israel

14:50 - 15:10
ASMSP-L5.5 PHASE-DIFFERENCE-BASED 3-D SOURCE LOCALIZATION USING A COMPACT RECEIVER CONFIGURATION
Hui Chen, Tarig Ballal, Tareq Al-Naffouri, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

15:10 - 15:30
ASMSP-L5.6 3D AUDIOVISUAL SPEAKER TRACKING WITH DISTRIBUTED SENSORS CONFIGURATION
Frank Sanabria-Macias, Marta Marron-Romera, Javier Macias-Guarasa, University of Alcala, Spain

Wednesday, 20 January, 13:30 - 15:30 TMTSP-L4

TMTSP-L4 **TMTSP-L4: Signal Processing over Graphs & Networks** (Lecture)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: L2
Chair: Jordi Vila-Valls, Isae, France

13:30 - 13:50
TMTSP-L4.1 TOWARDS FINITE-TIME CONSENSUS WITH GRAPH CONVOLUTIONAL NEURAL NETWORKS
Bianca Iancu, Elvin Isufi, Delft University of Technology, Netherlands

13:50 - 14:10
TMTSP-L4.2 GRAPH LEARNING AND AUGMENTATION BASED INTERPOLATION OF SIGNAL STRENGTH FOR LOCATION-AWARE COMMUNICATIONS
Hong-Ming Chiu, Carrson Fung, National Chiao Tung University, Taiwan; Antonio Ortega, University of Southern California, United States

14:10 - 14:30
TMTSP-L4.3 PRIVACY-PRESERVING DISTRIBUTED GRAPH FILTERING
Qiongxiu Li, Aalborg university, Denmark; Mario Coutino, Geert Leus, Delft University of Technology, Netherlands; Mads Græsbøll Christensen, Aalborg university, Denmark

14:30 - 14:50
TMTSP-L4.4 LOCALIZED INTERPOLATION FOR GRAPH SIGNALS
Antoine MAZARGUIL, Centre Borelli, France; Laurent OUDRE, Université Paris 13, France; Nicolas VAYATIS, Centre Borelli, France

14:50 - 15:10
TMTSP-L4.5 GRAPH REGULARIZED SUBSPACE CLUSTERING VIA LOW-RANK DECOMPOSITION
Aimin Jiang, Weigao Cheng, Jing Shang, Xiaoyu Miao, Hohai University, China; Yanping Zhu, Changzhou University, China

15:10 - 15:30
TMTSP-L4.6 GRAPHON FILTERS: SIGNAL PROCESSING IN VERY LARGE GRAPHS
Luana Ruiz, Luiz F. O. Chamon, Alejandro Ribeiro, University of Pennsylvania, United States

Wednesday, 20 January, 13:30 - 15:30 SiG-DML-L4

SiG-DML-L4 SiG-DML-L4: Neural Network Learning (Lecture)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: L3
Co-Chairs: Yannick Berthoumieu, University of Bordeaux, France and Javier Serrano, Universitat Autònoma de Barcelona, Spain

13:30 - 13:50
SiG-DML-L4.1 AUTOMATIC IMAGE COLORIZATION BASED ON MULTI-DISCRIMINATORS GENERATIVE ADVERSARIAL NETWORKS
MOURCHID Youssef, Donias Marc, Yannick Berthoumieu, University of Bordeaux, France

13:50 - 14:10
SiG-DML-L4.2 EXPLORING STATE TRANSITION UNCERTAINTY IN VARIATIONAL REINFORCEMENT LEARNING
Jen-Tzung Chien, Wei-Lin Liao, National Chiao Tung University, Taiwan; Issam El Naqa, University of Michigan, United States

14:10 - 14:30
SiG-DML-L4.3 THEORETICAL TUNING OF THE AUTOENCODER BOTTLENECK LAYER DIMENSION: A MUTUAL INFORMATION-BASED ALGORITHM
Guillem Boquet, Edwar Macias, Antoni Morell, Javier Serrano, Jose Vicario, Universitat Autònoma de Barcelona, Spain

14:30 - 14:50
SiG-DML-L4.4 STOCHASTICITY AND SKIP CONNECTION IMPROVE KNOWLEDGE TRANSFER
Luong Trung Nguyen, Kwangjin Lee, Byonghyo Shim, Seoul National University, Korea (South)

14:50 - 15:10
SiG-DML-L4.5 COMBINING DEEP AND MANIFOLD LEARNING FOR NONLINEAR FEATURE EXTRACTION IN TEXTURE IMAGES
Cédrick Nsimba, Alexandre Levada Luis Magalhães, Federal University of Sao Carlos, Brazil

15:10 - 15:30
SiG-DML-L4.6 ENTROPY-BASED SAMPLE SELECTION FOR ONLINE CONTINUAL LEARNING
Felix Wiewel, Bin Yang, University of Stuttgart, Germany

Wednesday, 20 January, 13:30 - 15:30 BISA-L4

BISA-L4 BISA-L4: Biomedical Image Classification and Analysis (Lecture)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: L4
Chair: Evrim Acar, Univ Copenhague, Denmark

13:30 - 13:50
BISA-L4.1 ROBUST TEXTURE FEATURES FOR EMPHYSEMA CLASSIFICATION IN CT IMAGES
Haipeng Li, Ramakrishnan Mukundan, University of Canterbury, New Zealand

13:50 - 14:10
BISA-L4.2 ORGAN-BASED CHRONOLOGICAL AGE ESTIMATION BASED ON 3D MRI SCANS
Karim Armanious, Sherif Abdulatif, Anish Rao Bhaktharaguttu, University of Stuttgart, Germany; Thomas Küstner, King's College London, United Kingdom; Tobias Hepp, Sergios Gatidis, University of Tübingen, Germany; Bin Yang, University of Stuttgart, Germany

14:10 - 14:30
BISA-L4.3 FEATURE-BASED RESPONSE PREDICTION TO IMMUNOTHERAPY OF LATE-STAGE MELANOMA PATIENTS USING PET/MR IMAGING
Annika Liebgott, University of Stuttgart, Germany; Sergios Gatidis, Viet-Chau Vu, University Hospital of Tuebingen, Germany; Tobias Haueise, University of Stuttgart, Germany; Konstantin Nikolaou, University Hospital of Tuebingen, Germany; Bin Yang, University of Stuttgart, Germany

14:30 - 14:50
BISA-L4.4 A GRAPH-THEORETIC SENSOR-SELECTION SCHEME FOR COVARIANCE-BASED MOTOR IMAGERY (MI) DECODING
Kostas Georgiadis, AIIA Lab AUTH/ITI CERTH, Greece; Dimitrios A. Adamos, Imperial College, Greece; Spiros Nikolopoulos, ITI, CERTH, Greece; Nikos Laskaris, AIIA Lab AUTH, Greece; Ioannis Kompatsiaris, ITI, CERTH, Greece

14:50 - 15:10
BISA-L4.5 STUDYING THE GAZE PATTERNS OF EXPERT RADIOLOGISTS IN SCREENING MAMMOGRAPHY: A CASE STUDY WITH BREAST TEST WALES
Lucie Lévêque, Université Gustave Eiffel, France; Philippa Young, National Health Service, United Kingdom; Hantao Liu, Cardiff University, United Kingdom

15:10 - 15:30
BISA-L4.6 IDENTIFICATION OF SPATIOTEMPORAL DISPERSION ELECTROGRAMS IN PERSISTENT ATRIAL FIBRILLATION ABLATION USING MAXIMAL VOLTAGE ABSOLUTE VALUES
Amina Ghrissi, Université Cote d'Azur, CNRS, I3S Laboratory, France; Fabien Squara, Université Cote d'Azur, CHU Pasteur, France; Vicente Zarzoso, Johan Montagnat, Université Cote d'Azur, CNRS, I3S Laboratory, France

Wednesday, 20 January, 13:30 - 15:30 VIP-L3

VIP-L3 **VIP-L3: Image Enhancement and Reconstruction**
(Lecture)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: L5
Chair: Chaker Larabi, Université de Poitiers, France

13:30 - 13:50
VIP-L3.1 IMAGE SUPER-RESOLUTION VIA GENERATIVE ADVERSARIAL NETWORK USING AN ORTHOGONAL PROJECTION
Hiroya Yamamoto, Daichi Kitahara, Akira Hirabayashi, Ritsumeikan University, Japan

13:50 - 14:10
VIP-L3.2 GAN-BASED RAIN NOISE REMOVAL FROM SINGLE-IMAGE CONSIDERING RAIN COMPOSITE MODELS
Takuro Matsui, Masaaki Ikehara, Keio Univ., Japan

14:10 - 14:30
VIP-L3.3 FLASHLIGHT CNN IMAGE DENOISING
Huu Thanh Binh Pham, Cristóvão Cruz, Noiseless Imaging Ltd, Finland; Karen Egiazarian, Tampere University, Finland

14:30 - 14:50
VIP-L3.4 BP-DIP: A BACKPROJECTION BASED DEEP IMAGE PRIOR
Jenny Zukerman, Tom Tirer, Raja Giryes, Tel Aviv University, Israel

14:50 - 15:10
VIP-L3.5 IMPROVED PATCH-BASED VIEW RENDERING FOR FOCUSED PLENOPTIC CAMERAS WITH EXTENDED DEPTH-OF-FIELD
Jose N. Filipe, Pedro A. A. Assuncao, Instituto de Telecomunicações, Portugal; Luis M. N. Tavora, Polytechnic of Leiria, Portugal; Rui Fonseca-Pinto, Lucas A. Thomaz, Sergio M. M. Faria, Instituto de Telecomunicações, Portugal

15:10 - 15:30
VIP-L3.6 WEIGHTED GENERALIZATION OF DARK CHANNEL PRIOR WITH ADAPTIVE COLOR CORRECTION FOR DEFOGGING
Yosuke Ueki, Masaaki Ikehara, Keio university, Japan

Wednesday, 20 January, 13:30 - 15:30 **SPMuS-P2**

SPMuS-P2 SPMuS-P2: Multichannel Signal Processing Algorithms and Applications (Poster)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: P1
Chair: Eleftherios Kofidis, University of Piraeus, Greece

Poster Board: P1.1
SPMuS-P2.1 EXACT ALGEBRAIC BLIND SOURCE SEPARATION USING SIDE INFORMATION
Amir Weiss, Weizmann Institute of Science, Israel; Arie Yeredor, Tel-Aviv University, Israel

Poster Board: P1.2
SPMuS-P2.2 BLIND EQUALIZATION VIA POLYNOMIAL OPTIMIZATION
Xue Jiang, Shanghai Jiao Tong University, China; Wen-Jun Zeng, Technische Universität Darmstadt, Germany; Jiayi Chen, Shenzhen University, China; Abdelhak Zoubir, Technische Universität Darmstadt, Germany; Xingzhao Liu, Shanghai Jiao Tong University, China

Poster Board: P1.3
SPMuS-P2.3 SUCCESSIVE NONNEGATIVE PROJECTION ALGORITHM FOR LINEAR QUADRATIC MIXTURES
Christophe Kervazo, Nicolas Gillis, University of Mons, Belgium; Nicolas Dobigeon, University of Toulouse, France

Poster Board: P1.4
SPMuS-P2.4 A PARALLEL STRATEGY FOR AN EVOLUTIONARY STOCHASTIC ALGORITHM: APPLICATION TO THE CP DECOMPOSITION OF NONNEGATIVE N-TH ORDER TENSORS
Laura Souquières, Cyril Prissette, Sylvain Maire, Nadège Thirion-Moreau, Université de Toulon, France

Poster Board: P1.5
SPMuS-P2.5 POLARIZATION-BASED ONLINE INTERFERENCE MITIGATION IN RADIO INTERFEROMETRY
Sarod Yatawatta, ASTRON, The Netherlands Institute for Radio Astronomy, Netherlands

Poster Board: P1.6
SPMuS-P2.6 ROBUST BLIND MULTICHANNEL IDENTIFICATION BASED ON A PHASE CONSTRAINT AND DIFFERENT LP-NORM CONSTRAINTS
Byeongho Jo, Paul Calamia, Facebook, Korea (South)

Poster Board: P1.7
SPMuS-P2.7 PILOT-BASED CALIBRATION OF DUAL-TUNER SDR RECEIVERS
Gustaw Mazurek, Rafał Rytel-Andrianik, Warsaw University of Technology, Poland

Poster Board: P1.8
SPMuS-P2.8 BLOCK-TERM TENSOR DECOMPOSITION: MODEL SELECTION AND COMPUTATION
Athanasios Rontogiannis, National Observatory of Athens, Greece; Eleftherios Kofidis, University of Piraeus, Greece; Paris Giampouras, Johns Hopkins University, United States

Poster Board: P1.9
SPMuS-P2.9 LEGO RADAR TRAIN — AN EDUCATIONAL WORKSHOP ON RADAR-BASED ADVANCED DRIVER ASSISTANCE SYSTEMS
Michael Gerstmair, Martin Gschwandtner, Rainer Findenig, DICE Danube Integrated Circuit Engineering GmbH & Co. KG, Austria; Alexander Melzer, Infineon Technologies Austria AG, Austria; Mario Huemer, Johannes Kepler University Linz, Austria

Wednesday, 20 January, 13:30 - 15:30 **SiG-DML-P2**

SiG-DML-P2 SiG-DML-P2: Applications of Machine Learning (Poster)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: P2
Co-Chairs: Huy Phan, Queen Mary University of London, UK and Iosif Mporas, University of Hertfordhshire, UK

Poster Board: P2.1
SiG-DML-P2.1 MICRO-DOPPLER SIGNAL REPRESENTATION FOR DRONE CLASSIFICATION BY DEEP LEARNING
Julien Gerard, Joanna Tomasik, Laboratoire de Recherche en Informatique, France; Christèle Morisseau, Office national d'études et de recherches aérospatiales, France; Arpard Rimmel, Laboratoire de Recherche en Informatique, France; Gilles Vieillard, Office national d'études et de recherches aérospatiales, France

Poster Board: P2.2
SiG-DML-P2.2 A DEEP DOUBLE-Q LEARNING-BASED SCHEME FOR ANTI-JAMMING COMMUNICATIONS
Phan Khanh Ha Nguyen, Viet Hung Nguyen, Van Long Do, Viettel High Technology Industries Corporation, Viet Nam

Poster Board: P2.3
SiG-DML-P2.3 DEEP LEARNING FOR LIDAR WAVEFORMS WITH MULTIPLE RETURNS
Andreas Aßmann, Heriot-Watt University, STMicroelectronics, United Kingdom; Brian Stewart, STMicroelectronics, United Kingdom; Andrew M. Wallace, Heriot-Watt University, United Kingdom

Poster Board: P2.4
SiG-DML-P2.4 NOVEL IMPUTATION METHOD USING AVERAGE CODE FROM AUTOENCODERS IN CLINICAL DATA
Edwar Macias, Javier Serrano, Jose Lopez Vicario, Antoni Morell, Autonomous University of Barcelona, Spain

Poster Board: P2.5
SiG-DML-P2.5 WAVENET BASED ARCHITECTURES FOR DENOISING PERIODIC DISCONTINUOUS SIGNALS AND APPLICATION TO FRICTION SIGNALS
Jules Rio, Fabien Momey, Christophe Ducottet, Olivier Alata, Université de Lyon, France

Poster Board: P2.6
SiG-DML-P2.6 CONVOLUTIONAL NEURAL NETWORKS FOR UNDERWATER PIPELINE SEGMENTATION USING IMPERFECT DATASETS
Edgar Medina, Roberto Campos, José Gabriel Gomes, Mariane Petraglia, Antonio Petraglia, Federal University of Rio de Janeiro, Brazil

Poster Board: P2.7
SiG-DML-P2.7 VARIATIONAL AUTO-ENCODER-BASED DETECTION OF ELECTRICITY STEALTH CYBER-ATTACKS IN AMI NETWORKS
Abdulrahman Takiddin, Texas A&M University at Qatar, Qatar; Muhammad Ismail, Tennessee Tech University, United States; Usman Zafar, Hamad Bin Khalifa University, Qatar; Erchin Serpedin, Texas A&M University, United States

Poster Board: P2.8
SiG-DML-P2.8 RESIDENTIAL ENERGY CONSUMPTION PREDICTION USING INTER-HOUSEHOLD ENERGY DATA AND SOCIOECONOMIC INFORMATION
Pascal Schirmer, University of Hertfordhshire, United Kingdom; Christian Geiger, Technical University of Munich, Germany; Iosif Mporas, University of Hertfordhshire, United Kingdom

Poster Board: P2.9
SiG-DML-P2.9 RNN WITH STACKED ARCHITECTURE FOR SEMG BASED SEQUENCE-TO-SEQUENCE HAND GESTURE RECOGNITION
Philipp Koch, Mark Dreier, Marco Maass, University of Lübeck, Germany; Huy Phan, University of Kent, United Kingdom; Alfred Mertins, University of Lübeck, Germany

Poster Board: P2.10
SiG-DML-P2.10
FALL DETECTION SYSTEM VIA SMART PHONE AND SEND PEOPLE LOCATION
seyed amirhosein mousavi, fatemeh heydari, mahdi azarnoosh, ehsan tahami, Mashhad branch ,Islamic Azad university,Mashhad,Iran, Iran

Wednesday, 20 January, 13:30 - 15:30 **TMTSP-P2**

TMTSP-P2 **TMTSP-P2: Filtering and Bayesian Signal Processing** (Poster)
Time: Wednesday, 20 January, 13:30 - 15:30
Place: P3
Chair: Victor Elvira, University of Edinburgh, UK

Poster Board: P3.1
TMTSP-P2.1 ROBUST IIR DIGITAL FILTER SHARPENING
Gerald D. Cain, DSP Creations Limited, United Kingdom; Anush Yardim, Royal Holloway, University of London, United Kingdom; Fredric J. Harris, University of California, San Diego, United States

Poster Board: P3.2
TMTSP-P2.2 COMPLEX FIR DIGITAL FILTER SHARPENING WITH THREE-PATH STRUCTURES
Gerald D. Cain, DSP Creations Limited, United Kingdom; Anush Yardim, Royal Holloway, University of London, United Kingdom; Fredric J. Harris, University of California, San Diego, United States

Poster Board: P3.3
TMTSP-P2.3 EXPLOITING THE SCALING INDETERMINATION OF BI-LINEAR MODELS IN INVERSE PROBLEMS
Samuel Thé, Éric Thiébaut, University Lyon1, France; Loïc Denis, UJM - Saint-Etienne, France; Ferréol Soulez, University Lyon1, France

Poster Board: P3.4
TMTSP-P2.4 KALMAN-BASED NESTED HYBRID FILTERS FOR RECURSIVE INFERENCE IN STATE-SPACE MODELS
Sara Pérez-Vieites, Joaquín Míguez, Universidad Carlos III de Madrid, Spain

Poster Board: P3.5
TMTSP-P2.5 BAYESIAN FUSION OF MULTIVIEW HUMAN CROWD DETECTIONS FOR AUTONOMOUS UAV FLEET SAFETY
Efstratios Kakaletsis, Ioannis Mademlis, Nikos Nikolaidis, Ioannis Pitas, Aristotle University of Thessaloniki, Greece

Poster Board: P3.6
TMTSP-P2.6 PAIRWISE AND HIDDEN MARKOV RANDOM FIELDS IN IMAGE SEGMENTATION
Jean-Baptiste Courbot, Université de Haute Alsace, France; Vincent Mazet, Université de Strasbourg - CNRS, France

Wednesday, 20 January, 16:00 - 18:00 ASMSP-L6

ASMSP-L6 **ASMSP-L6: Deep Learning for Audio, Speech and Music Processing** (Lecture)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: L1
Chair: Reinhold Haeb-Umbach, Paderborn University, Germany

16:00 - 16:20
ASMSP-L6.1 LEARNING FRAME SIMILARITY USING SIAMESE NETWORKS FOR AUDIO-TO-SCORE ALIGNMENT
Ruchit Agrawal, Simon Dixon, Queen Mary University of London, United Kingdom

16:20 - 16:40
ASMSP-L6.2 HOW LOW CAN YOU GO? REDUCING FREQUENCY AND TIME RESOLUTION IN CURRENT CNN ARCHITECTURES FOR MUSIC AUTO-TAGGING
Andres Ferraro, Dmitry Bogdanov, Universitat Pompeu Fabra, Spain; Jay Ho Jeon, Jason Yoon, Kakao Corp., Korea (South); Xavier Serra, Universitat Pompeu Fabra, Spain

16:40 - 17:00
ASMSP-L6.3 CNN-BASED NOTE ONSET DETECTION USING SYNTHETIC DATA AUGMENTATION
Mina Mounir, Toon van Waterschoot, KU Leuven, Belgium

17:00 - 17:20
ASMSP-L6.4 DNN CLASSIFICATION MODEL-BASED SPEECH ENHANCEMENT USING MASK SELECTION TECHNIQUE
Bong-Ki Lee, LG Electronics, Korea (South)

17:20 - 17:40
ASMSP-L6.5 DESIGN OF A NON-NEGATIVE NEURAL NETWORK TO IMPROVE ON NMF
Filip Wen-Fwu Tsai, Alireza M. Javid, Saikat Chatterjee, Royal Institute of Technology, Sweden

17:40 - 18:00
ASMSP-L6.6 DEEP NEURAL NETWORK BASED DISTANCE ESTIMATION FOR GEOMETRY CALIBRATION IN ACOUSTIC SENSOR NETWORKS
Tobias Gburrek, Joerg Schmalenstroeer, Paderborn University, Germany; Andreas Brendel, Walter Kellermann, FAU Erlangen-Nuernberg, Germany; Reinhold Haeb-Umbach, Paderborn University, Germany

Wednesday, 20 January, 16:00 - 18:00 TMTSP-L5

TMTSP-L5 **TMTSP-L5: Sampling and Multirate Signal Processing** (Lecture)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: L2
Chair: Stephan Weiss, University of Strathclyde, UK

16:00 - 16:20
TMTSP-L5.1 SENSOR PLACEMENT IN ARBITRARILY RESTRICTED REGION FOR FIELD ESTIMATION BASED ON GAUSSIAN PROCESS
Tomoya Nishida, Natsuki Ueno, Shoichi Koyama, Hiroshi Saruwatari, The University of Tokyo, Japan

16:20 - 16:40
TMTSP-L5.2 EXTRAPOLATION OF BANDLIMITED MULTIDIMENSIONAL SIGNALS FROM CONTINUOUS MEASUREMENTS
Cornelius Frankenbach, Pablo Martínez-Nuevo, Martin Møller, Bang & Olufsen a/s, Denmark; Walter Kellermann, Friedrich-Alexander-University Erlangen-Nuremberg, Germany

16:40 - 17:00
TMTSP-L5.3 MULTIDIMENSIONAL UNLIMITED SAMPLING: A GEOMETRICAL PERSPECTIVE
Vincent Bouis, Ecole Normale Superieure, France; Felix Krahmer, Technical University of Munich, Germany; Ayush Bhandari, Imperial College London, United Kingdom

17:00 - 17:20
TMTSP-L5.4 MEASURING SMOOTHNESS OF TRIGONOMETRIC INTERPOLATION THROUGH INCOMPLETE SAMPLE POINTS
Stephan Weiss, University of Strathclyde, United Kingdom; Jesus Selva, University of Alicante, Spain; Malcolm Macleod, University of Strathclyde, United Kingdom

17:20 - 17:40
TMTSP-L5.5 ENERGY HARVESTING VIA ANALOG-TO-DIGITAL CONVERSION
Neha Jain, IIIT-Delhi, India, India; Nir Shlezinger, Yonina Eldar, Weizmann Institute of Science, Israel; Anubha Gupta, Vivek Bohara, IIIT-Delhi, India, India

17:40 - 18:00
TMTSP-L5.6 TIME ENCODING USING THE HYPERBOLIC SECANT KERNEL
Marek Hilton, Roxana Alexandru, Pier Luigi Dragotti, Imperial College London, United Kingdom

Wednesday, 20 January, 16:00 - 18:00 SS-L3

SS-L3 **SS-L3: Signal Processing in Atrial Fibrillation** (Special Session)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: L3
Co-Chairs: Bahareh Abdi, TU Delft, The Netherlands and Richard Hendriks, TU Delft, The Netherlands

16:00 - 16:20
SS-L3.1 NONINVASIVE ASSESSMENT OF SPATIO-TEMPORAL RECURRENCE IN ATRIAL FIBRILLATION
Pietro Bonizzi, Stef Zeemering, Frank van Rosmalen, Ulrich Schotten, Joël Karel, Maastricht University, Netherlands

16:20 - 16:40
SS-L3.2 LOCAL ACTIVATION TIME ESTIMATION IN ATRIAL ELECTROGRAMS USING CROSS-CORRELATION OVER HIGHER-ORDER NEIGHBORS
Bart Kolling, Bahareh Abdi, Natasja M.S. de Groot, Richard C. Hendriks, TU Delft, Netherlands

16:40 - 17:00
SS-L3.3 VENTRICULAR RESPONSE REGULARITY IN ATRIAL FIBRILLATION AND ITS RELATIONSHIP TO SUCCESSFUL CATHETER ABLATION
Anna McCann, Swiss Federal Institute of Technology, Switzerland; Adrian Luca, Etienne Pruvot, Lausanne University Hospital and University of Lausanne, Switzerland; Laurent Roten, Inselspital, Bern University Hospital, University of Bern, Switzerland; Christian Sticherling, University Hospital Basel, Switzerland; Jean-Marc Vesin, Swiss Federal Institute of Technology, Switzerland

17:00 - 17:20
SS-L3.4 COUPLED TENSOR MODEL OF ATRIAL FIBRILLATION ECG
Pedro Marinho Ramos de Oliveira, Vicente Zarzoso, I3S/CNRS, France; Carlos Alexandre Rolim Fernandes, Universidade federal do Ceará, Brazil

17:20 - 17:40
SS-L3.5 OMNIPOLAR EGM VOLTAGE MAPPING FOR ATRIAL FIBROSIS IDENTIFICATION EVALUATED WITH AN ELECTROPHYSIOLOGICAL MODEL
Jennifer Riccio, Alejandro Alcaine, Universidad de Zaragoza, Spain; Sara Rocher, Universitat Politècnica de València, Spain; Pablo Laguna, Universidad de Zaragoza, Spain; Javier Saiz, Universitat Politècnica de València, Spain; Juan Pablo Martínez, Universidad de Zaragoza, Spain

Wednesday, 20 January, 16:00 - 18:00 SS-L4

SS-L4 **SS-L4: Deep Machine Listening** (Special Session)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: L4
Co-Chairs: Michele Scarpiniti, Universita di Roma, Italy, Jen-Tzung Chien, National Chiao Tung University, Taiwan and Stefano Squartini, Università Politecnica delle Marche, Ancona, Italy

16:00 - 16:20
SS-L4.1 ANALYZING THE POTENTIAL OF PRE-TRAINED EMBEDDINGS FOR AUDIO CLASSIFICATION TASKS
Sascha Grollmisch, Technische Universität Ilmenau, Germany; Estefanía Cano, Fraunhofer Institute for Digital Media Technology IDMT, Germany; Christian Kehling, Technische Universität Ilmenau, Germany; Michael Taenzer, Fraunhofer Institute for Digital Media Technology IDMT, Germany

16:20 - 16:40
SS-L4.2 THE PROJECTED BELIEF NETWORK CLASSIFIER: BOTH GENERATIVE AND DISCRIMINATIVE
Paul Baggenstoss, Fraunhofer FKIE, Germany

16:40 - 17:00
SS-L4.3 ON OPEN-SET CLASSIFICATION WITH L3-NET EMBEDDINGS FOR MACHINE LISTENING APPLICATIONS
Kevin Wilkinghoff, Fraunhofer Institute for Communication, Information Processing and Ergonomics FKIE, Germany

17:00 - 17:20
SS-L4.4 DNN-BASED FREQUENCY COMPONENT PREDICTION FOR FREQUENCY-DOMAIN AUDIO SOURCE SEPARATION
Rui Watanabe, Daichi Kitamura, National Institute of Technology, Kagawa College, Japan; Hiroshi Saruwatari, The University of Tokyo, Japan; Yu Takahashi, Kazunobu Kondo, Yamaha Corporation, Japan

17:20 - 17:40
SS-L4.5 SAMPLE DROP DETECTION FOR ASYNCHRONOUS DEVICES DISTRIBUTED IN SPACE
Tina Raissi, RWTH Aachen University, Germany; Santiago Pascual, Universitat Politècnica de Catalunya, Spain; Maurizio Omologo, Fondazione Bruno Kessler, Italy

17:40 - 18:00
SS-L4.6 COMPARISON OF CONVOLUTION TYPES IN CNN-BASED FEATURE EXTRACTION FOR SOUND SOURCE LOCALIZATION
Daniel Krause, AGH University of Science and Technology, Poland; Archontis Politis, Tampere University, Finland; Konrad Kowalczyk, AGH University of Science and Technology, Poland

Wednesday, 20 January, 16:00 - 18:00 SPMuS-L2

SPMuS-L2 SPMuS-L2: DoA and Spectral Estimation (Lecture)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: L5
Chair: Zhi Tian, George Mason University, Fairfax, VA, USA

16:00 - 16:20
SPMuS-L2.1 L0-SPARSE DOA ESTIMATION OF CLOSE SOURCES WITH MODELING ERRORS
Alice Delmer, Anne Ferreol, Thales / ENS Paris-Saclay, France; Pascal Larzabal, Université Paris-Saclay, France

16:20 - 16:40
SPMuS-L2.2 DOA ESTIMATION VIA UNLIMITED SENSING
Samuel Fernandez-Menduina, Imperial College London, United Kingdom; Felix Krahmer, Technical University of Munich, Germany; Geert Leus, Technical University of Delft, Netherlands; Ayush Bhandari, Imperial College London, United Kingdom

16:40 - 17:00
SPMuS-L2.3 TENSOR DECOMPOSITION BASED DOA ESTIMATION FOR TRANSMIT BEAMSPACE MIMO RADAR
Feng Xu, Beijing Institute of Technology, China; Matthew Morency, Delft University of Technology, Netherlands; Sergiy Vorobyov, Aalto University, Finland

17:00 - 17:20
SPMuS-L2.4 LOW-COMPLEXITY GRIDLESS 2D HARMONIC RETRIEVAL VIA DECOUPLED-ANM COVARIANCE RECONSTRUCTION
Yu Zhang, College of EIE, Nanjing University of Aeronautics and Astronautics, Nanjing, China, China; Yue Wang, Zhi Tian, Department of ECE, George Mason University, Fairfax, VA, USA, United States; Geert Leus, Faculty of EEMCS, Delft University of Technology, Delft, The Netherlands, Netherlands; Gong Zhang, College of EIE, Nanjing University of Aeronautics and Astronautics, Nanjing, China, China

17:20 - 17:40
SPMuS-L2.5 ADAPTIVE MEASUREMENT MATRIX DESIGN IN COMPRESSED SENSING BASED DIRECTION OF ARRIVAL ESTIMATION
Berkan Kılıç, Alper Güngör, Mert Kalfa, ASELSAN Inc., Turkey; Orhan Arıkan, Bilkent University, Turkey

17:40 - 18:00
SPMuS-L2.6 FORWARD-BACKWARD HANKEL MATRIX FITTING FOR SPECTRAL SUPER-RESOLUTION
Zai Yang, Xunmeng Wu, Xi'an Jiaotong University, China

Wednesday, 20 January, 16:00 - 18:00 **ASMSP-P3**

ASMSP-P3 ASMSP-P3: Speech and Audio Separation (Poster)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: P1
Chair: Romain Serizel, Université de Lorraine, France

Poster Board: P1.1
ASMSP-P3.1 MULTI-BAND MULTI-RESOLUTION FULLY CONVOLUTIONAL NEURAL NETWORKS FOR SINGING VOICE SEPARATION
Emad M. Grais, Fei Zhao, Cardiff Metropolitan University, United Kingdom; Mark D. Plumbley, University of Surrey, United Kingdom

Poster Board: P1.2
ASMSP-P3.2 DEEP MULTI-CHANNEL SPEECH SOURCE SEPARATION WITH TIME-FREQUENCY MASKING FOR SPATIALLY FILTERED MICROPHONE INPUT SIGNAL
Masahito Togami, Line corporation, Japan

Poster Board: P1.3
ASMSP-P3.3 BLIND SEPARATION OF CONVOLUTIVE SPEECH MIXTURES BASED ON LOCAL SPARSITY AND K-MEANS
Yuyang Huang, Ping Chu, Bin Liao, Shenzhen University, China

Poster Board: P1.4
ASMSP-P3.4 A BAYESIAN HIERARCHICAL MODEL FOR BLIND AUDIO SOURCE SEPARATION
Yaron Laufer, Sharon Gannot, Bar-Ilan University, Israel

Poster Board: P1.5
ASMSP-P3.5 FOREGROUND-BACKGROUND AMBIENT SOUND SCENE SEPARATION
Michel Olvera, Emmanuel Vincent, Romain Serizel, Université de Lorraine, France; Gilles Gasso, Université & INSA Rouen Normandie, France

Poster Board: P1.6
ASMSP-P3.6 EVALUATION OF ZERO FREQUENCY FILTERING BASED METHOD FOR MULTI-PITCH STREAMING OF CONCURRENT SPEECH SIGNALS
mariem bouafif, University of Tunis El Manar, Tunisia; tom Bäckström, Aalto University, Finland; zied lachiri, University of Tunis El Manar, Tunisia

Poster Board: P1.7
ASMSP-P3.7 ROBUST SOURCE SEPARATION WITH DIFFERENTIAL MICROPHONE ARRAYS AND INDEPENDENT LOW-RANK MATRIX ANALYSIS
Dexin Li, Northwestern Polytechnical University, China; Gongping Huang, Technion, Israel; Yanqiang Lei, CVTE, China; Jingdong Chen, Northwestern Polytechnical University, China; Jacob Benesty, University of Quebec, Canada

Poster Board: P1.8
ASMSP-P3.8 DIFFERENTIABLE MAX-DIRECTIVITY BEAMFORMING NORMALIZATION FOR INDEPENDENT VECTOR ANALYSIS
Shoichiro Takeda, Kenta Niwa, Shinya Shimizu, NTT, Japan

Poster Board: P1.9
ASMSP-P3.9 FASTER INDEPENDENT LOW-RANK MATRIX ANALYSIS WITH PAIRWISE UPDATES OF DEMIXING VECTORS
Taishi Nakashima, Robin Scheibler, Yukoh Wakabayashi, Nobutaka Ono, Tokyo Metropolitan University, Japan

Poster Board: P1.10
ASMSP-P3.10 FAST MULTICHANNEL CORRELATED TENSOR FACTORIZATION FOR BLIND SOURCE SEPARATION
Kazuyoshi Yoshii, Kyoto University/RIKEN, Japan; Kouhei Sekiguchi, RIKEN/Kyoto University, Japan; Yoshiaki Bando, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Mathieu Fontaine, Aditya Arie Nugraha, RIKEN, Japan

Wednesday, 20 January, 16:00 - 18:00 **BISA-P2**

BISA-P2 **BISA-P2: Biomedical Image and Signal Analytics** (Poster)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: P2
Chair: Dimitri Van de Ville, EPFL, Switzerland

Poster Board: P2.1
BISA-P2.1 **GENOMIC SIGNAL PROCESSING FOR VARIANT DETECTION IN DIPLOID PARENT-CHILD TRIOS**
Melissa Spence, University of California, Merced, United States; Mario Banuelos, California State University, Fresno, United States; Roummel Marcia, Suzanne Sindi, University of California, Merced, United States

Poster Board: P2.2
BISA-P2.2 **ADAPTATION OF CLUSTER ANALYSIS METHODS TO OPTIMIZE A BIOMECHANICAL MOTION MODEL OF HUMANS IN A NURSING BED**
Julia Demmer, Andreas Kitzig, Edwin Naroska, Gudrun Stockmanns, Hochschule Niederrhein University of Applied Science, Germany; Reinhard Viga, University of Duisburg-Essen, Germany; Anton Grabmaier, Fraunhofer Institute for Microelectronic Circuits and Systems, Germany

Poster Board: P2.3
BISA-P2.3 **EFFICIENT DYNAMIC ANALYSIS OF LOW-SIMILARITY PROTEINS FOR STRUCTURAL CLASS PREDICTION**
Michaela Areti Zervou, Department of Computer Science, University of Crete, Institute of Computer Science, Foundation for Research and Technology - Hellas, Greece; Effrosyni Doutsi, Pavlos Pavlidis, Institute of Computer Science, Foundation for Research and Technology - Hellas, Greece; Panagiotis Tsakalides, Department of Computer Science, University of Crete, Institute of Computer Science, Foundation for Research and Technology - Hellas, Greece

Poster Board: P2.4
BISA-P2.4 **MONITORING THE REHABILITATION PROGRESS USING A DCNN AND KINEMATIC DATA FOR DIGITAL HEALTHCARE**
Javier Conte Alcaraz, Leibniz Universität Hannover, Germany; Sanam Moghaddamnia, Türk-Alman Üniversitesi, Turkey; Maxim Penner, Jürgen Peissig, Leibniz Universität Hannover, Germany

Poster Board: P2.5
BISA-P2.5 **ACTIVITY RECOGNITION USING ULTRA WIDE BAND RANGE-TIME SCAN**
Arijit Chowdhury, Taniya Das, Smriti Rani, Anwesha Khasnobish, Tapas Chakravarty, Tata Consultancy Services, India

Poster Board: P2.6
BISA-P2.6 **CSP-BASED DISCRIMINATIVE CAPACITY INDEX FROM EEG SUPPORTING ADHD DIAGNOSIS**
Steven Galindo, David Cárdenas, Alvaro Orozco, Universidad Tecnológica de Pereira, Colombia

Poster Board: P2.7
BISA-P2.7 **ROLE OF BRAINWAVES IN NEURAL SPEECH DECODING**
Debadatta Dash, Paul Ferrari, Jun Wang, University of Texas at Austin, United States

Wednesday, 20 January, 16:00 - 18:00 **TMTSP-P3**

TMTSP-P3 TMTSP-P3: Data-Driven and Nonparametric Signal Processing (Poster)
Time: Wednesday, 20 January, 16:00 - 18:00
Place: P3
Chair: Antonio Napolitano, University of Napoli Parthenope, Italy

Poster Board: P3.1
TMTSP-P3.1 AIRCRAFT ACOUSTIC SIGNAL MODELED AS OSCILLATORY ALMOST-CYCLOSTATIONARY PROCESS
Antonio Napolitano, University of Napoli Parthenope, Italy

Poster Board: P3.2
TMTSP-P3.2 ON THE COMPUTATION OF MARGINAL LIKELIHOOD VIA MCMC FOR MODEL SELECTION AND HYPOTHESIS TESTING
Fernando Llorente, Universidad Carlos III de Madrid, Spain; Luca Martino, Universidad Rey Juan Carlos, Spain; David Delgado, Javier López-Santiago, Universidad Carlos III de Madrid, Spain

Poster Board: P3.3
TMTSP-P3.3 PARTICLE FILTERING UNDER GENERAL REGIME SWITCHING
Yousef El-Laham, Liu Yang, Petar Djuric, Monica Bugallo, Stony Brook University, United States

Poster Board: P3.4
TMTSP-P3.4 A VARIABLE STEP-SIZE FOR SPARSE NONLINEAR ADAPTIVE FILTERS
Alberto Carini, University of Trieste, Italy; Markus Lima, Federal University of Rio de Janeiro (UFRJ), Brazil; Hamed Yazdanpanah, University of São Paulo (USP), Brazil; Simone Orcioni, Stefania Cecchi, Università Politecnica delle Marche, Italy

Poster Board: P3.5
TMTSP-P3.5 ESTIMATION OF DIRECTED DEPENDENCIES IN TIME SERIES USING CONDITIONAL MUTUAL INFORMATION AND NON-LINEAR PREDICTION
Payam Shahsavari Baboukani, Aalborg University, Denmark; Carina Graversen, Jan Østergaard, Eriksholm Research Centre, Denmark

Poster Board: P3.6
TMTSP-P3.6 NONPARAMETRIC ADAPTIVE VALUE-AT-RISK QUANTIFICATION BASED ON THE MULTISCALE ENERGY DISTRIBUTION OF ASSET RETURNS
George Tzagkarakis, Foundation for Research and Technology-Hellas, Greece; Frantz Maurer, KEDGE Business School, France; Thomas Dionysopoulos, Dalton Strategic Partnership LLP, United Kingdom

Poster Board: P3.7
TMTSP-P3.7 ANOMALY DETECTION FOR SYMBOLIC TIME SERIES REPRESENTATIONS OF REDUCED DIMENSIONALITY
Konstantinos Bountrogiannis, University of Crete, Greece; George Tzagkarakis, Foundation for Research and Technology-Hellas, Greece; Panagiotis Tsakalides, University of Crete, Greece

Poster Board: P3.8
TMTSP-P3.8 REGULARIZED DFA TO STUDY THE GAZE POSITION OF AN AIRLINE PILOT
Bastien Berthelot, Thales AVS France, France; Éric Grivel, Bordeaux University - INP Bordeaux - IMS - UMR CNRS 5218, France; Pierrick Legrand, Bordeaux University - IMB UMR CNRS 5251 - INRIA, France; Jean-Marc André, Bordeaux University - INP Bordeaux - IMS - UMR CNRS 5218, France; Patrick Mazoyer, Thales AVS France, France

Poster Board: P3.9
TMTSP-P3.9 DATA-DRIVEN KERNEL-BASED PROBABILISTIC SAX FOR TIME SERIES DIMENSIONALITY REDUCTION
Konstantinos Bountrogiannis, University of Crete, Greece; George Tzagkarakis, Foundation for Research and Technology-Hellas, Greece; Panagiotis Tsakalides, University of Crete, Greece

Thursday, 21 January, 09:00 - 11:00 ASMSP-L7

ASMSP-L7 **ASMSP-L7: Speech Recognition** (Lecture)
Time: Thursday, 21 January, 09:00 - 11:00
Place: L1
Chair: Dorothea Kolossa, Ruhr-Universität Bochum, Germany

09:00 - 09:20
ASMSP-L7.1 NOISE-ROBUST ATTENTION LEARNING FOR END-TO-END SPEECH RECOGNITION
Yosuke Higuchi, Waseda University, Japan; Naohiro Tawara, Atsunori Ogawa, Tomoharu Iwata, NTT Corporation, Japan; Tetsunori Kobayashi, Tetsuji Ogawa, Waseda University, Japan

09:20 - 09:40
ASMSP-L7.2 SELECTIVE ADAPTATION OF END-TO-END SPEECH RECOGNITION USING HYBRID CTC/ATTENTION ARCHITECTURE FOR NOISE ROBUSTNESS
Cong-Thanh Do, Toshiba Research Europe Ltd., United Kingdom; Shucong Zhang, The University of Edinburgh, United Kingdom; Thomas Hain, The University of Sheffield, United Kingdom

09:40 - 10:00
ASMSP-L7.3 AN EFFECTIVE CONTEXTUAL LANGUAGE MODELING FRAMEWORK FOR SPEECH SUMMARIZATION WITH AUGMENTED FEATURES
Shi-Yan Weng, Tien-Hong Lo, Berlin Chen, National Taiwan Normal University, Taiwan

10:00 - 10:20
ASMSP-L7.4 A FULLY CONVOLUTIONAL SEQUENCE LEARNING APPROACH FOR CUED SPEECH RECOGNITION FROM VIDEOS
Katerina Papadimitriou, Gerasimos Potamianos, University of Thessaly, Greece

10:20 - 10:40
ASMSP-L7.5 AUDIO-VISUAL SPEECH CLASSIFICATION BASED ON ABSENT CLASS DETECTION
Gonzalo Daniel Sad, Juan Carlos Gómez, Centro Internacional Franco Argentino de Ciencias de la Información y de Sistemas - Universidad Nacional de Rosario, Argentina

10:40 - 11:00
ASMSP-L7.6 EXPLORING FILTERBANK LEARNING FOR KEYWORD SPOTTING
Iván López-Espejo, Zheng-Hua Tan, Jesper Jensen, Aalborg University, Denmark

Thursday, 21 January, 09:00 - 11:00 TMTSP-L6

TMTSP-L6 **TMTSP-L6: Tracking and Adaptive Signal Processing** (Lecture)
Time: Thursday, 21 January, 09:00 - 11:00
Place: L2
Chair: Cedric Richard, University Cote d'Azur, France

09:00 - 09:20
TMTSP-L6.1 DISTRIBUTED EXTENDED OBJECT TRACKING BASED ON DIFFUSION STRATEGY
Yuanyuan Ren, Wei Xia, University of Electronic Science and Technology of China, China

09:20 - 09:40
TMTSP-L6.2 IMPROVING ENERGY COMPACTION OF ADAPTIVE FOURIER DECOMPOSITION
Adam Borowicz, Bialystok University of Technology, Poland

09:40 - 10:00
TMTSP-L6.3 ONLINE DOMINANT GENERALIZED EIGENVECTORS EXTRACTION VIA A RANDOMIZED METHOD
Haoyuan Cai, Maboud Kaloorazi, Jie Chen, Northwestern Polytechnical University, China; Wei Chen, Beijing Jiaotong University, China; Cedric Richard, University Cote d'Azur, France

10:00 - 10:20
TMTSP-L6.4 TWO STAGES PARALLEL LMS STRUCTURE: A PIPELINED HARDWARE ARCHITECTURE
Ghattas Akkad, Ali Mansour, ENSTA Bretagne, France; Bachar ElHassan, Lebanese University, Lebanon; Elie Inaty, Rafic Ayoubi, University of Balamand, Lebanon

10:20 - 10:40
TMTSP-L6.5 AN EFFICIENT ONLINE ESTIMATION ALGORITHM FOR EVOLVING QUANTUM STATES
Kun Zhang, Shuang Cong, Yaru Tang, Nikolaos M. Freris, University of Science and Technology of China, China

10:40 - 11:00
TMTSP-L6.6 QUANTUM-BASED INTERVAL SELECTION OF THE SEMI-CLASSICAL SIGNAL ANALYSIS METHOD
Evangelos Piliouras, Taous-Meriem Laleg-Kirati, King Abdullah University of Science and Technology, Saudi Arabia

Thursday, 21 January, 09:00 - 11:00 SS-L5

SS-L5 **SS-L5: Acoustic Scene Analysis and Signal Enhancement Based on Advanced Signal Processing and Machine Learning** (Special Session)

Time: Thursday, 21 January, 09:00 - 11:00
Place: L3
Co-Chairs: Shoji Makino, University of Tsukuba, Japan and Nobutaka Ono, Tokyo Metropolitan University, Japan

09:00 - 09:20

SS-L5.1 SEMI-SUPERVISED MULTICHANNEL SPEECH SEPARATION BASED ON A PHONE- AND SPEAKER-AWARE DEEP GENERATIVE MODEL OF SPEECH SPECTROGRAMS
Yicheng Du, Kyoto University, Japan; Kouhei Sekiguchi, RIKEN/Kyoto University, Japan; Yoshiaki Bando, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Aditya Arie Nugraha, Mathieu Fontaine, RIKEN, Japan; Kazuyoshi Yoshii, Kyoto University/RIKEN, Japan; Tatsuya Kawahara, Kyoto University, Japan

09:20 - 09:40

SS-L5.2 INFORMED SOURCE EXTRACTION BASED ON INDEPENDENT VECTOR ANALYSIS USING EIGENVALUE DECOMPOSITION
Andreas Brendel, Walter Kellermann, Friedrich-Alexander University Erlangen-Nuremberg, Germany

09:40 - 10:00

SS-L5.3 ACOUSTIC OBJECT CANCELLER USING BLIND COMPENSATION FOR SAMPLING FREQUENCY MISMATCH
Takao Kawamura, National Institute of Technology, Tokuyama College, Japan; Nobutaka Ono, Robin Scheibler, Yukoh Wakabayashi, Tokyo Metropolitan University, Japan; Ryoichi Miyazaki, National Institute of Technology, Tokuyama College, Japan

10:00 - 10:20

SS-L5.4 EXPERIMENTAL ANALYSIS OF EM AND MU ALGORITHMS FOR OPTIMIZING FULL-RANK SPATIAL COVARIANCE MODEL
Hiroshi Sawada, Rintaro Ikeshita, Tomohiro Nakatani, NTT Corporation, Japan

10:20 - 10:40

SS-L5.5 JOINT-DIAGONALIZABILITY-CONSTRAINED MULTICHANNEL NONNEGATIVE MATRIX FACTORIZATION BASED ON MULTIVARIATE COMPLEX SUB-GAUSSIAN DISTRIBUTION
Keigo Kamo, Yuki Kubo, Norihiro Takamune, The University of Tokyo, Japan; Daichi Kitamura, National Institute of Technology, Kagawa Collage, Japan; Hiroshi Saruwatari, The University of Tokyo, Japan; Yu Takahashi, Kazunobu Kondo, Yamaha Corporation, Japan

10:40 - 11:00

SS-L5.6 MULTIPLE SPEAKER LOCALIZATION USING MIXTURE OF GAUSSIAN MODEL WITH MANIFOLD-BASED CENTROIDS
Avital Bross, Sharon Gannot, Bar-Ilan University, Israel

Thursday, 21 January, 09:00 - 11:00 BISA-L5

BISA-L5 **BISA-L5: Biomedical Signal and Image Formation, Reconstruction and Restoration** (Lecture)

Time: Thursday, 21 January, 09:00 - 11:00
Place: L4
Chair: Philippe Ciuciu, CEA Neurospin, France

09:00 - 09:20

BISA-L5.1 FULLY AUTOMATIC BLIND COLOR DECONVOLUTION OF HISTOLOGICAL IMAGES USING SUPER GAUSSIANS
Fernando Pérez-Bueno, Miguel Vega, Universidad de Granada, Spain; Valery Naranjo, Universidad Politécnica de Valencia, Spain; Rafael Molina, Universidad de Granada, Spain; Aggelos K. Katsaggelos, Northwestern University, United States

09:20 - 09:40

BISA-L5.2 CONVOLUTIONAL NEURAL NETWORK FOR MATERIAL DECOMPOSITION IN SPECTRAL CT SCANS
Suzanne Bussod, Juan Felipe Pérez-Juste Abascal, Université de Lyon, France; Simon Arridge, University College London, United Kingdom; Andreas Hauptmann, University of Oulu, Finland; Christine Chappard, University Paris Diderot, France; Nicolas Ducros, Françoise Peyrin, Université de Lyon, France

09:40 - 10:00

BISA-L5.3 A WIDE MULTIMODAL DENSE U-NET FOR FAST MAGNETIC RESONANCE IMAGING
Antonio Falvo, Danilo Comminiello, Simone Scardapane, Michele Scarpiniti, Aurelio Uncini, Sapienza University of Rome, Italy

10:00 - 10:20

BISA-L5.4 A RESIDUAL U-NET NETWORK WITH IMAGE PRIOR FOR 3D IMAGE DENOISING
Juan Felipe Perez Juste Abascal, Suzanne Bussod, Nicolas Ducros, Salim Si-Mohamed, Philippe Douek, CREATIS, Univ Lyon, INSA-Lyon, CNRS UMR 5220, U1206, France; Christine Chappard, B3OA, CNRS UMR 7052, U 1271, France; Francoise Peyrin, CREATIS, Univ Lyon, INSA-Lyon, CNRS UMR 5220, U1206, France

10:20 - 10:40

BISA-L5.5 FAST VOLUMETRIC REGISTRATION IN MR IMAGES BASED ON AN ACCELERATED VISCOUS FLUID MODEL
Herng-Hua Chang, Yu-Hsuan Chao, National Taiwan University, Taiwan

10:40 - 11:00

BISA-L5.6 BLIND CALIBRATION FOR ARRAYS WITH AN ABERRATION LAYER IN ULTRASOUND IMAGING
Pim van der Meulen, Mario Coutino, Delft University of Technology, Netherlands; Pieter Kruizinga, Johannes G. Bosch, Geert Leus, Erasmus Medical Center, Netherlands

Thursday, 21 January, 09:00 - 11:00 SPMuS-L3

SPMuS-L3 SPMuS-L3: Multichannel Estimation and Detection
(Lecture)
Time: Thursday, 21 January, 09:00 - 11:00
Place: L5
Chair: Jac Romme, Imec, The Netherlands

09:00 - 09:20
SPMuS-L3.1 GAN-BASED HYPERSPECTRAL ANOMALY DETECTION
Sertac Arisoy, Gebze Technical University, Turkey; Nasser M. Nasrabadi, West Virginia University, United States; Koray Kayabol, Gebze Technical University, Turkey

09:20 - 09:40
SPMuS-L3.2 FINDING MEANINGFUL DETECTIONS: FALSE DISCOVERY RATE CONTROL IN CORRELATED DETECTION MAPS
Olivier Flasseur, University of Lyon, France; Loïc Denis, University of Saint-Etienne, France; Eric Thiébaut, Maud Langlois, University of Lyon, France

09:40 - 10:00
SPMuS-L3.3 ROBUST PERIOD ESTIMATION OF AUTOMATED CUTTING SYSTEMS BY IMPROVED AUTOCORRELATION & LINEAR REGRESSION TECHNIQUES
Anthony McAtear, Ghent University, Belgium; Ruben Gielen, Aperam Stainless Steel, Belgium; Nilesh Madhu, Ghent University, Belgium

10:00 - 10:20
SPMuS-L3.4 SALT DOME DETECTION USING CONTEXT-AWARE SALIENCY
Abdulmajid Lawal, Azzedine Zerguine, Qadri Mayyala, Kind Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia; Azeddine Beghdadi, Universite Sorbonne Paris Nord, France

10:20 - 10:40
SPMuS-L3.5 RANK DETECTION THRESHOLDS FOR HANKEL OR TOEPLITZ DATA MATRICES
Alle-Jan van der Veen, TU Delft, Netherlands; Jac Romme, Imec, the Netherlands, Netherlands; Ye Cui, TU Delft, Netherlands

10:40 - 11:00
SPMuS-L3.6 JOINT CALIBRATION AND TOMOGRAPHY BASED ON SEPARABLE LEAST SQUARES APPROACH WITH CONSTRAINTS ON LINEAR AND NON-LINEAR PARAMETERS
Venkata Pathuri-Bhuvana, Silicon Austria Labs GmbH, Austria; Stefan Schuster, voestalpine Stahl GmbH, Austria; Andreas Och, Infineon Technologies Austria AG, Austria

ASMSP-P4 **ASMSP-P4: Speech Enhancement** (Poster)
Time: Thursday, 21 January, 09:00 - 11:00
Place: P1
Chair: Tom Bäckström, Aalto University, Finland

Poster Board: P1.1
ASMSP-P4.1 **ON THE USE OF DISCRETE COSINE TRANSFORM POLARITY SPECTRUM IN SPEECH ENHANCEMENT**
Sisi Shi, Andrew Busch, Griffith University, Australia

Poster Board: P1.2
ASMSP-P4.2 **BLIND BANDWIDTH EXTENSION OF SPEECH BASED ON LPCNET**
Konstantin Schmidt, Bernd Edler, International Audio Laboratories Erlangen, Germany

Poster Board: P1.3
ASMSP-P4.3 **MULTI-SCALE RESIDUAL CONVOLUTIONAL ENCODER DECODER WITH BIDIRECTIONAL LONG SHORT-TERM MEMORY FOR SINGLE CHANNEL SPEECH ENHANCEMENT**
Yang Xian, Yang Sun, Newcastle University, United Kingdom; WenWu Wang, University of Surrey, United Kingdom; Naqvi Mohsen, Newcastle University, United Kingdom

Poster Board: P1.4
ASMSP-P4.4 **JOINTLY LEVERAGING DECORRELATION AND SPARSITY FOR IMPROVED FEEDBACK CANCELLATION IN HEARING AIDS**
Kuan-Lin Chen, Ching-Hua Lee, Bhaskar D. Rao, Harinath Garudadri, University of California San Diego, United States

Poster Board: P1.5
ASMSP-P4.5 **NON-INTRUSIVE ESTIMATION OF SPEECH SIGNAL PARAMETERS USING A FRAME-BASED MACHINE LEARNING APPROACH**
Dushyant Sharma, Lucia Berger, Carl Quillen, Nuance Communications Inc, United States; Patrick Naylor, Imperial College London, United Kingdom

Poster Board: P1.6
ASMSP-P4.6 **AEGAN: TIME-FREQUENCY SPEECH DENOISING VIA GENERATIVE ADVERSARIAL NETWORKS**
Sherif Abdulatif, Karim Armanious, Karim Guirguis, Jayasankar T. Sajeev, Bin Yang, University of Stuttgart, Germany

Poster Board: P1.7
ASMSP-P4.7 **MEMORY REQUIREMENT REDUCTION OF DEEP NEURAL NETWORKS FOR FIELD PROGRAMMABLE GATE ARRAYS USING LOW-BIT QUANTIZATION OF PARAMETERS**
Niccolò Nicodemo, University of Pisa, Italy; Gaurav Naithani, Konstantinos Drossos, Tuomas Virtanen, Tampere University, Finland; Roberto Saletti, University of Pisa, Italy

Poster Board: P1.8
ASMSP-P4.8 **SEMI-SUPERVISED ENHANCEMENT AND SUPPRESSION OF SELF-PRODUCED SPEECH USING CORRESPONDENCE BETWEEN AIR- AND BODY-CONDUCTED SIGNALS**
Moe Takada, Shogo Seki, Patrick Lumban Tobing, Tomoki Toda, Nagoya University, Japan

Poster Board: P1.9
ASMSP-P4.9 **INVESTIGATION OF NETWORK ARCHITECTURE FOR SINGLE-CHANNEL END-TO-END DENOISING**
Takuya Hasumi, Tetsunori Kobayashi, Tetsuji Ogawa, Waseda University, Japan

Thursday, 21 January, 09:00 - 11:00 **SiG-DML-P3**

SiG-DML-P3 SiG-DML-P3: Neural Networks and Applications (Poster)
Time: Thursday, 21 January, 09:00 - 11:00
Place: P2
Co-Chairs: Jean-Christophe Pesquet, University Paris-Saclay, France and Aggelos Pikrakis, University of Pireaus, Greece

Poster Board: P2.1
SiG-DML-P3.1 NEURAL DISCRETE ABSTRACTION OF HIGH-DIMENSIONAL SPACES: A CASE STUDY IN REINFORCEMENT LEARNING
Petros Giannakopoulos, National and Kapodistrian University of Athens, Greece; Aggelos Pikrakis, University of Pireaus, Greece; Yannis Cotronis, National and Kapodistrian University of Athens, Greece

Poster Board: P2.2
SiG-DML-P3.2 TRAINING OF NEURAL NETWORK TARGET DETECTORS MENTORED BY SO-CFAR
Jabran Akhtar, Norwegian Defence Research (FFI), Norway

Poster Board: P2.3
SiG-DML-P3.3 TRAINING NOISE-RESILIENT RECURRENT PHOTONIC NETWORKS FOR FINANCIAL TIME SERIES ANALYSIS
Nikolaos Passalis, Manos Kirtas, George Mourgias-Alexandris, George Dabos, Nikos Pleros, Anastasios Tefas, Aristotle University of Thessaloniki, Greece

Poster Board: P2.4
SiG-DML-P3.4 NEIGHBORHOOD-AWARE AUTOENCODER FOR MISSING VALUE IMPUTATION
Helena Aidos, LASIGE, Faculdade de Ciências, Universidade de Lisboa, Portugal; Pedro Tomás, INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal

Poster Board: P2.5
SiG-DML-P3.5 OFFLINE TRAINING FOR MEMRISTOR-BASED NEURAL NETWORKS
Guillem Boquet, Edwar Macias, Antoni Morell, Javier Serrano, Enrique Miranda, Jose Lopez Vicario, Universitat Autònoma de Barcelona, Spain

Poster Board: P2.6
SiG-DML-P3.6 SIGNAL DENOISING USING A NEW CLASS OF ROBUST NEURAL NETWORKS
Ana Neacsu, Kavya Gupta, Jean-Christophe Pesquet, University Paris-saclay, France; Corneliu Burileanu, University Politehnica Bucharest, Romania

Poster Board: P2.7
SiG-DML-P3.7 ALGORITHMS FOR OVERPREDICTIVE SIGNAL ANALYTICS IN FEDERATED LEARNING
Vijay Anavangot, Animesh Kumar, Indian Institute of Technology Bombay, India

SPCN-P2 **SPCN-P2: Signal Processing and Applications for the IoT** (Poster)
Time: Thursday, 21 January, 09:00 - 11:00
Place: P3
Chair: Xavier Mestre, CTTC, Spain

Poster Board: P3.1
SPCN-P2.1 IOT-TD: IOT DATASET FOR MULTIPLE MODEL BLE-BASED INDOOR LOCALIZATION/TRACKING
Mohammad Salimibeni, Mohammadamin Atashi, Parvin Malekzadeh, Zohreh HajiAkhondi-Meybodi, Concordia University, Canada; Konstantinos N. Plataniotis, University of Toronto, Canada; Arash Mohammadi, Concordia University, Canada

Poster Board: P3.2
SPCN-P2.2 ORIENTATION-MATCHED MULTIPLE MODELING FOR RSSI-BASED INDOOR LOCALIZATION VIA BLE SENSORS
Mohammadamin Atashi, Mohammad Salimibeni, Parvin Malekzadeh, Zohreh HajiAkhondi-Meybodi, Concordia University, Canada; Konstantinos N. Plataniotis, University of Toronto, Canada; Arash Mohammadi, Concordia University, Canada

Poster Board: P3.3
SPCN-P2.3 MOTION SENSOR DATA ANONYMIZATION BY TIME-FREQUENCY FILTERING
Noëlie Debs, Université de Lyon, France; Théo Jourdan, INSA Lyon, INRIA, France; Ali Moukadem, Université de Haute-Alsace, France; Antoine Boutet, INSA Lyon, INRIA, France; Carole Frindel, Université de Lyon, France

Poster Board: P3.4
SPCN-P2.4 AN ADMM-NET FOR DATA RECOVERY IN WIRELESS SENSOR NETWORKS
Liu Yang, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, China; Yonina C. Eldar, Weizmann Institute of Science, Israel; Haifeng Wang, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, China; Kai Kang, Hua Qian, Shanghai Advanced Research Institute, Chinese Academy of Sciences, China

Poster Board: P3.5
SPCN-P2.5 HIDDEN MARKOV MODEL BASED DATA-DRIVEN CALIBRATION OF NON-DISPERSIVE INFRARED GAS SENSOR
Yang You, Tobias Oechtering, KTH Royal Institute of Technology, Sweden, Sweden

Thursday, 21 January, 13:30 - 15:30 ASMSP-L8

ASMSP-L8 **ASMSP-L8: Speaker and Emotion Recognition** (Lecture)
Time: Thursday, 21 January, 13:30 - 15:30
Place: L1
Chair: Stefan Goetze, University of Sheffield, UK

13:30 - 13:50
ASMSP-L8.1 AN END-TO-END MULTITASK LEARNING MODEL TO IMPROVE SPEECH EMOTION RECOGNITION
CHANGZENG FU, Graduate School of Engineering Science, Osaka University, Japan; Chaoran Liu, Carlos Toshinori Ishi, Advanced Telecommunications Research Institute International, Japan, Japan; Hiroshi Ishiguro, Graduate School of Engineering Science, Osaka University, Japan, Japan

13:50 - 14:10
ASMSP-L8.2 ADIEU RECURRENCE? END-TO-END SPEECH EMOTION RECOGNITION USING A CONTEXT STACKING DILATED CONVOLUTIONAL NETWORK
Duowei Tang, Peter Kuppens, Luc Geurts, Toon van Waterschoot, Katholieke Universiteit Leuven, Belgium

14:10 - 14:30
ASMSP-L8.3 REVISITING SINCNET: AN EVALUATION OF FEATURE AND NETWORK HYPERPARAMETERS FOR SPEAKER RECOGNITION
Dan Onea , Lucian Georgescu, Horia Cucu, Drago Burileanu, Corneliu Burileanu, University Politehnica of Bucharest, Romania

14:30 - 14:50
ASMSP-L8.4 ANALYSIS OF PHONETIC DEPENDENCE OF SEGMENTATION ERRORS IN SPEAKER DIARIZATION
Simon McKnight, Aidan Hogg, Patrick Naylor, Imperial College London, United Kingdom

14:50 - 15:10
ASMSP-L8.5 TEAGER ENERGY CEPSTRAL COEFFICIENTS FOR CLASSIFICATION OF NORMAL VS. WHISPER SPEECH
Kuldeep Khoria, Madhu Kamble, Hemant Patil, Dhirubhai Ambani Institute of Information and Communication Technology, India

15:10 - 15:30
ASMSP-L8.6 ENERGY SEPARATION BASED FEATURES FOR REPLAY SPOOF DETECTION FOR VOICE ASSISTANT
Gauri Prajapati, Madhu Kamble, Hemant Patil, Dhirubhai Ambani Institute of Information and Communication Technology, India

Thursday, 21 January, 13:30 - 15:30 TMTSP-L7

TMTSP-L7 **TMTSP-L7: Adaptation and Learning over Graphs & Networks** (Lecture)
Time: Thursday, 21 January, 13:30 - 15:30
Place: L2
Chair: Ali Sayed, EPFL, Switzerland

13:30 - 13:50
TMTSP-L7.1 ADAPTATION IN ONLINE SOCIAL LEARNING
Virginia Bordignon, EPFL, Switzerland; Vincenzo Matta, University of Salerno, Italy; Ali H. Sayed, EPFL, Switzerland

13:50 - 14:10
TMTSP-L7.2 A SAMPLING ALGORITHM FOR DIFFUSION NETWORKS
Daniel Tiglea, Renato Candido, Magno Silva, University of Sao Paulo, Brazil

14:10 - 14:30
TMTSP-L7.3 DISTRIBUTED LEARNING WITH NON-SMOOTH OBJECTIVE FUNCTIONS
Cristiano Gratton, Naveen Venkategowda, Norwegian University of Science and Technology, Norway; Reza Arablouei, CSIRO's Data61, Australia; Stefan Werner, Norwegian University of Science and Technology, Norway

14:30 - 14:50
TMTSP-L7.4 LEARNING WITHOUT FORGETTING FOR DECENTRALIZED NEURAL NETS WITH LOW COMMUNICATION OVERHEAD
Xinyue Liang, Alireza M. Javid, Mikael Skoglund, Saikat Chatterjee, KTH Royal Institute of Technology, Sweden

14:50 - 15:10
TMTSP-L7.5 ONLINE KERNEL-BASED GRAPH TOPOLOGY IDENTIFICATION WITH PARTIAL-DERIVATIVE-IMPOSED SPARSITY
Mircea Moscu, Ricardo Borsoi, Cédric Richard, Université Côte d'Azur, France

15:10 - 15:30
TMTSP-L7.6 DYNAMIC K-GRAPHS: AN ALGORITHM FOR DYNAMIC GRAPH LEARNING AND TEMPORAL GRAPH SIGNAL CLUSTERING
Hesam Araghi, Massoud Babaie-Zadeh, Sharif University of Technology, Iran; Sophie Achard, University of Grenoble Alpes, France

Thursday, 21 January, 13:30 - 15:30 SS-L6

SS-L6 **SS-L6: Computational Imaging in the Era of Learning: Imagers, Priors and Algorithms** (Special Session)
Time: Thursday, 21 January, 13:30 - 15:30
Place: L3
Co-Chairs: Laurent Jacques, UC Louvain, Belgium and Emrah Bostan, University of Amsterdam, The Netherlands

13:30 - 13:50
SS-L6.1 MODEL AND LEARNING-BASED COMPUTATIONAL 3D PHASE MICROSCOPY WITH INTENSITY DIFFRACTION TOMOGRAPHY
Alex Matlock, Yujia Xue, Yunzhe Li, Shiyi Cheng, Waleed Tahir, Lei Tian, Boston University, United States

13:50 - 14:10
SS-L6.2 MODELLING A MICROSCOPE AS LOW DIMENSIONAL SUBSPACE OF OPERATORS
Valentin Debarnot, Paul Escande, Thomas Mangeat, pierre weiss, CNRS, France

14:10 - 14:30
SS-L6.3 THE MODULO RADON TRANSFORM AND ITS INVERSION
Ayush Bhandari, Imperial College London, United Kingdom; Matthias Beckmann, Felix Krahmer, University of Hamburg, Germany

14:30 - 14:50
SS-L6.4 THE BENEFITS OF SIDE INFORMATION FOR STRUCTURED PHASE RETRIEVAL
Salman Asif, UC Riverside, United States; Chinmay Hegde, NYU, United States

14:50 - 15:10
SS-L6.5 DESIGNING CNNS FOR MULTIMODAL IMAGE SUPER-RESOLUTION VIA THE METHOD OF MULTIPLIERS
Iman Marivani, Evaggelia Tsiligianni, Bruno Cornelis, Nikos Deligiannis, vrije universiteit brussel-imec, Belgium

15:10 - 15:30
SS-L6.6 RANDOM ILLUMINATION MICROSCOPY FROM VARIANCE IMAGES
simon labouesse, CU Boulder, France; Jérôme Idier, LS2N, France; Anne Sentenac, Institut Fresnel, France; Thomas Mangeat, CBI, France

Thursday, 21 January, 13:30 - 15:30 BISA-L6

BISA-L6 **BISA-L6: Biomedical Signal and Image Segmentation and Detection** (Lecture)
Time: Thursday, 21 January, 13:30 - 15:30
Place: L4
Chair: Maarten De Vos, IBME Oxford, UK

13:30 - 13:50
BISA-L6.1 MPG-NET: MULTI-PREDICTION GUIDED NETWORK FOR SEGMENTATION OF RETINAL LAYERS IN OCT IMAGES
Zeyu Fu, Yang Sun, Xiangyu Zhang, Newcastle University, United Kingdom; Scott Stainton, Shaun Barney, Neura Health Group, United Kingdom; Jeffry Hogg, William Innes, Royal Victoria Infirmary, United Kingdom; Satnam Dlay, Newcastle University, United Kingdom

13:50 - 14:10
BISA-L6.2 U-NET BASED MULTI-LEVEL TEXTURE SUPPRESSION FOR VESSEL SEGMENTATION IN LOW CONTRAST REGIONS
Kamini Upadhyay, Monika Agrawal, Indian Institute of Technology, Delhi, India; Praveen Vashist, All India institute of Medical Sciences, Delhi, India

14:10 - 14:30
BISA-L6.3 IDENTIFICATION OF ISCHEMIC HEART DISEASE BY USING MACHINE LEARNING TECHNIQUE BASED ON PARAMETERS MEASURING HEART RATE VARIABILITY
Giulia Silveri, Marco Merlo, Luca Restivo, Beatrice De Paola, Aleksandar Miladinovi , Miloš Aj evi , Gianfranco Sinagra, Agostino Accardo, University of Trieste, Italy

14:30 - 14:50
BISA-L6.4 COGNITIVE FATIGUE DETECTION FROM EEG SIGNALS USING TOPOLOGICAL SIGNAL PROCESSING
Arup Kumar Das, Kriti Kumar, Rahul Gavas, Dibyanshu Jaiswal, Debatri Chatterjee, Ramesh Kumar Ramakrishnan, M Girish Chandra, Arpan Pal, Tata Consultancy Services Ltd., India

Thursday, 21 January, 13:30 - 15:30 SPCN-L1

SPCN-L1 SPCN-L1: Machine Learning for Communications
(Lecture)
Time: Thursday, 21 January, 13:30 - 15:30
Place: L5
Chair: Christoph Mecklenbräuker, TU Vienna, Austria

13:30 - 13:50
SPCN-L1.1 A DEEP LEARNING DECODER FOR LONG-RANGE COMMUNICATION SYSTEMS
Damian Pascual, Simon Tanner, Mickey Vänskä, Roger Wattenhofer, ETH Zurich, Switzerland

13:50 - 14:10
SPCN-L1.2 TRANSFORM LEARNING ASSISTED GRAPH SIGNAL PROCESSING FOR LOW RATE ELECTRICAL LOAD DISAGGREGATION
Kriti Kumar, M. Girish Chandra, Tata Consultancy Services Ltd., India

14:10 - 14:30
SPCN-L1.3 COLLABORATIVE LEARNING BASED SYMBOL DETECTION IN MASSIVE MIMO
Arijit Datta, Manekar Tushar Deo, Vimal Bhatia, Indian Institute of Technology Indore, India

14:30 - 14:50
SPCN-L1.4 ONE-CLASS BASED LEARNING FOR HYBRID SPECTRUM SENSING IN COGNITIVE RADIO
Mohamad Jaber, American University of Culture and Education, Lebanon; Abbass NASSER, Ensta-Bretgane, France; Nour Charara, American University of Culture and Education, Lebanon; Ali Mansour, Ensta-Bretgane, France; Koffi-Clément Yao, Université de Bretgane Occidentale, France

14:50 - 15:10
SPCN-L1.5 OFDM RECEIVER USING DEEP LEARNING: REDUNDANCY ISSUES
Marcele Mendonça, Paulo Diniz, Federal University of Rio de Janeiro, Brazil

15:10 - 15:30
SPCN-L1.6 SUPER-RESOLUTION TIME-OF-ARRIVAL ESTIMATION USING NEURAL NETWORKS
Yao-Shan Hsiao, Mingyu Yang, Hun Seok Kim, University of Michigan, United States

Thursday, 21 January, 13:30 - 15:30 **VIP-P2**

VIP-P2 **VIP-P2: 3D Image, Video and Point Cloud Processing** (Poster)
Time: Thursday, 21 January, 13:30 - 15:30
Place: P1
Chair: Safak Dogan, Loughborough University London, UK

Poster Board: P1.1
VIP-P2.1 **ACCELERATED 3D IMAGE RECONSTRUCTION FOR RESOURCE CONSTRAINED SYSTEMS**
Andreas Aßmann, Heriot-Watt University, STMicroelectronics, United Kingdom; Yun Wu, Heriot-Watt University, United Kingdom; Brian Stewart, STMicroelectronics, United Kingdom; Andrew M. Wallace, Heriot-Watt University, United Kingdom

Poster Board: P1.2
VIP-P2.2 **WING 3D RECONSTRUCTION BY CONSTRAINING THE BUNDLE ADJUSTMENT WITH MECHANICAL LIMITATIONS**
Quentin Demoulin, François Lefebvre-Albaret, Airbus, France; Adrian Basarab, Denis Kouamé, University Paul Sabatier Toulouse, France; Jean-Yves Tourneret, INP - ENSEEIHT Toulouse, France

Poster Board: P1.3
VIP-P2.3 **FAST DEPTH ESTIMATION FOR VIEW SYNTHESIS**
Nantheera Anantrasirichai, University of Bristol, United Kingdom; Majid Geravand, David Braendler, Braendler Engineering Ltd, Italy; David Bull, University of Bristol, United Kingdom

Poster Board: P1.4
VIP-P2.4 **OPTIMIZED 3D SCENE RENDERING ON PROJECTION-BASED 3D DISPLAYS**
Oleksii Doronin, Robert Bregovic, Atanas Gotchev, Tampere University, Finland

Poster Board: P1.5
VIP-P2.5 **3D POINT CLOUD DENOISING USING A JOINT GEOMETRY AND COLOR K-NN GRAPH**
Muhammad Abeer Irfan, Enrico Magli, Politecnico di Torino, Italy

Poster Board: P1.6
VIP-P2.6 **3D FEATURE DETECTOR–DESCRIPTOR PAIR EVALUATION ON POINT CLOUDS**
Paula Stancelova, Comenius University in Bratislava, Slovakia; Elena Sikudova, Charles University, Czech Republic; Zuzana Cernekova, Comenius University in Bratislava, Slovakia

Poster Board: P1.7
VIP-P2.7 **POINT CLOUD VISUALIZATION METHODS: A STUDY ON SUBJECTIVE PREFERENCES**
Emil Dumic, University North, Croatia (Hrvatska); Federica Battisti, Marco Carli, Roma Tre University, Italy; Luis A. da Silva Cruz, University of Coimbra, Portugal

Poster Board: P1.8
VIP-P2.8 **NUMERICALLY STABLE MULTI-CHANNEL DEPTH SCENE FLOW WITH ADAPTIVE WEIGHTING OF REGULARIZATION TERMS**
Yusuke Kameda, Ichiro Matsuda, Susumu Itoh, Tokyo University of Science, Japan

Thursday, 21 January, 13:30 - 15:30 **SS-P4**

SS-P4 **SS-P4: New Challenges in Tensor/Structured Matrix Based Methods and Algorithms** (Poster)
Time: Thursday, 21 January, 13:30 - 15:30
Place: P2
Co-Chairs: Remy Boyer, Université de Lille 1, France and Xiao Fu, Oregon State University, USA

Poster Board: P2.1
SS-P4.1 **AN OPTIMIZATION FRAMEWORK FOR REGULARIZED LINEARLY COUPLED MATRIX-TENSOR FACTORIZATION**
Carla Schenker, Simula Metropolitan Center for Digital Engineering, Norway; Jeremy E. Cohen, University of Rennes, France; Evrim Acar Ataman, Simula Metropolitan Center for Digital Engineering, Norway

Poster Board: P2.2
SS-P4.2 **GLOBALLY OPTIMIZING OWING TO TENSOR DECOMPOSITION**
Arthur Marmin, Université Paris-Saclay, CentraleSupélec, INRIA, France; Marc Castella, Télécom SudParis, Institut Polytechnique de Paris, France; Jean-Christophe Pesquet, Université Paris-Saclay, CentraleSupélec, INRIA, France

Poster Board: P2.3
SS-P4.3 **ADAPTIVE ALGORITHMS FOR TRACKING TENSOR-TRAIN DECOMPOSITION OF STREAMING TENSORS**
Trung Thanh Le, Karim Abed-Meraim, University of Orleans, France; Linh Trung Nguyen, VNU University of Engineering and Technology, Viet Nam; Remy Boyer, Universite de Lille, France

Poster Board: P2.4
SS-P4.4 **DICTIONARY-BASED TENSOR-TRAIN SPARSE CODING**
Abdelhak Boudehane, Université Paris-Saclay, CNRS, CentraleSupélec, France; Yassine Zniyed, Université de Lorraine, CNRS, France; Arthur Tenenhaus, Laurent Le Brusquet, Université Paris-Saclay, CNRS, CentraleSupélec, France; Remy Boyer, Université de Lille 1, France

Poster Board: P2.5
SS-P4.5 **MULTI-DIMENSIONAL MODEL ORDER ESTIMATION USING LINEAR REGRESSION OF GLOBAL EIGENVALUES (LARGE) WITH APPLICATIONS TO EEG AND MEG RECORDINGS**
Alexey Korobkov, Marina Diugurova, Kazan National Research Technical University n.a. A.N Tupolev-KAI, Russia; Jens Haueisen, Martin Haardt, Ilmenau University of Technology, Germany

Poster Board: P2.6
SS-P4.6 **NONLINEAR DEPENDENT COMPONENT ANALYSIS: IDENTIFIABILITY AND ALGORITHM**
Qi Lyu, Xiao Fu, Oregon State University, United States

Poster Board: P2.7
SS-P4.7 **HYPERSPECTRAL UNMIXING WITH RARE ENDMEMBERS VIA MINIMAX NONNEGATIVE MATRIX FACTORIZATION**
Timothy Marrinan, Nicolas Gillis, University of Mons, Belgium

Poster Board: P2.8
SS-P4.8 **A QUADRATICALLY CONVERGENT PROXIMAL ALGORITHM FOR NONNEGATIVE TENSOR DECOMPOSITION**
Nico Vervliet, Andreas Themelis, Panagiotis Patrinos, KU Leuven, Belgium; Lieven De Lathauwer, KU Leuven - KULAK, Belgium

SPMuS-P3 **SPMuS-P3: Beamforming and Radar** (Poster)
Time: Thursday, 21 January, 13:30 - 15:30
Place: P3
Chair: Giuseppe Ricci, University of Salento, Italy

Poster Board: P3.1
SPMuS-P3.1 **BEAM COORDINATION VIA DIFFUSION REDUCED-RANK ADAPTATION OVER ARRAY NETWORKS**
Jinghua Li, Wei Xia, University of Electronic Science and Technology of China, China

Poster Board: P3.2
SPMuS-P3.2 **A ROBUST LCMP BEAMFORMER WITH LIMITED SNAPSHOTS**
Moaaz Mahdi, King Abdulaziz University, Saudi Arabia; Tarig Ballal, King Abdullah University of Science and Technology, Saudi Arabia; Mohammad Moinuddin, King Abdulaziz University, Saudi Arabia; Tareq Y. Al-Naffouri, King Abdullah University of Science and Technology, Saudi Arabia; Ubaid Al-Saggaf, King Abdulaziz University, Saudi Arabia

Poster Board: P3.3
SPMuS-P3.3 **DIRECT POSITION ESTIMATION OF A MOBILE RECEIVER IN MULTIPATH ENVIRONMENTS VIA ADAPTIVE BEAMFORMING**
Alessio Fascista, Angelo Coluccia, Giuseppe Ricci, University of Salento, Italy

Poster Board: P3.4
SPMuS-P3.4 **JOINT DESIGN OF RADAR TRANSMIT WAVEFORM AND MISMATCHED FILTER WITH LOW SIDELOBES**
Yang Jing, Junli Liang, Northwestern Polytechnical University, China; Sergiy Vorobyov, Aalto University, Finland; Xuhui Fan, Deyun Zhou, Northwestern Polytechnical University, China

Poster Board: P3.5
SPMuS-P3.5 **RAO TEST WITH IMPROVED ROBUSTNESS FOR RANGE-SPREAD TARGET DETECTION**
Shengyin Sun, Jun Liu, University of Science and Technology of China, China; Weijian Liu, Wuhan Electronic Information Institute, China

Poster Board: P3.6
SPMuS-P3.6 **PERSYMMETRIC DETECTION OF SUBSPACE SIGNALS EMBEDDED IN SUBSPACE INTERFERENCE AND GAUSSIAN NOISE**
Jun Liu, University of Science and Technology of China, China; Weijian Liu, Wuhan Electronic Information Institute, China

Poster Board: P3.7
SPMuS-P3.7 **STATISTICAL APPROACH BASED OPTIMIZATION FOR THE APPLICATION OF CHAOTIC SEQUENCES TO RADAR**
Zouhair Ben Jemaa, ENIT, Université de Tunis El Manar, Tunisia; Sylvie Marcos, CentraleSupelec, Université Paris Sud, France; Safya Belghith, ENIT, Université de Tunis El Manar, Tunisia

Thursday, 21 January, 16:00 - 18:00 ASMSP-L9

ASMSP-L9 **ASMSP-L9: Speech Synthesis and Conversion** (Lecture)
Time: Thursday, 21 January, 16:00 - 18:00
Place: L1
Chair: Tomoki Toda, Nagoya University, Japan

16:00 - 16:20
ASMSP-L9.1 TACO-VC: A SINGLE SPEAKER TACOTRON BASED VOICE CONVERSION WITH LIMITED DATA
Roee Levy-Leshem, Raja Giryes, Tel Aviv University, Israel

16:20 - 16:40
ASMSP-L9.2 IMPLEMENTATION OF LOW-LATENCY ELECTROLARYNGEAL SPEECH ENHANCEMENT BASED ON MULTI-TASK CLDNN
Kazuhiro Kobayashi, Tomoki Toda, Nagoya University, Japan

16:40 - 17:00
ASMSP-L9.3 SEMI-SUPERVISED LEARNING OF GLOTTAL PULSE POSITIONS IN A NEURAL ANALYSIS-SYNTHESIS FRAMEWORK
Frederik Bous, Luc Ardaillon, Axel Roebel, IRCAM, Sorbonne University, CNRS, France

17:00 - 17:20
ASMSP-L9.4 CYCLEGAN VOICE CONVERSION OF SPECTRAL ENVELOPES USING ADVERSARIAL WEIGHTS
Rafael Ferro, Nicolas Obin, Axel Roebel, IRCAM, France

17:20 - 17:40
ASMSP-L9.5 CINC-GAN FOR EFFECTIVE F0 PREDICTION FOR WHISPER-TO-NORMAL SPEECH CONVERSION
Maitreya Patel, Mirali Purohit, Jui Shah, Hemant Patil, Dhirubhai Ambani Institute of Information and Communication Technology, India

17:40 - 18:00
ASMSP-L9.6 FLEXIBLE PARAMETRIC IMPLANTATION OF VOICING IN WHISPERED SPEECH UNDER SCARCE TRAINING DATA
João Silva, Marco Oliveira, Aníbal Ferreira, University of Porto, Portugal

Thursday, 21 January, 16:00 - 18:00 TMTSP-L8

TMTSP-L8 **TMTSP-L8: Estimation and Detection Theory and Algorithms** (Lecture)
Time: Thursday, 21 January, 16:00 - 18:00
Place: L2
Chair: Yoann Altmann, Heriot-Watt University, UK

16:00 - 16:20
TMTSP-L8.1 UNBIASED FIR FILTERING UNDER BERNOULLI-DISTRIBUTED BINARY RANDOMLY DELAYED AND MISSING DATA
Karen Uribe-Murcia, Yuriy Shmaliy, Universidad de Guanajuato, Mexico; Yuan Xu, University of Jinan, China

16:20 - 16:40
TMTSP-L8.2 STOCHASTIC EM ALGORITHM FOR FAST ANALYSIS OF SINGLE WAVEFORM MULTI-SPECTRAL LIDAR DATA
Quentin Legros, Heriot-Watt University, United Kingdom; Sylvain Meignen, University Grenoble Alpes, France; Stephen McLaughlin, Yoann Altmann, Heriot-Watt University, United Kingdom

16:40 - 17:00
TMTSP-L8.3 EFFICIENT ESTIMATION OF KRONECKER PRODUCT OF LINEAR STRUCTURED SCATTER MATRICES UNDER T-DISTRIBUTION
Bruno MERIAUX, Chengfang REN, SONDRA/CentraleSupélec, France; Arnaud BRELOY, Mohammed Nabil EL KORSO, LEME EA 4416, Paris-Nanterre University, France; Philippe FORSTER, SATIE, Paris-Nanterre University, France

17:00 - 17:20
TMTSP-L8.4 SIMULTANEOUS SPLINE QUANTILE REGRESSION UNDER SHAPE CONSTRAINTS
Daichi Kitahara, Ke Leng, Ritsumeikan University, Japan; Yuji Tezuka, Kusatsu General Hospital, Japan; Akira Hirabayashi, Ritsumeikan University, Japan

17:20 - 17:40
TMTSP-L8.5 GENERALIZED ANOVA TEST FOR GNSS SPOOFING DETECTION WITH A DUAL-POLARIZED ANTENNA
Daniel Egea-Roca, José A. López-Salcedo, Gonzalo Seco-Granados, IEEC-CERES, Universitat Autònoma de Barcelona (UAB), Spain; Wim De Wilde, Septentrio, Belgium

17:40 - 18:00
TMTSP-L8.6 FAST MULTILEVEL QUANTIZATION FOR DISTRIBUTED DETECTION BASED ON GAUSSIAN APPROXIMATION
Gökhan Gül, Michael Bassler, Fraunhofer IMM, Germany

Thursday, 21 January, 16:00 - 18:00 SiG-DML-L5

SiG-DML-L5 **SiG-DML-L5: Sequential Learning** (Lecture)
Time: Thursday, 21 January, 16:00 - 18:00
Place: L3
Co-Chairs: Saikat Chatterjee, KTH Royal Institute of Technology, Sweden and Hagit Messer, Tel Aviv University, Israel

16:00 - 16:20
SiG-DML-L5.1 INCORPORATING USER FEEDBACK INTO ONE-CLASS SUPPORT VECTOR MACHINES FOR ANOMALY DETECTION
Julien Lesouple, TéSA, France; Jean-Yves Tourneret, INP-ENSEEIHT/IRIT/TéSA, France

16:20 - 16:40
SiG-DML-L5.2 SEQUENTIAL LEARNING AND REGULARIZATION IN VARIATIONAL RECURRENT AUTOENCODER
Jen-Tzung Chien, Chih-Jung Tsai, National Chiao Tung University, Taiwan

16:40 - 17:00
SiG-DML-L5.3 ONLINE KERNEL-BASED NONLINEAR NEYMAN-PEARSON CLASSIFICATION
Basarbatu Can, Sabanci University, Turkey; Mine Kerpicci, Georgia Institute of Technology, United States; Huseyin Ozkan, Sabanci University, Turkey

17:00 - 17:20
SiG-DML-L5.4 ADAPTIVE LEARNING WITHOUT FORGETTING VIA LOW-COMPLEXITY CONVEX NETWORKS
Alireza M. Javid, Xinyue Liang, Mikael Skoglund, Saikat Chatterjee, KTH Royal Institute of Technology, Sweden

17:20 - 17:40
SiG-DML-L5.5 SHORT-TERM PREDICTION OF THE ATTENUATION IN A COMMERCIAL MICROWAVE LINK USING LSTM-BASED RNN
Dror Jacoby, Tel Aviv University, Israel; Jonatan Ostrometzky, Columbia University, Israel; Hagit Messer, Tel Aviv University, Israel

Thursday, 21 January, 16:00 - 18:00 VIP-L4

VIP-L4 **VIP-L4: Video Processing** (Lecture)
Time: Thursday, 21 January, 16:00 - 18:00
Place: L4
Chair: Giuseppe Valenzise, CNRS

16:00 - 16:20
VIP-L4.1 REALISTIC LIP ANIMATION FROM SPEECH FOR UNSEEN SUBJECTS USING FEW-SHOT CROSS-MODAL LEARNING
Swapna Agarwal, Dipanjan Das, Brojeshwar Bhowmick, Tata Consultancy Services, India

16:20 - 16:40
VIP-L4.2 ANALYSIS OF QUADRATIC SURFACE FITTING FOR SUBPIXEL MOTION EXTRACTION FROM VIDEO IMAGES
Bian Xiong, Qinghua Zhang, Univ Gustave Eiffel, Inria, France; Vincent Baltazart, Univ Gustave Eiffel, IFSTTAR, France

16:40 - 17:00
VIP-L4.3 GATED RECURRENT NETWORKS FOR VIDEO SUPER RESOLUTION
Santiago López-Tapia, University of Granada, Spain; Alice Lucas, Northwestern University, United States; Rafael Molina, Universidad de Granada, Spain; Aggelos K. Katsaggelos, Northwestern University, United States

17:00 - 17:20
VIP-L4.4 REFINEMENT NETWORK FOR UNSUPERVISED ON THE SCENE FOREGROUND SEGMENTATION
Montse Pardàs, Gemma Canet, Universitat Politècnica de Catalunya, Spain

17:20 - 17:40
VIP-L4.5 TENSOR RECOVERY VIA NONCONVEX LOW-RANK APPROXIMATION
Lin Chen, Xue Jiang, Xingzhao Liu, Shanghai Jiao Tong University, China; Zhixin Zhou, Space Engineering University, China

17:40 - 18:00
VIP-L4.6 A MAXIMUM LIKELIHOOD APPROACH TO SPEED ESTIMATION OF FOREGROUND OBJECTS IN VIDEO SIGNALS
Veronica Mattioli, Davide Alinovi, Riccardo Raheli, Università di Parma, Italy

Thursday, 21 January, 16:00 - 18:00 SPMuS-L4

SPMuS-L4 SPMuS-L4: Multisensor and Multimodal Machine Learning (Lecture)
Time: Thursday, 21 January, 16:00 - 18:00
Place: L5
Chair: Alexander Bertrand, KU Leuven, Belgium

16:00 - 16:20
SPMuS-L4.1 CONFUSE: CONVOLUTIONAL TRANSFORM LEARNING FUSION FRAMEWORK FOR MULTI-CHANNEL DATA ANALYSIS
Pooja Gupta, Jyoti Maggu, Angshul Majumdar, Indraprastha Institute of Information Technology, Delhi, India; Emilie Chouzenoux, Universite Paris-Saclay, France; Giovanni Chierchia, Université Paris Est, France

16:20 - 16:40
SPMuS-L4.2 DISTRIBUTED TRACE RATIO OPTIMIZATION IN FULLY-CONNECTED SENSOR NETWORKS
Cem Ates Musluoglu, Alexander Bertrand, KU Leuven, Belgium

16:40 - 17:00
SPMuS-L4.3 DEEP TRANSFORM LEARNING FOR MULTI-SENSOR FUSION
Saurabh Sahu, Kriti Kumar, Tata Consultancy Services Ltd., India; Angshul Majumdar, Indraprastha Institute of Information Technology Delhi, India; M. Girish Chandra, Tata Consultancy Services Ltd., India

17:00 - 17:20
SPMuS-L4.4 SURE BASED TRUNCATED TENSOR NUCLEAR NORM REGULARIZATION FOR LOW RANK TENSOR COMPLETION
Gordon Morison, Glasgow Caledonian University, United Kingdom

17:20 - 17:40
SPMuS-L4.5 RECOGNITION OF ACTIONS AND SUBJECTS FROM INERTIAL AND FSR SENSORS ATTACHED TO OBJECTS
Yikai Peng, Peter Jancovic, Martin Russell, University of Birmingham, United Kingdom

ASMSP-P5 **ASMSP-P5: Speech Recognition and Speaker Analysis** (Poster)
Time: Thursday, 21 January, 16:00 - 18:00
Place: P1
Chair: Ina Kodrasi, IDIAP, Switzerland

Poster Board: P1.1
ASMSP-P5.1 **MULTIMODAL INTEGRATION FOR LARGE-VOCABULARY AUDIO-VISUAL SPEECH RECOGNITION**
Wentao Yu, Steffen Zeiler, Dorothea Kolossa, Ruhr University, Germany

Poster Board: P1.2
ASMSP-P5.2 **ANALYZING THE IMPACT OF SPEAKER LOCALIZATION ERRORS ON SPEECH SEPARATION FOR AUTOMATIC SPEECH RECOGNITION**
Sunit Sivasankaran, Emmanuel Vincent, Dominique Fohr, Inria-Nancy, France

Poster Board: P1.3
ASMSP-P5.3 **DATA AUGMENTATION VERSUS NOISE COMPENSATION FOR X-VECTOR SPEAKER RECOGNITION SYSTEMS IN NOISY ENVIRONMENTS**
Mohammad Mohammadamini, Driss Matrouf, Avignon University, France

Poster Board: P1.4
ASMSP-P5.4 **REVIEW OF DIFFERENT ROBUST X-VECTOR EXTRACTORS FOR SPEAKER VERIFICATION**
Mickael Rouvier, Richard Dufour, Pierre-Michel Bousquet, LIA - Avignon University, France

Poster Board: P1.5
ASMSP-P5.5 **TRANSFER LEARNING FROM SPEECH TO MUSIC: TOWARDS LANGUAGE-SENSITIVE EMOTION RECOGNITION MODELS**
Juan Sebastián Gómez Cañón, Universitat Pompeu Fabra, Spain; Estefanía Cano, Agency for Science, Technology and Research (A*STAR), Singapore; Perfecto Herrera, Emilia Gómez, Universitat Pompeu Fabra, Spain

Thursday, 21 January, 16:00 - 18:00 **BISA-P3**

BISA-P3 **BISA-P3: Biomedical Signal Processing III** (Poster)
Time: Thursday, 21 January, 16:00 - 18:00
Place: P2
Chair: Pier Luigi Dragotti, Imperial College, UK

Poster Board: P2.1
BISA-P3.1 **GENERATING EEG FEATURES FROM ACOUSTIC FEATURES**
Gautam Krishna, Co Tran, Mason Carnahan, Yan Han, Ahmed H Tewfik, UT Austin, United States

Poster Board: P2.2
BISA-P3.2 **GRAPH-BASED DENOISING OF EEG SIGNALS IN IMPULSIVE ENVIRONMENTS**
Anastasia Pentari, university of crete, Greece; George Tzagkarakis, Kostas Marias, foundation for research and technology Hellas, Greece; Panagiotis Tsakalides, university of Crete, Greece

Poster Board: P2.3
BISA-P3.3 **IN SILICO CARDIAC MODEL TO EVALUATE MYOCARDIAL ISCHEMIA EFFECT ON HEMODYNAMIC PARAMETERS**
Oishee Mazumder, Dibyendu Roy, Aniruddha Sinha, Tata Consultancy Services, India

Poster Board: P2.4
BISA-P3.4 **AN ACCURATE CNN ARCHITECTURE FOR ATRIAL FIBRILLATION DETECTION USING NEURAL ARCHITECTURE SEARCH**
Najmeh Fayyazifar, Edith Cowan University, Australia

Poster Board: P2.5
BISA-P3.5 **TENSOR-BASED DETECTION OF PAROXYSMAL AND PERSISTENT ATRIAL FIBRILLATION FROM MULTI-CHANNEL ECG**
Hanie Moghaddasi, Alle-Jan van der Veen, Delft University of Technology, Netherlands; Natasja M.S de Groot, Erasmus University Medical Center, Netherlands; Borbála Hunyadi, Delft University of Technology, Netherlands

Poster Board: P2.6
BISA-P3.6 **EPILEPTIC EEG CLASSIFICATION USING SYNCHROSQUEEZING TRANSFORM WITH MACHINE AND DEEP LEARNING TECHNIQUES**
Ozlem Karabiber Cura, Mehmet Akif Ozdemir, Izmir Katip Celebi University, Turkey; Aydin Akan, Izmir University of Economics, Turkey

Poster Board: P2.7
BISA-P3.7 **RELATED INFERENCE: A SUPERVISED LEARNING APPROACH TO DETECT SIGNAL VARIATION IN GENOME DATA**
Mario Banuelos, California State University, Fresno, United States; Omar DeGuchy, Suzanne Sindi, Roummel Marcia, University of California, Merced, United States

Thursday, 21 January, 16:00 - 18:00 **TMTSP-P4**

TMTSP-P4 **TMTSP-P4: Optimization Techniques** (Poster)
Time: Thursday, 21 January, 16:00 - 18:00
Place: P3
Chair: Emilie Chouzenoux, University Paris-Saclay, CentraleSupélec, CVN, Inria, France

Poster Board: P3.1
TMTSP-P4.1 **A MULTI-AGENT PRIMAL-DUAL STRATEGY FOR COMPOSITE OPTIMIZATION OVER DISTRIBUTED FEATURES**
Sulaiman Alghunaim, Kuwait University, Kuwait; Ming Yan, Michigan state university, United States; Ali Sayed, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland

Poster Board: P3.2
TMTSP-P4.2 **STEP SIZE DETERMINATION FOR FINDING LOW-RANK SOLUTIONS VIA NON-CONVEX BI-FACTORED MATRIX FACTORIZATION**
Reinhard Panhuber, Ludger Prünte, Fraunhofer FHR, Germany

Poster Board: P3.3
TMTSP-P4.3 **A NESTEROV-TYPE ACCELERATION WITH ADAPTIVE LOCALIZED CAYLEY PARAMETRIZATION FOR OPTIMIZATION OVER THE STIEFEL MANIFOLD**
Keita Kume, Isao Yamada, Tokyo Institute of Technology, Japan

Poster Board: P3.4
TMTSP-P4.4 **CONVEX OPTIMIZATION-BASED PRIVACY-PRESERVING DISTRIBUTED LEAST SQUARES VIA SUBSPACE PERTURBATION**
Qiongxiu Li, Aalborg university, Denmark; Richard Heusdens, Delft University of Technology, Netherlands Defence Academy,, Netherlands; Mads Græsbøll Christensen, Aalborg university, Denmark

Poster Board: P3.5
TMTSP-P4.5 **A PRIVACY-PRESERVING ASYNCHRONOUS AVERAGING ALGORITHM BASED ON STATE DECOMPOSITION**
Metin Calis, Delft University of Technology, Netherlands; Richard Heusdens, Richard C. Hendriks, Technical University of Delft, Netherlands

Poster Board: P3.6
TMTSP-P4.6 **A FIXED POINT FRAMEWORK FOR RECOVERING SIGNALS FROM NONLINEAR TRANSFORMATIONS**
Patrick L. Combettes, Zev C. Woodstock, North Carolina State University, United States

Poster Board: P3.7
TMTSP-P4.7 **GROUP NONNEGATIVE MATRIX FACTORIZATION WITH SPARSE REGULARIZATION IN MULTI-SET DATA**
Xiulin Wang, Wenya Liu, Fengyu Cong, Dalian University of Technology, China; Tapani Ristaniemi, University of Jyväskylä, Finland

Poster Board: P3.8
TMTSP-P4.8 **SMOOTH STRONGLY CONVEX REGRESSION**
Andrea Simonetto, IBM Research, Ireland

Poster Board: P3.9
TMTSP-P4.9 **A RECOVERY ALGORITHM BASED ON THE KACZMARZ ALGORITHM AND ADMM SPLITTING WITH APPLICATION TO CONVEX OPTIMIZATION IN MAGNETIC PARTICLE IMAGING**
Marco Maass, Christine Droigk, Fabrice Katzberg, Philipp Koch, Alfred Mertins, University of Lübeck, Germany

Poster Board: P3.10
TMTSP-P4.10 **PROXIMAL GRADIENT ALGORITHM IN THE PRESENCE OF ADJOINT MISMATCH**
Marion Savanier, GE Healthcare, University Paris-Saclay, CentraleSupélec, CVN, Inria, France; Emilie Chouzenoux, Jean-Christophe Pesquet, University Paris-Saclay, CentraleSupélec, CVN, Inria, France; Cyril Riddell, Yves Trousset, GE Healthcare, France

Friday, 22 January, 09:00 - 11:00 ASMSP-L10

ASMSP-L10 ASMSP-L10: Spatial Audio and Acoustic Processing (Lecture)

Time: Friday, 22 January, 09:00 - 11:00
Place: L1
Chair: Alastair Moore, Square Set Sound

09:00 - 09:20

ASMSP-L10.1 AMBISONIC CODING WITH SPATIAL IMAGE CORRECTION
Pierre MAHÉ, Orange Labs / University of La Rochelle, France; Stéphane RAGOT, Orange Labs, France; Sylvain MARCHAND, University of La Rochelle, France; Jérôme DANIEL, Orange Labs, France

09:20 - 09:40

ASMSP-L10.2 ELECTROACOUSTIC METHOD FOR THE CALIBRATION OF A HETEROGENEOUS DISTRIBUTED SPEAKER SYSTEM
Thomas Joubaud, Gregory Pallone, Orange, France

09:40 - 10:00

ASMSP-L10.3 DISTRIBUTED ADAPTIVE ACOUSTIC CONTRAST CONTROL FOR NODE-SPECIFIC SOUND ZONING IN A WIRELESS ACOUSTIC SENSOR AND ACTUATOR NETWORK
Robbe Van Rompaey, Marc Moonen, KU Leuven, Belgium

10:00 - 10:20

ASMSP-L10.4 INTENSITY BASED SOUNDFIELD REPRODUCTION OVER MULTIPLE SWEET SPOTS USING AN IRREGULAR LOUDSPEAKER ARRAY
Huanyu Zuo, Prasanga N. Samarasinghe, Thushara D. Abhayapala, The Australian National University, Australia

10:20 - 10:40

ASMSP-L10.5 HEAD ORIENTATION ESTIMATION FROM MULTIPLE MICROPHONE ARRAYS
Rebecca C. Felsheim, Andreas Brendel, Friedrich Alexander Universität Erlangen-Nürnberg, Germany; Patrick A. Naylor, Imperial College London, United Kingdom; Walter Kellermann, Friedrich Alexander Universität Erlangen-Nürnberg, Germany

10:40 - 11:00

ASMSP-L10.6 GRAVITATIONAL SEARCH ALGORITHM FOR IIR FILTER-BASED AUDIO EQUALIZATION
Giovanni Pepe, Leonardo Gabrielli, Stefano Squartini, Università Politecnica delle Marche, Italy; Luca Cattani, Carlo Tripodi, ASK Industries S.p.A., Italy

Friday, 22 January, 09:00 - 11:00 TMTSP-L9

TMTSP-L9 TMTSP-L9: Sparse Dictionary Learning and Reconstruction (Lecture)

Time: Friday, 22 January, 09:00 - 11:00
Place: L2
Chair: Christian Jutten, Grenoble Alpes University, France

09:00 - 09:20

TMTSP-L9.1 NEW DICTIONARY LEARNING METHODS FOR TWO-DIMENSIONAL SIGNALS
Firooz Shahriari Mehr, Javad Parsa, Massoud Babaie-Zadeh, Sharif University of Technology, Iran; Christian Jutten, Grenoble Alpes University, Iran

09:20 - 09:40

TMTSP-L9.2 ON THE USE OF DICTIONARY LEARNING IN TIME SERIES IMPUTATION
Xiaomeng Zheng, University of Auckland, New Zealand; Bogdan Dumitrescu, University Politehnica of Bucharest, Romania; Jiamou Liu, Ciprian Doru Giurcaneanu, University of Auckland, New Zealand

09:40 - 10:00

TMTSP-L9.3 DICTIONARY LEARNING WITH STATISTICAL SPARSITY IN THE PRESENCE OF NOISE
Shayan Aziznejad, Ecole Polytechnique Federale de Lausanne, Switzerland; Emmanuel Soubies, Centre National de la Recherche Scientifique, France; Michael Unser, Ecole Polytechnique Federale de Lausanne, Switzerland

10:00 - 10:20

TMTSP-L9.4 DICTIONARY LEARNING USING RANK-ONE PROJECTION
Cheng Cheng, Wei Dai, Imperial College London, United Kingdom

10:20 - 10:40

TMTSP-L9.5 INTERPOLATING AND TRANSLATION-INVARIANT APPROXIMATIONS OF PARAMETRIC DICTIONARIES
Frédéric Champagnat, ONERA, The French Aerospace Lab, France; Cédric Herzet, INRIA, France

Friday, 22 January, 09:00 - 11:00 SS-L7

SS-L7 **SS-L7: Latent Variable Methods: Theoretical Advances and Applications in the Age of Machine Learning** (Lecture)
Time: Friday, 22 January, 09:00 - 11:00
Place: L3
Co-Chairs: Zois Boukouvalas, American University, Washington, USA and Vagelis Papalexakis, UC Riverside, USA

09:00 - 09:20
SS-L7.1 INEXACT PROXIMAL CONJUGATE SUBGRADIENT ALGORITHM FOR FMRI DATA COMPLETION
Irina Belyaeva, Qunfang Long, Tulay Adali, University of Maryland, Baltimore County, United States

09:20 - 09:40
SS-L7.2 INDEPENDENT VECTOR ANALYSIS FOR MOLECULAR DATA FUSION: APPLICATION TO PROPERTY PREDICTION AND KNOWLEDGE DISCOVERY OF ENERGETIC MATERIALS
Zois Boukouvalas, Monica Puerto, American University, United States; Daniel Elton, National Institutes of Health Clinical Center, United States; Peter Chung, Mark Fuge, University of Maryland, College Park, United States

09:40 - 10:00
SS-L7.3 POSITIVE SEMIDEFINITE MATRIX FACTORIZATION BASED ON TRUNCATED WIRTINGER FLOW
Dana Lahat, Cédric Févotte, Centre national de la recherche scientifique (CNRS), France

10:00 - 10:20
SS-L7.4 MULTI-SUBJECT RESTING-STATE FMRI DATA ANALYSIS VIA GENERALIZED CANONICAL CORRELATION ANALYSIS
Paris Karakasis, University of Virginia, United States; Athanasios Liavas, Technical University of Crete, Greece; Nicholas Sidiropoulos, University of Virginia, United States; Panagiotis Simos, Efrosyni Papadaki, University of Crete, Greece

10:20 - 10:40
SS-L7.5 NOVEL ALGORITHMS FOR LP-QUASI-NORM PRINCIPAL-COMPONENT ANALYSIS
Dimitris Chachlakis, Panos Markopoulos, Rochester Institute of Technology, United States

Friday, 22 January, 09:00 - 11:00 VIP-L5

VIP-L5 **VIP-L5: Image Segmentation** (Lecture)
Time: Friday, 22 January, 09:00 - 11:00
Place: L4
Chair: Yassine Ruichek, UTBM - UBFC

09:00 - 09:20
VIP-L5.1 GO-SELFIES: A FAST SELFIES BACKGROUND REMOVAL METHOD USING RESU-NET DEEP LEARNING
Yunan Wu, Northwestern University, United States

09:20 - 09:40
VIP-L5.2 A DEEP LEARNING METHOD WITH CRF FOR INSTANCE SEGMENTATION OF METAL-ORGANIC FRAMEWORKS IN SCANNING ELECTRON MICROSCOPY IMAGES
Ilyes Batatia, École normale supérieure Paris-Saclay, Université Paris-Saclay, France

09:40 - 10:00
VIP-L5.3 SHADOW DETECTION AND REMOVAL USING GAN
Takahiro Nagae, Ryo Abiko, Takuro Yamaguchi, Masaaki Ikehara, Keio University, Japan; ,

10:00 - 10:20
VIP-L5.4 H-V SHADOW DETECTION BASED ON ELECTROMAGNETISM-LIKE OPTIMIZATION
Dimitra-Christina Koutsiou, Michalis Savelonas, Dimitris Iakovidis, University of Thessaly, Greece

10:20 - 10:40
VIP-L5.5 DETECTION OF PACKAGE EDGES IN DISTANCE MAPS
Elena Vasileva, Nenad Avramovski, Zoran Ivanovski, Ss. Cyril and Methodius University, Macedonia, Rep. of

10:40 - 11:00
VIP-L5.6 IMAGE BRIGHTNESS QUANTIFICATION FOR HDR
Stelios Ploumis, University of British Columbia, Canada; Ronan Boitard, Barco, Canada; Panos Nasiopoulos, University of British Columbia, Canada

Friday, 22 January, 09:00 - 11:00 **SS-P5**

SS-P5 **SS-P5: Recent Advances in Differential Geometry for Signal and Image Processing** (Special Session)
Time: Friday, 22 January, 09:00 - 11:00
Place: P1
Co-Chairs: Arnaud Breloy, Univ. Paris Nanterre, France, Guillaume Ginolhac, LISTIC, Univ. Savoie Mont Blanc, France and Nicolas Le Bihan, GIPSAlab, France

Poster Board: P1.1
SS-P5.1 **A COMPARATIVE STUDY OF SUPERVISED LEARNING ALGORITHMS FOR SYMMETRIC POSITIVE DEFINITE FEATURES**
Ammar Mian, Elias Raninen, Esa Ollila, Aalto University, Finland

Poster Board: P1.2
SS-P5.2 **AN OPTIMISATION GEOMETRY FRAMEWORK FOR THE RAYLEIGH QUOTIENT**
jeanne lefevre, Nicolas Le Bihan, GIPSAlab, France; Jonathan Manton, University of Melbourne, Australia

Poster Board: P1.3
SS-P5.3 **A LIE-GROUP BASED MODELLING FOR CENTROID AND SHAPE ESTIMATION OF A CLUSTER OF SPACE DEBRIS**
Samy Labsir, IMS laboratory / CEA, France; Audrey Giremus, IMS laboratory, France; Brice Yver, Thomas Benoudiba-Campanini, CEA - CESTA, France

Poster Board: P1.4
SS-P5.4 **A RIEMANNIAN APPROACH TO BLIND SEPARATION OF T-DISTRIBUTED SOURCES**
Florent Bouchard, LISTIC, Univ. Savoie Mont Blanc, France; Arnaud Breloy, Univ. Paris Nanterre, France; Guillaume Ginolhac, Alexandre Renaux, LISTIC, Univ. Savoie Mont Blanc, France

Friday, 22 January, 09:00 - 11:00 **BISA-P4**

BISA-P4 **BISA-P4: Biomedical Image Processing** (Poster)
Time: Friday, 22 January, 09:00 - 11:00
Place: P2
Chair: Françoise Peyrin, Université de Lyon, France

Poster Board: P2.1
BISA-P4.1 **PUPIL DIAMETER ESTIMATION IN VISIBLE LIGHT**
Manola Ricciuti, Ennio Gambi, Università Politecnica delle Marche, Italy

Poster Board: P2.2
BISA-P4.2 **DENOISING ECG SIGNALS USING UNBIASED FIR SMOOTHER AND HARMONIC STATE-SPACE MODEL**
Carlos Lastre Domınguez, Yuriy Shmaliy, Oscar Ibarra Manzano, Universidad de Guanajuato, Mexico

Poster Board: P2.3
BISA-P4.3 **MULTI-CHANNEL ELECTRONIC STETHOSCOPE FOR ENHANCED CARDIAC AUSCULTATION USING BEAMFORMING AND EQUALISATION TECHNIQUES**
Shahab Pasha, Jan Lundgren, STC research centre, Mid Sweden University, Sweden; Christian Ritz, University of Wollongong, Australia

Poster Board: P2.4
BISA-P4.4 **TRANSFER LEARNING IMPROVES MI BCI MODELS CLASSIFICATION ACCURACY IN PARKINSON'S DISEASE PATIENTS**
Aleksandar Miladinovi , Miloš Aj evi , Pierpaolo Busan, Joanna Jarmolowska, Giulia Silveri, Susanna Mezzarobba, Piero Paolo Battaglini, Agostino Accardo, University of Trieste, Italy

Poster Board: P2.5
BISA-P4.5 **AUTOMATED BRAIN EXTRACTION AND SEPARATION IN TRIPHENYLTETRAZOLIUM CHLORIDE-STAINED RAT IMAGES**
Herng-Hua Chang, Shin-Joe Yeh, National Taiwan University, Taiwan; Ming-Chang Chiang, National Yang-Ming University, Taiwan; Sung-Tsang Hsieh, National Taiwan University, Taiwan

Poster Board: P2.6
BISA-P4.6 **EFFICIENCY OF TV-REGULARIZED ALGORITHMS IN COMPUTED TOMOGRAPHY WITH POISSON-GAUSSIAN NOISE**
Théo Leuliet, Louise Friot--Giroux, CREATIS, INSA-Lyon, Université de Lyon, France; Walid Baaziz, Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg, France; Élie Bretin, Institut Camille Jordan, INSA-Lyon, Université de Lyon, France; Ovidiu Ersen, Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg, France; Françoise Peyrin, Bruno Sixou, Voichi a Maxim, CREATIS, INSA-Lyon, Université de Lyon, France

Poster Board: P2.7
BISA-P4.7 **EVALUATING TRANSFER LEARNING FOR MACULAR FLUID DETECTION WITH LIMITED DATA**
Alex Cazañas-Gordón, Esther Parra-Mora, Luis A. da Silva Cruz, University of Coimbra, Portugal

Friday, 22 January, 09:00 - 11:00 **TMTSP-P5**

TMTSP-P5 TMTSP-P5: Sparsity-Aware Processing II (Poster)
Time: Friday, 22 January, 09:00 - 11:00
Place: P3
Chair: Javier Vía, Universidad de Cantabria, Spain

Poster Board: P3.1
TMTSP-P5.1 DEEPMP FOR NON–NEGATIVE SPARSE DECOMPOSITION
Konstantinos Voulgaris, Mike Davies, Mehrdad Yaghoobi, University of Edinburgh, United Kingdom

Poster Board: P3.2
TMTSP-P5.2 FAST SPARSE CODING ALGORITHMS FOR PIECE-WISE SMOOTH SIGNALS
Alexandros Gkillas, Dimitris Ampeliotis, Kostas Berberidis, University of Patras, Greece

Poster Board: P3.3
TMTSP-P5.3 EFFICIENT ITERATIVELY REWEIGHTED LASSO ALGORITHM FOR CROSS-PRODUCTS PENALIZED SPARSE SOLUTIONS
David Luengo, Universidad Politécnica de Madrid, Spain; Javier Vía, Universidad de Cantabria, Spain; Tom Trigano, Shamoon College of Engineering, Israel

Poster Board: P3.4
TMTSP-P5.4 CFAR DETECTOR FOR COMPRESSED SENSING RADAR BASED ON L1-NORM MINIMISATION
Dmitrii Kozlov, Peter Ott, Heilbronn University of Applied Sciences, Germany

Poster Board: P3.5
TMTSP-P5.5 BREAKING THE LIMITS OF GAMMA-RAY SPECTROMETRY BY EXPLOITING SPARSITY OF PHOTON ARRIVALS
Samira Carolina Sánchez El Ryfaie, Simón Bolívar University, Venezuela; Miguel Heredia Conde, University of Siegen, Germany

Poster Board: P3.6
TMTSP-P5.6 3D PHASE RETRIEVAL AT NANO-SCALE VIA ACCELERATED WIRTINGER FLOW
Zalan Fabian, Justin Haldar, Richard Leahy, Mahdi Soltanolkotabi, University of Southern California, United States

Poster Board: P3.7
TMTSP-P5.7 ONLINE HYPERPARAMETER SEARCH INTERLEAVED WITH PROXIMAL PARAMETER UPDATES
Luis Miguel Lopez-Ramos, Baltasar Beferull-Lozano, University of Agder, Norway

Author and Session Chair Index

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