

2024 32nd European Signal Processing Conference (EUSIPCO 2024)

**Lyon, France
26-30 August 2024**

Pages 1-690



**IEEE Catalog Number: CFP2440S-POD
ISBN: 979-8-3315-1977-3**

**Copyright © 2024, European Association for Signal Processing (EURASIP)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP2440S-POD
ISBN (Print-On-Demand):	979-8-3315-1977-3
ISBN (Online):	978-9-4645-9361-7
ISSN:	2219-5491

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

WE1.AUD: DETECTION AND CLASSIFICATION FOR AUDIO AND SPEECH I

WE1.AUD.1: INVARIANCE-BASED LAYER REGULARIZATION FOR SOUND EVENT DETECTION51

David Perera, Slim Essid, Gaël Richard, Télécom Paris, France

WE1.AUD.2: CORRELATION OF FRECHET AUDIO DISTANCE WITH HUMAN PERCEPTION OF ENVIRONMENTAL AUDIO IS EMBEDDING DEPENDENT56

Modan Tailleur, LS2N, CNRS, Centrale Nantes, Nantes University, France; Junwon Lee, Gaudio Lab, Inc. / KAIST, Korea (South); Mathieu Lagrange, LS2N, CNRS, Centrale Nantes, Nantes University, France; Keunwoo Choi, Gaudio Lab, Inc., Korea (South); Laurie Heller, Carnegie Mellon University, United States; Keisuke Imoto, Doshisha University, Japan; Yuki Okamoto, Ritsumeikan University, Japan

WE1.AUD.3: TARGET-SPECIFIC DATASET PRUNING FOR COMPRESSION OF AUDIO TAGGING MODELS61

Alexander Werning, Reinhold Häb-Umbach, Paderborn University, Germany

WE1.AUD.4: SOUND EVENT DETECTION WITH SOFT LABELS: A NEW PERSPECTIVE ON EVALUATION66

Manu Harju, Irene Martín-Morató, Toni Heittola, Annamaria Mesaros, Tampere University, Finland

WE1.AUD.5: REFINING KNOWLEDGE TRANSFER ON AUDIO-IMAGE TEMPORAL AGREEMENT FOR AUDIO-TEXT CROSS RETRIEVAL71

Shunsuke Tsubaki, Doshisha University, Japan; Daisuke Niizumi, Daiki Takeuchi, Yasunori Ohishi, Noboru Harada, NTT Corporation, Japan; Keisuke Imoto, Doshisha University, Japan

WE1.AUD.6: OUTLIER EXPOSURE WITH EFFICIENT DIVISION OF POSITIVE AND NEGATIVE EXAMPLES FOR ANOMALOUS SOUND DETECTION76

Yuuki Tachioka, Denso IT Laboratory, Japan

TH3.SC2: SPEECH RECOGNITION

TH3.SC2.1: CHARACTER ERROR RATE ESTIMATION FOR AUTOMATIC SPEECH RECOGNITION OF SHORT UTTERANCES 131

Chanho Park, Hyunsik Kang, Thomas Hain, University of Sheffield, United Kingdom

TH3.SC2.2: IMPROVING ACCENTED SPEECH RECOGNITION USING DATA AUGMENTATION BASED ON UNSUPERVISED TEXT-TO-SPEECH SYNTHESIS 136

Cong-Thanh Do, Toshiba Europe Limited, United Kingdom; Shuhei Imai, Tohoku University, Japan; Rama Doddipatla, Toshiba Europe Limited, United Kingdom; Thomas Hain, University of Sheffield, United Kingdom

TH3.SC2.3: A COMPREHENSIVE ANALYSIS OF TOKENIZATION AND SELF-SUPERVISED LEARNING IN END-TO-END AUTOMATIC SPEECH RECOGNITION APPLIED ON FRENCH LANGUAGE 141

Thibault Bañeras-Roux, Nantes University, France; Mickael Rouvier, Avignon University, France; Jane Wottawa, Le Mans University, France; Richard Dufour, Nantes University, France

TH3.SC2.4: TOWARDS BUILDING AN END-TO-END MULTILINGUAL AUTOMATIC LYRICS TRANSCRIPTION MODEL 146

Jiawen Huang, Emmanouil Benetos, Queen Mary University of London, United Kingdom

TH3.SC2.5: LDASR: AN EXPERIMENTAL STUDY ON LAYER DROP USING CONFORMER-BASED ARCHITECTURE 151

Abdul Hannan, University of Trento, Italy; Alessio Brutti, Daniele Falavigna, Fondazione Bruno Kessler, Italy

TU1.PA3: SOUND DETECTION AND CLASSIFICATION

TU1.PA3.1: DISCRIMINATIVE NEIGHBORHOOD SMOOTHING FOR GENERATIVE ANOMALOUS SOUND DETECTION 156

Takuya Fujimura, Nagoya University, Japan; Keisuke Imoto, Doshisha University, Japan; Tomoki Toda, Nagoya University, Japan

TU1.PA3.2: ANOMALOUS SOUND DETECTION FOR ROAD SURVEILLANCE BASED ON GRAPH SIGNAL PROCESSING 161

Zied Mnasri, University Tunis El Manar, Tunisia; Jhony H. Giraldo, Institut Polytechnique de Paris, France; Thierry Bouwmans, Université La Rochelle, France

TU1.PA3.3: MULTI-SAMPLE DYNAMIC TIME WARPING FOR FEW-SHOT KEYWORD SPOTTING 166

Kevin Wilkinghoff, Alessia Cornaggia-Urrigshardt, Fraunhofer FKIE, Germany

TU1.PA3.4: DETECTION OF AN APPROXIMATELY PERIODIC SEQUENCE OF PULSES FOR ACOUSTIC CONDITION MONITORING 171

Jonas Lindenberger, Silicon Austria Labs GmbH, Austria; Christof Pichler, Graz University of Technology, Austria; Stefan Schuster, voestalpine Stahl GmbH, Austria; Oliver Lang, Johannes Kepler University, Austria; Markus Neumayer, Graz University of Technology, Austria; Alexander Haberl, voestalpine Stahl GmbH, Austria; Clemens Staudinger, K1-MET GmbH, Austria; Bernhard Lehner, Silicon Austria Labs GmbH, Austria; Christoph Feilmayr, voestalpine Stahl GmbH, Austria; Hannes Wegleiter, Graz University of Technology, Austria; Mario Huemer, Johannes Kepler University, Austria

TU1.PA3.5: UNS EXTERIOR SPATIAL SOUND EVENTS DATASET FOR URBAN MONITORING 176

Siniša Suzić, University of Novi Sad, Serbia; Irene Martin-Morato, Tampere University, Finland; Nikola Simić, University of Novi Sad, Serbia; Charitha Raghavaraju, Toni Heittola, Tampere University, Finland; Vuk Stanojev, Dragana Bajović, University of Novi Sad, Serbia

TU1.PA3.6: SRAD-CLF: SQUEAK AND RATTLE ANOMALY DETECTION VIA CONTRASTIVE LEARNING FRAMEWORK ON REAL INDUSTRIAL NOISE RECORDINGS 181

Zhaoyi Liu, Catholic University of Leuven (KU Leuven), Belgium; Álvaro López-Chilet, Universitat Politècnica de València (UPV), Spain; Dading Chong, Peking University, China; Sam Michiels, Catholic University of Leuven (KU Leuven), Belgium; Jon Ander Gómez, Universitat Politècnica de València (UPV), Spain; Friedrich Wolf-Monheim, David Newton, Ford Motor Company, Germany; Danny Hughes, Catholic University of Leuven (KU Leuven), Belgium

TU1.PA3.7: EXPLORING GREEN AI FOR AUDIO DEEPFAKE DETECTION..... 186

Subhajit Saha, Md Sahidullah, Swagatam Das, TCG Centres for Research and Education in Science and Technology, India

TU1.PA3.8: SYMBOLIC-DOMAIN MUSICAL INSTRUMENT CLASSIFICATION USING KNOWLEDGE DISTILLATION FROM AUDIO-TEACHER TO SYMBOLIC-STUDENT 191

Shun Sawada, Tokyo University of Science, Japan

TU1.PA3.9: DETECTION OF DEEPFAKE ENVIRONMENTAL AUDIO..... 196

Hafsa Ouajdi, Oussama Hadder, Centrale Nantes, France; Modan Tailleur, Mathieu Lagrange, LS2N, CNRS, Centrale Nantes, Nantes University, France; Laurie Heller, Carnegie Mellon University, United States

TU1.PA3.10: PROJECTED BELIEF NETWORKS WITH DISCRIMINATIVE ALIGNMENT FOR CLASSIFYING MARINE MAMMALS 201

Paul Baggenstoss, Fraunhofer, Germany

TH1.PA3: ANALYSIS AND SYNTHESIS OF SPEECH AND AUDIO

TH1.PA3.1: TARGETED AUGMENTED DATA FOR AUDIO DEEPFAKE DETECTION..... 346

Marcella Astrid, University of Luxembourg, Luxembourg; Enjie Ghorbel, Manouba University, Tunisia; Djamilia Aouada, University of Luxembourg, Luxembourg

TH1.PA3.2: LATENT CLAP LOSS FOR BETTER FOLEY SOUND SYNTHESIS	351
<i>Tornike Karchkhadze, University of California San Diego, United States; Hassan Salami Kavaki, The City University of New York, United States; Mohammad Rasool Izadi, Bryce Irvin, Mikolaj Kegler, Ari Hertz, Shuo Zhang, Marko Stamenovic, Bose Corporation, United States</i>	
TH1.PA3.3: ACCESSIBLE OBSTRUCTIVE SLEEP APNEA SCREENING USING CLASSICAL ACOUSTIC SPEECH REPRESENTATIONS	356
<i>Behrad TaghiBeyglou, University of Toronto, Canada; Alexander Chow, Toronto Rehabilitation Institute- University Health Network, Canada; Parker Mclaurin, Toronto General Hospital Research Institute- University Health Network, Canada; Ovisa Yasokaran, Rene Adams, Majida Mohammed, Toronto Rehabilitation Institute- University Health Network, Canada; Mandeep Singh, Toronto Western Hospital- University Health Network,, Canada; Najib Ayas, University of British Columbia, Canada; Sachin Pendharkar, University of Calgary, Canada; Fernanda Almeida, University of British Columbia, Canada; Valeria Rac, Toronto General Hospital Research Institute- University Health Network, Canada; Azadeh Yadollahi, Toronto Rehabilitation Institute- University Health Network, Canada</i>	
TH1.PA3.4: LECTURE VIDEO HIGHLIGHTS DETECTION FROM SPEECH	361
<i>Meishu Song, The University of Tokyo, Japan; Ilhan Aslan, Huawei Technologies, Germany; Emilia Parada-Cabaleiro, Johannes Kepler University, Austria; Zijiang Yang, Elisabeth André, University of Augsburg, Germany; Yamamoto Yoshiharu, The University of Tokyo, Japan; Björn Schuller, Imperial College London, United Kingdom</i>	
TH1.PA3.5: ON STRATEGIES TO EXPLOIT DEPENDENCIES BETWEEN SINGING VOICE ALIGNMENT AND SEPARATION	366
<i>Théo Nguyen, Yann TEYTAUT, Axel ROEBEL, IRCAM, France</i>	
TH1.PA3.6: ANALYSIS OF RESPIRATORY HEALTH INDICATORS IN SPEECH-BREATHING-PATTERNS	371
<i>Gauri Deshpande, TCS Research, University of Augsburg Germany, India; Bjorn Schuller, Imperial College London, Germany</i>	
TH1.PA3.7: HEART RATE FROM READ-SPEECH INFLUENCED BY PHYSICAL EXERCISE	376
<i>Harish Battula, Gauri Deshpande, Sachin Patel, TCS Research, India; Bjorn Schuller, Imperial College London, Germany</i>	
TH1.PA3.8: LEARNING TO ASSESS SUBJECTIVE IMPRESSIONS FROM SPEECH	381
<i>Yuto Kondo, Hirokazu Kameoka, Kou Tanaka, Takuhiro Kaneko, Noboru Harada, NTT Corporation, Japan</i>	
TH1.PA3.9: MEMORY EFFICIENT NEURAL SPEECH SYNTHESIS BASED ON FASTSPEECH2 USING ATTENTION FREE TRANSFORMER	386
<i>Eirini Sisamaki, Vassilis Tsiaras, Yannis Stylianou, University of Crete, Greece</i>	
TH1.PA3.10: LNACONT: LANGUAGE-NORMALIZED AFFINE COUPLING LAYER WITH CONTRASTIVE LEARNING FOR CROSS-LINGUAL MULTI-SPEAKER TEXT-TO-SPEECH	391
<i>Sungwoong Hwang, Changhwan Kim, HYUNDAI MOTOR COMPANY, Korea (South)</i>	

WE3.AUD: DETECTION AND CLASSIFICATION FOR AUDIO AND SPEECH II

WE3.AUD.1: IMPACT OF SPEECH MODE IN AUTOMATIC PATHOLOGICAL SPEECH DETECTION	81
<i>Shakeel Ahmad Sheikh, Ina Kodrasi, Signal Processing for Communication Group, Idiap Research Institute, Martigny, Switzerland, Switzerland</i>	
WE3.AUD.2: TEST-TIME ADAPTATION FOR AUTOMATIC PATHOLOGICAL SPEECH DETECTION IN NOISY ENVIRONMENTS	86
<i>Mahdi Amiri, Ina Kodrasi, Idiap Research Institute, Switzerland</i>	
WE3.AUD.3: DISTRIBUTED COLLABORATIVE ANOMALOUS SOUND DETECTION BY EMBEDDING SHARING	91
<i>Kota Dohi, Yohei Kawaguchi, Hitachi Ltd., Japan</i>	

WE3.AUD.4: ONLINE DOMAIN-INCREMENTAL LEARNING APPROACH TO CLASSIFY ACOUSTIC SCENES IN ALL LOCATIONS	96
<i>Manjunath Mulimani, Annamaria Mesaros, Tampere University, Finland</i>	
WE3.AUD.5: A SEQUENTIAL AUDIO SPECTROGRAM TRANSFORMER FOR REAL-TIME SOUND EVENT DETECTION	101
<i>Takezo Ohta, University of Tsukuba, Japan; Yoshiaki Bando, National Institute of Advanced Industrial Science and Technology, Japan; Keisuke Imoto, Doshisha University, National Institute of Advanced Industrial Science and Technology, Japan; Masaki Onishi, National Institute of Advanced Industrial Science and Technology, Japan</i>	
WE2.PA2: MACHINE LEARNING FOR AUDIO AND ACOUSTICS	
WE2.PA2.1: DIVERSITY-BASED SAMPLING FOR IMBALANCED DOMAIN ADAPTATION	296
<i>Andrea Napoli, Paul White, University of Southampton, United Kingdom</i>	
WE2.PA2.2: POST-TRAINING LATENT DIMENSION REDUCTION IN NEURAL AUDIO CODING	301
<i>Thomas Muller, Stéphane Ragot, Pierrick Philippe, Orange Innovation, France; Pascal Scalart, IRISA - University of Rennes, France</i>	
WE2.PA2.3: IMPROVING SPEECH INVERSION THROUGH SELF-SUPERVISED EMBEDDINGS AND ENHANCED TRACT VARIABLES	306
<i>Ahmed Adel Attia, Yashish Siriwardena, Carol Espy-Wilson, University of Maryland, United States</i>	
WE2.PA2.4: USING RANDOM CODEBOOKS FOR AUDIO NEURAL AUTOENCODERS	311
<i>Benoît Giniès, Xiaoyu Bie, Olivier Fercoq, Gaël Richard, Télécom Paris, Institut Polytechnique de Paris, France; ,</i>	
WE2.PA2.5: INTERPRETING END-TO-END DEEP LEARNING MODELS FOR SPEECH SOURCE LOCALIZATION USING LAYER-WISE RELEVANCE PROPAGATION	316
<i>Luca Comanducci, Fabio Antonacci, Augusto Sarti, Politecnico di Milano, Italy</i>	
WE2.PA2.6: FUSING AUDIO AND METADATA EMBEDDINGS IMPROVES LANGUAGE-BASED AUDIO RETRIEVAL	321
<i>Paul Primus, Gerhard Widmer, Johannes Kepler University, Austria</i>	
WE2.PA2.7: WEIGHT LIGHT, HEAR RIGHT: HEART SOUND CLASSIFICATION WITH A LOW-COMPLEXITY MODEL	326
<i>Jiahao Ji, Lixian Zhu, Haojie Zhang, Kun Qian, Beijing Institute of Technology, China; Kele Xu, National University of Defense Technology, China; Zikai Song, Bin Hu, Beijing Institute of Technology, China; Björn W. Schuller, Technical University of Munich, Germany; Yoshiharu Yamamoto, The University of Tokyo, Japan</i>	
WE2.PA2.8: AUDIO-BASED STEP-COUNT ESTIMATION FOR RUNNING – WINDOWING AND NEURAL NETWORK BASELINES	331
<i>Philipp Wagner, Andreas Triantafyllopoulos, Alexander Gebhard, Björn Schuller, Technical University of Munich, Germany</i>	
WE2.PA2.9: TOWARDS GREEN AI : ASSESSING THE ROBUSTNESS OF CONFORMER AND TRANSFORMER MODELS UNDER COMPRESSION	336
<i>Leila Ben Letaïfa, LINEACT - CESI, France; Jean-Luc Rouas, LaBRI, France</i>	
WE2.PA2.10: DEEP DIGITAL JOINT SOURCE-CHANNEL BASED WIRELESS SPEECH TRANSMISSION	341
<i>Mohammad Bokaei, Jesper Jensen, Aalborg university, Denmark; Simon Doclo, Oldenburg University, Germany; Jan Østergaard, Aalborg university, Denmark</i>	

TH2.SC4: MICROPHONE ARRAY PROCESSING

TH2.SC4.1: A VIDEO VISION TRANSFORMER FOR SOUND SOURCE LOCALIZATION..... 106

Haruto Yokota, Tokyo Institute of Technology, Japan; Mert Bozkurtlar, Tokyo Institute of Technology/Istanbul Technical University, Japan; Benjamin Yen, Tokyo Institute of Technology, Japan; Katsutoshi Itoyama, Tokyo Institute of Technology/Honda Research Institute Japan Co., Ltd., Japan; Kenji Nishida, Kazuhiro Nakadai, Tokyo Institute of Technology, Japan

TH2.SC4.2: MULTI-SOURCE LOCALIZATION AND DATA ASSOCIATION FOR 111 TIME-DIFFERENCE OF ARRIVAL MEASUREMENTS

Gabrielle Flood, Lund University, Sweden; Filip Elvander, Aalto University, Finland

TH2.SC4.3: SPATIAL ROOM IMPULSE RESPONSE IDENTIFICATION FROM ROTATING 116 EQUATORIAL MICROPHONE ARRAYS

Thomas Deppisch, Jens Ahrens, Chalmers University of Technology, Sweden; Sebastia V. Amengual Gari, Paul Calamia, Meta, United States

TH2.SC4.4: AUDIO SPOTFORMING USING NONNEGATIVE TENSOR FACTORIZATION 121 WITH ATTRACTOR-BASED REGULARIZATION

Shoma Ayano, National Institute of Technology, Kagawa College, Japan; Li Li, Shogo Seki, CyberAgent, Inc., Japan; Daichi Kitamura, National Institute of Technology, Kagawa College, Japan

TH2.SC4.5: COMPLEX-VALUED PHYSICS-INFORMED NEURAL NETWORK FOR 126 NEAR-FIELD ACOUSTIC HOLOGRAPHY

Xinmeng Luan, Marco Olivieri, Mirco Pezzoli, Fabio Antonacci, Augusto Sarti, Politecnico di Milano, Italy

TU2.PA3: ACOUSTIC NOISE REDUCTION AND CONTROL, ENHANCEMENT OF AUDIO AND SPEECH

TU2.PA3.1: FILTER SYNTHESIS FOR ROBUST FEEDBACK ACTIVE NOISE CONTROL 206 USING NON-UNIFORMLY DISCRETIZED FOURIER SPECTRA

Willem Alexander Klatt, Ruhr-Universität Bochum, Germany; Michael Bürger, WS Audiology, Germany; Rainer Martin, Ruhr-Universität Bochum, Germany; Henning Puder, Technische Universität Darmstadt, Germany

TU2.PA3.2: FREQUENCY-DOMAIN FEEDBACK ACTIVE NOISE CONTROL USING 211 WEIGHTED LMS ALGORITHM

Ryota Noguchi, Yosuke Sugiyura, Tetsuya Shimamura, Saitama university, Japan

TU2.PA3.3: SPLINE ADAPTIVE EXPONENTIAL FUNCTIONAL LINK FILTER FOR 216 NONLINEAR ACOUSTIC ECHO CANCELLATION

Alireza Nezamdoust, Sapienza University of Rome and Johannes Kepler University of Linz, Italy; Michele Scarpiniti, Aurelio Uncini, Danilo Comminiello, Sapienza University of Rome, Italy

TU2.PA3.4: ATTENTION-BASED DUAL STREAM INTERACTIVE NETWORK FOR NONLINEAR 221 RESIDUAL ECHO SUPPRESSION

Kai Xie, Ziyi Yang, Jie Chen, Northwestern Polytechnical University, China; Junjie Li, China Coal Shaanxi Energy & Chemical Group Co.,Ltd., China

TU2.PA3.5: NORMALIZED MULTICHANNEL FREQUENCY-DOMAIN LMS FILTER WITH 226 NEAREST KRONECKER PRODUCT DECOMPOSITION FOR BLIND IDENTIFICATION OF LOW-RANK ACOUSTIC SYSTEMS

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

TU2.PA3.6: SINGLE-CHANNEL SPEECH RESTORATION USING DEEP SPEECH FEATURES 231 RECONSTRUCTION

Amos Schreibman, Elinor Hadad, Boris Rubenchik, Moshe Tzur, Eli Tzirkel-Hancock, General Motors Ltd, Israel

TU2.PA3.7: ESTIMATION OF OUTPUT SI-SDR SOLELY FROM ENHANCED SPEECH SIGNALS IN DIFFUSION-BASED GENERATIVE SPEECH ENHANCEMENT METHOD	236
<i>Satoru Emura, Kyoto university of advanced science, Japan</i>	
TU2.PA3.8: REFERENCE CHANNEL SELECTION BY MULTI-CHANNEL MASKING FOR END-TO-END MULTI-CHANNEL SPEECH ENHANCEMENT	241
<i>Wang Dai, Tampere University, Finland; Xiaofei Li, Westlake University & Westlake Institute for Advanced Study, China; Archontis Politis, Tuomas Virtanen, Tampere University, Finland</i>	
 WE1.PA3: MICROPHONE ARRAY PROCESSING AND SPATIAL AUDIO	
WE1.PA3.1: CONSTANT DIRECTIVITY LOUDSPEAKER BEAMFORMING	246
<i>Yuancheng Luo, Amazon Inc., United States</i>	
WE1.PA3.2: MICROPHONE PAIR SELECTION FOR SOUND SOURCE LOCALIZATION IN MASSIVE ARRAYS OF SPATIALLY DISTRIBUTED MICROPHONES	251
<i>Bilgesu Çakmak, Thomas Dietzen, Katholieke Universiteit Leuven (KU Leuven), Belgium; Randall Ali, University of Surrey, United Kingdom; Patrick Naylor, Imperial College London, United Kingdom; Toon van Waterschoot, Katholieke Universiteit Leuven (KU Leuven), Belgium</i>	
WE1.PA3.3: UNSUPERVISED TRAINING OF NEURAL NETWORK-BASED VIRTUAL MICROPHONE ESTIMATOR	256
<i>Jiachen Wang, Tomoki Toda, Nagoya University, Japan</i>	
WE1.PA3.4: TEXT-QUERIED TARGET SOUND EVENT LOCALIZATION	261
<i>Jinzheng Zhao, University of Surrey, United Kingdom; Xinyuan Qian, University of Science and Technology Beijing, China; Yong Xu, Tencent AI Lab, United States; Haohe Liu, University of Surrey, United Kingdom; Yin Cao, Xi'an Jiaotong Liverpool University, China; Davide Berghi, Wenwu Wang, University of Surrey, United Kingdom</i>	
WE1.PA3.5: SOUND-INTENSITY-BASED DIRECTION OF ARRIVAL ESTIMATION USING CENTRO-SYMMETRIC SENSOR ARRAYS	266
<i>Tommaso Gambini, Davide Albertini, Alberto Bernardini, Politecnico Di Milano, Italy</i>	
WE1.PA3.6: A PROCESS FOR CALIBRATING HRTFS BASED ON DIFFERENTIABLE IMPLICIT REPRESENTATIONS AND DOMAIN ADVERSARIAL LEARNING	271
<i>Thiago Lobato, Roland Sottek, HEAD acoustics GmbH, Germany</i>	
WE1.PA3.7: ROOM IMPULSE RESPONSE ESTIMATION USING OPTIMAL TRANSPORT: SIMULATION-INFORMED INFERENCE	276
<i>David Sundström, Lund University, Sweden; Anton Björkman, Aalto University, Finland; Andreas Jakobsson, Lund University, Sweden; Filip Elvander, Aalto University, Finland</i>	
WE1.PA3.8: SPEECH DENOISING IN MULTI-NOISE SOURCE ENVIRONMENTS USING MULTIPLE MICROPHONE DEVICES VIA RELATIVE TRANSFER MATRIX	281
<i>Manish Kumar, Lachlan Birnie, Thushara Abhayapala, Sandra Arcos Holzinger, Amy Bastine, Daniel Grixti-Cheng, Prasanga Samarasinghe, The Australian National University, Australia</i>	
WE1.PA3.9: SOUND EVENT DETECTION AND LOCALIZATION WITH DISTANCE ESTIMATION	286
<i>Daniel Krause, Archontis Politis, Annamaria Mesaros, Tampere University, Finland</i>	
WE1.PA3.10: ROBUST SIGNAL AND NOISE COVARIANCE MATRIX ESTIMATION USING RIEMANNIAN OPTIMIZATION	291
<i>Jesper Brunnström, Marc Moonen, KU Leuven, Belgium; Filip Elvander, Aalto University, Finland</i>	

TU2.AUD: ENHANCEMENT AND SEPARATION OF AUDIO AND SPEECH

TU2.AUD.1: UNIVERSAL SOUND SEPARATION WITH SELF-SUPERVISED AUDIO MASKED AUTOENCODER1

Junqi Zhao, Xubo Liu, Jinzheng Zhao, Yi Yuan, University of Surrey, United Kingdom; Qiuqiang Kong, The Chinese University of Hong Kong, China; Mark Plumbley, Wenwu Wang, University of Surrey, United Kingdom

TU2.AUD.2: MCRTSE: MULTI-CHANNEL REVERBERANT TARGET SOUND EXTRACTION6

Shrishail Baligar, Shawn Newsam, University of California, Merced, United States

TU2.AUD.3: CASCADED NOISE REDUCTION AND ACOUSTIC ECHO CANCELLATION BASED ON AN EXTENDED NOISE REDUCTION11

Arnout Roebben, Toon van Waterschoot, Marc Moonen, KU Leuven, Belgium

TU2.AUD.4: SPECTRUM-AWARE NEURAL VOCODER BASED ON SELF-SUPERVISED LEARNING FOR SPEECH ENHANCEMENT16

Yanjue Song, Ghent University - imec, Belgium; Doyeon Kim, Hong-Goo Kang, Yonsei University, Korea (South); Nilesch Madhu, Ghent University - imec, Belgium

TU2.AUD.5: HALLUCINATION IN PERCEPTUAL METRIC-DRIVEN SPEECH ENHANCEMENT NETWORKS21

George Close, Thomas Hain, Stefan Goetze, University of Sheffield, United Kingdom

TU3.SC4: MUSIC INFORMATION RETRIEVAL, ANALYSIS AND PROCESSING

TU3.SC4.1: TOWARDS ROBUST LOCAL KEY ESTIMATION WITH A MUSICALLY INSPIRED NEURAL NETWORK26

Yiwei Ding, Georgia Institute of Technology, United States; Christof Weiß, University of Würzburg, Germany

TU3.SC4.2: AUTOMATIC LIVE MUSIC SONG IDENTIFICATION USING MULTI-LEVEL DEEP SEQUENCE SIMILARITY LEARNING31

Aapo Hakala, Tampere University, Finland; Trevor Kincy, Utopia Music, Switzerland; Tuomas Virtanen, Tampere University, Finland

TU3.SC4.3: MOBILE-AMT: REAL-TIME POLYPHONIC PIANO TRANSCRIPTION FOR IN-THE-WILD RECORDINGS36

Yuta Kusaka, Akira Maezawa, Yamaha Corporation, Japan

TU3.SC4.4: ON THE ROBUSTNESS OF MUSICAL TIMBRE PERCEPTION MODELS: FROM PERCEPTUAL TO LEARNED APPROACHES41

Barbara Pascal, Mathieu Lagrange, Nantes Université, École Centrale Nantes, CNRS, LS2N, UMR 6004, F-44000 Nantes, France, France

TU3.SC4.5: SELF-SUPERVISED MEAN OPINION SCORE PREDICTION OF PHASE-VOCODER-BASED VIRTUAL BASS SYSTEM46

Jiacheng Gou, University of Electronic Science and Technology of China, China; Yuheng Song, Hong Kong Polytechnic University, China; Chuang Shi, University of Southampton, United Kingdom; Huiyong Li, University of Electronic Science and Technology of China, China

FR1.PA2: ENHANCEMENT, SEPARATION AND RECONSTRUCTION OF AUDIO AND SPEECH

FR1.PA2.1: RAY-SPACE CONSTRAINED MULTICHANNEL NONNEGATIVE MATRIX FACTORIZATION FOR AUDIO SOURCE SEPARATION396

Antonio Jesús Muñoz-Montoro, Universidad de Jaén, Spain; Marco Olivieri, Mirco Pezzoli, Politecnico di Milano, Italy; Julio José Carabias-Orti, Universidad de Jaén, Spain; Fabio Antonacci, Augusto Sarti, Politecnico di Milano, Italy

FR1.PA2.2: CATSE: A CONTEXT-AWARE FRAMEWORK FOR CAUSAL TARGET SOUND EXTRACTION	401
<i>Shrishail Baligar, University of California, Merced, United States; Mikolaj Kegler, Bryce Irvin, Marko Stamenovic, Bose Corporation, USA, United States; Shawn Newsam, University of California, Merced, United States</i>	
FR1.PA2.3: NEURAL NETWORK-BASED SPEECH RECONSTRUCTION FROM UNDERSAMPLED STFT MAGNITUDE DATA	406
<i>Wojciech Czaja, Canran Ji, Shashank Sule, Matthias Wellershoff, University of Maryland, College Park, United States</i>	
FR1.PA2.4: PRE-TRAINING MUSIC CLASSIFICATION MODELS VIA MUSIC SOURCE SEPARATION	411
<i>Christos Garoufis, Athanasia Zlatintsi, Athena Research Center, Greece; Petros Maragos, National Technical University of Athens, Greece</i>	
FR1.PA2.5: DEEPMOS-B: DEEP POSTERIOR MEAN-OPINION-SCORE USING BETA DISTRIBUTION	416
<i>Xinyu Liang, KTH Royal Institute of Technology, Sweden; Fredrik Cumlin, Codemill AB, Sweden; Victor Ungureanu, Chandan K. A. Reddy, Christian Schuldt, Google LLC, Switzerland; Saikat Chatterjee, KTH Royal Institute of Technology, Sweden</i>	
FR1.PA2.6: USING SPEECH FOUNDATIONAL MODELS IN LOSS FUNCTIONS FOR HEARING AID SPEECH ENHANCEMENT	421
<i>Robert Sutherland, George Close, Thomas Hain, Stefan Goetze, Jon Barker, University of Sheffield, United Kingdom</i>	
FR1.PA2.7: BRIDGING THE GAP: INTEGRATING PRE-TRAINED SPEECH ENHANCEMENT AND RECOGNITION MODELS FOR ROBUST SPEECH RECOGNITION	426
<i>Kuan-Chen Wang, National Taiwan University, Taiwan; You-Jin Li, Wei-Lun Chen, Academia Sinica, Taiwan; Yu-Wen Chen, Columbia University, United States; Yi-Ching Wang, Chunghwa Telecom Co., Ltd., Taiwan; Ping-Cheng Yeh, National Taiwan University, Taiwan; Chao Zhang, Tsinghua University, China; Yu Tsao, Academia Sinica, Taiwan</i>	
FR1.PA2.8: ALIAS-FREE LEVEL CROSSING SAMPLING	431
<i>Negar Riazifar, Nigel G. Stocks, University of Warwick, United Kingdom</i>	
FR1.PA2.9: SPEAKER AND STYLE DISENTANGLEMENT OF SPEECH BASED ON CONTRASTIVE PREDICTIVE CODING SUPPORTED FACTORIZED VARIATIONAL AUTOENCODER	436
<i>Yuying Xie, Aalborg University, Denmark; Michael Kuhlmann, Frederik Rautenberg, Paderborn University, Germany; Zheng-Hua Tan, Aalborg University, Denmark; Reinhold Haeb-Umbach, Paderborn University, Germany</i>	
FR1.PA2.10: ROOM TRANSFER FUNCTION RECONSTRUCTION USING COMPLEX-VALUED NEURAL NETWORKS AND IRREGULARLY DISTRIBUTED MICROPHONES	441
<i>Francesca Ronchini, Luca Comanducci, Mirco Pezzoli, Fabio Antonacci, Augusto Sarti, Politecnico di Milano, Italy</i>	
WE3.SC3: VISUAL INFORMATION PROCESSING	
WE3.SC3.1: EXPLORING AI-BASED ANONYMIZATION OF INDUSTRIAL IMAGE AND VIDEO DATA IN THE CONTEXT OF FEATURE PRESERVATION	471
<i>Sabrina C. Triess, Timo Leitritz, Christian Jauch, Fraunhofer IPA, Germany</i>	
WE3.SC3.2: FROM CNNs TO SHIFT-INVARIANT TWIN MODELS BASED ON COMPLEX WAVELETS	476
<i>Hubert Leterme, Ensicaen, France; Kévin Polisano, CNRS, France; Valérie Perrier, Grenoble INP - Université Grenoble Alpes, France; Karteek Alahari, Inria, France</i>	
WE3.SC3.3: EXPLORING ROBUST AND EXPLAINABLE DESIGN FOR FACIAL EXPRESSION-BASED EMOTIONAL STATE ESTIMATION IN CHILDREN WITH PROFOUND INTELLECTUAL MULTIPLE DISABILITIES	481
<i>Kota Mochida, Teppei Nakano, Waseda University, Japan; Shinya Fujie, Chiba Institute of Technology, Japan; Mari Wakabayashi, Tomomi Sato, Yokohama City University, Japan; Tetsuji Ogawa, Waseda University, Japan</i>	

WE3.SC3.4: AUTOMATED INVENTORY OF ELECTRICAL DISTRIBUTION ASSETS BASED ON IMAGE RECOGNITION AND GROUND LIDAR486

Philippe Massicotte, Louis-Alexandre Leclaire, Mohamed Gaha, Guillaume Houle, Hydro-Quebec Research Institute, Canada; Christian Buteau, Hydro-Quebec, Canada

TH2.SC1: NON CONVENTIONAL IMAGE/VIDEO PROCESSING AND APPLICATIONS

TH2.SC1.1: CHROMOSOME LOCALISATION AND SEGMENTATION IN FLUORESCENCE MICROSCOPY IMAGES491

Simon Schabat, Bruno Colicchio, Jean-Baptiste Courbot, Alain Dieterlen, Université de Haute-Alsace, France; Radhia MKacher, Cell-environment, France

TH2.SC1.2: MISMATCH CORRECTION FOR END-TO-END DESIGNED PHASE-ENCODED-BASED SPECTRAL IMAGING SYSTEM496

Sergio Urrea, Pablo Gomez, Karen Fonseca, Hans Garcia, Henry Arguello, Universidad Industrial de Santander, Colombia

TH2.SC1.3: LEARNING POINT SPREAD FUNCTION INVERTIBILITY ASSESSMENT FOR IMAGE DECONVOLUTION501

Romario Gualdron-Hurtado, Roman Jacome, Sergio Urrea, Henry Arguello, Universidad Industrial de Santander, Colombia; Luis Gonzalez, Universidad Industrial de Santande, Colombia

TH2.SC1.4: IMPROVING THERMAL FACIAL EMOTION RECOGNITION IN SUBJECT-INDEPENDENT SCENARIOS THROUGH MULTIGRAPH CONVOLUTIONAL NETWORKS506

Suparna Rooj, Patitapaban Palo, Rahul Mahadik, Aurobinda Routray, Manas K. Mandal, IIT Kharagpur, India

TH2.SC1.5: RGB-GUIDED SPECTRAL IMAGE GENERATION THROUGH GANS WITH IMPLICIT SPECTRAL LEARNING511

Emmanuel Martinez, Roman Jacome, Andrés Jerez, Henry Arguello, Universidad Industrial de Santander, Colombia

WE2.PA3: APPLICATIONS IN VISUAL INFORMATION PROCESSING

WE2.PA3.1: TEMPORAL ORIENTED RESNET FOR GAMING DIMENSIONAL EMOTION PREDICTION596

Meishu Song, The University of Tokyo, Japan; Xin Jing, University of Augsburg, Germany; Emilia Parada-Cabaleiro, Johannes Kepler University, Austria; Zijiang Yang, University of Augsburg, Germany; Yoshiharu Yamamoto, The University of Tokyo, Japan; Björn W. Schuller, Imperial College London, United Kingdom

WE2.PA3.2: IMAGING ON THE EDGE: GPU-ACCELERATED TRAVELTIME TOMOGRAPHY ON A JETSON NANO601

Ban-Sok Shin, Luis Wientgens, Dmitriy Shutin, German Aerospace Center, Germany

WE2.PA3.3: EDGE-BASED DENOISING IMAGE COMPRESSION606

Ryugo Morita, Hosei University, Japan; Hitoshi Nishimura, KDDI Research, Inc., Japan; Ko Watanabe, Andreas Dengel, DFKI GmbH, Germany; Jinjia Zhou, Hosei University, Japan

WE2.PA3.4: IMAGE ROBUSTNESS TO ADVERSARIAL ATTACKS ON NO-REFERENCE IMAGE-QUALITY METRICS611

Daniil Konstantynov, Moscow Institute of Physics and Technology, Cyprus; Sergey Lavrushkin, MSU Institute for Artificial Intelligence, ISP RAS Research Center for Trusted Artificial Intelligence, Russia; Dmitriy Vatolin, MSU Institute for Artificial Intelligence, ISP RAS Research Center for Trusted Artificial Intelligence, Lomonosov Moscow State University, Russia

WE2.PA3.5: INNOVATE SPATIAL-TEMPORAL ATTENTION NETWORK (STAN) FOR ACCURATE 3D MICE POSE ESTIMATION WITH A SINGLE MONOCULAR RGB CAMERA 616

Liyun Gong, Miao Yu, Gautam Kashyap, Sheldon Mccall, Mamatha Thota, Saeid Ardakani, University of Lincoln, United Kingdom

WE2.PA3.6: ON THE USE OF SPATIAL AND SPECTRAL REDUNDANCY TO SPEED-UP 621	BRILLOUIN MICRO-IMAGING
<i>Léo Brechet, Valentin Gilet, Loumaigne Matthieu, Université d'Angers, France; Nizar Bouhlef, Institut Agro Rennes-Angers, France; Mabilieu Guillaume, Rousseau David, Université d'Angers, France</i>	
WE2.PA3.7: UNIVERSAL END-TO-END NEURAL NETWORK FOR LOSSY IMAGE 626	COMPRESSION
<i>Bouazid AREZKI, Anissa Mokraoui, Fangchen Feng, L2TI, Université Sorbonne Paris Nord, France</i>	
WE2.PA3.8: OPTIMIZING WIND TURBINE SURFACE DEFECT DETECTION: A ROTATED 631	BOUNDING BOX APPROACH
<i>Imad Gohar, Abderrahim Halimi, Weng Kean Yew, John See, Heriot-Watt University, Malaysia</i>	
WE2.PA3.9: SCORING SYNCHRONIZATION BETWEEN MUSIC AND MOTION: LOCAL VS 636	GLOBAL APPROACHES
<i>Hamza BAYD, Patrice GUYOT, Benoit BARDY, Pierre SLANGEN, EuroMov Digital Health in Motion, Univ. Montpellier, IMT Mines Ales, France</i>	
WE2.PA3.10: ROADSIDE OBJECT GEOLOCATION FROM STREET-LEVEL IMAGES WITH 641	REDUCED SUPERVISION
<i>Waqar Ahmad, Vladimir A. Krylov, Dublin City University, Ireland</i>	
TU3.SC2: IMAGE ENHANCEMENT AND FEATURE EXTRACTION	
TU3.SC2.1: DIFFUSION-BASED IMAGE INPAINTING WITH INTERNAL LEARNING 446	
<i>Nicolas Cherel, Télécom Paris, France; Andrés Almansa, Université de Paris Cité, France; Yann Gousseau, Télécom Paris, France; Alasdair Newson, Sorbonne Université, France</i>	
TU3.SC2.2: SPARSE FEATURES FOR MULTI-EXPOSURE FUSION 451	
<i>Zeynep Ovgu Yayci, Mehmet Turkan, Izmir University of Economics, Turkey</i>	
TU3.SC2.3: EDGE-GUIDED LOW-LIGHT IMAGE ENHANCEMENT BASED ON GAN WITH 456	EFFECTIVE MODULES
<i>Takuro Matsui, Masaaki Ikehara, Keio University, Japan</i>	
TU3.SC2.4: PATTERN-INVARIANT UNROLLING FOR ROBUST DEMOSAICKING 461	
<i>Matthieu Muller, Daniele Picone, Mauro Dalla Mura, Univ. Grenoble Alpes, CNRS, Grenoble INP, France; Magnus O. Ulfarsson, University of Iceland, Iceland</i>	
TU3.SC2.5: TEXTURE CLASSIFICATION USING FEATURES FROM MULTI-LEVEL LOCAL 466	BINARY PATTERNS
<i>André Backes, Universidade Federal de São Carlos, Brazil</i>	
TH3.AUD: MULTIMEDIA CODING, DISTRIBUTION AND SECURITY	
TH3.AUD.1: FAST DEPENDENT QUANTIZATION USING TRELLIS PRUNING, FORWARD 516	CONTEXT ADAPTATION AND VECTORIZATION
<i>Adam Wieckowski, Christian Stoffers, Heiko Schwarz, Benjamin Bross, Detlev Marpe, Fraunhofer HHI, Germany</i>	
TH3.AUD.2: MOTION-VECTOR-DRIVEN LIGHTWEIGHT ROI TRACKING FOR REAL-TIME 521	SALIENCY-GUIDED VIDEO ENCODING
<i>Tero Partanen, Miika Kotjärvi, Alexandre Mercat, Jarno Vanne, Tampere University, Finland</i>	
TH3.AUD.3: CONTENT-AWARE REFERENCE FRAME SYNTHESIS FOR ENHANCED INTER 526	PREDICTION
<i>Mohammad Ghasempour, Yiyang Wei, Hadi Amirpour, Christian Timmerer, Christian Doppler Laboratory ATHENA, University of Klagenfurt, Austria</i>	

TH3.AUD.4: IMPACT OF POINT CLOUD NORMALS COMPRESSION ON OBJECTIVE QUALITY ASSESSMENT	531
<i>Amar Tious, Toinon Vigier, Vincent Ricordel, Nantes Université, France</i>	
TH3.AUD.5: GENERATION OF COLORED SUBTITLE IMAGES BASED ON EMOTIONAL INFORMATION OF SPEECH UTTERANCES	536
<i>Ryoichi Takashima, Fumiya Nakamura, Kobe University, Japan; Ryo Aihara, Mitsubishi Electric Corporation, Japan; Tetsuya Takiguchi, Kobe University, Japan; Yusuke Itani, Mitsubishi Electric Corporation, Japan</i>	
FR1.PA3: VISUAL INFORMATION PROCESSING	
FR1.PA3.1: BAYESIAN DEEP UNFOLDING WITH GRAPH ATTENTION FOR DUAL-PEAK SINGLE-PHOTON LIDAR IMAGING	646
<i>JaKeoung Koo, Gachon University, Korea (South); Abderrahim Halimi, Stephen McLaughlin, Heriot-Watt University, United Kingdom</i>	
FR1.PA3.2: INSAR2INSAR: A SELF-SUPERVISED METHOD FOR INSAR PARAMETERS ESTIMATION	651
<i>Carla Geara, Télécom Paris, ONERA, Kanop (RAIL SAS), France; Colette Gelas, Louis De Vitry, Kanop (RAIL SAS), France; Elise Colin, ONERA, France; Florence Tupin, Télécom Paris, France</i>	
FR1.PA3.3: DEEP UNROLLING OF THE MULTIPLICATIVE UPDATES ALGORITHM FOR BLIND SOURCE SEPARATION, WITH APPLICATION TO HYPERSPECTRAL UNMIXING.	656
<i>Christophe Kervazo, Abdelkhalak Chetoui, LTCI, Télécom Paris, France; Jérémy E. Cohen, Univ Lyon, INSA-Lyon, UCBL, UJM, CNRS, Inserm, France</i>	
FR1.PA3.4: JOINT RECONSTRUCTION AND SPECTRAL UNMIXING FROM SINGLE-PIXEL ACQUISITIONS	661
<i>Séréna Hariga, Jérémy Cohen, Nicolas Ducros, Centre de Recherche en Acquisition et Traitement de l'Image pour la Santé, France</i>	
FR1.PA3.5: A VARIATIONAL APPROACH FOR ROBUST ONLINE FUSION OF MULTIREOLUTION MULTISPECTRAL IMAGES	666
<i>Haoqing Li, University of Calgary, Canada; Ricardo Borsoi, University of Lorraine, CNRS, France; Tales Imbiriba, Pau Closas, Northeastern University, United States</i>	
FR1.PA3.6: MULTI-MODAL IMAGE SUPER-RESOLUTION VIA DEEP CONVOLUTIONAL TRANSFORM LEARNING	671
<i>Kriti Kumar, Indraprastha Institute of Information Technology and TCS Research, India; Angshul Majumdar, Indraprastha Institute of Information Technology, India; A. Anil Kumar, M. Girish Chandra, TCS Research, India</i>	
FR1.PA3.7: UNTRAINED COMPACT NEURAL NETWORK PRIOR FOR HIGH-DIMENSION MULTISPECTRAL AND HYPERSPECTRAL DATA FUSION WITH SPECTRALLY VARYING BLURS	676
<i>Dan Pineau, Université Paris Saclay, France; François Orieux, Laboratoire des Signaux et Systèmes, France; Alain Abergel, Institut d'Astrophysique Spatiale, France</i>	
FR1.PA3.8: VIDEO ENCODING ENHANCEMENT VIA CONTENT-AWARE SPATIAL AND TEMPORAL SUPER-RESOLUTION	681
<i>Yiying Wei, Hadi Amirpour, University of Klagenfurt, Austria; Ahmed Telili, Wassim Hamidouche, University of Rennes, France; Guo Lu, Shanghai Jiao Tong University, China; Christian Timmerer, University of Klagenfurt, Austria</i>	
WE1.PA1: FEATURE EXTRACTION IN VISUAL INFORMATION PROCESSING	
WE1.PA1.1: IRANIAN WHEAT VARIETIES CLASSIFICATION BY USING A FUSION OF TEXTURE FEATURES	541
<i>André Backes, Federal University of São Carlos, Brazil; Mostafa Khojastehnazhand, University of Bonab, Iran</i>	

WE1.PA1.2: 2D TEAGER-KAISER ANALYSIS ON GAUSSIAN NOISE	546
<i>El Hadji Diop, University Iba Der Thiam, Senegal; Abdel Boudraa, French Naval Academy IRENav, France; Ndeye Gueye, University Iba Der Thiam, Senegal</i>	
WE1.PA1.3: MORESO: A DNN FRAMEWORK EXPEDITING CONTENT-BASED VIDEO IMAGE RETRIEVAL (CBVIR)	551
<i>Sinian Li, Doruk Barokas Profeta, Justin Dauwels, Delft University of Technology, Netherlands</i>	
WE1.PA1.4: TWO-DIMENSIONAL COLOR DISTRIBUTION ENTROPY: VALIDATION AND APPLICATION ON NON-CONTACT FAULT DIAGNOSIS FOR INDUCTION MOTOR	556
<i>Shun Wang, Yolanda Vidal, Francesc Pozo, Universitat Politècnica de Catalunya, Spain</i>	
WE1.PA1.5: OBJECT-AWARE ANCHOR-FREE VIDEO OBJECT TRACKING USING ATTENTION MECHANISM AND TARGET DYNAMICS	561
<i>Rahil Mahdian Toroghi, Ali Abbasi Boroujeni, Hassan Zareian, Iran Broadcasting University (IRIBU), Iran</i>	
WE1.PA1.6: EFFICIENT BINARY SEGMENTATION THROUGH DENSE NEURAL NETWORKS IN A TRUNCATED FREQUENCY DOMAIN	566
<i>Nils DEFAUW, Marielle MALFANTE, Olivier ANTONI, Tiana RAKOTOVAO, Univ. Grenoble Alpes, CEA, List, France; Suzanne LESECQ, Univ. Grenoble Alpes, CEA, Leti, France</i>	
WE1.PA1.7: COMPARATIVE STUDY OF TRANSFORMER ROBUSTNESS FOR MULTIPLE PARTICLE TRACKING WITHOUT CLUTTER	571
<i>Piyush Mishra, Philippe Roudot, Aix Marseille Univ, CNRS, Centrale Med, I2M, Institut Fresnel, Turing Centre for Living systems, France</i>	
WE1.PA1.8: FORGETTING ANALYSIS BY MODULE PROBING FOR ONLINE OBJECT DETECTION WITH FASTER R-CNN	576
<i>Baptiste Wagner, Denis Pellerin, Sylvain Huet, Univ. Grenoble Alpes, CNRS, Grenoble INP, GIPSA-lab, France</i>	
WE1.PA1.9: ON THE USABILITY OF STRUCTURAL SIMILARITY FOR ACTION UNIT INTENSITY DETECTION	581
<i>Gökhan Güney, Maurice Rohr, Sebastian Dill, Christoph Hoog Antink, Technical University of Darmstadt, Germany</i>	
WE1.PA1.10: AN IMAGE SEGMENTATION MODEL WITH TRANSFORMED TOTAL VARIATION....	586
<i>Elisha Dayag, Kevin Bui, University of California, Irvine, United States; Fredrick Park, Whittier College, United States; Jack Xin, University of California, Irvine, United States</i>	
WE1.PA1.11: INCREMENTAL IMAGE DECOLORIZATION WITH RANDOMIZING FACTORS.....	591
<i>Andrzej SLUZEK, Warsaw University of Life Sciences-SGGW, Poland</i>	
WE3.PA2: SIGNAL PROCESSING: DESIGN & IMPLEMENTATION ; OTHER TOPICS	
WE3.PA2.1: SEEING THE WORLD THROUGH AN ANTENNA'S EYE: RECEPTION QUALITY VISUALIZATION USING INCOMPLETE TECHNICAL SIGNAL INFORMATION	686
<i>Leif Bergerhoff, German Aerospace Center (DLR), Germany</i>	
WE3.PA2.2: RECOVERY OF AUTONOMOUS BALANCE AS INDICATOR OF NORMALIZING EFFECTS OF NON-INVASIVE VAGUS STIMULATION	691
<i>Yaroslav Gachshenko, Nickolai Vysokov, Dauren Toleukhanov, BrainPatch Ltd, Ireland; Ivan Brak, Cognitech Ltd, Kazakhstan; Gaukhar Datkhbayeva, Al-Farabi Kazakh National University, Kazakhstan; Sergii Tukaiev, National Taras Shevchenko University of Kyiv, Ukraine</i>	
WE3.PA2.3: DATA SELECTIVE NLMS OUTPERFORMS LSTM AND FUTURES FOR REGIONAL SOYBEAN PRICES FORECASTING	696
<i>Hamed Yazdanpanah, Ana Clara Teixeira, Vaishali Marar, Aline Pezente, Mohammad Mahdi Ghassemi, Traive Finance, Brazil</i>	

WE3.PA2.4: MULTICORE AND NETWORK TOPOLOGY CODESIGN FOR PARETO-OPTIMAL MULTINODE ARCHITECTURE	701
<i>Ophélie Renaud, Karol Desnos, Jean-François Nezan, Univ Rennes, INSA Rennes, CNRS, IETR - UMR 6164, France; Erwan Raffin, CEPP - Center for Excellence in Performance Programming, Eviden, France</i>	
WE3.PA2.5: IN-MEMORY BIT FLIPPING LDPC DECODING	706
<i>Oscar Ferraz, Gabriel Falcao, Vitor Silva, Instituto de Telecomunicacoes, Portugal</i>	
WE3.PA2.6: REDUCING AI COMPLEXITY USING EAR BIO-INSPIRED PRIMITIVES	711
<i>Adrien DEVERIN, Valentin GIES, Sebastian Marzetti, Hervé Glotin, Valentin Barchasz, LIS & IM2NP, France</i>	
WE3.PA2.7: FOREARM ELECTROMYOGRAM-BASED BIOMETRICS USING BAG-OF-WORDS CLASSIFIERS	716
<i>Irina Pavel, Iulian Ciocoiu, Technical University of Iasi, Romania</i>	
WE3.PA2.8: MATRICES FOR GENERATING ORTHOGONAL EIGENVECTOR BASES OF TRIGONOMETRIC NUMBER TRANSFORMS	721
<i>Jose de Oliveira Neto, Juliano Lima, Federal University of Pernambuco, Brazil</i>	
WE3.PA2.9: APPLICATION OF LOCAL SCALING EXPONENT PROFILE TO HEART RATE VARIABILITY ANALYSIS	726
<i>Yudai Fujimoto, Osaka University, Japan; Eiichi Watanabe, Fujita Health University, Japan; Junichiro Hayano, Heart Beat Science Lab, Inc., Japan; Ken Kiyono, Osaka University, Japan</i>	
WE2.SC1: BFORSEC - BIOMETRICS, INFORMATION FORENSICS AND SECURITY	
WE2.SC1.1: DETECTION OF THE ADOBE PATTERN	730
<i>Jan Butora, Patrick Bas, Centre National de la Recherche Scientifique, France</i>	
WE2.SC1.2: STATISTICAL PRIVACY MECHANISM DESIGN USING SEPARATION TECHNIQUE	735
<i>Amirreza Zamani, Tobias Oechtering, Mikael Skoglund, KTH Royal Institute of Technology, Sweden</i>	
WE2.SC1.3: COMPARATIVE ANALYSIS OF COPY DETECTION PATTERNS AND PHYSICAL UNCLONABLE FUNCTIONS IN AUTHENTICATION SYSTEMS: A MOBILE PHONE PERSPECTIVE	740
<i>Roman Chaban, Ethan Icet, Olga Taran, Slava Voloshynovskiy, University of Geneva, Switzerland</i>	
WE2.SC1.4: LOCAL APPROXIMATION OF SECRECY CAPACITY	745
<i>Emmanouil-Marios Athanasakos, Institut national de recherche en informatique et en automatique, France; Nicholas Kalouptsidis, National and Kapodistrian University of Athens, Greece; Hariprasad Manjunath, Institut national de recherche en informatique et en automatique, France</i>	
WE2.SC1.5: PHONETIC RICHNESS FOR IMPROVED AUTOMATIC SPEAKER VERIFICATION	750
<i>Nicholas Klein, Ganesh Sivaraman, Elie Khoury, Pindrop, United States</i>	
WE1.PA2: MATRICES OF FUNCTIONS: DIAGONALISATION AND APPLICATIONS	
WE1.PA2.1: RECONSTRUCTING ANALYTIC DINOSAURS: POLYNOMIAL EIGENVALUE DECOMPOSITION FOR EIGENVALUES WITH UNMAJORISED GROUND TRUTH	1287
<i>Sebastian J. Schlecht, Aalto University, Finland; Stephan Weiss, University of Strathclyde, United Kingdom</i>	
WE1.PA2.2: SOURCE DETECTION AND TRACKING FOR UNDERWATER DISTRIBUTED ACOUSTIC SENSING	1292
<i>Konstantinos Theofilos Drylerakis, University of Southampton, United Kingdom; Mohammad Belal, National Oceanography Centre, United Kingdom; Rafael Mestre, Timothy J. Norman, Christine Evers, University of Southampton, United Kingdom</i>	

WE1.PA2.3: EXTRACTION OF ANALYTIC SINGULAR VALUES OF A POLYNOMIAL MATRIX.....	1297
<i>Faizan A. Khattak, Mohammed Bakhit, Ian K. Proudler, Stephan Weiss, University of Strathclyde, United Kingdom</i>	
WE1.PA2.4: EXTRACTION OF THE NATURAL POLES OF THE RADIO SCATTERED FIELD FROM A MULTI-PORT CHANNEL MATRIX	1302
<i>Frank Ebong, Andrea Tonello, University of Klagenfurt, Austria</i>	
WE1.PA2.5: NEURAL NETWORKS FOR COMPUTING EIGENVALUES OF PARAHERMITIAN MATRICES	1307
<i>Diyari Hassan, Qaiwan International University, Iraq; Yunus Egi, Soydan Redif, American University of the Middle East, Kuwait</i>	
WE1.PA2.6: DETECTION OF WEAK TRANSIENT BROADBAND SIGNALS USING A POLYNOMIAL SUBSPACE AND LIKELIHOOD RATIO TEST APPROACH	1312
<i>Cornelius Pahalon, Louise Crockett, Stephan Weiss, University of Strathclyde, United Kingdom</i>	
WE1.PA2.7: SCALABLE EXTRACTION OF ANALYTIC EIGENVALUES FROM A PARAHERMITIAN MATRIX	1317
<i>Faizan Khattak, Ian Proudler, Stephan Weiss, University of Strathclyde, United Kingdom</i>	
 TH1.SC1: ADVANCES IN TENSOR THEORY AND THEIR APPLICATIONS	
TH1.SC1.1: HYBRID NETWORK COMPRESSION THROUGH TENSOR DECOMPOSITIONS AND PRUNING	1052
<i>Van Tien Pham, Yassine Zniyed, Thanh Phuong Nguyen, Université de Toulon, Aix Marseille Université, CNRS, LIS, UMR 7020, France</i>	
TH1.SC1.2: MINIMUM-VOLUME NON-NEGATIVE BLOCK-TERM DECOMPOSITION: BLIND DATA FUSION AND UNMIXING WITH ESTIMATION OF THE NUMBER OF ENDMEMBERS	1057
<i>Clémence Prévost, University of Lille, France; Valentin Leplat, Skoltech, Russia</i>	
TH1.SC1.3: THE PSEUDO JOINT EIGENVALUE DECOMPOSITION: DEFINITION, PROPERTIES AND APPLICATION TO THE CANONICAL POLYADIC DECOMPOSITION	1062
<i>Xavier Luciani, Laboratoire d'Informatique et Systèmes Université de Toulon, Aix Marseille Univ, CNRS, France; Rémi André, Aix Marseille Univ, CNRS, Centrale Med, Institut Fresnel, France</i>	
TH1.SC1.4: TENSOR TRAIN COMPLETION OF MULTI-WAY DATA OBSERVED ALONG ONE MODE	1067
<i>Shakir Showkat Sofi, Stijn Hendriks, Lieven De Lathauwer, KU Leuven, Belgium</i>	
TH1.SC1.5: ENHANCING CORNER DETECTION: LEVERAGING 3X3 STRUCTURE TENSOR COMBINED WITH HOURGLASS FILTER	1072
<i>Baptiste Magnier, Guillaume Demoor, IMT Mines Ales, France</i>	
TH1.SC1.6: MASSIVE UNSOURCED RANDOM ACCESS WITH TENSOR-BASED MODULATION AND MULTI-ANTENNA RECEIVER OVER FREQUENCY-SELECTIVE CHANNELS	1077
<i>Sofiane Kharbech, Alexis Decurninge, Huawei Technologies France, France</i>	
 TU1.SC2: REPRODUCIBILITY OF CLASSICAL APPROACHES FOR BRAIN IMAGING	
TU1.SC2.1: STANDARDIZING ACQUISITION & ANALYSIS IN PRECLINICAL FMRI.....	785
<i>Joanes Grandjean, Radboud university medical center, Netherlands</i>	

TU1.SC2.2: SPATIO-TEMPORAL MODEL FOR DYNAMIC FUNCTIONAL CONNECTIVITY IN RESTING STATE FMRI ANALYSIS	787
<i>Massyl Moudoud, Céline Meillier, Marion Sourty, Vincent Mazet, University of Strasbourg, France</i>	
TU1.SC2.3: DIRECT IMAGING OF NEURONAL ACTIVITY: A MULTIVARIATE PERSPECTIVE ON DIANA DATA IN HUMAN SUBJECTS	792
<i>Dimitri Van De Ville, Maria Giulia Preti, Ecole polytechnique fédérale de Lausanne, Switzerland</i>	
TU1.SC2.4: COMPARISONS OF NULL MODELS WITH TOPOLOGICAL DATA ANALYSIS	797
<i>Paul Sitoleux, Lucrezia Carboni, Hanâ Lbath, Univ. Grenoble Alpes, France; Sophie Achard, CNRS, Univ Grenoble Alpes, France</i>	
TU1.SC2.5: REPRODUCIBILITY AND REPLICABILITY IN NEUROIMAGING: CONSTRAINED IVA AS AN EFFECTIVE ASSESSMENT TOOL	802
<i>Francisco Laport Lopez, Adriana Dapena Janeiro, University of A Coruña, Spain; Trung Vu, Hanlu Yang, University of Maryland, Baltimore County, United States; Vince Calhoun, Georgia State University, United States; Tülay Adalı, University of Maryland, Baltimore County, United States</i>	
TU1.SC2.6: ON THE STABILITY OF REDUCED-RANK RIDGE REGRESSION	807
<i>David Degras, University of Massachussets, United States; Thomas Chapalain, Bertrand Thirion, inria, France</i>	
TU1.SC4: LOW-RESOLUTION SIGNAL PROCESSING FOR COMMUNICATION AND SENSOR NETWORKS	
TU1.SC4.1: CHANNEL-AWARE DIRECT LOCALIZATION USING ONE-BIT QUANTIZED MEASUREMENTS	842
<i>Guoxin Zhang, Yunfei Liang, Wei Yi, University of Electronic Science and Technology of China, China; Hien-Quoc Ngo, Michail Matthaiou, Queen's University Belfast, United Kingdom; Pramod Varshney, Syracuse University, United States</i>	
TU1.SC4.2: HARMONY SEARCH-BASED QUANTIZATION BIT ALLOCATION ON CELL-FREE MASSIVE MIMO SYSTEMS	847
<i>Minje Kim, Korea Advanced Institute of Science and Technology, Korea (South); In-soo Kim, Qualcomm Technologies Inc., United States; Junil Choi, Korea Advanced Institute of Science and Technology, Korea (South)</i>	
TU1.SC4.3: EQUIVARIANCE-BASED SELF-SUPERVISED LEARNING FOR AUDIO SIGNAL RECOVERY FROM CLIPPED MEASUREMENTS	852
<i>Victor Sechaud, CNRS, ENS de Lyon, France; Laurent Jacques, UCLouvain, France; Patrice Abry, Julián Tachella, CNRS, ENS de Lyon, France</i>	
TU1.SC4.4: MAXIMIZING ENERGY AND SPECTRAL EFFICIENCY TRADEOFF IN MIMO-RSMA SYSTEMS UNDER COARSE QUANTIZATION	857
<i>Seokjun Park, Jiwon Sung, Jinseok Choi, Korea Advanced Institute of Science and Technology (KAIST), Korea (South); Jeonghun Park, Yonsei University, Korea (South); Wonjae Shin, Korea University, Korea (South)</i>	
TU1.SC4.5: DEEP UNFOLDING-BASED CHANNEL ESTIMATION AND SOFT SYMBOL DECODING WITH LOW-RESOLUTION ADCS	862
<i>Sahil Katyal, Sameera Bharadwaja Hayavadana, Chandra R. Murthy, Indian Institute of Science, India</i>	
TU1.SC4.6: ED-FREEST: EVENT-DRIVEN FREQUENCY ESTIMATION	867
<i>Ruiming Guo, Ayush Bhandari, Imperial College London, United Kingdom</i>	
TU1.SC1: ADVANCES IN COMPUTATIONAL ULTRASOUND IMAGING	
TU1.SC1.1: SEQUENTIAL CNN-BASED ENHANCEMENT OF ULTRAFAST ULTRASOUND IMAGING FOR SPARSE ARRAYS	755
<i>Roser Viñals, Jean-Philippe Thiran, Signal Processing Laboratory 5, École Polytechnique Fédérale de Lausanne, Switzerland</i>	

TU1.SC1.2: ULTRASOUND IMAGING BASED ON THE VARIANCE OF A DIFFUSION RESTORATION MODEL	760
<i>Yuxin Zhang, École Centrale Nantes, France; Clément Huneau, Nantes Université, France; Jérôme Idier, Centre National de la Recherche Scientifique, France; Diana Mateus, École Centrale Nantes, France</i>	
TU1.SC1.3: AN OPTIMIZED MISMATCHED FILTER FOR CONTINUOUS EMISSION ULTRASOUND IMAGING	765
<i>Axel Adam, Adrian Basarab, Hervé Liebgott, Barbara Nicolas, Université Claude Bernard 1, France</i>	
TU1.SC1.4: OVERCOMING LABELED DATA BARRIERS IN DEEP ULTRASOUND IMAGING	770
<i>Ying-Chun Pan, Emelina Vienneau, Ryan Lefevre, Vanderbilt University, United States; Susan Eagle, Vanderbilt University Medical Center, United States; Brett Byram, Vanderbilt University, United States</i>	
TU1.SC1.5: COMPUTATIONAL ULTRASOUND IMAGING THROUGH AN ABERRATING LAYER USING DELAY-AND-SUM	775
<i>Francesca de Carlo, Fugro, Netherlands; Michael Brown, Erasmus MC, Netherlands; Geert Leus, Delft University of Technology, Netherlands; Pieter Kruizinga, Erasmus MC, Netherlands</i>	
TU1.SC1.6: ENHANCED LOCALIZATION IN ULTRAFAST ULTRASOUND IMAGING THROUGH SPATIO-TEMPORAL DEEP LEARNING	780
<i>Vassili Pustovalov, Duong-Hung Pham, Denis Kouamé, IRT Laboratory, France</i>	
TU3.PA2: SIGNAL ANALYSIS FOR BIODIVERSITY	
TU3.PA2.1: SIMULTANEOUS SPECIES CLASSIFICATION AND DISTANCE ESTIMATION FOR BIRD SOUNDS USING SINGLE-MICROPHONE RECORDINGS	1242
<i>Panu Somervuo, University of Helsinki, Finland</i>	
TU3.PA2.2: FEMALE MOSQUITO DETECTION BY MEANS OF AI TECHNIQUES INSIDE RELEASE CONTAINERS IN THE CONTEXT OF A STERILE INSECT TECHNIQUE PROGRAM	1247
<i>Javier Naranjo-Alcazar, Jordi Grau-Haro, Instituto Tecnológico de Informatica, Spain; David Almenar, Empresa de Transformacion Agraria S.A., S.M.E., M.P. (TRAGSA), Spain; Pedro Zuccarello, Instituto Tecnológico de Informatica, Spain</i>	
TU3.PA2.3: TOWARDS AUTOMATIC BUTTERFLY SPECIES RECOGNITION USING A SINGLE SPATIO-HYPERSPECTRAL IMAGE	1252
<i>Erick Adje, Gilles Delmaire, Université du Littoral Côte d'opale, France; Arnaud Ahouandjinou, Université d'Abomey Calavi, Benin; Matthieu Puigt, Gilles Roussel, Université du Littoral Côte d'opale, France</i>	
TU3.PA2.4: MIND THE DOMAIN GAP: A SYSTEMATIC ANALYSIS ON BIOACOUSTIC SOUND EVENT DETECTION	1257
<i>Jinhua Liang, Inês Nolasco, Queen Mary University of London, United Kingdom; Burooj Ghani, Naturalis Biodiversity Center, Netherlands; Huy Phan, Amazon AGI, United Kingdom; Emmanouil Benetos, Queen Mary University of London, United Kingdom; Dan Stowell, Naturalis Biodiversity Center, Netherlands</i>	
TU3.PA2.5: BIRD ACTIVITIES IN A RESIDENTIAL BACK GARDEN	1262
<i>Aki Härmä, Evgeny Nazarenko, Maastricht University, Netherlands</i>	
TU3.PA2.6: TOWARDS DOMAIN SHIFT IN LOCATION-MISMATCH SCENARIOS FOR BIRD ACTIVITY DETECTION	1267
<i>Amir Latifi Bidarouni, Jakob Abeßer, Fraunhofer-institut Für Digitale Medientechnologie Idmt, Germany</i>	
TU3.PA2.7: IMPROVING TAXONOMIC IMAGE-BASED OUT-OF-DISTRIBUTION DETECTION WITH DNA BARCODES	1272
<i>Mikko Impiö, Finnish Environment Institute, Finland; Jenni Raitoharju, University of Jyväskylä, Finland</i>	

TU3.PA2.8: AN AUTOMATIC ANALYSIS OF ULTRASOUND VOCALISATIONS FOR THE 1277
PREDICTION OF INTERACTION CONTEXT IN CAPTIVE EGYPTIAN FRUIT BATS
Andreas Triantafyllopoulos, Alexander Gebhard, Manuel Milling, Technical University of Munich, Germany; Simon Rapp, University of Augsburg, Germany; Björn Schuller, Technical University of Munich, Germany

TU3.PA2.9: MIXTURE OF MIXUPS FOR MULTI-LABEL CLASSIFICATION OF RARE ANURAN 1282
SOUNDS
Ilyass Moummad, Nicolas Farrugia, IMT Atlantique, France; Romain Serizel, University of Lorraine, France; Jeremy Froidevaux, CREA Mont-Blanc, France; Vincent Lostanlen, Ecole Centrale Nantes, France

WE2.SC4: SIGNAL PROCESSING FOR CONSUMER BEHAVIOR ANALYSIS

WE2.SC4.1: ASSESSING VIDEO ADVERTISING ENGAGEMENT VIA NONLINEAR957
INTERSUBJECT CORRELATION ANALYSIS OF EEG AND EYE TRACKING DYNAMICS
Kostas Georgiadis, Fotis P. Kalaganis, Centre for Research & Technology Hellas (CERTH), Greece; Nikos A. Laskaris, Aristotle University of Thessaloniki, Greece; Spiros Nikolopoulos, Ioannis Kompatsiaris, Centre for Research & Technology Hellas (CERTH), Greece

WE2.SC4.2: CONSUMER RESPONSE TO DIFFERENT DISCOUNT SALES PROMOTIONAL962
MESSAGES. AN EYE TRACKING AND EEG EXPERIMENT.
Ioanna Yfantidou, Liverpool John Moores University, United Kingdom; Georgios Tsourvakas, National and Kapodistrian University of Athens, Greece; Vangelis Oikonomou, Ioannis Kompatsiaris, Centre for Research & Technology Hellas, Greece

WE2.SC4.3: DECODING CONSUMER BEHAVIOR: A NEUROSCIENTIFIC EXPLORATION OF967
PERSONALITY TRAITS THROUGH EEG FUNCTIONAL CONNECTIVITY
Maria Kyrou, Fotis P Kalaganis, Kostas Georgiadis, Spiros Nikolopoulos, Centre for Research and Technology Hellas, Greece; Nikos A Laskaris, Aristotle University of Thessaloniki, Greece; Ioannis Kompatsiaris, Centre for Research and Technology Hellas, Greece

WE2.SC4.4: IMPLICIT TRAIN-FREE CALIBRATION FOR VIDEO-BASED EYE-TRACKING.....972
Vasileios Mygdalis, Nathalie Dens, University of Antwerp, Belgium

WE2.SC4.5: LIGHTWEIGHT HUMAN GESTURE RECOGNITION USING MULTIMODAL977
FEATURES
Anestis Christidis, Christos Papaioannidis, Ioannis Mademlis, Ioannis Pitas, Aristotle University of Thessaloniki, Greece

FR1.SC1: GEOMETRIES FOR SIGNAL PROCESSING AND MACHINE LEARNING

FR1.SC1.1: AVERAGING TRAJECTORIES ON THE MANIFOLD OF SYMMETRIC POSITIVE 1182
DEFINITE MATRICES
Thibault de Surrel, Florian Yger, LAMSADE, France; Sylvain Chevallier, LISN, France; Fabien Lotte, Inria, France

FR1.SC1.2: DISTRIBUTED DIFFUSION-BASED MANIFOLD PARTICLE FILTERS FOR 1187
ORIENTATION ESTIMATION
Claudio Bordin, Universidade Federal do ABC, Brazil; Marcelo Bruno, Instituto Tecnológico de Aeronáutica, Brazil

FR1.SC1.3: RECURRENT NEURAL NETWORKS MODELLING BASED ON RIEMANNIAN 1192
SYMMETRIC POSITIVE DEFINITE MANIFOLD
Léa Dubreil, TêSA/ISAE-SUPAERO, France; Samy Labsir, IPSA/TêSA, France; Etienne Rouanet-Labé, Thales Alenia Space, France; Gaël Pages, ISAE-SUPAERO, France

FR1.SC1.4: TOPOLOGICAL DATA ANALYSIS FOR UNSUPERVISED ANOMALY DETECTION 1197
IN TIME SERIES
Alexandre Bois, Brian Tervil, Laurent Oudre, ENS Paris Saclay, France

FR1.SC1.5: TEXTURE CLASSIFICATION USING RGGD STATISTICAL MODEL OF CNN 1202
FEATURE MAPS ENCODING

Zakariae Abbad, ENSIAS, Mohammed V University in Rabat, Morocco, Morocco; Ahmed Drissi El Maliani, FS, Mohammed V University in Rabat, Morocco, Morocco; Mohammed El Hassouni, FLSH, Mohammed V University in Rabat, Morocco, Morocco; Mohamed Tahar Kadaoui Abbassi, Laboratory of Mathematical Sciences and Applications, Faculty of Sciences Dhar El Mahraz, University Sidi Mohamed Ben Abdellah, Fez, Morocco, Morocco; Lionel Bombrun, Yannick Berthoumieu, Univ. Bordeaux, CNRS, Bordeaux INP, IMS, UMR 5218, F-33400 Talence, France, Morocco

FR1.SC1.6: DETERMINISTIC EQUIVALENT OF THE LOG-EUCLIDEAN DISTANCE 1207
BETWEEN SAMPLE COVARIANCE MATRICES

Xavier Mestre, Roberto Pereira, Centre Tecnològic de Telecomunicacions de Catalunya, Spain

TH3.SC1: TENSOR-BASED SIGNAL PROCESSING FOR WIRELESS COMMUNICATIONS AND SENSING

TH3.SC1.1: INTELLIGENT REFLECTING SURFACE-ASSISTED NLOS SENSING VIA 1137
TENSOR DECOMPOSITION

Jilin Wang, Jun Fang, University of Electronic Science and Technology of China, China; Hongbin Li, Stevens Institute of Technology, United States

TH3.SC1.2: BLOCK-TERM TENSOR DECOMPOSITION IN ARRAY SIGNAL PROCESSING: 1142
UNIFORM RECTANGULAR ARRAYS

Eleftherios Kofidis, University of Piraeus, Greece

TH3.SC1.3: SPATIAL SECTORIZED NEURAL NETWORK FOR 2-D DOA ESTIMATION IN THE 1147
FULL AZIMUTH

Feiyang Qian, Hang Zheng, Chengwei Zhou, Zhiguo Shi, Zhejiang University, China

TH3.SC1.4: A TENSOR MODEL FOR THE CALIBRATION OF AIR-COUPLED ULTRASONIC 1152
SENSOR ARRAYS

Raphael Müller, Gianni Allevato, Matthias Rutsch, Christoph Haugwitz, Mario Kupnik, Marius Pesavento, Technical University Darmstadt, Germany

TH3.SC1.5: DENOISING OF THE SPECKLE NOISE BY ROBUST LOW-RANK TENSOR 1157
DECOMPOSITION

Metin Calis, Borbála Hunyadi, Technical University of Delft, Netherlands

TH1.AUD: FROM DISTRIBUTED TO FEDERATED LEARNING OVER NETWORKS

TH1.AUD.1: PRIVACY-PRESERVING DISTRIBUTED NONNEGATIVE MATRIX 1022
FACTORIZATION

Ehsan Lari, Norwegian University of Science and Technology, Norway; Reza Arablouei, Commonwealth Scientific and Industrial Research Organisation, Australia; Stefan Werner, Norwegian University of Science and Technology, Norway

TH1.AUD.2: ANALYSIS OF TOTAL VARIATION MINIMIZATION FOR CLUSTERED 1027
FEDERATED LEARNING

Alexander Jung, Aalto University, Finland

TH1.AUD.3: ADAPTIVE SOCIAL LEARNING FOR TRACKING RARE TRANSITION MARKOV 1032
CHAINS

Malek Khammassi, Virginia Bordignon, EPFL, Switzerland; Vincenzo Matta, University of Salerno, Italy; Ali H. Sayed, EPFL, Switzerland

TH1.AUD.4: COMMUNICATION-EFFICIENT VERTICAL FEDERATED LEARNING VIA 1037
COMPRESSED ERROR FEEDBACK

Pedro Valdeira, Carnegie Mellon University & Universidade de Lisboa, Portugal; João Xavier, Universidade de Lisboa, Portugal; Cláudia Soares, Universidade Nova de Lisboa, Portugal; Yuejie Chi, Carnegie Mellon University, United States

TH1.AUD.5: ONLINE PARAMETER ESTIMATION OVER DISTRIBUTED MULTITASK NETWORKS WITH A RANK-ONE MODEL	1042
<i>Yitong Chen, School of Marine Science and Technology, Northwestern Polytechnical University, China; Danqi Jin, School of Electronic Information, Wuhan University, China; Jie Chen, School of Marine Science and Technology, Northwestern Polytechnical University, China; Cedric Richard, Universite Cote d'Azur, France; Wen Zhang, School of Marine Science and Technology, Northwestern Polytechnical University, China; Gongping Huang, School of Electronic Information, Wuhan University, China; Jingdong Chen, School of Marine Science and Technology, Northwestern Polytechnical University, China</i>	
TH1.AUD.6: LEARNED FINITE-TIME CONSENSUS FOR DISTRIBUTED OPTIMIZATION	1047
<i>Aaron Fainman, Stefan Vlaski, Imperial College London, United Kingdom</i>	
TH1.SC4: SCIENCE DATA WITH HIDDEN PERIODIC STRUCTURE - NEW PERSPECTIVES	
TH1.SC4.1: IDENTIFICATION OF QUASI-PERIODICALLY VARYING SYSTEMS USING THE LOCAL BASIS FUNCTION APPROACH	1082
<i>Artur Gancza, Maciej Niedzwiecki, Gdansk University of Technology, Poland</i>	
TH1.SC4.2: ERRORS-IN-VARIABLES-BASED METHODOLOGY OF ESTIMATION AND TESTING FOR INFINITE-VARIANCE PERIODIC AUTOREGRESSIVE MODELS WITH ADDITIVE NOISE	1087
<i>Wojciech Żuławiński, Agnieszka Wyłomańska, Wrocław University of Science and Technology, Poland</i>	
TH1.SC4.3: ERROR-RELATED POTENTIAL CLASSIFICATION THROUGH THE USE OF THE DETECTIVITY PARAMETER	1092
<i>Adriana Lucchese, Gianluca D'Elia, Riccardo Rubini, Marco Cocconcelli, University of Modena and Reggio Emilia, Italy</i>	
TH1.SC4.4: DE-WARPING ALGORITHMS FOR OSCILLATORY ALMOST-CYCLOSTATIONARY PROCESSES	1097
<i>Antonio Napolitano, University of Napoli Parthenope, Italy</i>	
TH1.SC4.5: ORDER TRACKING ON CYCLIC KURTOSIS FOR DAMAGE DETECTION OF BEARING FAULTS	1102
<i>Alexandre Mauricio, Zhen Li, Mahsa Yazdaniyanasr, Konstantinos Gryllias, KU Leuven, Belgium</i>	
TH1.SC4.6: NEURAL NETWORKS FOR PERIODIC SIGNALS IN TIME AND FREQUENCY DOMAINS – THE ADVANTAGE OF A SPECTRAL STRIDE CNN	1107
<i>Nico Herwig, Pietro Borghesani, UNSW Sydney, Australia; Wenyi Wang, Defence Science and Technology Group, Australia; Jerome Antoni, Univ Lyon, INSA Lyon, France</i>	
TH2.PA2: TENSOR DECOMPOSITIONS: THEORY AND APPLICATIONS IN BIOMEDICAL SIGNAL PROCESSING	
TH2.PA2.1: CONSTRAINED TENSOR DECOMPOSITION REVEALS LEVER ARMS SYNERGIES IN THE MUSCULOSKELETAL SYSTEM	1322
<i>Joris Claude, Raphaël Dumas, Univ Lyon, Univ Claude Bernard Lyon 1, Univ Gustaves Eiffel, LBMC UMR T_9406, France; Jérémy Cohen, Univ Lyon, INSA-Lyon, Univ Claude Bernard Lyon 1, CNRS, Inserm, CREATIS UMR 5220, U1206, France</i>	
TH2.PA2.2: NOVEL TENSOR-BASED SINGULAR SPECTRUM DECOMPOSITION	1327
<i>Spriha Joshi, Philippe Dreesen, Pietro Bonizzi, Joël Karel, Ralf Peeters, Martijn Boussé, Maastricht University, Netherlands</i>	
TH2.PA2.3: EMERGENCE OF HIGHER-ORDER FUNCTIONAL BRAIN CONNECTIVITY WITH HYPERGRAPH SIGNAL PROCESSING	1332
<i>Breno Bispo, Federal University of Pernambuco, Brazil; Fernando Santos, University of Amsterdam, Netherlands; Jose de Oliveira Neto, Juliano Lima, Federal University of Pernambuco, Brazil</i>	

TH2.PA2.4: HIGHER-ORDER SINGULAR SPECTRUM ANALYSIS FOR MULTICHANNEL BIOMEDICAL SIGNAL ANALYSIS	1337
<i>Thanh LE, VNU University of Engineering and Technology, Hanoi, Viet Nam; Karim Abed-Meraim, University of Orleans, France; Linh Trung Nguyen, VNU University of Engineering and Technology, Hanoi, Viet Nam</i>	
TH2.PA2.5: STRUCTURED ROBUST TENSOR DECOMPOSITION FOR MULTILAYER COMMUNITY DETECTION: APPLICATION TO FUNCTIONAL CONNECTIVITY NETWORKS	1342
<i>Esraa Al-Sharora, Jordan University of Science and Technology, Jordan; Mohammad Alwardat, Selin Aviyente, Michigan State University, United States</i>	
TH2.PA2.6: EXTRACTING HEMODYNAMIC ACTIVITY WITH LOW-RANK SPATIAL SIGNATURES IN FUNCTIONAL ULTRASOUND USING TENSOR DECOMPOSITIONS	1347
<i>Sofia-Eirini Kotti, Borbala Hunyadi, Delft University of Technology, Netherlands</i>	
TH2.PA2.7: A BÉZOUTIAN-BASED METHOD FOR SOLVING OVERDETERMINED SYSTEMS OF POLYNOMIAL EQUATIONS	1352
<i>Raphaël Widdershoven, Nico Vervliet, Lieven De Lathauwer, KU Leuven, Belgium</i>	
TH2.PA2.8: COUPLED GENERATOR DECOMPOSITION FOR FUSION OF ELECTRO- AND MAGNETOENCEPHALOGRAPHY DATA	1357
<i>Anders Stevnhoved Olsen, Technical University of Denmark, Denmark; Jesper Duemose Nielsen, DTU Compute, Technical University of Denmark, Denmark; Morten Mørup, Technical University of Denmark, Denmark</i>	
TH2.PA2.9: ASSESSING PEDIATRIC COGNITIVE DEVELOPMENT VIA MULTISENSORY BRAIN IMAGING ANALYSIS	1362
<i>Irina Belyaeva, University of Maryland, Baltimore County, United States; Yu-Ping Wang, Department of Biomedical Engineering, United States; Tony Wilson, Boys Town National Research Hospital, United States; Vince Calhoun, Department of Electrical Engineering, United States; Julia Stephen, Tulay Adali, Lovelace Biomedical Research Institute, United States</i>	
 TH2.AUD: EXPLORING SYNERGIES: ADVANCING NEUROSCIENCE WITH MACHINE LEARNING	
TH2.AUD.1: FUSION OF NOVEL FMRI FEATURES USING INDEPENDENT VECTOR ANALYSIS FOR A MULTIFACETED CHARACTERIZATION OF SCHIZOPHRENIA	1112
<i>Chunying Jia, Mohammad Abu Baker Siddique Akhonda, Hanlu Yang, University of Maryland Baltimore County, United States; Vince D. Calhoun, Georgia State University, Georgia Institute of Technology, Emory University, United States; Tülay Adali, University of Maryland Baltimore County, United States</i>	
TH2.AUD.2: DISTRIBUTED BEAMFORMING FOR LOCALIZATION OF BRAIN SEIZURE SOURCES FROM INTRACRANIAL EEG ARRAY	1117
<i>Sepehr Shirani, Nottingham Trent University, United Kingdom; Bahman Abdi-Sargezeh, University of Oxford, United Kingdom; Antonio Valentin, King's College London, United Kingdom; Gonzalo Alarcon, University of Manchester, United Kingdom; Delaram Jarchi, University of Essex, United Kingdom; Jordan Bird, Nottingham Trent University, United Kingdom; Saeid Sanei, Imperial College London, United Kingdom</i>	
TH2.AUD.3: GAUSSIAN PROCESS-BASED INFERENCE TOWARD REVEALING BRAIN FUNCTIONAL CONNECTIVITY	1122
<i>Chen Cui, Stony Brook University, United States; Sima Mofakham, Renaissance School of Medicine at Stony Brook University, United States; Jessica Phillips, University of Wisconsin-Madison, United States; Kurt Butler, Stony Brook University, United States; Charles Mikell, Renaissance School of Medicine at Stony Brook University, United States; Yuri Saalman, University of Wisconsin-Madison, United States; Petar Djuric, Stony Brook University, United States</i>	

TH2.AUD.4: REAL-TIME MACHINE LEARNING STRATEGIES FOR A NEW KIND OF 1127
NEUROSCIENCE EXPERIMENTS

Ayesha Vermani, Matthew Dowling, Hyungju Jeon, Champalimaud Centre for the Unknown, Portugal; Ian Jordan, Josue Nassar, RyvivyR, United States; Yves Bernaerts, Champalimaud Centre for the Unknown, Portugal; Yuan Zhao, National Institute of Mental Health, United States; Steven Van Vaerenbergh, University of Cantabria, Spain; Il Memming Park, Champalimaud Centre for the Unknown, Portugal

TH2.AUD.5: DISCRETE REPRESENTATION LEARNING FOR MULTIVARIATE TIME SERIES 1132

Marzieh Ajirak, Immanuel Elbau, Nili Solomonov, Logan Groseknick, Weill Cornell Medicine, United States

TU3.SC1: SIGNAL PROCESSING FOR DECODING BRAIN RESPONSES TO NATURAL STIMULI

TU3.SC1.1: ENVELOPE BASED DEEP SOURCE SEPARATION AND EEG AUDITORY 872
ATTENTION DECODING FOR SPEECH AND MUSIC

M. Asjid Tanveer, Aalborg University, Denmark; Jesper Jensen, Aalborg University, Oticon A/S, Denmark; Zhen-Hua Tan, Jan Østergaard, Aalborg University, Denmark

TU3.SC1.2: EFFECT OF INDEPENDENT COMPONENT ARTIFACT REJECTION ON 877
EEG-BASED AUDITORY ATTENTION DECODING

Oskar Keding, Lund University, Sweden; Johanna Wilroth, Martin A. Skoglund, Emina Alickovic, Linköping University, Sweden

TU3.SC1.3: COMPARISON OF SPATIAL FILTERING METHODS FOR EAR-EEG ASSR 882
ESTIMATION

Anna Sergeeva, Christian Bech Christensen, Preben Kidmose, Aarhus University, Denmark

TU3.SC1.4: ESTIMATION OF THE NEURAL SOURCES OF THE EEG-MEASURED 887
SPEECH-FFR USING A PHENOMENOLOGICAL MODEL OF AUDITORY-NERVE FIBER RESPONSES

Jonas Auernheimer, Tobias Reichenbach, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

TU3.SC1.5: PROBABILISTIC GAIN CONTROL IN A MULTI-SPEAKER SETTING USING 892
EEG-BASED AUDITORY ATTENTION DECODING

Nicolas Heintz, Simon Geirnaert, Iris Van de Ryck, Tom Francart, Alexander Bertrand, KU Leuven, Belgium

FR1.SC4: RECENT ADVANCES IN SIGNAL PROCESSING FOR POSITIONING, NAVIGATION, AND TIMING APPLICATIONS

FR1.SC4.1: DELAY ESTIMATION WITH A CARRIER MODULATED BY A BAND-LIMITED 1212
SIGNAL

Joan Miguel Bernabeu Frias, TESA/ISAE, France; Lorenzo Ortega, IPSA/TESA Toulouse, France; Antoine Blais, ENAC, France; Yoan Gregoire, CNES, France; Eric Chaumette, ISAE SUPAERO, France

FR1.SC4.2: TRACK-TO-TRACK AIS / RADAR ASSOCIATION AND UNCERTAINTY ESTIMATION 1217
BY COHERENT POINT DRIFT

Valérian Mangé, TESA, France; Jean-Yves Tournet, University of Toulouse, France; François Vincent, ISAE-Supaéro, France; Laurent Mirambell, Fábio Manzoni Vieira, Hensoldt Nexeya France, France

FR1.SC4.3: MISSPECIFIED CRAMÉR-RAO BOUNDS FOR ANOMALOUS CLOCK DATA IN 1222
SATELLITE CONSTELLATIONS

Hamish McPhee, TESA, France; Jean-Yves Tournet, University of Toulouse, France; David Valat, Jérôme Delporte, Yoan Grégoire, CNES, France; Philippe Paimblanc, TESA, France

**FR1.SC4.4: INSIGHTS ON ADAPTIVE ROBUST FILTERING FOR NAVIGATION UNDER 1227
HARSH TIME-VARYING ENVIRONMENTS**

*Paul Chauchat, Aix-Marseille University, France; Andrea Bellés, Daniel Medina, German Aerospace Center, Germany;
Jordi Vilà-Valls, University of Toulouse / ISAE-SUPAERO, France*

**FR1.SC4.5: RIS PHASE OPTIMIZATION FOR NEAR-FIELD 5G POSITIONING: 1232
ML-ENHANCED CRLB MINIMIZATION**

*Carla Macias Lopez, Arnau Saumell Portillo, Montse Nájjar, Universitat Politècnica de Catalunya, Spain; Pau Closas,
Northeastern University, United States*

FR1.SC4.6: ANALYSIS ON SIGNALS FOR LEO-PNT BEYOND GNSS 1237

*Fran Fabra, Daniel Egea-Roca, José A. López-Salcedo, Gonzalo Seco-Granados, IEEC-CERES, Universitat Autònoma de
Barcelona, Spain*

TH3.SC3: DISTRIBUTED OR FEDERATED LEARNING OVER NETWORKS

TH3.SC3.1: COOPERATIVE CLASSIFICATION OVER DISTRIBUTED NETWORKS 1162

*Xiling Yao, Jie Chen, Jingdong Chen, Northwestern Polytechnical University, China; Shefeng Yan, Institute of Acoustics,
Chinese Academy of Science, China; Fei Ji, South China University of Technology, China; Hongwei Liu, Xidian
University, China*

**TH3.SC3.2: APPROXIMATE GRADIENT CODING FOR PRIVACY-FLEXIBLE FEDERATED 1167
LEARNING WITH NON-IID DATA**

*Okko Makkonen, Sampu Niemela, Camilla Hollanti, Aalto University, Finland; Serge Kas Hanna, Cote d'Azur University
- CNRS, France*

**TH3.SC3.3: STRATEGIC FEDERATED LEARNING: APPLICATION TO SMART METER DATA 1172
CLUSTERING**

*Hassan MOHAMAD, Université de Lorraine-Centre de Recherche en Automatique de Nancy, France; Chao Zhang,
Khalifa University / Central South University, United Arab Emirates; Samson Lasaulce, Khalifa University / Université
de Lorraine, United Arab Emirates; Vineeth Satheeskumar Varma, Université de Lorraine-Centre de Recherche en
Automatique de Nancy, France; Merouane Debbah, Khalifa University, United Arab Emirates; Mounir Ghogho,
Université Internationale de Rabat, Morocco*

**TH3.SC3.4: MULTIMODAL LEARNING FOR INTEGRATED SENSING AND 1177
COMMUNICATION NETWORKS**

*Xiaonan Liu, Tharmalingam Ratnarajah, University of Edinburgh, United Kingdom; Mathini Sellathurai, Heriot-Watt
University, United Kingdom; Yonina C. Eldar, Weizmann Institute of Science, Israel*

TH3.PA2: MACHINE AND DEEP LEARNING APPLICATIONS IN NEUROSCIENCE

**TH3.PA2.2: PHYSICS-INFORMED AND UNSUPERVISED RIEMANNIAN DOMAIN ADAPTATION 1367
FOR MACHINE LEARNING ON HETEROGENEOUS EEG DATASETS**

*Apolline Mellot, Antoine Collas, University Paris-Saclay, Inria, CEA, France; Sylvain Chevallier, TAU Inria, LISN-CNRS,
University Paris-Saclay, France; Denis Engemann, Roche Pharma Research and Early Development, Neuroscience and
Rare Diseases, Roche Innovation Center Basel, F. Hoffmann-La Roche Ltd., Switzerland; Alexandre Gramfort, University
Paris-Saclay, Inria, CEA, France*

**TH3.PA2.3: EFFICIENT PATIENT FINE-TUNED SEIZURE DETECTION WITH A TENSOR 1372
KERNEL MACHINE**

Seline de Rooij, Frederiek Wesel, Borbála Hunyadi, Delft University of Technology, Netherlands

**TH3.PA2.4: ALZHEIMER'S DEMENTIA DETECTION: AN OPTIMIZED APPROACH USING ITD 1377
OF EEG SIGNALS**

*Sena Yagmur Sen, Aydin Akan, Izmir University of Economics, Turkey; Ozlem Karabiber Cura, Izmir Katip Celebi
University, Turkey*

**TH3.PA2.5: COMBINING EUCLIDEAN ALIGNMENT AND DATA AUGMENTATION FOR BCI 1382
DECODING**

Gustavo Rodrigues, University of São Paulo (USP), Brazil; Bruno Aristimunha, Sylvain Chevallier, Université Paris-Saclay, Inria TAU team, LISN-CNRS, France, France; Raphael de Camargo, Federal University of ABC (UFABC), France

**TH3.PA2.6: EXAMINING TONGUE MOVEMENT INTENTIONS IN EEG WITH MACHINE 1388
AND DEEP LEARNING: AN APPROACH FOR DYSPHAGIA REHABILITATION**

Sevgi Gokce, Abdullah Gül University, Turkey; Bulent Yilmaz, Gulf University for Science and Technology, Kuwait

**TH3.PA2.7: DEEP LEARNING FOR AUTOMATED ISCHEMIC STROKE LESION 1392
SEGMENTATION FROM MULTI-SPECTRAL MRI**

Dilan Dogru, Mehmet Akif Ozdemir, Onan Guren, Izmir Katip Celebi University, Turkey

**TH3.PA2.8: DETECTION OF ALZHEIMER'S DEMENTIA BY USING EEG FEATURE MAPS 1397
AND DEEP LEARNING**

Sude Pehlivan Akbugday, Ozlem Karabiber Cura, Burak Akbugday, Aydin Akan, Izmir University of Economics, Turkey

WE1.SC4: FRUGALITY FOR VIDEO STREAMING

WE1.SC4.1: OVERFITTED IMAGE CODING AT REDUCED COMPLEXITY927

Théophile Blard, Théo Ladune, Pierrick Philippe, Gordon Clare, Orange, France; Xiaoran Jiang, Olivier Déforges, INSA, France

**WE1.SC4.2: DESIGN SPACE EXPLORATION AT FRAME-LEVEL FOR JOINT DECODING932
ENERGY AND QUALITY OPTIMIZATION IN VVC**

Teresa Stürzenhofäcker, Matthias Kränzler, Christian Herglotz, André Kaup, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

**WE1.SC4.3: SVT-AV1 ENCODING BITRATE ESTIMATION USING MOTION SEARCH937
INFORMATION**

Lena Eichermüller, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; Gaurang Chaudhari, Ioannis Katsavounidis, Zhijun Lei, Hassene Tmar, Meta, United States; Christian Herglotz, André Kaup, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

**WE1.SC4.4: DECODING COMPLEXITY-AWARE BITRATE-LADDER ESTIMATION FOR942
ADAPTIVE VVC STREAMING**

Zoha Azimi, University of Klagenfurt, Austria; Amritha Premkumar, RPTU Kaiserslautern, Germany; Reza Farahani, University of Klagenfurt, Austria; Vignesh V Menon, Fraunhofer HHI, Germany; Christian Timmerer, Radu Prodan, University of Klagenfurt, Austria

**WE1.SC4.5: PICTURES DECODING TIME ESTIMATION FOR LOW-POWER VVC947
SOFTWARE DECODING**

Pierre-Loup CABARAT, Daniel MÉNARD, Oussama Hammani, Hafssa Boujida, University of Rennes, INSA Rennes, CNRS, IETR - UMR 6164, France

**WE1.SC4.6: SUSTAINABLE VIDEO STREAMING USING ACCEPTABILITY AND ANNOYANCE952
PARADIGM**

Ali Ak, Nantes Université, France; Abhishek Gera, Hassene Tmar, Denise Noyes, Ioannis Katsavounidis, Meta, United States; Patrick Le Callet, nantes université, France

WE3.SC1: DISTRIBUTED SENSING AND LEARNING FOR AUTONOMOUS SYSTEMS

**WE3.SC1.1: HIERARCHICAL TIME-OF-ARRIVAL SELF-CALIBRATION USING ROBUST982
RECEIVER DISTANCE AVERAGING**

Malte Larsson, Viktor Larsson, Carl Olsson, Magnus Oskarsson, Lund University, Sweden

WE3.SC1.2: PHYSICS-GUIDED GRAPH CONVOLUTIONAL DEEP EQUILIBRIUM NETWORK FOR ENVIRONMENTAL DATA	987
<i>Esther Rodrigo-Bonet, Nikos Deligiannis, Vrije Universiteit Brussel, Belgium</i>	
WE3.SC1.3: NONCONVEX MULTITASK LEARNING OVER NETWORKS	992
<i>Stefan Vlaski, Imperial College London, United Kingdom; Roula Nassif, Université Côte d'Azur, France</i>	
WE3.SC1.4: MALLEABLE KERNEL INTERPOLATION FOR SCALABLE STRUCTURED GAUSSIAN PROCESS	997
<i>Hanyuan Ban, Ellen H. J. Riemens, Raj Thilak Rajan, Delft University of Technology, Netherlands</i>	
WE3.SC2: AUDIO SIGNAL PROCESSING FOR CULTURAL HERITAGE ANALYSIS AND PRESERVATION	
WE3.SC2.1: STEELPAN SYNTHESIS AND INTANGIBLE CULTURAL HERITAGE	1002
<i>Randall Ali, University of Surrey, United Kingdom; Bryan Khan, University of the West Indies, Trinidad and Tobago</i>	
WE3.SC2.2: FEATURE COMPARISON FOR CLASSIFICATION OF KAUSTINEN FIDDLE PLAYING STYLE FROM ARCHIVED RECORDINGS USING DEEP LEARNING	1007
<i>Henna Tahvanainen, University of Bologna, Italy; Tuomas Ylönen, Turku University of Applied Sciences, Finland; Outi Valo, University of the Arts Helsinki, Finland</i>	
WE3.SC2.3: FEATURES VS BANDS: STATISTICAL ANALYSIS BETWEEN DESIGN FEATURES AND SPECTRAL POWER FOR A SET OF CULTURALLY RELEVANT VIOLINS	1012
<i>Sebastian Gonzalez, Raffaele Malvermi, Politecnico di Milano, Italy; Mary Jane Kwan, Sam Zygmuntowicz, Sam Zygmuntowicz Violins, United States; Fabio Antonacci, Augusto Sarti, Politecnico di Milano, Italy</i>	
WE3.SC2.4: LOW-RANK MULTI-CHANNEL FAST CONVOLUTION FOR REAL-TIME AURALIZATION OF CHURCH ACOUSTICS	1017
<i>Hannes Rosseel, Martin Jälmbly, Toon van Waterschoot, KU Leuven, Belgium</i>	
TU1.SC3: SIGNAL PROCESSING OVER GRAPHS AND TOPOLOGICAL SPACES	
TU1.SC3.1: BLIND IDENTIFICATION OF OVERLAPPING COMMUNITIES FROM NODAL OBSERVATIONS	812
<i>Ruben Wijnands, Geert Leus, Borbála Hunyadi, Delft University of Technology, Netherlands</i>	
TU1.SC3.2: HODGE-AWARE MATCHED SUBSPACE DETECTORS	817
<i>Chengen Liu, Elvin Isufi, Delft University of Technology, Netherlands</i>	
TU1.SC3.3: MITIGATING SUBPOPULATION BIAS FOR FAIR NETWORK TOPOLOGY INFERENCE	822
<i>Madeline Navarro, Rice University, United States; Samuel Rey, Andrei Buciulea, Antonio Marques, King Juan Carlos University, Spain; Santiago Segarra, Rice University, United States</i>	
TU1.SC3.4: ROBUST FILTER DESIGN FOR GRAPH SIGNALS	827
<i>Lucia Testa, Stefania Sardellitti, Sergio Barbarossa, Sapienza University of Rome, Italy</i>	
TU1.SC3.5: TOPOLOGICAL ADAPTIVE LEARNING OVER CELL COMPLEXES	832
<i>Lorenzo Marinucci, Sapienza University of Rome, Italy; Claudio Battiloro, Harvard University, United States; Paolo Di Lorenzo, Sapienza University of Rome, Italy</i>	
TU1.SC3.6: LIMITED DATA FORECASTING OF FINANCIAL TIME-SERIES USING GRAPH-BASED CLASS DYNAMICS	837
<i>Rohan Money, Joshin Krishnan, Baltasar Beferull-Lozano, Simula metropolitan center of digital engineering, Norway</i>	

WE1.SC2: ADVANCED SIGNAL PROCESSING AND MACHINE LEARNING FOR ACOUSTIC SCENE ANALYSIS AND SIGNAL ENHANCEMENT

WE1.SC2.1: CONCURRENT SPEAKER DETECTION: A MULTI-MICROPHONE 897 TRANSFORMER-BASED APPROACH

Amit Eliav, Sharon Gannot, Bar-Ilan University, Israel

WE1.SC2.2: FROM WEAK TO STRONG SOUND EVENT LABELS USING ADAPTIVE 902 CHANGE-POINT DETECTION AND ACTIVE LEARNING

John Martinsson, RISE Research Institutes of Sweden, Lund University, Sweden; Olof Mogren, RISE Research Institutes of Sweden, Sweden; Maria Sandsten, Lund University, Sweden; Tuomas Virtanen, Tampere University, Finland

WE1.SC2.3: SPATIALLY CONSTRAINED VS. UNCONSTRAINED FILTERING IN NEURAL 907 SPATIOSPECTRAL FILTERS FOR MULTICHANNEL SPEECH ENHANCEMENT

Annika Briegleb, Walter Kellermann, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

WE1.SC2.4: LOW ALGORITHMIC DELAY IMPLEMENTATION OF CONVOLUTIONAL 912 BEAMFORMER FOR ONLINE JOINT SOURCE SEPARATION AND DEREVERBERATION

Kaizen Mo, Waseda University, Japan; Xianrui Wang, Yichen Yang, Northwestern Polytechnical University, China; Shoji Makino, Waseda University, Japan; Jingdong Chen, Northwestern Polytechnical University, China

WE1.SC2.5: STEERED RESPONSE POWER-BASED DIRECTION-OF-ARRIVAL ESTIMATION 917 EXPLOITING AN AUXILIARY MICROPHONE

Klaus Brümman, Simon Doclo, Carl von Ossietzky Universität, Germany

WE1.SC2.6: DIRECT UPDATE OF BACK-PROJECTED DEMIXING MATRICES IN BLIND 922 SOURCE SEPARATION

Yui Kuriki, Taishi Nakashima, Nobutaka Ono, Tokyo Metropolitan University, Japan

WE3.PA1: ELECTROENCEPHALOGRAM SIGNAL PROCESSING

WE3.PA1.1: CROSS-SITE GENERALIZATION USING ATTENTION LAYER FOR EPILEPTIC 1571 SEIZURE DETECTION

Tala ABDALLAH, Université d'Angers, France; Nisrine Jrad, Université Catholique de l'Ouest, France; Fahed Abdallah, Université de Lorraine, France; Anne Humeau-Heurtier, Université d'Angers, France; Eliane El Howayek, Patrick Van Bogaert, Centre Hospitalier Universitaire Angers, France

WE3.PA1.2: EXPLORING NETWORK TOPOLOGY-BASED METHODS TO DIFFERENTIATE 1576 HEALTHY AND ALZHEIMER'S COHORTS: AN EEG-BASED STUDY

Prerna Singh, Tapan Gandhi, Lalan Kumar, IIT Delhi, India

WE3.PA1.3: EARLY PREDICTION OF ELECTROGRAPHIC SEIZURES IN NEONATAL 1581 HYPOXIC-ISCHEMIC ENCEPHALOPATHY BASED ON AMPLITUDE-INTEGRATED EEG AND CLINICAL DATA

Tamara Skoric, University of Novi Sad, Serbia; Marija Djermanovic, Institute for Child and Youth Health Care of Vojvodina, Serbia; Jovana Kljajic, Slobodan Spasojevic, University of Novi Sad, Serbia; John M. O' Toole, CergenX Ltd, Ireland

WE3.PA1.4: MACHINE LEARNING MODELS TRAINED IN A LOW-DIMENSIONAL LATENT 1586 SPACE FOR EPILEPTOGENIC ZONE (EZ) LOCALIZATION

Sheng H. Wang, Helsinki University, Finland; Morgane Marzulli, Université Paris Cité, France; Gabriele Arnulfo, Lino Nobili, University of Genoa, Italy; Satu Palva, Helsinki University, Finland; J Matias Palva, Aalto University, Finland; Philippe Ciuciu, CEA/NeuroSpin, France

WE3.PA1.5: FUNCTIONAL NEURAL ACTIVITY MAPPING USING SPIKING NEURAL 1591 NETWORKS AND EEG SIGNALS: A PROOF OF CONCEPT STUDY

Dario Milea, Vincenzo Catrambone, Gaetano Valenza, University of Pisa, Italy

**WE3.PA1.6: ASSESSING NEURAL PATTERNS OF ANXIETY USING DEEP LEARNING: AN EEG 1596
STUDY**

Hamidreza Ghonchi, Tom Foulsham, Saideh Ferdowsi, University of Essex, United Kingdom

**WE3.PA1.7: SOS-MUSIC, A SUBSPACE APPROACH FOR EEG SOURCE IMAGING 1601
PROMOTING SPARSITY OF ACTIVE SOURCES**

Carla Joud, Laurent Albera, Isabelle Merlet, University of Rennes, France; Julie Coloigner, INRIA IRISA Rennes, France

**WE3.PA1.8: MEMORY ENCODING RELATION WITH ALZHEIMER'S SEVERITY: 1606
EXCITATION-TO-INHIBITION INSIGHTS**

Shivani Ranjan, Harshal Shende, Amit Kumar, Indian Institute of Technology Delhi, India; Robin Badal, Pramod Yadav, All India Institute of Ayurveda, India; Lalan Kumar, India Institute of Technology Delhi, India

**WE3.PA1.9: INTRODUCING THE MODULARITY GRAPH: AN APPLICATION TO BRAIN 1611
FUNCTIONAL NETWORKS**

Tiziana Cattai, Camilla Caporali, Sapienza university of Rome, Italy; Marie-Constance Corsi, Sorbonne Université, Institut du Cerveau – Paris Brain Institute –ICM, CNRS, France; Stefania Colonnese, Sapienza university of Rome, France

**WE3.PA1.10: AN AUTOMATIC RIEMANNIAN ARTIFACT REJECTION METHOD FOR P300-BASED
1616**

BCIS

Davoud Hajhassani, University Grenoble Alpes, CNRS, France; Jérémie Mattout, Lyon Neuroscience Research Center, INSERM, France; Marco Congedo, University Grenoble Alpes, CNRS, France

**WE3.PA1.11: QUANTIFYING SIGNAL-TO-NOISE RATIO IN NEURAL LATENT TRAJECTORIES .. 1621
VIA FISHER INFORMATION**

Hyungju Jeon, Il Memming Park, Champalimaud Foundation, Portugal

**WE3.PA1.12: UNSUPERVISED ADAPTIVE DEEP LEARNING METHOD FOR BCI MOTOR 1626
IMAGERY DECODING**

Yassine El Ouahidi, Giulia Lioi, Nicolas Farrugia, Bastien Pasdeloup, Vincent Gripon, IMT Atlantique, France

TH1.PA1: BIOMEDICAL IMAGE AND VIDEO PROCESSING

**TH1.PA1.1: FUSION OF MAGNETIC RESONANCE AND ULTRASOUND IMAGES USING 1631
GUIDED FILTERING: APPLICATION TO ENDOMETRIOSIS SURGERY**

Youssra EL BENNIQUI, University of Toulouse, France; Abderrahim HALIMI, Heriot-Watt University, United Kingdom; Adrian BASARAB, University of Lyon, France; Jean-Yves TOURNERET, University of Toulouse, France

**TH1.PA1.2: SEGMENTATION UNCERTAINTY WITH STATISTICAL GUARANTEES IN 1636
PROSTATE MRI**

Kevin Mekhaphan Nguyen, Alvaro Fernandez-Quilez, University of Stavanger, Norway

**TH1.PA1.3: SELECTION OF SEMG-BASED CONFIGURATION FOR A HAND GESTURE 1641
RECOGNITION SYSTEM**

Francisco Javier Vazquez Araujo, Adriana Dapena Janeiro, Francisco Laport López, Paula Maria Castro Castro, Daniel Ismael Iglesia Iglesias, University of A Coruña, Spain

TH1.PA1.4: SYNERGISTIC PET/MR RECONSTRUCTION WITH VAE CONSTRAINT..... 1646

Valentin Gautier, INSA Lyon, France; Claude Comtat, Florent Sureau, Université Paris-Saclay, France; Alexandre Bousse, Université de Bretagne Occidentale, France; Voichita Maxim, Bruno Sixou, INSA Lyon, France

**TH1.PA1.5: POLLEN IDENTIFICATION AND CONCENTRATION ESTIMATION USING HIGH 1651
RESOLUTION IMAGING AND DEEP LEARNING**

Anandaramane CANDASSAMY, Oberon Sciences / GIPSA Lab, France; Alice CAPLIER, Jocelyn CHANUSSOT, GIPSA Lab, France; Roland SARDA-ESTEVE, Dominique BAISNEE, Laboratoire des Sciences du Climat et de l'Environnement, France; Adeline POUTHIER, Hamamatsu, France; David O'CONNOR, School of Chemical Sciences SFI Research Centre for Data Analytics, Ireland; Benjamin GUINOT, Dominique FILIPPI, Sylvain Bonnefond, Oberon Sciences, France

**TH1.PA1.6: DETECTION AND CHARACTERISATION OF FIBRONECTIN STRUCTURES IN 1656
THE TUMOUR EXTRACELLULAR MATRIX**

Faisal Jayousi, Xavier Descombes, Emmanuel Bouilhol, Université Côte d'Azur, France; Anne Sudaka, Centre Antoine Lacassagne, France; Ellen Van Obberghen-Schilling, Laure Blanc-Féraud, Université Côte d'Azur, France

**TH1.PA1.7: CHARACTERIZATION OF THE RESTING-STATE FUNCTIONAL DYNAMICS IN 1661
THE LUMBOSACRAL SPINAL CORD**

Ilaria Ricchi, Daniel Molinuevo Gomez, Nawal Kinany, Dimitri Van de Ville, École Polytechnique Fédérale de Lausanne, Switzerland

**TH1.PA1.8: CARDIAC MRI RECONSTRUCTION WITH CMRATT: AN ATTENTION-DRIVEN 1666
APPROACH**

ANAM HASHMI, Dublin City University, Ireland; Julia Dietlmeier, Insight SFI Research Centre for Data Analytics, Dublin City University, Ireland; Kathleen Curran, University College Dublin, Ireland; Noel O'Connor, Dublin City University, Ireland

**TH1.PA1.9: DIABETIC RETINOPATHY GRADING USING MULTI-SCALE RESIDUAL 1671
NETWORK WITH GROUPED CHANNEL ATTENTION**

Rajeev Rajan, Noumida A, Aparna S., Madhurema V. J, Nandana Nair, Parvathi Mohan, APJ Abdul Kalam Technological University, India

**TH1.PA1.10: RECONSTRUCTION OF ELASTICITY ESTIMATES IN SHEAR WAVE 1676
ELASTOGRAPHY THROUGH RELAXED FRAME RATE ACQUISITION COMBINED
WITH RADIAL BASIS FUNCTION INTERPOLATION**

Sajjad Afrakhteh, Libertario Demi, University of Trento, Italy

**TH1.PA1.11: INVESTIGATION OF SPIKING NEURAL NETWORKS FOR JOINT DETECTION 1681
AND TRACKING**

Abdullah Abdulaziz, Reka Hegedus, Fraser Macdonald, Stephen McLaughlin, Yoann Altmann, Heriot-Watt University, United Kingdom

**TH1.PA1.12: SHIFTING FOCUS: FROM GLOBAL SEMANTICS TO LOCAL PROMINENT 1686
FEATURES IN SWIN-TF TRANSFORMER FOR KNEE OSTEOARTHRITIS SEVERITY
ASSESSMENT**

Aymen Sekhri, ENSTTIC - PRISME, France; Marouane Tliba, Mohamed Amine Kerkouri, Yassine nacer, Aladine Chetouani, Université d'Orléans, France; Alessandro Bruno, IULM University, Italy; Rachid Jennane, Université d'Orléans, France

WE1.SC1: BIOMEDICAL SIGNAL PROCESSING 1

**WE1.SC1.1: A NOVEL UNSUPERVISED APPROACH FOR ACCURATE EPILEPTIC SEIZURE 1426
DETECTION**

Tala Abdallah, Université d'Angers, France; Nisrine Jrad, Université Catholique de l'Ouest, France; Sally El Hajjar, Luxembourg Institute of Socio-Economic Research: LISER, France; Fahed Abdallah, Université de Lorraine, France; Anne Humeau-Heurtier, Université d'Angers, France; Patrick Van Bogaert, Centre Hospitalier Universitaire Angers, France

**WE1.SC1.2: IMPACT OF A VISION-BASED SMOOTHING FILTER ON SCHIZOPHRENIA 1431
CLASSIFICATION**

Quang Manh Doan, Tran Hiep Dinh, Nguyen Linh Trung, VNU University of Engineering and Technology, Viet Nam; Truong Xuan Doan, Long Doan Dinh, VNU University of Medicine and Pharmacy, Viet Nam; Jorne Laton, Vrije Universiteit Brussel, Belgium; Marc De Hert, Universitair Psychiatrisch Centrum KU Leuven, Belgium; Jeroen Van Schependom, Guy Nagels, Vrije Universiteit Brussel, Belgium

**WE1.SC1.3: GRAPH WAVELET PACKETS FOR THE CLASSIFICATION OF BRAIN DATA IN 1436
ANXIETY AND DEPRESSION**

Sébastien Dam, Pierre Maurel, Julie Coloigner, Univ Rennes, Inria, CNRS, Inserm, France

WE1.SC1.4: WASSERSTEIN-BASED DISTANCE FOR CONSTRUCTING MULTI-SCALE 1441
INDIVIDUAL BRAIN NETWORKS FROM FDG-PET IMAGES: APPLICATION TO
ALZHEIMER'S DISEASE DIAGNOSIS

Minh Tuan PHAM, Mouloud ADEL, Aix-Marseille University, Viet Nam; Linh Trung NGUYEN, Vietnam National University, Viet Nam; Eric GUEDJ, Aix-Marseille University, France

WE1.SC1.5: VALUE OF PERIODIC AND APERIODIC EEG COMPONENTS TO DETECT 1446
COGNITIVE DETERIORATION

Nguyen Duc Kien, VNU University of Engineering and Technology, Viet Nam; Fahimeh Akbarian, Jorne Laton, Sebastiaan Engelborghs, Jeroen Van Schependom, Vrije Universiteit Brussel, Belgium; Nguyen Linh Trung, VNU University of Engineering and Technology, Viet Nam; Guy Nagels, Vrije Universiteit Brussel, Belgium

WE1.SC1.6: STRUCTURE-PRESERVING TRANSFORMERS FOR SEQUENCES OF SPD 1451
MATRICES

Mathieu Seraphim, Alexis Lechervy, Université de Caen Normandie, France; Florian Yger, Université Paris Dauphine - PSL, France; Luc Brun, Olivier Etard, Université de Caen Normandie, France

TU2.SC2: ELECTROCARDIOGRAM SIGNAL PROCESSING

TU2.SC2.1: PHYSIOLOGY-INFORMED ECG DELINEATION BASED ON PEAK 1402
PROMINENCE

Jonas Emrich, Technische Universität Darmstadt, Germany; Andrea Gargano, Università di Pisa, Italy; Taulant Koka, Michael Muma, Technische Universität Darmstadt, Germany

TU2.SC2.2: LONG-RANGE CROSS-CORRELATION ANALYSIS BETWEEN LOCAL VARIANCE 1407
MODULATIONS IN BIVARIATE TIME SERIES

Yudai Fujimoto, Ivan Seleznev, Osaka University, Japan; Anton Popov, National Technical University of Ukraine, Ukraine; Ken Kiyono, Osaka University, Japan

TU2.SC2.3: SOURCE LOCALIZATION OF ATRIAL FIBRILLATION USING PROBABILISTIC 1411
DOMINANT FREQUENCY AND SPATIOTEMPORAL ACTIVATION TIME

Oishee Mazumder, Aniruddha Sinha, TCS Research, Tata Consultancy Services, India

TU2.SC2.4: FH-TABNET: MULTI-CLASS FAMILIAL HYPERCHOLESTEROLEMIA 1416
DETECTION VIA A MULTI-STAGE TABULAR DEEP LEARNING NETWORK

Sadaf Khademi, Zohreh HajiAkhondi-Meybodi, Concordia University, Canada; Golnaz Vaseghi, Nizal Sarrafzadegan, Isfahan University of Medical Sciences, Iran; Arash Mohammadi, Concordia University, Canada

TU2.SC2.5: SONIC: SYNERGIZING VISION FOUNDATION MODELS FOR STRESS 1421
RECOGNITION FROM ECG SIGNALS

Orchid Chetia Phukan, IIIT Delhi, India, India; Ankita Das, IIIT Guwahati, India, India; Arun Balaji Buduru, IIIT Delhi, India, India; Rajesh Sharma, University of Tartu, Estonia, Estonia

TU3.PA1: BIOMEDICAL SIGNAL PROCESSING AND BIOINFORMATICS

TU3.PA1.1: DETECTING PARKINSON'S DISEASE USING VOICE RECORDINGS FROM 1516
MOBILE DEVICES

Niloofer Momeni, Susanna Whitling, Andreas Jakobsson, Lund university, Sweden

TU3.PA1.2: SPEAKER-INDEPENDENT DEPRESSION DETECTION BASED ON ADVERSARIAL 1521
TRAINING METHOD

Minggang WANG, Shohei KATO, Nagoya Institute of Technology, Japan; Wen GU, Japan Advanced Institute of Science and Technology, Japan; Jun YAN, Fenghui REN, University of Wollongong, Australia

TU3.PA1.3: CR-SAVAE: A PARAMETRIC METHOD FOR SURVIVAL ANALYSIS WITH 1526
COMPETING RISKS

Patricia A. Apellániz, Juan Parras, Santiago Zazo, Universidad Politécnica de Madrid, Spain

TU3.PA1.4: COMBINING EEGNET WITH SPDNET TOWARDS AN END-TO-END ARCHITECTURE FOR IMAGINED SPEECH DECODING	1531
<i>Georgios Rousis, Aristotle University of Thessaloniki, Greece; Fotis Kalaganis, Spiros Nikolopoulos, Ioannis Kompatsiaris, Centre for Research and Technology Hellas, Greece; Panagiotis Petrantonakis, Aristotle University of Thessaloniki, Greece</i>	
TU3.PA1.5: PHONOCARDIOGRAM CLASSIFICATION BASED ON 1D CNN WITH PITCH-SHIFTING AND SIGNAL UNIFORMITY TECHNIQUES	1536
<i>Zafar Ahmad, National University of Sciences and Technology (NUST) Islamabad, Pakistan; Muhammad Salman Khan, Muhammad E. H Chowdhury, Qatar University Doha, Qatar, Qatar; Susu Zughaier, Qatar University, Qatar; Wanis Hamad Ibrahim, Hamad General Hospital, Qatar</i>	
TU3.PA1.6: DIRECTED GRAPH ANALYSIS ON THETA-GAMMA PHASE-AMPLITUDE COUPLING: INSIGHTS INTO PARKINSON DISEASE EEG DATA	1541
<i>Mohammadjavad Sedghizadeh, Mohammad Hossein Heidari Beni, Hamid Aghajan, Sharif University of Technology, imec-TELIN-IPI, Gent University, Belgium; Danilo Babin, Wilfried Philips, imec-TELIN-IPI, Gent University, Belgium</i>	
TU3.PA1.7: REPRESENTATION LEARNING BASED ON VARIATIONAL AUTOENCODERS FOR IMAGINED SPEECH CLASSIFICATION	1546
<i>Hajime Yano, Ryoichi Takashima, Tetsuya Takiguchi, Kobe University, Japan; Seiji Nakagawa, Chiba University, Japan</i>	
TU3.PA1.8: FULLY AUTOMATIC BAYESIAN METHOD FOR TRAINABLE ACTIVATION FUNCTION AND DEEP NEURAL NETWORKS	1551
<i>Mohamed Fakhfakh, Doctor / Université Clermont Auvergne (UCA), Tunisia; Lotfi chaari, Doctor / Toulouse INP, Tunisia</i>	
TU3.PA1.9: RESPIRATORY DISEASE CLASSIFICATION AND BIOMETRIC ANALYSIS USING BIOSIGNALS FROM DIGITAL STETHOSCOPES	1556
<i>Constantino Álvarez Casado, Manuel Lage Cañellas, Matteo Pedone, Xiaoting Wu, Le Nguyen, Miguel Bordallo López, University of Oulu, Finland</i>	
TU3.PA1.10: A SENSITIVE COMPRESSION-BASED METHOD FOR FILTERING TARGETED FASTQ SEQUENCING READS	1561
<i>Maria J. P. Sousa, Armando J. Pinho, University of Aveiro, Portugal; Diogo Pratas, 1) University of Aveiro; 2) University of Helsinki., Portugal</i>	
TU3.PA1.11: A SORTING TOOL FOR IMPROVING FASTA DATA COMPRESSION TOOLS	1566
<i>Tiago Fonseca, Maria J. P. Sousa, Armando J. Pinho, University of Aveiro, Portugal; Diogo Pratas, 1) University of Aveiro; 2) University of Helsinki., Portugal</i>	
FR1.PA1: BIOMEDICAL SIGNAL PROCESSING 3	
FR1.PA1.1: IMPROVING THE GENERATION OF VIRAL CONSENSUS SEQUENCES USING ADAPTIVE MODELS	1691
<i>Maria J. P. Sousa, Armando J. Pinho, University of Aveiro, Portugal; Diogo Pratas, 1) University of Aveiro; 2) University of Helsinki., Portugal</i>	
FR1.PA1.2: EVALUATION OF A MULTI-SENSOR APPROACH FOR DROWSINESS MONITORING	1696
<i>Vincent Beauchamps, Institut de recherche biomédicale des armées, France; Bastien Berthelot, Vincent Ibanez, Thales AVS France, France; Fabien Sauvet, Institut de recherche biomédicale des armées, France</i>	
FR1.PA1.3: IDENTIFICATION OF PELVIC FLOOR MUSCLE CONTRACTION FROM NON-INVASIVE SENSORS	1701
<i>Ines Moudjari, Université de Rennes, France; Caroline Pautard, Clément Jouanneau, Blueback, France; Régine Le Bouquin Jeannès, Université de Rennes, France</i>	
FR1.PA1.4: STRUCTURED LOSS FOR DEEP CHANGE-POINT DETECTION	1706
<i>Simon Blotas, Charles Truong, ENS Paris-Saclay, France</i>	

FR1.PA1.5: SPECTRAL SELECTIVE CANONICAL CORRELATION ANALYSIS TO REMOVE THE POWER LINE INTERFERENCE FROM HD-SEMG SIGNALS	1711
<i>chawki nasrallah, kawtar ghiatt, Universite de technologie de Compiègne, France; ahmad diab, Lebanese International University, Lebanon; Jeremy Laforet, Sidi Mohamed Sid'El moctar, imad rida, Universite de technologie de Compiègne, France; kiyoka kinugawa, Sorbonne Université, France; sofiane boudaoud, Universite de technologie de Compiègne, France</i>	
FR1.PA1.6: MACHINE LEARNING TECHNIQUES APPLIED TO IN-SILICO PULSE WAVE VELOCITY ESTIMATION BASED ON PHOTOPLETHYSMOGRAPHIC SIGNALS	1716
<i>Vivien Debuchy, Université de Toulon, Aix Marseille Univ, France; Mohamed Khalifa, Tecmoled, France; Philippe Tresson, Aix Marseille Univ, APHM, France; Nadège Thirion-Moreau, Eric Moreau, Université de Toulon, Aix Marseille Univ, France</i>	
FR1.PA1.7: POST-EXERCISE RECOVERY SCORE USING COMPUTATIONAL CARDIAC MODEL	1721
<i>Sakyajit Bhattacharya, Dibyendu Roy, Oishee Mazumder, TCS Research, Tata Consultancy Services, India; Ayan Mukherjee, Nasimuddin Ahmed, Tata Consultancy Services Ltd, India; Kayapanda Muthana Mandana, Fortis Hospital, India; Avik Ghose, Aniruddha Sinha, TCS Research, Tata Consultancy Services, India</i>	
FR1.PA1.8: MODEL-BASED ASSESSMENT OF PHOTOPLETHYSMOGRAM SIGNAL QUALITY IN REAL-LIFE ENVIRONMENTS	1726
<i>Yan-Wei Su, National Yang Ming Chiao Tung University, Taiwan; Chia-Cheng Hao, National Taiwan University, Taiwan; Gi-Ren Liu, National Chen Kung University, Taiwan; Yuan-Chung Sheu, National Yang Ming Chiao Tung University, Taiwan; Hau-Tieng Wu, Courant Institute of Mathematical Sciences, United States</i>	
FR1.PA1.9: EVALUATION OF FRACTIONAL CALCULUS AND DELTA PARAMETERS IN PRODROMAL DIAGNOSIS OF DEMENTIA WITH LEWY BODIES UTILIZING ONLINE HANDWRITING	1731
<i>Jan Mucha, Michal Gavenciak, Jiri Mekyska, Brno University of Technology, Czech Republic; Marcos Faundez-Zanuy, Universitat Pompeu Fabra, Spain; Lubos Brabenec, Irena Rektorova, Masaryk University, CEITEC, Czech Republic</i>	
FR1.PA1.10: ELECTROGRAM FRACTIONATION METRICS IN SPATIO-TEMPORAL DISPERSION BASED CATHETER ABLATION OF PERSISTENT ATRIAL FIBRILLATION	1736
<i>sara frusone, University, France; Rafael Costa De Almeida, Espirito Santo, Brazil; Fabien Squara, CHU Nice, France; Vicente Zarzoso, I3S, France</i>	
FR1.PA1.11: INVESTIGATING THE EFFECT OF INTRA-SUBJECT VARIABILITY IN SEISMOCARDIOGRAM ANALYSIS	1741
<i>Eda Demirsoy, Bogazici University, Turkey; Beren Semiz, Koc University, Turkey</i>	
FR1.PA1.12: DLGC: DICTIONARY LEARNING BASED GRANGER CAUSAL DISCOVERY FOR CORTICO-MUSCULAR COUPLING	1746
<i>Farwa Abbas, Imperial College London, United Kingdom; Verity McClelland, Zoran Cvetkovic, King's College London, United Kingdom; Wei Dai, Imperial College London, United Kingdom</i>	
FR1.AUD: BIOMEDICAL IMAGE PROCESSING	
FR1.AUD.1: SINGULARITY STRENGTH RE-CALIBRATION OF FULLY CONVOLUTIONAL NEURAL NETWORKS FOR BIOMEDICAL IMAGE SEGMENTATION	1486
<i>Miguel Martins, Miguel Coimbra, Francesco Renna, Institute for Systems and Computer Engineering, Technology and Science, Faculty of Sciences of the University of Porto, Portugal</i>	
FR1.AUD.2: BACK2SEG: JOINT BACKGROUND ESTIMATION AND BACTERIA SEGMENTATION ON OPTICAL ENDOMICROSCOPY IMAGES	1491
<i>Mehmet Demirel, Bethany Mills, Erin Gaughan, Kevin Dhaliwal, James R. Hopgood, University of Edinburgh, United Kingdom</i>	

**FR1.AUD.3: WAVELET TRANSFORM BASED DECOMPOSITION OF ULTRASOUND SIGNALS 1496
FOR CORTICAL BONE MODEL EVALUATION**

Dans Laksis, Aleksejs Tatarinovs, Karlis Freivalds, Institute of Electronics and Computer Science, Latvia

**FR1.AUD.4: AUTOMATIC SEMANTIC IN-PAINTING IMAGE NORMALIZATION FOR FACIAL 1501
ANOMALY APPRAISAL**

Abdullah Hayajneh, Erchin Serpedin, Texas A&M University, United States; Mitchell Stotland, Sidra Medicine, Qatar

**FR1.AUD.5: SPECTRAL CT TWO-STEP AND ONE-STEP MATERIAL DECOMPOSITION 1506
USING DIFFUSION POSTERIOR SAMPLING**

Corentin Vazia, Université de Bretagne Sud, France; Alexandre Bousse, Université de Bretagne Occidentale, France; Jacques Froment, Béatrice Vedel, Université de Bretagne Sud, France; Franck Vermet, Université de Brest, France; Zhihan Wang, Université de Bretagne Occidentale, France; Thore Dassow, Université de Bretagne Occidentale. Siemens Healthcar SAS., France; Jean-Pierre Tasu, University Hospital Poitiers, France; Dimitris Visvikis, Université de Bretagne Occidentale, France

FR1.AUD.6: SCALABLE NON-CARTESIAN MAGNETIC RESONANCE IMAGING WITH R2D2 1511

Yiwei Chen, Chao Tang, Amir Aghabiglou, Chung San Chu, Yves Wiaux, Heriot-Watt University, United Kingdom

TH1.SC3: BIOMEDICAL SIGNAL PROCESSING 2

**TH1.SC3.1: EXPLORING THE IMPACT OF COCHLEAR IMPLANT STIMULATION ARTEFACTS ... 1456
IN EEG RECORDINGS: UNVEILING POTENTIAL BENEFITS**

Hongmei Hu, University of Oldenburg, Germany; Ben Williges, Deborah Vickers, Cambridge University, United Kingdom

**TH1.SC3.2: ENHANCING DEPRESSION DIAGNOSIS USING FDG-PET IMAGES WITH 1461
HYPERGRAPHS**

Minh Tuan PHAM, Mouloud ADEL, Aix-Marseille University, Viet Nam; Linh Trung NGUYEN, Vietnam National University, Viet Nam; Eric GUEDJ, Aix-Marseille University, France

**TH1.SC3.3: HIERARCHICAL HIDDEN MARKOV MODEL FOR ONLINE DECODING IN 1466
BRAIN-COMPUTER INTERFACE**

Rémi Souriau, Alexandre Moly, Félix Martel, Lucas Struber, Serpil Karakas, Violaine Juillard, Guillaume Charvet, Tetiana Aksenova, Univ. Grenoble Alpes, CEA, Leti, Clnatec, F-38000 Grenoble, France

**TH1.SC3.4: ENABLING LOW-POWER SIGNATURE RECOGNITION FOR THE IOT WITH 1471
SLIF NEURONS**

Guillaume Marthe, Claire Goursaud, INSA Lyon, Inria, France; Laurent Clavier, IEMN IMT Nord Europe, Université de Lille, France

**TH1.SC3.5: SINGLE CHANNEL-BASED MOTOR IMAGERY CLASSIFICATION USING 1476
FISHER'S RATIO AND PEARSON CORRELATION**

Sonal Santosh Baberwal, Shirley Coyle, Tomas Ward, Dublin City University, Ireland

**TH1.SC3.6: UNRAVELING NEURONAL CLUSTER DYNAMICS IN BASAL GANGLIA USING 1481
HIERARCHICAL DRIFT-DIFFUSION MODELING**

Bhuvanambiga Pari, Kingshuk Chakravarty, Aniruddha Sinha, Sangheeta Roy, TCS Research, India; Arvind Kumar, KTH Royal Institute of Technology, Sweden

WE3.SC4: ED – SIGNAL PROCESSING FOR EDUCATION

**WE3.SC4.1: TEACHING SPEECH SIGNAL PROCESSING FUNDAMENTALS IN 1751
UNDERGRADUATE CLASS USING AN INTERACTIVE GUI**

Rajeev Rajan, Ajay Mahadev A R, Arjun P, Noumida A, APJ Abdul Kalam Technological University, India

WE3.SC4.2: OPTIMAL EEG TIME WINDOW LENGTH FOR BOREDOM CLASSIFICATION USING COMBINED NON-LINEAR FEATURES.	1756
<i>Yuvaraj Rajamanickam, Samyuktha Sampathraman, Jack Fogarty, Junsong Huang, National Institute of Education, Nanyang Technological University, Singapore; Samuel Tan, Wong Teck Kiong, Ministry of Education, Singapore</i>	
WE3.SC4.3: EVOLUTION AND RECENT TRENDS FOR THE SGD ALGORITHM: KEY TAKEAWAYS FROM AN EDUCATIONAL SHORT COURSE	1761
<i>Paul Rodriguez, PUCP, Peru</i>	
WE3.SC4.4: TEACHING INDIAN CLASSICAL MUSIC USING WEB-BASED INTERACTIVE PLATFORM AND REAL-TIME AUDIO ANALYSIS	1766
<i>Ashwin P. Joby, Allen Mammen Abraham, Sona Philip, Tessa Ann Josy, Sinith M.S., Rajeev Rajan, APJ Abdul Kalam Technological University, India</i>	
 WE2.PA1: SIGNAL AND DATA ANALYTICS FOR MACHINE LEARNING – II	
WE2.PA1.1: WHICH TIME SERIES DOMAIN SHIFTS CAN NEURAL NETWORKS ADAPT TO?	1932
<i>Henri Hoyez, Paul Wurth S.A, Luxembourg; Bruno Mirbach, Jason Rambach, DFKI, Germany; Cedric Schockaert, Paul Wurth S.A, Luxembourg; Didier Stricker, DFKI, Germany</i>	
WE2.PA1.2: NORMALIZING FLOWS WITH TASK-SPECIFIC PRE-TRAINING FOR UNSUPERVISED ANOMALY DETECTION ON ENGINEERING STRUCTURES	1937
<i>Brice MARC, CEREMA / INRIA, France; Philippe FOUCHER, CEREMA, France; Florence FORBES, INRIA, France; Pierre CHARBONNIER, CEREMA, France</i>	
WE2.PA1.3: PROBABILISTIC KNOWLEDGE TRANSFER FOR LIGHTWEIGHT VISION TRANSFORMERS	1942
<i>Ioannis Bountouris, Nikolaos Passalis, Anastasios Tefas, Aristotle University of Thessaloniki, Greece</i>	
WE2.PA1.4: TEXTURE CLASSIFICATION USING LOCAL DISSIMILARITY MAPS OF GRAY-LEVEL CO-OCCURRENCE MATRICES	1947
<i>Agnès DELAHAIES, Frédéric Morain-Nicolier, Université de Reims Champagne Ardenne, France; Jérôme Landré, Jönköping University, Sweden</i>	
WE2.PA1.5: LINEAR-TIME ONE-CLASS CLASSIFICATION WITH REPEATED ELEMENT-WISE FOLDING	1952
<i>Jenni Raitoharju, University of Jyväskylä, Finland</i>	
WE2.PA1.6: ANOMALY DETECTION-RECONSTRUCTION TRADE-OFF IN AUTOENCODER-BASED COMPRESSION	1957
<i>Andriy Enttsel, Alex Marchioni, Livia Manovi, Riccardo Nikpali, Gabriele Ravaglia, University of Bologna, Italy; Gianluca Setti, KAUST, Saudi Arabia; Mauro Mangia, Riccardo Rovatti, University of Bologna, Italy</i>	
WE2.PA1.7: SYMBOLIC REPRESENTATION FOR TIME SERIES	1962
<i>Sylvain W. Combettes, Charles Truong, Laurent Oudre, Université Paris Saclay, Université Paris Cité, ENS Paris Saclay, CNRS, SSA, INSERM, Centre Borelli, France</i>	
WE2.PA1.8: PRECIPITATION NOWCASTING USING PHYSICS INFORMED DISCRIMINATOR GENERATIVE MODELS	1967
<i>Junzhe Yin, Cristian Meo, Ankush Roy, Zeineb Bou Cher, Mircea Lică, Yanbo Wang, Delft University of Technology, Netherlands; Ruben Imhoff, Deltares, Netherlands; Remko Uijlenhoet, Justin Dauwels, Delft University of Technology, Netherlands</i>	
WE2.PA1.9: PROTOTYPE ANCHORING FOR IMAGE CLASSIFICATION TASKS	1972
<i>Maria Tzelepi, Vasileios Mezaris, ITI-CERTH, Greece</i>	

WE2.PA1.10: SELF-SUPERVISED TRAJECTORY CLUSTERING WITH OPTIMAL TRANSPORT AND METRIC LEARNING	 1977
<i>Alexandros Emvolidis, Georgios-Fotios Angelis, Anastasios Drosou, Dimitrios Tzovaras, Centre for Research & Technology Hellas Thessaloniki, Greece</i>	
WE2.PA1.11: HYBRID HIERARCHICAL MODELS FOR ISAC PREDICTIONS WITH WIRELESS LINKS	 1982
<i>Dror Jacoby, Jonathan Ostrometzky, Hagit Messer, Tel Aviv University, Israel</i>	
WE2.PA1.12: ON COUNTERFACTUAL INTERVENTIONS IN VECTOR AUTOREGRESSIVE MODELS	 1987
<i>Kurt Butler, Marija Iloska, Petar Djuric, Stony Brook University, United States</i>	
 TU1.PA1: SIGNAL AND DATA ANALYTICS FOR MACHINE LEARNING – I	
TU1.PA1.1: A HYBRID MACHINE LEARNING UNMIXING METHOD FOR GAMMA-SPECTROMETRY	 1871
<i>Dinh Triem Phan, Jérôme Bobin, Cheick Thiam, Christophe Bobin, Commissariat à l'énergie atomique (CEA), France</i>	
TU1.PA1.2: RED-PHASECUT: A VARIATIONAL SAMPLER USING DIFFUSION MODEL FOR FOURIER PHASE RETRIEVAL	 1876
<i>Eunju Cha, Sookmyung Women's University, Korea (South)</i>	
TU1.PA1.3: DEEP UNROLLING OF ROBUST PCA AND CONVOLUTIONAL SPARSE CODING FOR STATIONARY TARGET LOCALIZATION IN THROUGH WALL RADAR IMAGING	 1881
<i>Hugo Brehier, CentraleSupélec, Université Paris-Saclay, France; Arnaud Breloy, Conservatoire National des Arts et Métiers, France; Chengfang Ren, CentraleSupélec, Université Paris-Saclay, France; Guillaume Ginolhac, Université Savoie Mont-Blanc, France</i>	
TU1.PA1.4: AN IMPROVED TABULAR DATA GENERATOR WITH VAE-GMM INTEGRATION	 1886
<i>Patricia A. Apellániz, Juan Parras, Santiago Zazo, Universidad Politécnica de Madrid, Spain</i>	
TU1.PA1.5: QUANTIZATION-AWARE TRAINING FOR MULTI-AGENT REINFORCEMENT LEARNING	 1891
<i>Nikolaos Chandrinou, Michalis Amasialidis, Manos Kirtas, Konstantinos Tsampazis, Nikolaos Passalis, Anastasios Tefas, Dept. of Informatics, Aristotle University of Thessaloniki, Greece, Greece</i>	
TU1.PA1.6: TOWARDS OPTIMAL TRADE-OFFS IN KNOWLEDGE DISTILLATION FOR CNNs AND VISION TRANSFORMERS AT THE EDGE	 1896
<i>John Violos, Symeon Papadopoulos, Ioannis Kompatsiaris, Centre for Research & Technology Hellas, Greece</i>	
TU1.PA1.7: FAST DECONVOLUTION USING A COMBINATION OF RICHARDSON-LUCY ITERATIONS AND DIFFUSION REGULARIZATION	 1901
<i>Thibaut Modrzyk, Voichita Maxim, Ane Etxebeeste, INSA-Lyon, France; Elie Bretin, INSA de Lyon, France</i>	
TU1.PA1.8: CONTINUOUS WAVELET TRANSFORM BASED VARIABLE PROJECTION NETWORKS	 1906
<i>Attila Miklós Ámon, Eötvös Loránd University, Department of Numerical Analysis, Hungary; Kristian Fenech, Péter Kovács, Eötvös Loránd University, Hungary; Tamás Gábor Dózsa, HUN-REN Institute for Computer Science and Control, Hungary</i>	
TU1.PA1.9: DIGCE: DIFFUSION MODEL WITH GRU-BASED CONDITIONAL ENCODER FOR FRI SIGNAL RECONSTRUCTION	 1911
<i>Junfeng Cheng, Yingkai Yang, Tania Stathaki, Imperial College London, United Kingdom</i>	
TU1.PA1.10: SELF-SUPERVISED TRANSMISSION WAVEFORM LEARNING FOR ULTRAFAST PULSE-ECHO ULTRASOUND IMAGING WITH SPARSE RECONSTRUCTION	 1916
<i>Ozan Cakiroglu, Eduardo Pérez, Florian Roemer, Fraunhofer Institute for Non-Destructive Testing IZFP, Germany; Martin Schiffner, Ruhr-University Bochum, Germany</i>	

TU1.PA1.11: NETWORK INFERENCE FROM HEAT DIFFUSION DYNAMICS	1921
<i>Santosh Nannuru, Ashuthosh Bharadwaj, IIIT Hyderabad, India</i>	
TU1.PA1.12: R2D2 IMAGE RECONSTRUCTION WITH MODEL UNCERTAINTY	1926
QUANTIFICATION IN RADIO ASTRONOMY	
<i>Amir Aghabiglou, Chung San Chu, Arwa Dabbech, Yves Wiaux, Heriot-watt university, United Kingdom</i>	
 TH2.SC2: APPLICATIONS OF MACHINE LEARNING	
TH2.SC2.1: DEEP LEARNING-BASED ON/OFF DETECTION FOR ENHANCED ENERGY	1846
DISAGGREGATION	
<i>Nidhal BALTI, Baptiste VRIGNEAU, Pascal SCALART, Univ of Rennes, France</i>	
TH2.SC2.2: GENERALIZED FDIA DETECTION IN POWER DEPENDENT ELECTRIFIED	1851
TRANSPORTATION SYSTEMS	
<i>Shahriar Rahman Fahim, Rachad Atat, Cihat Kececi, Texas A&M University, United States; Abdulrahman Takiddin, Florida State University, United States; Muhammad Ismail, Tennessee Tech University, United States; Katherine R. Davis, Erchin Serpedin, Texas A&M University, United States</i>	
TH2.SC2.3: WAVEFIELD MAE: LEVERAGING LARGE VISION MODELS FOR ULTRASONIC	1856
WAVEFIELD PATTERN ANALYSIS	
<i>Jiaxing YE, Takumi Kobayashi, Nobuyuki Toyama, National Institute of Advanced Industrial Science and Technology, Japan, Japan</i>	
TH2.SC2.4: GENERATING SYNTHETIC DATA TO TRAIN A DEEP UNROLLED NETWORK	1861
FOR HYPERSPECTRAL UNMIXING	
<i>Rassim Hadjeres, Christophe Kervazo, Florence Tupin, Télécom Paris, France</i>	
TH2.SC2.5: SINGLE GATE SPIKING RECURRENT NEURAL NETWORK FOR	1866
HISTOGRAM-LESS SINGLE-PHOTON DEPTH SENSING	
<i>Yijie Miao, Makoto Ikeda, The University of Tokyo, Japan</i>	
 WE2.AUD: LEARNING THEORY AND METHODS	
WE2.AUD.1: GRADIENT CODING IN DECENTRALIZED LEARNING FOR EVADING	1821
STRAGGLERS	
<i>Chengxi Li, Mikael Skoglund, KTH Royal Institute of Technology, Sweden</i>	
WE2.AUD.2: A UNIFIED FRAMEWORK FOR HARD AND SOFT CLUSTERING WITH	1826
REGULARIZED OPTIMAL TRANSPORT	
<i>Jean-Frédéric Diebold, Safran Tech, France; Nicolas Papadakis, CNRS, France; Arnaud Dessein, Back Market, France; Charles-Alban Deledalle, Brain Corp, United States</i>	
WE2.AUD.3: ASYMPTOTIC BAYES RISK OF SEMI-SUPERVISED LEARNING WITH	1831
UNCERTAIN LABELING	
<i>Victor Léger, Romain Couillet, Université Grenoble Alpes, France</i>	
WE2.AUD.4: ON TRANSFER IN CLASSIFICATION: HOW WELL DO SUBSETS OF CLASSES	1836
GENERALIZE?	
<i>Raphael Baena, enpc, France; Lucas Drumetz, Vincent Gripon, IMT Atlantique, France</i>	
WE2.AUD.5: UNPAIRED TRAINING FOR AFM IMAGE PROCESSING OF R2R-PRINTED CNTS	1841
<i>Soobin Park, Soyoung Na, Seung Hyun Song, Eunju Cha, Sookmyung Women's University, Korea (South)</i>	

TU2.SC3: PATTERN RECOGNITION AND CLASSIFICATION

TU2.SC3.1: LEARNING AND SCORING POINT PROCESS MODELS FOR OBJECT DETECTION IN SATELLITE IMAGES 1771

Jules Mabon, Inria, Université Côte d'Azur, France; Mathias Ortner, Airbus Defence and Space, France; Josiane Zerubia, Inria, Université Côte d'Azur, France

TU2.SC3.2: ADEQUATE STRUCTURING OF THE LATENT SPACE FOR EASY CLASSIFICATION AND OUT-OF-DISTRIBUTION DETECTION 1776

Maxime Ossonce, ESME, France; Pierre Duhamel, Université Paris-Saclay/CNRS / CentraleSupélec, France; Florence Alberge, Université Paris-Saclay, France

TU2.SC3.3: DEEP MATRIX PROFILE FOR MANEUVER CLASSIFICATION IN LOW EARTH ORBIT SATELLITE TRAJECTORIES 1781

Stéfan Baudier, Mines Paris, PSL University / Thales LAS France, France; Santiago Velasco-Forero, Mines Paris, PSL University, France; Franck Jean, Daniel Brooks, Thales LAS France, France; Jesus Angulo, Mines Paris, PSL University, France

TU2.SC3.4: FLOCORA : FEDERATED LEARNING COMPRESSION WITH LOW-RANK ADAPTATION 1786

Lucas Ribeiro, Mathieu Léonardon, IMT Atlantique, France; Guillaume Muller, Mines Saint-Etienne, Institut Henri Fayol, France; Virginie Fresse, Hubert Curien Laboratory, France; Matthieu Arzel, IMT Atlantique, France

TU2.SC3.5: FICUS: FEW-SHOT IMAGE CLASSIFICATION WITH UNSUPERVISED SEGMENTATION 1791

Jonathan Lys, Frédéric Lin, Clément Béliveau, Jules Decaestecker, Yassir Bendou, Aymane Abdali, Bastien Pasdeloup, IMT Atlantique, France

TU3.SC3: LEARNING METHODS FOR INVERSE PROBLEMS

TU3.SC3.1: DEEP CALIBRATION AND OPERATOR LEARNING FOR GROUND PENETRATING RADAR IMAGING ... 1796

Saurav K. Shastri, The Ohio State University, United States; Yanting Ma, Petros Boufounos, Hassan Mansour, Mitsubishi Electric Research Laboratories, United States

TU3.SC3.2: WHITENESS-BASED BILEVEL LEARNING OF REGULARIZATION PARAMETERS IN IMAGING 1801

Carlo Santambrogio, Science and High Technology Department, University of Insubria, Italy; Monica Pragliola, Dept. of Mathematics and Applications, University of Naples Federico II, Italy; Alessandro Lanza, Dept. of Mathematics, University of Bologna, Italy; Marco Donatelli, Science and High Technology Department, University of Insubria, Italy; Luca Calatroni, Laboratoire I3S, CNRS, UniCA, Inria, Sophia-Antipolis, France

TU3.SC3.3: RECOVERY GUARANTEES OF UNSUPERVISED NEURAL NETWORKS FOR INVERSE PROBLEMS TRAINED WITH GRADIENT DESCENT 1806

Nathan Buskulis, Université de Caen, France; Jalal Fadili, ENSICAEN, France; Yvain Quéau, CNRS, France

TU3.SC3.4: RESTART STRATEGIES ENABLING AUTOMATIC DIFFERENTIATION FOR HYPERPARAMETER TUNING IN INVERSE PROBLEMS 1811

Leo Davy, Nelly Pustelnik, Patrice Abry, Ecole Normale Supérieure de Lyon, France

TU3.SC3.5: FAST AND DIRECT ANGLE INFERENCE USING MASKED PROJECTION MODELLING IN 2D TOMOGRAPHY WITH UNKNOWN VIEWS 1816

Jiakang Chen, Renke Wang, Vincent C. H. Leung, Pier Luigi Dragotti, Imperial College London, United Kingdom

TH1.PA2: SIGNAL AND DATA ANALYTICS FOR MACHINE LEARNING - III

TH1.PA2.1: RESILIENCE OF DATA-DRIVEN CYBERATTACK DETECTION SYSTEMS IN 1992 SMART POWER GRIDS

Abdulrahman Takiddin, Florida State University, United States; Rachad Atat, Texas A&M University at Qatar, Qatar; Hayat Mbayed, Florida State University, United States; Muhammad Ismail, Tennessee Tech University, United States; Erchin Serpedin, Texas A&M University, United States

TH1.PA2.2: TIGHT HYBRIDIZATION OF LONG SHORT-TERM MEMORY NEURAL 1997 NETWORKS AND ROBUST KALMAN FILTER FOR REMAINING USEFUL LIFE ESTIMATION OF PROTON EXCHANGE MEMBRANE FUEL CELLS

Mathias Lecroart, Audrey Giremus, Tudor-Bogdan Airimitoie, Mathieu Chevié, Christophe Farges, Univ. Bordeaux, CNRS, Bordeaux INP, IMS, UMR 5218, France

TH1.PA2.3: RGB2LST: ENHANCING DEEP LEARNING-BASED LAND SURFACE 2002 TEMPERATURE ESTIMATION WITH MULTI-MODALITY AND ARTIFACTS REMOVAL

Issam Khedher, Univ Lyon, Univ Lyon 2, CNRS, INSA Lyon, UCBL, Centrale Lyon, LIRIS, UMR5205, France; Jean-Marie Favreau, Université Clermont Auvergne, CNRS, Mines de Saint-Etienne, LIMOS, France; Serge Miguet, Gilles Gesquière, Univ Lyon, Univ Lyon 2, CNRS, INSA Lyon, UCBL, Centrale Lyon, LIRIS, UMR5205, France

TH1.PA2.4: A DOUBLE-EDGED SWORD: THE POWER OF TWO IN DEFENDING AGAINST 2007 DNN BACKDOOR ATTACKS

Quentin Le Roux, Thales Group, France; Kassem Kallas, IMT Atlantique, France; Teddy Furon, INRIA, France

TH1.PA2.5: NORMAL WITH OCCASIONAL ANOMALIES: FEATURE EXTRACTION FOR 2012 DETECTING NON-STATIONARY ABNORMAL EVENTS IN WIND TURBINES

Takuya Wakayama, Taiki Inoue, Waseda University, Japan; Jun Ogata, National Institute of Advanced Industrial Science and Technology, Japan; Makoto Iida, The University of Tokyo, Japan; Tetsuji Ogawa, Waseda University, Japan

TH1.PA2.6: TOWARDS AUTONOMOUS ROBOTIC STRUCTURE INSPECTION WITH 2017 DENSE-DIRECT VISUAL-SLAM

Diego Navarro Tellez, Centre Inria d'Université Côte d'Azur & Cerema Normandie-Centre, France; Raphael Antoine, Cerema Normandie-Centre, France; Ezio Malis, Philippe Martinet, Centre Inria d'Université Côte d'Azur, France

TH1.PA2.7: UNFOLDING ADMM FOR ENHANCED SUBSPACE CLUSTERING OF 2022 HYPERSPECTRAL IMAGES

XIANLU LI, Nicolas Nadisic, Ghent University, Belgium; Shaoguang Huang, China University of Geosciences, China; Aleksandra Pizurica, Ghent University, Belgium

TH1.PA2.8: ENHANCING THE EXPLAINABILITY OF GRADIENT BOOSTING CLASSIFICATION . 2027 THROUGH COMPARABLE SAMPLES SELECTION

Emilien Boizard, Gilles Chardon, Frédéric Pascal, Université Paris-Saclay, CNRS, CentraleSupélec, France

TH1.PA2.9: TLOC: A MATHEMATICAL PROBABILISTIC MODEL FOR WIRELESS 2032 FINGERPRINTING

Alexandre Maranhão da Rocha, Lucas José Velôso de Souza, Guilherme Nascimento de Oliveira, CentraleSupélec, France; Raul de Lacerda, CentraleSupélec, Université Paris-Saclay, France

TH1.PA2.10: TINYDATA: JOINT DATASET CONDENSATION WITH DIMENSIONALITY 2037 REDUCTION

Yezi Liu, Yanning Shen, University of California Irvine, United States

TH1.SC2: INTEGRATED SENSING AND COMMUNICATION AND CHANNEL ESTIMATION

TH1.SC2.1: EXPERIMENTAL APPROACH FOR IR-UWB RADAR-BASED PEOPLE DETECTION 2042 IN INDUSTRY 4.0 ENVIRONMENTS

Zaynab Baydoun, Roua Youssef, Emanuel Radoi, Univ Brest, CNRS, UMR 6285, Lab-STICC, France; Stéphane Azou, ENIB, CNRS, UMR 6285, Lab-STICC, France; Tina Yaacoub, Saint Joseph University, Lebanon; David Espes, Univ Brest, CNRS, UMR 6285, Lab-STICC, France

TH1.SC2.2: WAVEFORM DESIGN FOR ISAC SYSTEMS VIA THE RIEMANNIAN GEOMETRIC 2047 OPTIMIZATION NETWORK

Weijie Xiong, Jingran Lin, Kai Zhong, Qiang Li, Jinfeng Hu, University of Electronic Science and Technology of China, China

TH1.SC2.3: SPATIAL INFERENCE NETWORK: INDOOR PROXIMITY DETECTION VIA 2052 MULTIPLE HYPOTHESIS TESTING

Martin Gölz, Luca Okubo Baudenbacher, Abdelhak M. Zoubir, Technische Universität Darmstadt, Germany; Visa Koivunen, Aalto University, Finland

TH1.SC2.4: ANGLES ESTIMATION FOR MMWAVE MIMO RADAR USING COUPLED 2057 COARRAYS

Yuan-Pei Lin, Yi-Hsiang Liao, National Yang Ming Chiao Tung University, Taiwan

TH1.SC2.5: LOW COMPLEXITY ESTIMATION OF LTV CHANNELS FOR OFDM SYSTEMS 2062 WITH UNIFORMLY SPACED PILOTS

Chih-Fan Pai, See-May Phoong, National Taiwan University, Taiwan

TH1.SC2.6: AN EFFICIENT CHANNEL TRAINING PROTOCOL FOR CHANNEL ESTIMATION 2067 IN DOUBLE RIS-AIDED MIMO SYSTEMS

Sepideh Gherekhloo, TU Ilmenau, Germany; Khaled Ardah, Lenovo (Germany) GmbH, Germany; André L. F. de Almeida, Federal University of Ceará, Brazil; Martin Haardt, TU Ilmenau, Germany

FR1.SC2: COMMUNICATION SYSTEMS AND RECEIVERS

FR1.SC2.1: SPATIAL SIGMA-DELTA MODULATION FOR FEW-BIT MIMO PRECODING: 2072 QUANTIZATION ERROR SUPPRESSION ACCORDING TO CHANNEL STATE INFORMATION

Wai-Yiu Keung, Wing-Kin Ma, The Chinese University of Hong Kong, China

FR1.SC2.2: JOINT SLOT AND POWER OPTIMIZATION FOR GRANT FREE RANDOM ACCESS 2077 WITH UNKNOWN AND HETEROGENEOUS DEVICE ACTIVITY

Alix Jeannerot, INSA Lyon, Inria, CITI, UR3720, France; Malcolm Egan, Inria, INSA Lyon, CITI, UR3720, France; Jean-Marie Gorce, INSA Lyon, Inria, CITI, UR3720, France

FR1.SC2.3: COMBINING-BASED SPATIAL DOMAIN SIC METHOD IN A FD MIMO SYSTEM 2082 BY ADDITION OF AN RF CHAIN

Xuan CHEN, Vincent SAVAUX, Matthieu CRUSSIÈRE, Patrick SAVELLI, b<>com, France; Koffi-Clément YAO, Université de Bretagne Occidentale, France

FR1.SC2.4: ADS-B AS AN EXAMPLE FOR FRAME SYNCHRONIZATION AND DETECTION OF 2087 SHORT PACKETS

Stephan Pfletschinger, Offenburg University of Applied Sciences, Germany; Monica Navarro, CTTC-CERCA, Spain

FR1.SC2.5: LOG-FSK: A FREQUENCY MODULATION FOR OVER-THE-AIR COMPUTATION 2092

Marc Martinez Gost, Centre Tecnològic de Telecomunicacions de Catalunya, Spain; Ana Isabel Pérez Neira, Centre Tecnològic de Telecomunicacions de Catalunya, Spain; Miguel Ángel Lagunas, Universitat Politècnica de Catalunya, Spain

FR1.SC2.6: MULTI-LEO SATELLITE NETWORKS FOR INTEGRATED ACCESS AND BACKHAUL: OUTAGE PERFORMANCE ANALYSIS	2097
<i>Abubakar Abdulkarim, Behrouz Maham, Nazarbayev University, Kazakhstan</i>	
TH2.PA1: INFORMATION AND COMMUNICATIONS	
TH2.PA1.1: HYBRID GROVER SEARCH FOR AUD ON A NISQ DEVICE	2102
<i>Romain Piron, Claire Goursaud, Université de Lyon, INSA Lyon, INRIA, CITI EA 3720, France</i>	
TH2.PA1.2: DYNAMIC RELATIVE REPRESENTATIONS FOR GOAL-ORIENTED SEMANTIC COMMUNICATIONS	2107
<i>Simone Fiorellino, Sapienza University of Rome, Italy; Claudio Battiloro, Harvard University, United States; Emilio Calvanese Strinati, CEA Leti, France; Paolo Di Lorenzo, Sapienza University of Rome, CNIT, Italy</i>	
TH2.PA1.3: SPATIAL PRECODING IN FREQUENCY DOMAIN FOR MULTI-USER MIMO AFFINE FREQUENCY DIVISION MULTIPLEXING	2112
<i>Vincent Savaux, Xuan Chen, IRT b-com, France</i>	
TH2.PA1.4: DEEP LEARNING COMPRESSED SENSING-BASED CHANNEL ESTIMATION FOR MASSIVE MISO SYSTEMS	2117
<i>Keke Zu, University of Electronic Science and Technology of China, China; Yuhao He, Yu Yuan, Shenzhen University, China; Yi Wang, Qiang Liu, Kun Yang, University of Electronic Science and Technology of China, China; Martin Haardt, Ilmenau University of Technology, Germany</i>	
TH2.PA1.5: BILINEAR HYBRID EXPECTATION MAXIMIZATION AND EXPECTATION PROPAGATION FOR SEMI-BLIND CHANNEL ESTIMATION	2122
<i>Zilu Zhao, Dirk Slock, EURECOM, France</i>	
TH2.PA1.6: OPTIMAL TRANSMITTER DESIGN AND PILOT SPACING IN MIMO NON-STATIONARY AGING CHANNELS	2127
<i>Sajad Daei, Gabor Fodor, Mikael Skoglund, KTH royal institute of technology, Sweden</i>	
TH2.PA1.7: MATCHING SALEH AND VOLTERRA SERIES MODEL	2132
<i>Arthur Louchart, IMT Nord Europe, France; Inbar Fijalkow, ENSEA, France</i>	
TH2.PA1.8: ROBUST SAMPLING METHODS FOR ACCURATE POWER FLOW TIME-SWEEP APPROXIMATIONS WITH GRAPH NEURAL NETWORKS	2137
<i>Valentin Bolz, Johannes Rueß, DIgSILENT GmbH, Germany; Andreas Zell, University of Tübingen, Germany</i>	
TH2.PA1.9: SPARSE CODING TECHNIQUES FOR ADJUSTABLE LOSSY COMPRESSION OF BASEBAND SIGNALS IN CENTRALIZED AND VIRTUALIZED COMMUNICATION SYSTEMS	2142
<i>Thibault Piana, Safran Data Systems, France; Abdeldjalil Aïssa-El-Bey, Matthieu Arzel, IMT Atlantique, France; Alain Thomas, Safran Data Systems, France</i>	
TH2.PA1.10: LEARNING ON JPEG-LDPC COMPRESSED IMAGES: CLASSIFYING WITH SYNDROMES	2147
<i>Ahcen Aliouat, Elsa Dupraz, IMT Atlantique, CNRS UMR 6285, Lab-STICC, France</i>	
TH2.PA1.11: JAMMING DETECTION FOR LOW-RESOLUTION SC-FDE SYSTEMS: A MACHINE LEARNING APPROACH	2152
<i>Junghoon Kim, Miguel Castellanos, North Carolina State University, United States; Arupjyoti Bhuyan, Idaho National Laboratory, United States; Robert Heath, University of California, San Diego, United States</i>	

TH2.SC3: L2_SPMUS_DISTRIBUTED_AND_GRAPH_BASED_LEARNING

TH2.SC3.1: ON THE PRIVACY BOUND OF DISTRIBUTED OPTIMIZATION AND ITS APPLICATION IN FEDERATED LEARNING 2232

Qiongxu Li, Tsinghua University, China; Milan Lopuhaa-Zwakenberg, University of Twente, Netherlands; Wenrui Yu, Delft University of Technology, Netherlands; Richard Heusdens, Netherlands Defence Academy and Delft University of Technology, Netherlands

TH2.SC3.2: PHYSICS-GUIDED NEURAL NETWORKS FOR DISTRIBUTED SPARSE GAS SOURCE LOCALIZATION USING POISSON'S EQUATION AND GREEN'S FUNCTION METHOD 2237

Victor Scott Prieto Ruiz, Dmitriy Shutin, Thomas Wiedemann, Patrick Hinsin, Deutsches Luft- und Raumfahrtzentrum (DLR), Germany

TH2.SC3.3: NEIGHBOR SELECTING COOPERATION STRATEGIES FOR DISTRIBUTED LEARNING 2242

Evangelos Georgatos, Christos Mavrokefalidis, Kostas Berberidis, University of Patras, Greece

TH2.SC3.4: DISTRIBUTED MAXIMUM CONSENSUS OVER NOISY LINKS 2247

Ehsan Lari, Norwegian University of Science and Technology, Norway; Reza Arablouei, Commonwealth Scientific and Industrial Research Organisation, Australia; Naveen Kumar Dasanoddi Venkategowda, Linköping University, Sweden; Stefan Werner, Norwegian University of Science and Technology, Norway

TH2.SC3.5: ENHANCED SENSOR ENVIRONMENT GRAPH BASED DEEP LEARNING APPROACH FOR AIR QUALITY ANOMALY DETECTION 2252

Sahar Masmoudi, Christelle Garnier, Anne Savard, Vincent Itier, Stéphane Sauvage, IMT Nord Europe, Institut Mines Télécom, France; Florentin Bulot, Pascal Kaluzny, TERA Sensor, France

TU1.PA2: P2_SPMUS_SPARSE_AND_TENSOR_BASED_ARRAY_PROCESSING

TU1.PA2.1: JOINT SINGULAR VALUE DECOMPOSITION: A NEW ALGORITHM FOR COMPLEX MATRICES 2257

Ammar MESLOUB, Tayeb TOUHAMI, Ecole Militaire Polytechnique (EMP), Algeria; Karim ABED-MERAIM, Université d'Orléans, France; Adel BELOUCHRANI, Mustapha DJEDDOU, Ecole Nationale Polytechnique, Algeria

TU1.PA2.2: TENSOR TRAIN APPROXIMATION OF MULTIVARIATE FUNCTIONS 2262

Petr Tichavsky, Institute of Information Theory and Automation of the CAS, Czech Republic; Ondrej Straka, University of West Bohemia, Czech Republic

TU1.PA2.3: CANONICAL RANK ESTIMATION USING SIDE INFORMATION, APPLICATION TO MULTIDIMENSIONAL HARMONIC RETRIEVAL 2267

Maxence Giraud, Université de Lille, France; Vincent Itier, IMT Nord Europe, France; Rémy Boyer, Université de Lille, France

TU1.PA2.4: TRANSMIT AND RECEIVE SENSOR SELECTION USING THE MULTIPLICITY IN THE VIRTUAL ARRAY 2272

Ids van der Werf, Costas Kokke, Richard Heusdens, Richard Hendriks, Geert Leus, Delft University of Technology, Netherlands; Mario Coutino, TNO, Netherlands

TU1.PA2.5: LOOKING FOR EQUIVALENCE BETWEEN MAXIMUM LIKELIHOOD AND SPARSE DOA ESTIMATORS 2277

Thomas Aussaguès, Anne Ferréol, Alice Delmer, THALES, France; Pascal Larzabal, SATIE, Université Paris-Saclay, CNRS, France

TU1.PA2.6: WIDEBAND DIRECTION-OF-ARRIVAL ESTIMATION VIA COVARIANCE FITTING AND FOCUSING .. 2282

Xunmeng Wu, Zai Yang, Zhiqiang Wei, Xi'an Jiaotong University, China; Robert Schober, Friedrich-Alexander-University Erlangen-Nurnberg, Germany; Zongben Xu, Xi'an Jiaotong University, China

TU1.PA2.7: A MULTILEVEL FRAMEWORK FOR ACCELERATING USARA IN RADIO-INTERFEROMETRIC IMAGING	2287
<i>Guillaume Lauga, Ecole Normale Supérieure de Lyon, France; Audrey Repetti, Heriot-Watt University, United Kingdom; Elisa Riccietti, Nelly Pustelnik, Paulo Gonçalves, Ecole Normale Supérieure de Lyon, France; Yves Wiaux, Heriot-Watt University, United Kingdom</i>	
TU1.PA2.8: JOINT ORDER AND COEFFICIENT ESTIMATION FOR MVAR MODELS USING GROUP SPARSITY	2292
<i>Zheng Fang, Laurent Albera, Amar Kachenoura, Jean François Houvenaghel, Joan Duprez, Univ Rennes, France; Huazhong Shu, Southeast University, China; Yan Kang, Shenzhen Technology University, China; Régine Le Bouquin Jeannès, Univ Rennes, France</i>	
TU1.PA2.9: MISSPECIFIED TIME-DELAY AND DOPPLER ESTIMATION OVER HIGH DYNAMICS NON-GAUSSIAN SCENARIOS	2297
<i>Lorenzo Ortega, IPSA/TéSA Toulouse, France; Stefano Fortunati, IPSA/ L2S, France</i>	
TH3.PA3: P3_SPMUS_MIMO_RADAR_PROCESSING	
TH3.PA3.1: DESIGN OF COGNITIVE RADAR ORTHOGONAL SUBPULSE WIDTH AGAINST MULTIPLE JAMMING	2392
<i>Yi Wang, Xianxiang Yu, Tao Fan, Guolong Cui, University of Electronic Science and Technology of China, China</i>	
TH3.PA3.2: HYBRID OFDM-LFM WAVEFORM DESIGN WITH GOOD CORRELATION PROPERTIES VIA OPTIMALLY ALLOCATING FREQUENCY CARRIERS AND CHIRP-RATE POLARITIES	2397
<i>Xiaohan Zhao, Yongzhe Li, Ran Tao, Beijing Institute of Technology, China</i>	
TH3.PA3.3: EFFICIENT WAVEFORM DESIGN WITH GOOD CORRELATION AND INFORMATION EMBEDDING PERFORMANCES FOR THE JOINT MIMO RADAR AND COMMUNICATIONS	2402
<i>Xiaohan Zhao, Yongzhe Li, Ran Tao, Beijing Institute of Technology, China</i>	
TH3.PA3.4: NEAR-FIELD EM-BASED MULTISTATIC RADAR RANGE ESTIMATION	2407
<i>François De Saint Moulin, Guillaume Thiran, Christophe Craeye, Luc Vandendorpe, Claude Oestges, UCLouvain, Belgium</i>	
TH3.PA3.5: MAXIMUM LIKELIHOOD ALTERNATING SUMMATION FOR MULTISTATIC ANGLE-BASED MULTITARGET LOCALIZATION	2412
<i>Martin Willame, Université catholique de Louvain, Belgium; Laurent Storrer, Hasan Can Yildirim, François Horlin, Université libre de Bruxelles, Belgium; Jérôme Louveaux, Université catholique de Louvain, Belgium</i>	
TH3.PA3.6: EVOLUTIONARY APPROACHES FOR 4D RADAR BEAMPATTERN SHAPING IN SPECTRALLY DENSE ENVIRONMENT	2417
<i>Masoud Dorvash, Isfahan University of Technology, Iran; Mohammad Alae-Kerahroodi, SnT - Interdisciplinary Centre for Security, Reliability and Trust, University of Luxembourg, Luxembourg; Mahmoud Modarres-Hashemi, Isfahan University of Technology, Iran; Björn Ottersten, SnT - Interdisciplinary Centre for Security, Reliability and Trust, University of Luxembourg, Luxembourg</i>	
TH3.PA3.7: DOUBLE-KNOWLEDGE-AIDED RAO AND WALD TESTS USING GIBBS SAMPLING UNDER TRAINING-LIMITED CONDITION	2422
<i>Pucheng Jing, Xidian University, China; Danilo Orlando, Università degli Studi "Niccolò Cusano", Italy; Jiahao Zhang, Yongchan Gao, Xidian University, China; Jun Liu, University of Science and Technology of China, China; Lei Zuo, Xidian University, China</i>	
TH3.PA3.8: STAR-RIS-BASED PULSE-DOPPLER RADARS	2427
<i>Emanuele Grossi, Hedieh Taremizadeh, Luca Venturino, University of Cassino and Southern Lazio, Italy</i>	

TH3.PA3.9: DESIGN OF OFDM WAVEFORMS WITH SUBCARRIER INTERLEAVING: TO 2432
ACHIEVE GOOD PMEPR AND SNR PERFORMANCES FOR THE JOINT RADAR AND COMMUNICATIONS

Xiaonan Xu, Yongzhe Li, Ran Tao, Tao Shan, Beijing Institute of Technology, China

TU2.PA2: P1_SPMUS_GRAPH_SIGNAL_PROCESSING_AND_LEARNING

TU2.PA2.1: BENEFITS OF HYPERGRAPHS FOR DENSITY-BASED CLUSTERING..... 2302

Louis Hauseux, Konstantin Avrachenkov, Josiane Zerubia, Inria, France

TU2.PA2.2: USING GRAPH PRIOR TO LEARN NETWORK GRANGER CAUSALITY 2307

Lucas Zoroddu, ENS Paris-Saclay, France; Pierre Humbert, Université Paris-Saclay, France; Laurent Oudre, ENS Paris-Saclay, France

TU2.PA2.3: AN EFFICIENT ALGORITHM FOR LEARNING LOCALLY STATIONARY GRAPH 2312
PROCESSES

Abdullah Canbolat, Simula Metropolitan Center for Digital Engineering, Norway; Elif Vural, Middle East Technical University, Turkey

TU2.PA2.4: TOPOLOGY-INDEPENDENT GEVD-BASED DISTRIBUTED ADAPTIVE 2317
NODE-SPECIFIC SIGNAL ESTIMATION IN AD-HOC WIRELESS ACOUSTIC SENSOR NETWORKS

Paul Didier, Toon van Waterschoot, Marc Moonen, KU Leuven, Belgium

TU2.PA2.5: INTERPRETABLE GRAPH SIGNAL DENOISING USING REGULARIZATION BY 2322
DENOISING

Hayate KOJIMA, Tokyo University of Agriculture and Technology, Japan; Hiroshi Higashi, Yuichi Tanaka, Osaka University, Japan

TU2.PA2.6: SENSOR PLACEMENT PROBLEM ON NETWORKS FOR SENSORS WITH 2327
MULTIPLE SPECIFICATIONS

Junya Hara, Osaka University, Japan; Shunsuke Ono, Tokyo Institute of Technology, Japan; Hiroshi Higashi, Yuichi Tanaka, Osaka University, Japan

TU2.PA2.7: SIMPLICIAL COMPLEX LEARNING FROM EDGE FLOWS VIA SPARSE CLIQUE 2332
SAMPLING

Sravanthi Gurugubelli, Sundeep Prabhakar Chepuri, Indian Institute of Science, Bangalore, India

TU2.PA2.8: A MULTISCALE ANOMALY DETECTION FRAMEWORK FOR AIS TRAJECTORIES 2337
VIA HEAT GRAPH LAPLACIAN DIFFUSION

Kareth León-López, University of Toulouse, France; Serge Fabre, TéSA Laboratory, France; Fabio Manzoni, Laurent Mirambell, HENSOLDT NEXEYA FRANCE, France; Jean-Yves Tournet, University of Toulouse, France

TU3.AUD: L1_SPMUS_COMPUTATIONAL_AND_OPTIMIZATION_SENSOR_
ARRAY_PROCESSING

TU3.AUD.1: JOINT DECOMPOSITION OF MULTICHANNEL SIGNALS WITH 2182
MULTIMARGINAL OPTIMAL TRANSPORT

Jean Mallejac, Laboratoire des Signaux et Systemes, Paris-Saclay University, CNRS, CentraleSupélec, France; Jerome Idier, Laboratoire des Sciences du Numerique de Nantes, CNRS, France; Charles Soussen, Laboratoire des Signaux et Systemes, Paris-Saclay University, CNRS, CentraleSupélec, France; Xiangyi Li, Institut Fresnel, Aix Marseille Université, CNRS, Centrale Marseille, France

TU3.AUD.2: EFFICIENT CONVOLUTIONAL FORWARD MODELING AND SPARSE CODING 2187
IN MULTICHANNEL IMAGING

Han Wang, Fraunhofer Institute for Nondestructive Testing, Germany; Yhonatan Kvich, Weizmann Institute of Science, Israel; Eduardo Pérez, Florian Römer, Fraunhofer Institute for Nondestructive Testing, Germany; Yonina C. Eldar, Weizmann Institute of Science, Israel

TU3.AUD.3: HYPERSPECTRAL SIGNAL RECONSTRUCTION FROM INTERFEROMETRIC MEASUREMENTS WITH ENRICHED FOURIER BASES 2192

Yassine Mhiri, Rémy Abergel, Andrés Almansa, Lionel Moisan, Université Paris Cité, France

TU3.AUD.4: UNROLLED EXPECTATION MAXIMIZATION FOR SPARSE RADIO INTERFEROMETRIC IMAGING 2197

Nawel Arab, SATIE, ENS Paris-Saclay, Université Paris-Saclay, France; Yassine Mhiri, MAP5, Université Paris Cité, France; Isabelle Vin, SATIE, ENS Paris-Saclay, Université Paris-Saclay, France; Mohammed Nabil El Korso, L2S, CentraleSupélec, Université Paris-Saclay, France; Pascal Larzabal, SATIE, ENS Paris-Saclay, Université Paris-Saclay, France

TU3.AUD.5: OPTIMIZATION ON A GENERALIZED MULTI-ORDER COMPLEX QUADRATIC FORM WITH CONSTANT-MODULUS CONSTRAINTS 2202

Chunxuan Shi, Yongzhe Li, Ran Tao, Beijing Institute of Technology, China

WE2.SC2: L3_SPMUS_REMOTE_SENSING_IN_SYNTHETIC_APERTURE_RADAR

WE2.SC2.1: ROBUST STATISTICS FOR MULTI-BAND SAR IMAGE CHANGE DETECTION 2207

Moustapha Diaw, ONERA, France; Olivier Lerda, Exail Sonar Systems division, France; Joana Frontera-Pons, Frédéric Brigui, ONERA, France; Jean-Philippe Ovarlez, ONERA & CentraleSupélec, France

WE2.SC2.2: UNSUPERVISED CLASSIFICATION OF POLARIMETRIC SAR IMAGES USING BAYESIAN NONPARAMETRIC MODEL AND MARKOV RANDOM FIELD 2212

Wassim Bdiri, Univ Rennes,, France; Nizar Bouhlef, Institut Agro, Univ Angers, INRAE, IRHS, SFR QuaSaV,, France; Stéphane Méric, INSA Rennes,, France; Eric Pottier, Univ Rennes,, France; Fathi Kallel, Enetcom, Univ Sfax,, Tunisia

WE2.SC2.3: UNSUPERVISED RADIOMETRIC CHANGE DETECTION FROM SYNTHETIC APERTURE RADAR IMAGES 2217

Thomas Bultingaire, Inès Meraoumia, Christophe Kervazo, Télécom Paris, Institut Polytechnique de Paris, France; Loïc Denis, Université Jean Monnet, France; Florence Tupin, Télécom Paris, Institut Polytechnique de Paris, France

WE2.SC2.4: MULTI-PURPOSE DOMAIN ADAPTIVE NETWORK FOR UNSUPERVISED SAR COLORIZATION 2222

Nour Aburaed, Mina Al-Saad, University of Dubai, United Arab Emirates; Marouane Tliba, Aladine Chetouani, Université d'Orléans, France; Mohammed Q. Alkhatib, Mohammed Sami Zitouni, University of Dubai, United Arab Emirates; Saeed Al Mansoori, Mohammed Bin Rashid Space Centre, United Arab Emirates; Hussain Al Ahmad, University of Dubai, United Arab Emirates

TU2.SC1: L4_SPMUS_BEAMFORMING

TU2.SC1.1: TRANSCEIVERS DESIGN FOR SLOW-TIME CROSS AMBIGUITY FUNCTION SHAPING 2157

Tao Fan, Yi Wang, Xianxiang Yu, Guolong Cui, University of Electronic Science and Technology of China, China; Wenmin Wang, Beijing Institute of Control and Electronic Technology, China

TU2.SC1.2: OPTIMAL ADAPTIVE BEAMFORMING WITH ROBUST SIDELobe LEVEL CONTROL AGAINST THE MISMATCHES OF THE STEERING VECTORS 2162

Yongwei Huang, Bocheng Li, Guangdong University of Technology, China; Sergiy A. Vorobyov, Aalto University, Finland

TU2.SC1.3: BIT ALLOCATION FOR ADAPTIVE FINITE-RESOLUTION RIS-ASSISTED MIMO SYSTEM 2167

Yuan Huang, Huiqin Du, Jinan University, China

TU2.SC1.4: RECONFIGURABLE INTELLIGENT SURFACE ASSISTED LOW-COST DOA ESTIMATION USING A SINGLE ANTENNA 2172

Yu Feng, Ye Tian, Ningbo University, China; Wei Liu, Queen Mary University of London, United Kingdom; Hua Chen, Ningbo University, China

TU2.SC1.5: BEAMFORMING OPTIMIZATION: EXTENDED TO BIDIRECTIONAL INTEGRATED SENSING AND COMMUNICATION SYSTEM	2177
<i>Siyang Guan, Zehan Liu, Rui Duan, Jian Zhang, Jun Bao, University of Electronic Science and Technology of China, China</i>	
WE3.PA3: P4_SPMUS_MULTICHANNEL_SIGNAL_AND_IMAGE_PROCESSING_APPLICATIONS	
WE3.PA3.1: DETECTING ABNORMAL SHIP TRAJECTORIES USING FUNCTIONAL ISOLATION FORESTS AND DYNAMIC TIME WARPING	2342
<i>Valérien Mangé, Yoann Anezin, TêSA, France; Jean-Yves Tournet, University of Toulouse, France; François Vincent, ISAE-Supaéro, France; Laurent Mirambell, Fábio Manzoni Vieira, Hensoldt Nexeya France, France</i>	
WE3.PA3.2: FROM LINEAR TO NONLINEAR UNFOLDED CONDAT-VU ALGORITHM FOR SPECTRO-POLARIMETRIC HIGHT-CONSTRAST IMAGE RECOVERY	2347
<i>Edouard Chappon, Laboratoire de Physique, ENSL, France; Nelly Pustelnik, Julian Tachella, CNRS, Laboratoire de Physique, ENSL, France; Laurence Denneulin, EPITA, France; André Ferrari, Université Côte d'Azur, France; Maud Langlois, CNRS, Centre de Recherche Astrophysique de Lyon,, France</i>	
WE3.PA3.3: COMPRESSION DESIGN FOR EFFICIENT INFORMATION SHARING IN A NETWORK OF RADIO FREQUENCY SENSORS	2352
<i>Fraser Kenneth Coutts, John Thompson, Bernard Mulgrew, The University of Edinburgh, United Kingdom</i>	
WE3.PA3.4: SOURCES SEPARATION IN HYPERSPECTRAL IMAGES FOR PROTOPLANETS DETECTION AND CHARACTERIZATION	2357
<i>Rémi JULO, Florent Chatelain, Olivier Michel, Laboratoire Grenoble Image Parole Signal Automatique (Gipsa-lab), France; Mickaël Bonnefoy, Philippe Delorme, Institut de Planétologie et d'Astrophysique de Grenoble, France; Sebastián Jorquera, Universidad de Chile, Chile</i>	
WE3.PA3.5: A CONVEX OPTIMIZATION APPROACH FOR SOURCE LOCALIZATION USING LBI CHANGING RATE OF PHASE DIFFERENCE ONLY	2362
<i>Mustafa Nuhoglu, Hakan Cirpan, Istanbul Technical University, Turkey</i>	
WE3.PA3.6: PHASE COHERENCE CHANGE DETECTION VIA CIRCULAR UNIFORMITY TEST APPLIED TO GNSS-REFLECTOMETRY	2367
<i>Ali Chamseddine, Georges Stienne, Serge Reboul, Hamza Issa, Université du Littoral Côte d'Opale, France; Ghaleb Faour, National Council for Scientific Research - Lebanon, France</i>	
WE3.PA3.7: ESTIMATING VEHICLE LENGTH USING FMCW RADAR: A MICRO-DOPPLER SIGNATURE ANALYSIS APPROACH	2372
<i>Victor Deville, Jamie Evans, Jonathan Manton, The University of Melbourne, Australia</i>	
WE3.PA3.8: SHAPE MEASUREMENT OF RADIO GALAXIES USING EQUIVARIANT CNNs	2377
<i>Priyamvad Tripathi, Sunrise Wang, Simon Prunet, André Ferrari, Université Côte d'Azur, France</i>	
WE3.PA3.9: MAGNETIC ANOMALY DETECTION USING NOISE-OPTIMIZED ORTHONORMALIZED FUNCTIONS ON DUAL MAGNETOMETRIC SENSOR SIGNALS	2382
<i>Timothée Roignant, Ecole Navale, IRENav / Thales, France; Nicolas Le Josse, Thales, France; Abdel Boudraa, Jean-Jacques Szkolnik, Ecole Navale, IRENav, France; Paul Penven, Thales, France; Hugues Henocq, DGA-TN, France</i>	
WE3.PA3.10: NON-NEGATIVE MATRIX FACTORIZATION OF SWATH DIA DATA IMPROVES GLOBAL METABOLITE IDENTIFICATION	2387
<i>Diana Karaki, Sylvain Dechaumet, Annelaure Damont, Benoit Colsch, Francois Fenaille, CEA, France; Antoine Souloumiac, CEA-List, France; Etienne Thevenot, CEA, France</i>	

TU1.AUD: COMPRESSED SENSING, SPARSE MODELING AND SIGNAL RECONSTRUCTION

TU1.AUD.1: ADAPTIVE BLOCK SPARSE REGULARIZATION UNDER ARBITRARY LINEAR TRANSFORM 2437

Takanobu Furuhashi, Hidekata Hontani, Tatsuya Yokota, Nagoya Institute of Technology, Japan

TU1.AUD.2: ADAPTIVE INTEGRATE-AND-FIRE TIME ENCODING MACHINE..... 2442

Aseel Omar, Alejandro Cohen, Technion—Israel Institute of Technology, Israel

TU1.AUD.3: MATCHING PURSUIT COVARIANCE LEARNING 2447

Esa Ollila, Aalto University, Finland

TU1.AUD.4: MINIMUM-VOLUME NONNEGATIVE MATRIX COMPLETION 2452

Olivier Vu thanh, Nicolas Gillis, University of Mons, Belgium

TU1.AUD.5: ORTHOGONAL MATCHING PURSUIT-BASED ALGORITHMS FOR THE BIRKHOFF-VON NEUMANN DECOMPOSITION 2457

Damien Lesens, ENS de Lyon, France; J  r  my E. Cohen, Bora Ucar, CNRS, France

TU1.AUD.6: BITS, CHANNELS, FREQUENCIES AND UNLIMITED SENSING: PUSHING THE LIMITS OF SUB-NYQUIST PRONY 2462

V  clav Pavl   ek, Ruiming Guo, Ayush Bhandari, Imperial College London, United Kingdom

TU3.PA3: SPARSE CONVEX AND NONCONVEX OPTIMIZATION

TU3.PA3.1: SHARPENING MINIMIZATION INDUCED PENALTIES 2612

Hiroki Kuroda, Nagaoka University of Technology, Japan

TU3.PA3.2: A DECOUPLED APPROACH FOR COMPOSITE SPARSE-PLUS-SMOOTH PENALIZED OPTIMIZATION 2617

Adrian Jarret, Val  rie Costa, Julien Fageot, EPFL, Switzerland

TU3.PA3.3: COORDINATE DESCENT ALGORITHM FOR NONLINEAR MATRIX DECOMPOSITION WITH THE RELU FUNCTION 2622

Atharva Awari, Harrison Nguyen, Samuel Wertz, Arnaud Vandaele, Nicolas Gillis, Universit   de Mons, Belgium, Belgium

TU3.PA3.4: A PROXIMAL ALGORITHM FOR OPTIMIZING COMPOSITIONS OF QUADRATIC PLUS NONCONVEX NONSMOOTH FUNCTIONS 2627

Yiming Zhou, Wei Dai, Imperial College London, United Kingdom

TU3.PA3.5: ON GRADIENT BASED DESCENT ALGORITHMS FOR JOINT DIAGONALIZATION OF MATRICES ... 2632

Erik Troedsson, Marcus Carlsson, Lund University, Sweden; Herwig Wendt, University of Toulouse, France

TU3.PA3.6: SIGNAL RECOVERY WITH PROXIMAL COMIXTURES..... 2637

Patrick Combettes, Diego Cornejo, North Carolina State University, United States

TU3.PA3.7: RANDOMLY ACTIVATED PROXIMAL METHODS FOR NONSMOOTH CONVEX MINIMIZATION 2642

Patrick Combettes, Javier Madariaga, North Carolina State University, United States

TU3.PA3.8: COMPARISON OF PROXIMAL FIRST-ORDER PRIMAL AND PRIMAL-DUAL ALGORITHMS VIA PERFORMANCE ESTIMATION 2647

Nizar Bousselemi, Universit   catholique de Louvain, Belgium; Nelly Pustelnik, Ecole normale sup  rieure de Lyon, France; Julien Hendrickx, Fran  ois Glineur, Universit   catholique de Louvain, Belgium

TU3.PA3.9: CONTINUAL LEARNING WITH DISTRIBUTED OPTIMIZATION: DOES COCOA 2652 FORGET UNDER TASK REPETITION?	
<i>Martin Hellkvist, Ayca Ozcelikkale, Anders Ahlen, Uppsala University, Sweden</i>	
TU3.PA3.10: BACKWARD GRADIENT INTERVAL OPTIMIZATION CONVERGENCE FOR THE 2657 SEMI-CLASSICAL SIGNAL ANALYSIS	
<i>Maria Sara Nour Sadoun, Université Paris Saclay, France; Evangelos Piliouras, Virginia Tech Center for Quantum Information Science and Engineering, United States; Taous-Meriem Laleg-Kirati, INRIA Saclay, France</i>	
WE2.SC3: TIME-FREQUENCY AND TIME-SCALE ANALYSIS	
WE2.SC3.1: ROBUST MULTITAPER REASSIGNMENT VECTORS FOR ENHANCED 2497 TIME-FREQUENCY REPRESENTATION	
<i>Maria Åkesson, Maria Sandsten, Lund University, Sweden</i>	
WE2.SC3.2: ESTIMATION OF INSTANTANEOUS FREQUENCY AND AMPLITUDE OF 2502 MULTI-COMPONENT SIGNALS USING SPARSE MODELING OF SIGNAL INNOVATION	
<i>Quentin Legros, PRISME laboratory, France; Dominique Fourer, IBISC – Univ. Evry Paris-Saclay, France</i>	
WE2.SC3.3: MULTIFREQUENCY HIGHLY OSCILLATING APERIODIC AMPLITUDE 2507 ESTIMATION FOR NONLINEAR CHIRP SIGNAL	
<i>Anton Emelchenkov, Valeo, Télécom Paris, France; Mathieu Fontaine, Yves Grenier, Télécom Paris, France; Hervé Mahé, Valeo, France; François Roueff, Télécom Paris, France</i>	
WE2.SC3.4: CONSISTENT SPECTROGRAM SEPARATION FROM NONSTATIONARY 2512 MIXTURE	
<i>Marina Krémé, Mines Saint-Etienne, France; Adrien Meynard, ENS de Lyon, France</i>	
WE2.SC3.5: IDENTIFYING HIGH-DIMENSIONAL SELF-SIMILARITY BASED ON SPECTRAL 2517 CLUSTERING APPLIED TO LARGE WAVELET RANDOM MATRICES	
<i>Oliver Orejola, Gustavo Didier, Tulane University, United States; Patrice Abry, Université de Lyon, ENS de Lyon, France; Herwig Wendt, Université de Toulouse, France</i>	
TH3.PA1: DETECTION AND ESTIMATION METHODS	
TH3.PA1.1: DELIBERATE MODEL MISSPECIFICATION FOR WEATHER RADAR SIGNAL 2707 DOPPLER SPECTRUM MOMENTS ESTIMATION	
<i>Corentin Lubeigt, Météo-France, France</i>	
TH3.PA1.2: PARAMETER ESTIMATION IN THE PRESENCE OF PARTIAL PRIOR 2712 INFORMATION AND CONSTRAINTS ON ERROR PROBABILITIES	
<i>Berkan Dulek, Hacettepe University, Turkey</i>	
TH3.PA1.3: ORACLE APPROXIMATING SHRINKAGE COVARIANCE MATRIX ESTIMATORS 2717 FOR COMPLEX ELLIPTICAL DISTRIBUTIONS	
<i>Elias Raninen, Nokia Bell Labs, Finland</i>	
TH3.PA1.4: INCONSISTENCY OF ESPRIT DOA ESTIMATION FOR LARGE ARRAYS AND A 2722 CORRECTION VIA RMT	
<i>Wei Yang, Zhengyu Wang, Huazhong University of Science and Technology, China; Xiaoyi Mai, Institut de Mathématiques de Toulouse (IMT), University of Toulouse-Jean Jaurès, France; Zenan Ling, Robert C. Qiu, Zhenyu Liao, Huazhong University of Science and Technology, China</i>	
TH3.PA1.5: SHRINKAGE MMSE ESTIMATORS OF COVARIANCES BEYOND THE 2727 ZERO-MEAN AND STATIONARY VARIANCE ASSUMPTIONS	
<i>Olivier Flasseur, Eric Thiébaud, Centre de Recherche Astrophysique de Lyon, France; Loïc Denis, Laboratoire Hubert Curien, France; Maud Langlois, Centre de Recherche Astrophysique de Lyon, France</i>	

TH3.PA1.6: A MULTI-VIEW EXTENSION FOR CHANGE POINT DETECTION VIA TIME-INVARIANT REPRESENTATIONS	2732
<i>Zhenxiang Cao, Nick Seeuws, Maarten De Vos, Alexander Bertrand, KU Leuven, Belgium</i>	
TH3.PA1.7: IMPROVED CHANGE POINT DETECTION VIA BIAS REDUCTION IN PARAMETERS ESTIMATION	2737
<i>Anthony Torre, Abigael Taylor, Dominique Poullin, Office national d'études et de recherches aérospatiales, France; Thierry Chonavel, Institut Mines-Télécom Atlantique, France</i>	
TH3.PA1.9: INTEGRATING BLOCK ROBUST EMPIRICAL STANDARDISED INFLUENCE FUNCTION AND BLOCK AVERAGE TO ROBUSTIFY SEASONAL BLOCK BOOTSTRAP METHODS	2742
<i>Pertami Kunz, Abdelhak Zoubir, Technische Universität Darmstadt, Germany</i>	
TH3.PA1.10: MATCHED FILTER THRESHOLD ADJUSTMENT FOR SKEWED NOISE USING GRAM-CHARLIER EXPANSION	2747
<i>Arie Yeredor, Tel Aviv University, Israel</i>	
TH3.PA1.11: LEARNING ANTENNA POINTING CORRECTION IN OPERATIONS: EFFICIENT CALIBRATION OF A BLACK BOX	2752
<i>Leif Bergerhoff, German Aerospace Center (DLR), Germany</i>	
TH3.PA1.12: ANOMALY DETECTION USING MULTISCALE SIGNATURES	2757
<i>Raphael Mignot, University of Lorraine, France; Valérian Mangé, TéSA, France; Konstantin Usevich, Marianne Clausel, University of Lorraine, France; Jean-Yves Tournet, University of Toulouse, France; Francois Vincent, ISAE-Supaéro, France</i>	
 WE1.SC3: GRAPH LEARNING AND GRAPH SIGNAL PROCESSING	
WE1.SC3.1: INFORMED GRAPH LEARNING BY DOMAIN KNOWLEDGE INJECTION AND SMOOTH GRAPH SIGNAL REPRESENTATION	2467
<i>Keivan Faghieh Niresi, Lucas Kuhn, Gaëtan Frusque, Olga Fink, EPFL, Switzerland</i>	
WE1.SC3.2: LEARNING TIME-VARYING GRAPHS FOR HEAVY-TAILED DATA CLUSTERING	2472
<i>Amirhossein Javaheri, Daniel P. Palomar, Hong Kong University of Science and Technology, China</i>	
WE1.SC3.3: JIPDA FILTERING WITH INFORMATION DIFFUSION	2477
<i>Kamil Dedecius, Jan Novák, Petr Jechumtál, Czech Technical University in Prague, Czech Republic</i>	
WE1.SC3.4: FALSE DISCOVERY RATE CONTROL FOR GAUSSIAN GRAPHICAL MODELS VIA NEIGHBORHOOD SCREENING	2482
<i>Taulant Koka, Jasin Machkour, Michael Muma, Technische Universität Darmstadt, Germany</i>	
WE1.SC3.5: LEARNING SMOOTH GRAPHS WITH SPARSE TEMPORAL VARIATIONS TO EXPLORE LONG-TERM FINANCIAL TRENDS	2487
<i>Cécile Bastidon, Université de Toulon, France; Myriam Bontonou, ENS de Lyon, France; Pierre Borgnat, Pablo Jensen, Patrice Abry, CNRS, ENS de Lyon, France; Antoine Parent, Université Paris 8, France</i>	
WE1.SC3.6: LEVERAGING STANDARDIZATION IN GRAPH LEARNING	2492
<i>Thu Ha Phi, University Paris Nanterre, France; Alexandre Hippert-Ferrer, Université Gustave Eiffel, France; Florent Bouchard, University Paris Saclay, France; Arnaud Breloy, Conservatoire National des Arts et Metiers, France</i>	
 TH2.PA3: COMPRESSED SENSING AND SPARSE MODELING	
TH2.PA3.1: FDR-CONTROLLED SPARSE INDEX TRACKING WITH AUTOREGRESSIVE STOCK DEPENDENCY MODELS	2662
<i>Jasin Machkour, Michael Muma, Technische Universität Darmstadt, Germany; Daniel P. Palomar, The Hong Kong University of Science and Technology, China</i>	

TH2.PA3.2: PROJECTED BLOCK COORDINATE DESCENT FOR SPARSE SPIKE ESTIMATION	2667
<i>Pierre-Jean Bénard, Yann Traonmilin, Jean-François Aujol, Université de Bordeaux, France</i>	
TH2.PA3.3: ADAPTIVE PARAMETER SELECTION FOR GRADIENT-SPARSE PLUS LOW PATCH-RANK RECOVERY: APPLICATION TO IMAGE DECOMPOSITION	2672
<i>Antoine Guennec, Jean-François Aujol, Yann Traonmilin, University of Bordeaux, France</i>	
TH2.PA3.4: ESTIMATION OF INSTRUMENT SPECTRAL RESPONSE FUNCTIONS IN PRESENCE OF RADIOMETRIC ERRORS	2677
<i>Jihanne El Haouari, Jean-Yves Tournet, TESA laboratory, IRIT-ENSEEIH, CNRS, Université de Toulouse, France; Herwig Wendt, IRIT-ENSEEIH, CNRS, Université de Toulouse, France; Jean-Michel Gaucel, Thales Alenia Space Cannes, France; Christelle Pittet, Centre National d'Etudes Spatiales, Centre Spatial de Toulouse, France</i>	
TH2.PA3.5: IMPROVING SPARSE DICTIONARY LEARNING WITH REJECTION OF FULLY EXPOSED PATCHES	2682
<i>Matthieu Chancel, Hacheme Ayasso, Michel Desvignes, Univ. Grenoble Alpes, CNRS, Grenoble INP, France; Jean-Michel Vignolle, TRIXELL, France; Eric Lespessailles, Centre Hospitalier Universitaire Régional d'Orléans, France</i>	
TH2.PA3.6: GRAM-GUIDED ERROR-CORRECTION FOR HIGHLY-COHERENT DICTIONARIES AND ITS APPLICATION TO CS-TOF IMAGING	2687
<i>Alvaro Lopez Paredes, University of Siegen, Germany; Felipe Gutierrez-Barragan, University of Wisconsin-Madison, United States; Miguel Heredia Conde, University of Wuppertal, Germany</i>	
TH2.PA3.7: 1-BIT COMPRESSIVE RADAR WITH PHASE DITHERING	2692
<i>Thomas Feuillen, University of Luxembourg, Luxembourg; Luc Vandendorpe, Laurent Jacques, UCLouvain, Belgium</i>	
TH2.PA3.8: GRIDLESS 2D RECOVERY OF LINES USING THE SLIDING FRANK-WOLFE ALGORITHM	2697
<i>Kévin Polissano, Basile Dubois-Bonnaire, Sylvain Meignen, University Grenoble Alpes, Laboratoire Jean Kuntzmann, France</i>	
TH2.PA3.9: A LOWER-CORRELATION RANDOM DEMODULATOR ARCHITECTURE USING RANDOM SAMPLING PERIOD ZEROING INTEGRATION METHOD	2702
<i>YanJun Yan, Chuanrong Liu, Yijiu Zhao, Houjun Wang, Lei Qian, Kai Chen, Yifan Wang, UESTC, China</i>	
TU2.PA1: SIGNAL AND SYSTEM MODELLING AND ESTIMATION	
TU2.PA1.1: SYNTHETIC SPATIOTEMPORAL COVID19 INFECTION COUNTS TO ASSESS GRAPH-REGULARIZED ESTIMATION OF MULTIVARIATE REPRODUCTION NUMBERS	2552
<i>Juliana Du, CNRS, ENS de Lyon, France; Barbara Pascal, Nantes Université, École Centrale Nantes, CNRS, LS2N, UMR 6004, F-44000 Nantes, France, France; Patrice Abry, CNRS, ENS de Lyon, France</i>	
TU2.PA1.2: EFFICIENT DESIGN AND IMPLEMENTATION OF FAST-CONVOLUTION-BASED VARIABLE-BANDWIDTH FILTERS	2557
<i>Oksana Moryakova, Håkan Johansson, Linköping University, Sweden</i>	
TU2.PA1.3: THE GEOMETRIC PHASE OF BIVARIATE SIGNALS	2562
<i>Nicolas Le Bihan, Julien Flamant, Pierre-Olivier Amblard, CNRS, France</i>	
TU2.PA1.4: ON AN ANALYTICAL ORTHONORMAL MULTIPOLAR BASIS FOR MAGNETIC ANOMALY DETECTION	2567
<i>Clément Chenevas-Paule, Steeve Zozor, Gipsa-Lab, France; Laure-Line Rouve, G2Elab, France; Olivier Michel, Gipsa-Lab, France; Olivier Pinaud, G2Elab, France; Romain Kukla, Naval Group, France</i>	
TU2.PA1.5: MULTISCALE ENTROPY RATE: A VARIANT OF THE MULTISCALE ENTROPY	2572
<i>Eric Grivel, Bordeaux INP, France; Pierrick Legrand, University of Bordeaux, France; Bastien Berthelot, THALES AVS France, France</i>	

TU2.PA1.6: BLIND IDENTIFICATION OF MECHANICAL SYSTEMS WITH MODULATED PERIODIC INPUT SIGNALS	2577
<i>Nacer Yousfi, SAFRAN GROUP, France; Karim Abed-meraim, Orléans University, France; Mohammed El-badaoui, Yosra Marnissi, SAFRAN GROUP, France</i>	
TU2.PA1.7: SPECTRAL DENSITY SHAPING OF QUANTISATION ERROR USING DITHERING	2582
<i>Ahmad M.A. Faza, University of Stavanger (UiS), Norway; John-Josef Leth, Aalborg University (AAU), Denmark; Arnfinn Aas Eielsen, University of Stavanger (UiS), Norway</i>	
TU2.PA1.8: A BIAS-COMPENSATED ROBUST AFFINE PROJECTION ALGORITHM USING VARIABLE MATRIX-TYPE STEP SIZE	2587
<i>Chan Park, Seung Hyun Ryu, PooGyeon Park, Pohang University of Science And Technology (POSTECH), Korea (South)</i>	
TU2.PA1.9: DFT OF A PURE REAL TONE: A GEOMETRICAL PERSPECTIVE	2592
<i>Stéphane Bonnet, Massimo d'Elia, Commissariat à l'Energie Atomique, France</i>	
TU2.PA1.10: NUMERICALLY ROBUST SQUARE ROOT IMPLEMENTATIONS OF STATISTICAL LINEAR REGRESSION FILTERS AND SMOOTHERS	2597
<i>Filip Tronarp, Lund University, Sweden</i>	
TU2.PA1.11: DENOISING BIVARIATE SIGNALS VIA SMOOTHING AND POLARIZATION PRIORS	2602
<i>Yusuf Yigit PILAVCI, Jeremie Boulanger, Pierre-Antoine THOUVENIN, Pierre Chainais, Univ. Lille, CNRS, Centrale Lille, UMR 9189 CRISAL, France</i>	
TU2.PA1.12: SELF-SUPERVISED LEARNING FOR COVARIANCE ESTIMATION	2607
<i>Tzvi Diskin, Ami Wiesel, Hebrew University of Jerusalem, Israel</i>	
 FR1.SC3: BAYESIAN AND DATA DRIVEN STATISTICAL SIGNAL PROCESSING	
FR1.SC3.1: AUXILIARY PARTICLE FILTERING WITH VARIATIONAL INFERENCE FOR JUMP MARKOV SYSTEMS WITH UNKNOWN MEASUREMENT NOISE COVARIANCE	2522
<i>Cheng Cheng, Northwestern Polytechnical University, China; Sinan Yildirim, Sabanci University, Turkey; Jean-Yves Tourneret, University of Toulouse, France</i>	
FR1.SC3.2: LONGITUDINAL CROSS-TEMPORAL DYNAMICS IN FOREIGN EXCHANGE VIA BAYESIAN MULTIFRACTAL ANALYSIS	2527
<i>Herwig Wendt, CNRS - INPT, France; Patrice Abry, CNRS - ENSL, France; Yannick Malevergne Malevergne, Paris 1 Pantheon-Sorbonne, France; Marc Senneret, Gerald Perrin, Vivienne Investissement, France; Stephane Jaffard, CNRS, Universit{e} Paris-Est, France</i>	
FR1.SC3.3: ROBUST HYPERSPHERE FITTING FROM NOISY DATA USING GIBBS SAMPLING	2532
<i>Younes Boutiyarzi, University of Toulouse, TéSA, France; Julien Lesouple, University of Toulouse, ENAC, France; Jean-Yves Tourneret, University of Toulouse, ENSEEIHT/IRIT/TéSA, France</i>	
FR1.SC3.4: ONLINE BAYESIAN ADAPTIVE SAMPLING FOR NONLINEAR MODEL: APPLICATION TO PLANT PHENOTYPING	2537
<i>Félix Mercier, Université d'Angers, LARIS, UMR INRAe IRHS, France; Nizar Bouhlef, Angelina El Ghaziri, Institut Agro, Univ Angers, INRAE, IRHS, SFR QuaSaV, France; David Rousseau, Université d'Angers, LARIS, UMR INRAe IRHS, France</i>	
FR1.SC3.5: KOOPMAN ENSEMBLES FOR PROBABILISTIC TIME SERIES FORECASTING	2542
<i>Anthony Frion, Lucas Drumetz, IMT Atlantique, France; Guillaume Tochon, EPITA, France; Mauro Dalla Mura, Grenoble INP, France; Abdedjalil Aïssa El Bey, IMT Atlantique, France</i>	

FR1.SC3.6: TOWARDS A PERFECT RECONSTRUCTION THEORY	2547
<i>Olivier Rioul, Télécom Paris, Institut Polytechnique de Paris, France; Antoine Souldoumiac, Commissariat à l'énergie atomique - Université Paris Saclay, France</i>	