



Satellite Workshops at the 2023 IEEE International Conference on Acoustics, Speech and Signal Processing

Workshop Chairs:

Maria Sabrina Greco (University of Pisa) & Gerasimos Potamianos (University of Thessaly)

Program – Sunday June 4th

Morning	Afternoon
W01 Data Science and Learning Workshop (DSLW): Unraveling the Brain	
W02 Integrated Sensing and Communications: New Frontiers, Newer Challenges	
	W03 WOSDETC-2023: International Workshop on Small Drone Surveillance, Detection and Counteraction Techniques & Drone-vs-Bird Detection Grand Challenge

W01 Data Science and Learning Workshop (DSLW): Unraveling the Brain

Organizers: **Tülay Adalı** (*University of Maryland, Baltimore County, USA*)
Selin Aviyente (*Michigan State University, USA*)
Vince Calhoun (*TReNDS, Georgia State, Georgia Tech, Emory, USA*)
Sharon Gannot (*Bar-Ilan University, Israel*)
Eleftherios Kofidis (*University of Piraeus, Greece*)

Sunday June 4 (Full Day); Lectures: Jupiter; Posters: WP-A, WP-B

8:30 AM Opening & Welcome

Tülay Adalı, Selin Aviyente, Sharon Gannot (*DSLW-Brain Workshop Organizers*)
Athina Petropulu (*President, IEEE Signal Processing Society*)

9:00 AM Plenary Talk: Dimitri Van De Ville (*EPFL & University of Geneva*)

Signals, Graphs, and Brains: Quantifying the Structure-Function Relationship
(Chair: Sharon Gannot)

10:00 AM Coffee-Break

10:30 AM Plenary Talk: Shella D. Keilholz (*Georgia Tech & Emory University*)

Multi-scalar, Dynamic Intrinsic Brain Activity
(Chair: Tülay Adalı)

11:30 AM Lunch

1:30 PM Panel: Explainability and Reproducibility in Neuroimaging

Panelists: **Pamela K. Douglas** (*UCLA*)
Z. Jane Wang (*University of British Columbia*)
Dimitri Van De Ville (*EPFL & University of Geneva*)
Selin Aviyente (*Michigan State University*)
Sharon Gannot (*Bar-Ilan University*)
Borbála (Bori) Hunyadi (*TU Delft*)
Moderator & Panelist: **Tülay Adalı** (*University of Maryland, Baltimore County*)

3:30 PM Plenary Talk: Fabio Babiloni (*University of Rome "Sapienza"*)

*Real-time Human Factors Assessment during Flight Operations and Training:
A Neuroscience Perspective*
(Chair: Selin Aviyente)

4:30 PM Break & Poster Session Preparation

5:00 – 7:00 PM Poster Session (WP-A, WP-B) & Reception (Jupiter Lobby)

Sunday June 4 (5:00 – 7:00 PM); Poster Areas: WP-A & WP-B

Chair: Sharon Gannot

WP-A-1

7024 (W01.01): Neuronal Cell Type Classification using Locally Sparse Networks

Ofek Ophir (Bar Ilan University); Orit Shefi (Bar Ilan University); Ofir Lindenbaum (Bar Ilan University)

WP-A-2

7025 (W01.02): A Sequence Agnostic Multimodal Pre-processing for Clogged Blood Vessel Detection in Alzheimer's Diagnosis

Partho Ghosh (Bangladesh University of Engineering and Technology); Md. Abrar Istiak (Bangladesh University of Engineering and Technology); Mir Sayeed Mohammad (Bangladesh University of Engineering and Technology); Swapnil Saha (Bangladesh University of Engineering and Technology); Uday Kamal (Georgia Institute of Technology)

WP-A-3

7035 (W01.03): Modeling and Inference of Sparse Neural Dynamic Functional Connectivity Networks Underlying Functional Ultrasound Data

Ruben Wijnands (Delft University of Technology); Justin Dauwels (Delft University of Technology); Ines Serra (Erasmus Medical Center); Pieter Kruizinga (Erasmus Medical Center); Aleksandra Badura (Erasmus Medical Center); Borbala Hunyadi (Delft University of Technology)

WP-A-5

7042 (W01.04): GLM-Regularized Low-Rank Factorization for Extracting Functional Response from Swept-3D Functional Ultrasound

Aybüke Erol (Delft University of Technology); Bastian Generowicz (Erasmus Medical Center); Pieter Kruizinga (Erasmus Medical Center); Borbala Hunyadi (Delft University of Technology)

WP-A-6

7044 (W01.05): Identification of Predictive Subnetwork for Brain Network-Based Psychiatric Diagnosis: An Information-Theoretic Perspective

Kaizhong Zheng (Xi'an Jiaotong University); Shujian Yu (Vrije Universiteit Amsterdam); Badong Chen (Xi'an Jiaotong University)

WP-A-7

7045 (W01.06): Angular Central Gaussian and Watson Mixture Models for Assessing Dynamic Functional Brain Connectivity During a Motor Task

Anders S Olsen (Technical University of Denmark); Emil Ortvald (Technical University of Denmark); Kristoffer H. Madsen (Technical University of Denmark); Mikkel N Schmidt (Technical University of Denmark); Morten Mørup (Technical University of Denmark)

WP-A-9

7046 (W01.07): Modeling Nonlinear Evoked Hemodynamic Responses in Functional Ultrasound

Sofia-Eirini Kotti (Delft University of Technology); Aybüke Erol (Delft University of Technology); Borbala Hunyadi (Delft University of Technology)

WP-A-10

7048 (W01.08): Higher-order Organization in the Human Brain from Matrix-based Rényi's Entropy

Qiang Li (University of Valencia); **Shujian Yu** (Vrije Universiteit Amsterdam); **Kristoffer Hougaard Madsen** (Danish Research Centre for Magnetic Resonance); **Vince Calhoun** (TReNDS); **Armin Iraj** (Georgia State University)

WP-A-12

7050 (W01.09): Multi-modal Deep Learning on Imaging Genetics for Schizophrenia Classification

Ayush Kanyal (Georgia State University); **Srinivas Kandula** (Georgia State University); **Vince Calhoun** (TReNDS); **Dong Hye Ye** (Georgia State University)

WP-B-1

7051 (W01.10): Generative Models for Large-scale Simulations of Connectome Development

Skylar Brooks (Boston Children's Hospital); **Catherine Stamoulis** (Harvard Medical School)

WP-B-3

7052 (W01.11): Local Spatial Flow Strengths in BOLD fMRI are Strongly Impacted by Schizophrenia

Robyn Miller (Georgia State University); **Victor Vergara** (TRENDS); **Helen Petropoulos** (TRENDS); **Vince Calhoun** (TReNDS)

WP-B-5

7053 (W01.12): Accelerated Magnetic Resonance Fingerprinting with Low-rank and Generative Subspace Modeling

Hengfa Lu (University of Texas at Austin); **Bo Zhao** (University of Texas at Austin)

WP-B-6

7131 (W01.13): Fusion of Multi-modal Neuroimaging Data and Association with Cognitive Data

Mark D LoPresto (University of Maryland, Baltimore County); **Mohammad Akhonda** (University of Maryland, Baltimore County); **Vince Calhoun** (TReNDS); **Tulay Adali** (University of Maryland, Baltimore County)

WP-B-7

7134 (W01.14): Deep Generative Transfer Learning Predicts Conversion to Alzheimer's Disease from Neuroimaging Genomics Data

Giorgio Dolci (University of Verona); **Md Abdur Rahaman** (Georgia Institute of Technology); **Ilaria Boscolo Galazzo** (University of Verona); **Federica Cruciani** (University of Verona); **Anees Abrol** (TReNDS); **Jiayu Chen** (TReNDS); **Zening Fu** (Georgia State University); **Kuaikuai Duan** (TReNDS); **Gloria Menegaz** (University of Verona); **Vince Calhoun** (TReNDS)

WP-B-9

7139 (W01.15): Dynamic Source Localization and Functional Connectivity Estimation with State-space Models: Preliminary Feasibility Analysis

Jose M. Sanchez-Bornot (Ulster University); **Roberto C. Sotero** (University of Calgary); **Damien Coyle** (Ulster University)

WP-B-10

7144 (W01.16): Variability of Functional Connectomes Through Community Structure

Brooke A Osterkamp (Michigan State University); **Meiby Ortiz-Bouza** (Michigan State University); **Selin Aviyente** (Michigan State University)

WP-B-12

7145 (W01.17): Brain Fingerprinting Using fMRI Spectral Signatures on High-Resolution Cortical Graphs

Carlo Ferritto (EPFL); **Maria Giulia Preti** (EPFL); **Stefano Moia** (EPFL); **Dimitri Van De Ville** (EPFL and University of Geneva); **Hamid Behjat** (EPFL)

W02 Integrated Sensing and Communications: New Frontiers, Newer Challenges

Organizers: **Bhavani Shankar M. R.** (*University of Luxembourg, Luxembourg*)
Kumar Vijay Mishra (*U.S. DEVCOM Army Research Labs, USA*)

Sunday June 4 (Full Day); Lectures: Delphi Amphitheater

Chair: Bhavani Shankar M. R.

8:30 AM Keynote 1: Mikko Valkama (*Tampere University*)

Cellular Positioning and Simultaneous Localization and Mapping (SLAM): Selected Recent Advances

9:15 AM

6954 (W02.03): ISAC from the Sky: Net-zero Energy UAV Trajectory Design

Xiaoye Jing (*University College London*); *Fan Liu* (*Southern University of Science and Technology*); **Christos Masouros** (*University College London*)

9:30 AM

7096 (W02.08): In-Band Full-Duplex Solutions in the Paradigm of Integrated Sensing and Communication

Armen Harutyunyan (*Barkhausen Institut*); *Padmanava Sen* (*Barkhausen Institut*)

9:45 AM

7093 (W02.07): Semi-Distributed Hybrid Beamforming Design for Cooperative Cell-Free Dual-Function Radar-Communication Networks

Bowen Wang (*University of Electronic Science and Technology of China*); *Lingyun Xu* (*University of Electronic Science and Technology of China*); *Ziyang Cheng* (*University of Electronic Science and Technology of China*); *Zishu He* (*University of Electronic Science and Technology of China*)

10:00 AM Coffee-Break

10:30 AM Keynote 2: Perry Wang (*Mitsubishi Electric Research Laboratories*)

Integrated Wi-Fi Sensing and Communication: Signal Processing, Deep Learning and Standards Activities

11:15 AM

6943 (W02.02): Deep Learning-based Modulation Classification for OFDM Systems without Symbol-level Synchronization

Byungjun Kim (*University of California, San Diego*); *Venkatesh Sathyanarayanan* (*University of California, San Diego*); *Christoph F Mecklenbräuker* (*Technische Universität Wien*); *Peter Gerstoft* (*University of California, San Diego*)

11:30 AM

7082 (W02.05): Multi-task Learning for Radar Signal Characterisation

Zi Huang (*Queensland University of Technology*); *Akila Pemasiri* (*Queensland University of Technology*); *Simon Denman* (*Queensland University of Technology, Australia*); *Clinton Fookes* (*Queensland University of Technology*); *Terrence Martin* (*Revolution Aerospace*)

11:45 AM

6934 (W02.01): Joint Radar and Communication Receiver Processing Based on Sparse Bayesian Learning

Honghao Li (Tsinghua University); Tianyao Huang (Tsinghua University); Yu Zhang (Tsinghua University); Yimin Liu (Tsinghua University); Yonina Eldar (Weizmann Institute of Science)

12:00 NOON – 2:00 PM: Lunch Break

2:00 PM Keynote 3: Athina Petropulu (Rutgers University)

Physical Layer Secure Design of Dual-Function Radar-Communication Systems

3:00 PM

7115 (W02.10): Secure Integrated Sensing and Communication Downlink Beamforming: A Semidefinite Relaxation Approach with Tightness Guaranteed

Wai Yiu Keung (The Chinese University of Hong Kong); Hoi-To Wai (The Chinese University of Hong Kong); Wing-Kin Ma (The Chinese University of Hong Kong)

3:15 PM

7027 (W02.04): Optimal Sparse MIMO Transceiver Design for Joint Automotive Sensing and Communications

Weitong Zhai (Beihang University); Xiangrong Wang (Beihang University); Xianghua Wang (Shandong University of Science and Technology); Moeness Amin (Villanova University); Tao Shan (Beijing Institute of Technology)

3:30 PM Coffee-Break

4:00 PM

7088 (W02.06): Quantized Phase-Shift Design of Active IRS for Integrated Sensing and Communications

Zahra Esmaeilbeig (University of Illinois at Chicago); Arian Eamaz (University of Illinois, Chicago); Kumar Vijay Mishra (United States DEVCOM Army Research Laboratory); Mojtaba Soltanalian (University of Illinois)

4:15 PM

7108 (W02.09): Next-Generation IoT Networks: Integrated Sensing Communication and Computation

Kunwar Pritiraj Rajput (University of Luxembourg); Linlong Wu (University of Luxembourg); Bhavani Shankar Mysore Ramarao (University of Luxembourg)

4:30 – 5:30 PM Panel Discussion: *The Future of ISAC*

Panelists: Hagit Messer (Tel Aviv University)
Besma Smida (University of Illinois, Chicago)
Björn Ottersten (KTH)
Lee Swindlehurst (University of California, Irvine)
Visa Koivunen (Aalto University)
Joseph Tabrikian (Ben Gurion University)

Moderators: Bhavani Shankar M. R. & Kumar Vijay Mishra (Workshop Organizers)

W03 WOSDETC-2023: International Workshop on Small Drone Surveillance, Detection and Counteraction Techniques & Drone-vs-Bird Detection Grand Challenge

Organizers: **Angelo Coluccia** (*University of Salento, Italy*)
Alessio Fascista (*University of Salento, Italy*)
Arne Schumann (*Fraunhofer Institute, Karlsruhe, Germany*)
Lars Sommer (*Fraunhofer Institute, Karlsruhe, Germany*)
Anastasios Dimou (*CERTH, Greece*)
Dimitrios Zarpalas (*CERTH, Greece*)
Nabin Sharma (*University of Technology Sydney, Australia*)

Sunday June 4 (PM-only); Lectures: Athena Hall

Chair: Angelo Coluccia

2:00 PM Opening: Angelo Coluccia

Workshop Opening and Presentation of the “Drone-vs-Bird Grand Challenge”

2:15 PM

6941 (W03.03): S-Feature Pyramid Network and Attention Module for Small Object Detection

Chuntao Wang (*Shandong Normal University*); **Pengcheng Dong** (*Shandong Normal University*); **Jiande Sun** (*Shandong Normal University*); **Zhenyong Lu** (*Shandong Normal University*); **Kai Zhang** (*Shandong Normal University*); **Wenbo Wan** (*Shandong Normal University*)

2:30 PM

6988 (W03.06): SETNET: A Sparse Ensemble Network for Drone Localization and Zero Shot Drone Tracking in Real Time Surveillance Videos

Dharini Raghavan (*Ramaiah Institute of Technology*); **Sethu Selvi S** (*Ramaiah Institute of Technology*)

2:45 PM

7107 (W03.07): Efficient Moving Target Detection Using Resource-Constrained Neural Networks

Dimitrios Milioris (*Nokia Bell Labs*)

3:00 PM

6945 (W03.04): Deep Learning Based UAV Payload Recognition

Lars Sommer (*Fraunhofer IOSB, Karlsruhe*); **Raphael Spraul** (*Fraunhofer IOSB, Karlsruhe*)

3:15 PM

6937 (W03.02): Unique Resonance Features Based Composite Drone Recognition Using Vector Fitting Method

Prajakta Sathe (*Indian Institute of Technology, Kharagpur*); **Amitabha Bhattacharyya** (*Indian Institute of Technology, Kharagpur*)

3:30 PM Coffee-Break

4:00 PM

6952 (W03.05): Simulation of Micro-Doppler Signatures of Drones

Megha Kataria (Indian Institute of Technology, Delhi); Brejesh Lall (Indian Institute of Technology, Delhi)

4:15 PM

6888 (W03.01): RF-based Small Drone Detection and Classification Using Spectrogram Images

Feten Slimeni (STD Laboratory); Tijeni H Delleji (Military Research Center); Zied Chtourou (Military Academy of Tunisia); Nouredine Boulejfene (CRM Tunis)

4:30 PM

7184 (W03.08): Energy-Efficient UAV Trajectories: Simulation vs Emulation

Nithin Babu (University College London); Kimon Karathanasopoulos (The American College of Greece); George Vardoulis (The American College of Greece); Constantinos B Papadias (The American College of Greece)

4:45 PM – 5:00 PM Closing: Angelo Coluccia & Lars Sommer

Open Discussion and Closing Remarks
