Fifty-Fifth Asilomar Conference on Signals, Systems and Computers

October 31–November 3, 2021
Virtual Conference

Technical Co-sponsor

IEEE Signal Processing Society

FIFTY-FIFTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS AND COMPUTERS

Technical Co-Sponsor

IEEE Signal Processing Society

CONFERENCE COMMITTEE

General Chair
Martin Haardt
Ilmenau University of Technology
Ilmenau, Germany
martin.haardt@tu-ilmenau.de

Technical Program Chair
Mario Huemer
Johannes Kepler University Linz
Linz, Austria
Mario.Huemer@jku.at

Conference Coordinator
Monique P. Fargues*
Department of Electrical & Computer Engineering
Naval Postgraduate School
Monterey, CA
fargues@asilomarssc.org

Publications Chair
Michael B. Matthews
Northrop Grumman Innovation Systems
20 Ryan Ranch Road
Monterey, CA 93940
michael.b.matthews@ieee.org

Publicity Chair
Linda S. DeBrunner
Department of Electrical & Computer Engineering
Florida State University
Tallahassee, FL
Linda.debrunner@eng.fsu.edu

Finance Chair
John D. Roth*
Department of Electrical & Computer Engineering
Naval Postgraduate School
Monterey, CA
treasurer@asilomarssc.org

Electronic Media Chair
Marios Pattichis
Department of Electrical & Computer Engineering
MSC01 1100, 1
University of New Mexico
Albuquerque, NM
pattichi@unm.edu

Student Paper Contest Chair
Visa Koivunen
Department of Signal Processing and Acoustics
School of Electrical Engineering
Aalto University
Aalto, Finland
visa.koivunen@aalto.fi

*participating in his or her personal capacity

Welcome from the General Chairman

Prof. Martin Haardt
TU Ilmenau, Germany

Welcome to the 55th Asilomar Conference on Signals, Systems, and Computers. I am deeply honored to serve as the General Chair for this great conference. I first attended Asilomar in 1994 as a doctoral student and have returned almost every year since then. What keeps me coming back is the high-quality technical program, the friendly atmosphere, and the inspiring discussions. Over the years, the Asilomar Conference has been well known for excellent talks, bringing together senior researchers with the best and brightest young scholars. Moreover, many of the emerging research topics and remarkable new results in our research fields have been presented for the first time at Asilomar, since the final papers are only due after the conference. This year, the camera-ready paper submission deadline is on December 3, 2021. Asilomar brings together academic and industrial researchers in signal processing, wireless communication, networking, computing, machine learning, multi-sensor systems, data science, and speech/audio/video, by providing an opportunity to interact and exchange ideas in a relaxed setting.

For the second time in a row, we are in the difficult situation to move from the beautiful Asilomar beaches and parks to a new virtual format. But this provides new opportunities for a world-wide participation and to innovate by creating an engaging virtual component that will be worthwhile for both presenters and attendees. In addition to the on-demand videos that are available on the Asilomar 2021 Virtual Conference Platform, every paper will be presented in a live poster session on Gather.Town. To facilitate a world-wide participation and interaction in these live events, they have been grouped into two time slots of 1.5 hours every morning California time.

We are very proud to have Prof. Yonina Eldar from the Weizmann Institute of Science in Israel as our distinguished plenary speaker this year. She is very well known for her pioneering work on sub-Nyquist sampling and the reconstruction of sparse analog signals that has demonstrated the potential to improve Radar, medical imaging, communications, and storage systems. In her opening plenary on Monday morning (November 1, 2021), she will be talking about “Deep Analog-to-Digital Compression with Applications to Automotive Radar and Massive MIMO”.

We are also very pleased that this year’s tutorial speaker will be Prof. Robert W. Heath Jr. from North Carolina State University. Robert has been a lifelong attendee of Asilomar and has been actively involved in the organization for many years. Robert is an authority in MIMO wireless communications. He is one of the few researchers in this area who spans a bridge between theoretical foundations and practical implementation aspects. Therefore, we are looking forward to his tutorial on “Revisiting MIMO from a Circuits Perspective” on Tuesday morning (November 2, 2021).

This year, we have a very strong technical program with a good mix of invited and regular poster sessions. I would like to sincerely thank our Technical Program Chair Prof. Mario Huemer for his tremendous

efforts in putting together several versions of tentative hybrid conference programs as well as our final virtual program. In the same way, I would like to express my gratitude to our team of Technical Area Chairs: Christoph Mecklenbräuker, Elisabeth De Carvalho, Antonio Marques, Waheed U. Bajwa, Piya Pal, Behtash Babadi, Mikko Valkama, Jani Boutellier, and James Fowler for a brilliantly crafted technical program. They all did an outstanding job in coordinating the technical aspects of this conference. This year's program consists of 390 accepted papers, of which 177 were invited. Among these papers, 113 were submitted to the student paper contest, from which a list of 8 finalists was selected by our Technical Area Chairs. These finalists will present their papers to a committee of judges on Sunday afternoon (October 31, 2021) organized by Prof. Visa Koivunen, and everybody is of course welcome to attend via Zoom. The top three papers will be announced during the Opening Ceremony on Monday morning (November 1, 2021).

Serving as the General Chair for this conference has been a great and rewarding experience. Hopefully, you will enjoy the inspiring conference program and will participate in the inter-active plenary, tutorial, and poster sessions.

Martin Haardt
TU Ilmenau, Germany

Conference Steering Committee

PROF. MONIQUE P. FARGUES*
President & Chair
Electrical & Computer Engineering Department
Code EC/Fa
Naval Postgraduate School
Monterey, CA 93943-5121
fargues@asilomarssc.org

PROF. VICTOR DEBRUNNER
Vice Chair/President
Electrical & Computer Engineering Department
Florida State University
2525 Pottsdamer Street, Room A-341
Tallahassee, FL 32310-6046
victor.debrunner@eng.fsu.edu

PROF. SHERIF MICHAEL*
Secretary
Electrical & Computer Engineering Department
Code EC/Mi
Naval Postgraduate School
Monterey, CA 93943-5121
michael@nps.edu

PROF. JOHN D. ROTH*
Treasurer
Electrical & Computer Engineering Department
Code EC/Ro
Naval Postgraduate School
Monterey, CA 93943-5121
Treasurer.asilomar@gmail.com

PROF. BEHNAAM AAZHANG
Dept. of Electrical and Computer Engineering
Rice University
Houston, TX 77251-1892
aaz@rice.edu

PROF. SCOTT ACTON
Dept. of Electrical and Computer Engineering
University of Virginia
P.O. Box 400743
Charlottesville, VA 22904-4743
acton@virginia.edu

PROF. LINDA DEBRUNNER
Publicity Chair
Dept. of Electrical and Computer Engineering
Florida State University
2525 Pottsdamer Street
Tallahassee, FL 32310-6046
linda.debrunner@eng.fsu.edu

PROF. RICHARD BROWN III
Dept. of Electrical and Computer Engineering
Worcester Polytechnic Institute
Worcester, MA 01609
drb@wpi.edu

PROF. MILOS ERCEGOVAC
Computer Science Department
University of California at Los Angeles
Los Angeles, CA 90095
milos@cs.ucla.edu

PROF. BENJAMIN FRIEDLANDER
Department of Electrical Engineering
University of California
1156 High Street, MS:SOE2
Santa Cruz, CA 95064
Benjamin.friedlander@gmail.com

PROF. fredric j. harris
Nominating Committee
Department of Electrical Engineering
UC - San Diego
San Diego, CA 92182
fred.harris@sdsu.edu

PROF. ROBERT HEATH
Department of Electrical and Computer Engineering
North Carolina State University
Raleigh, NC
rwheathjr@ncsu.edu

PROF. W. KENNETH JENKINS
Electrical Engineering Department
The Pennsylvania State University
129 Electrical Engineering East
University Park, PA 16802-2705
jenkins@engr.psu.edu

PROF. VISA KOIVUNEN
Dept. of Signal Processing and Acoustics
School of Electrical Engineering, Aalto University
P.O. Box 13000
FIN-00076 Aalto, Finland
visa.koivunen@aalto.fi

PROF. GEERT LEUS
TU Delft
HB17.280
Mekelweg 4, 2628 CD
Delft, The Netherlands
g.j.t.leus@tudelft.nl

DR. MICHAEL B. MATTHEWS
Publications Chair
Northrop Grumman Innovation Systems
20 Ryan Ranch Road
Monterey, CA 93940
michael.b.matthews@ieee.org

PROF. MARIOS PATTICHIS
Electronic Media Chair
Dept. of Electrical and Computer Engineering
MSC01 1100
1 University of New Mexico
ECE Bldg., Room: 229A
Albuquerque, NM 87131-000
Pattichis@ece.unm.edu

PROF. JAMES A. RITCEY
Nominating Committee Chair
Department of Electrical Engineering
Box 352500
University of Washington
Seattle, Washington 98195
Jar7@uw.edu

PROF. PHIL SCHNITER
Electrical and Computer Engineering Dept.
Ohio State University
616 Dreese Laboratories
2015 Neil Ave
Columbus, OH 43210
schniter.1@osu.edu

PROF. EARL E. SWARTZLANDER, JR.
Dept. of Electrical and Computer Engineering
University of Texas at Austin
Austin, TX 78712
eswartzla@aol.com

PROF. KEITH A. TEAGUE
Nominating Committee
School of Electrical & Computer Engineering / 202ES
Oklahoma State University
Stillwater, OK 74078
Keith.teague@okstate.edu

PROF. MARTIN HAARDT
General Program Chair (ex officio)
Year 2021
Communications Research Laboratory
TU Ilmenau
D-98684 Ilmenau, Germany
martin.haardt@tu-ilmenau.de

PROF. JOSEPH R. CAVALLARO
General Program Chair (ex officio)
Year 2020
Dept. of Electrical and Computer Engineering
Rice University
cavallar@rice.edu

PROF. GERALD MATZ
General Program Chair (ex officio)
Year 2019
Technical University of Vienna
Institute of Telecommunications
Gußhausstraße 25/E389
G1040 Wien, Österreich
gerald.matz@tuwien.ac.at

*participating in his or her personal capacity

2021 Asilomar Technical Program Committee

Technical Chairman
Mario Huemer
Johannes Kepler University Linz

2021 Asilomar Technical Program Committee Members

TRACK A: COMMUNICATIONS SYSTEMS
Prof. Christoph Mecklenbräuker
TU Wien, Austria
cfm@tuwien.ac.at

TRACK B: MIMO COMMUNICATIONS AND SIGNAL PROCESSING
Prof. Elisabeth De Carvalho
Aalborg Universitet, Denmark
edc@es.aau.dk

TRACK C: NETWORKS
Prof. Antonio Marques
King Juan Carlos University Madrid, Spain
antonio.garcia.marques@urjc.es

TRACK D: ADAPTIVE SYSTEMS, MACHINE LEARNING, DATA ANALYTICS
Prof. Waheed Bajwa
Rutgers, The State University of New Jersey, USA
waheed.bajwa@rutgers.edu

TRACK E: ARRAY PROCESSING AND MULTISENSOR SYSTEMS
Piya Pal
University of California, San Diego, USA
pipal@eng.ucsd.edu

TRACK F: BIOMEDICAL SIGNAL AND IMAGE PROCESSING
Prof. Behtash Babadi
University of Maryland, USA
behtash@umd.edu

TRACK G: ARCHITECTURES AND IMPLEMENTATION
Prof. Mikko Valkama
Tampere University of Technology, Finland
mikko.e.valkama@tut.fi

Prof. Jani Boutellier
University of Vaasa, Finland
jani.boutellier@uwasa.fi

TRACK H: SPEECH, IMAGE AND VIDEO PROCESSING
James Fowler
Mississippi State University, USA
fowler@ece.msstate.edu

2021 Asilomar Conference Session Schedule

Sunday Morning, October 31, 2021

4:00–6:00 PM Student Paper Competition

Monday, November 1, 2021

8:00–9:30 AM Opening Ceremony and Plenary Session

9:45–11:15 AM SESSIONS I

A-1 5G and Beyond I
A-2 5G and Beyond II
A-3 Communication Systems Optimization
A-4 Dependable Vehicle-to-Everything Connectivity (invited)
B-2 Baseband Algorithms and Architectures for Millimeter-Wave Massive MIMO (invited)
B-5 Intelligent Reflecting Surfaces (invited)
B-10 mm-Wave and Hybrid MIMO Systems
D-13 Machine Learning I
D-14 Machine Learning II
D-15 Machine Learning with Graphs (invited)
E-3 Beamforming I
E-4 Beamforming II
E-7 Direction-of-Arrival Estimation
F-1 Advances in ECG and EEG Signal Processing (invited)
F-8 Processing of Physiological Signals
F-9 Signal Processing for Electrophysiology (invited)
G-3 Architectures for Radio Frequency Fingerprinting and Wireless Security (invited)
G-9 Solutions for IoT Nodes and Energy Constrained IoT Devices (invited)

11:15 AM–12:45 PM SESSIONS II

A-5 Machine Learning for Communications (invited)
A-9 Modulation Classification
A-10 Neural Networks for Communications
B-9 MIMO Beamforming and Sensing
B-11 Physically Consistent Modeling of MIMO Communications (invited)
B-12 Physically Consistent Modelling of MIMO Systems
D-8 Deep Learning and Reinforcement Learning
D-18 Theory for Machine Learning
D-19 Theory of Reinforcement Learning (invited)
E-8 Fundamentals and Bounds in Array Processing
E-12 Source Localization and Separation I
E-13 Source Localization and Separation II
F-2 Bioinformatics and Computational Biology
F-5 Neural Engineering and Signal Processing
F-6 Neural Signal Processing (invited)
F-7 Neuroscience-inspired Machine Learning (invited)
G-5 Energy-Efficient Array Transmitters (invited)
G-8 Multifunction RF Signals and Systems (invited)

Time zone: PDT

2021 Asilomar Conference Session Schedule
(continued)

Tuesday, November 2, 2021

8:00–9:30 AM Tutorial: Revisiting MIMO from a Circuits Perspective

9:45–11:15 AM SESSIONS I

A-6 mm-Wave and Beyond (invited)
A-11 Physical Layer Security and Privacy
A-13 Reconfigurable Intelligent Surfaces (invited)
C-2 Deep Learning for Wireless Networks (invited)
C-5 Learning for Wireless and Sensor Networks
C-8 Optimization and Monitoring of Wireless Networks
D-9 Estimation and Inference I
D-10 Estimation and Inference II
D-11 Estimation and Inference III
D-12 Machine Learning for Data Distributions (invited)
E-5 Computational Sampling I (invited)
E-6 Computational Sampling II (invited)
F-3 Computational Imaging in Medicine
F-4 Computational Imaging, Molecular and Medical Imaging
F-10 Signal Processing for Neural and Medical Imaging (invited)
G-1 Algorithms, Architectures and Practicalities
G-4 Arithmetic and Algorithms

11:15 AM–12:45 PM SESSIONS II

A-7 Modulation and Coding
A-8 Modulation and Detection
A-12 Recent Advances in Simultaneous Transmit-Receive Systems (invited)
C-1 Decentralized Learning
C-3 Federated Learning (invited)
C-9 Reinforcement Learning over Networks (invited)
D-2 Adversary-Resilient Distributed Machine Learning (invited)
D-16 Model-based Deep Learning for Inverse Problems in Imaging (invited)
D-17 Robust Learning with Maximum Correntropy Criterion (invited)
E-2 Array Signal Processing for Radar Applications
E-9 Joint Communications and Sensing
E-11 Moving Target Detection and Traffic Monitoring
H-1 Blending Physics and Learning for Computational Imaging (invited)
H-2 Computer Vision
H-6 Signal, Image and Video Processing Education (invited)
G-2 Architectures and Implementation
G-6 Hardware Accelerators
G-7 Machine Learning and Hardware Aspects

2021 Asilomar Conference Session Schedule
(continued)

Wednesday, November 3, 2021

08:15–09:45 AM SESSIONS I

B-1	Applications of MIMO Systems
B-3	Distributed and Cell-Free Massive MIMO Systems (invited)
B-6	Massive MIMO Communication and Localization beyond 5G (invited)
C-4	Inference on Graphs
C-6	Learning with Brain Connectomes (invited)
C-7	Network Science and Applications
D-3	Algorithms for Data Analytics I
D-4	Algorithms for Data Analytics II
D-6	Applications of Data Analytics
E-1	Array Processing and Multisensor Systems Applications
E-10	Machine Learning Methods in Inverse Problems (invited)
E-17	Theory and Algorithms for Nonlinear Inverse Problems (invited)
H-3	Exploring New Areas in Speech Processing (invited)
H-7	Speech, Audio, Biometrics and Forensics

9:45–11:15 AM SESSIONS II

B-4	FDD based MIMO Systems
B-7	Massive Random Access I (invited)
B-8	Massive Random Access II (invited)
C-10	Representation and Learning on Graphs (invited)
C-11	Signal Processing over Graphs
C-12	Trends in Graph Signal Processing (invited)
D-1	Advances in Coupled Matrix and Tensor Factorizations, with Application to Remote Sensing (invited)
D-5	Applications of (Machine) Learning
D-7	Data Analytics for Radar Systems
E-14	Sparse Arrays in Passive and Active Sensing (invited)
E-15	Tensor Models and Processing
E-16	Tensor Signal Processing and Applications (invited)
H-4	Hyperspectral Image Processing (invited)
H-5	Image Processing

Student Paper Contest

Sunday, October 31, 2021, 4:00–6:00 pm

Track A
Coded Caching Gains at Low SNR Over Nakagami Fading Channels
Hui Zhao, Antonio Bazco-Nogueras, Petros Elia

Track B
Multi-agent Policy Optimization for Pilot Selection in Delay-constrained Grant-free Multiple Access
Jianan Bai, Zheng Chen, Erik G. Larsson

Track C
Online Change Point Detection for Random Dot Product Graphs
Bernardo Marenco, Paola Bermolen, Marcelo Fiori, Federico Larroca, Gonzalo Mateos

Track D
Best Arm Identification under Additive Transfer Bandits
Ojash Neopane, Aaditya Ramdas, Aarti Singh

Track E
Distributed Root-MUSIC Using Finite-Time Average Consensus
Po-Chih Chen, P. P. Vaidyanathan

Track F
Graph-Based Interpolation of Local Activation Time on the Cardiac Surface
Jennifer Hellar, Romain Cosentino, Mathews M John, Allison Post, Skylar Buchan, Mehdi Razavi, Behnaam Aazhang

Track G
Compute RAMs: Adaptable Compute and Storage Blocks for DL-Optimized FPGAs
Aman Arora, Bagus Hanindhito, Lizy K. John

Track H
Multirate Audiometric Filter Bank for Hearing Aid Devices
Alice Sokolova, Dhiman Sengupta, Kuan-Lin Chen, Rajesh Gupta, Baris Aksanli, fredric harris, Harinath Garudadri

Time zone: PDT
Attend Virtually at https://asilomarsscconf-virtual.org/

2021 Asilomar Conference Session Schedule

Monday, November 1, 2021, 8:00–9:30 am

Distinguished Lecture for the 2021 Asilomar Conference

Deep Analog-to-Digital Compression with Applications to Automotive Radar and Massive MIMO

Prof. Yonina Eldar
Weizmann Institute of Science

Abstract
The famous Shannon-Nyquist theorem has become a landmark in analog to digital conversion and the development of digital signal processing algorithms. However, in many modern applications, the signal bandwidths have increased tremendously, while the acquisition capabilities have not scaled sufficiently fast. Furthermore, the resulting high rate digital data requires storage, communication and processing at very high rates which is computationally expensive and requires large amounts of power. In this talk we consider a general framework for sub-Nyquist sampling, quantization and processing in space, time and frequency which allows to dramatically reduce the number of antennas, sampling rates, number of bits and band occupancy in a variety of applications. Our framework relies on exploiting signal structure, quantization and the processing task in both standard processing and in deep learning networks leading to a new framework for model-based deep learning. It also allows for the development of efficient joint radar-communication systems. We consider applications of these ideas to a variety of problems in wireless communications, imaging, efficient massive MIMO systems, automotive radar and ultrasound imaging and show several demos of real-time sub-Nyquist prototypes including a wireless ultrasound probe, sub-Nyquist automotive radar, cognitive radio and radar, dual radar-communication systems, analog precoding, sparse antenna arrays, and a deep Viterbi decoder.

Biography
Yonina Eldar is a Professor in the Department of Mathematics and Computer Science, Weizmann Institute of Science, Rehovot, Israel. She was previously a Professor in the Department of Electrical Engineering at the Technion, where she held the Edwards Chair in Engineering. She is also a Visiting Professor at MIT, a Visiting Scientist at the Broad Institute, and an Adjunct Professor at Duke University and was a Visiting Professor at Stanford. She received the B.Sc. degree in physics and the B.Sc. degree in electrical engineering both from Tel-Aviv University (TAU), Tel-Aviv, Israel, in 1995 and 1996, respectively, and the Ph.D. degree in electrical engineering and computer science from the Massachusetts Institute of Technology

(MIT), Cambridge, in 2002. She is a member of the Israel Academy of Sciences and Humanities, an IEEE Fellow and a EURASIP Fellow. She has received many awards for excellence in research and teaching, including the IEEE Signal Processing Society Technical Achievement Award (2013), the IEEE/AESS Fred Nathanson Memorial Radar Award (2014) and the IEEE Kiyo Tomiyasu Award (2016). She was a Horev Fellow of the Leaders in Science and Technology program at the Technion and an Alon Fellow. She received the Michael Bruno Memorial Award from the Rothschild Foundation, the Weizmann Prize for Exact Sciences, the Wolf Foundation Krill Prize for Excellence in Scientific Research, the Henry Taub Prize for Excellence in Research (twice), the Hershel Rich Innovation Award (three times), the Award for Women with Distinguished Contributions, the Andre and Bella Meyer Lectureship, the Career Development Chair at the Technion, the Muriel & David Jacknow Award for Excellence in Teaching, and the Technion's Award for Excellence in Teaching (two times). She received several best paper awards and best demo awards together with her research students and colleagues, was selected as one of the 50 most influential women in Israel, and was a member of the Israel Committee for Higher Education. She is the Editor in Chief of Foundations and Trends in Signal Processing and a member of several IEEE Technical Committees and Award Committees.

Monday, November 2, 2021, 8:00–9:30 am

Tutorial

Revisiting MIMO from a Circuits Perspective

Prof. Robert Heath
North Carolina State University

Abstract
MIMO communication remains an important technology for wireless communication systems. In this tutorial, we revisit classical signal processing models for MIMO wireless communications. We consider how those models may be updated as MIMO systems go to higher carrier frequencies, broader bandwidths and new kinds of array architectures. Through these updates, we revisit concepts from antennas, circuits and array processing including impedance, broadband arrays, beam squint, mutual coupling and polarization.

Biography
Robert W. Heath Jr. received the Ph.D. in EE from Stanford University. He is the Lampe Distinguished Professor at North Carolina State University. He has received several awards including the 2019 IEEE Kiyo Tomiyasu Award, the 2020 IEEE Signal Processing Society Donald G. Fink Overview Paper Award, and the 2020 North Carolina State University Innovator of the Year Award. He authored "Introduction to Wireless Digital Communication" (Prentice Hall in 2017) and "Digital Wireless Communication: Physical Layer Exploration Lab Using the NI USRP" (National Technology and Science Press in 2012). He co-authored "Millimeter Wave Wireless Communications" (Prentice Hall in 2014) and "Foundations of MIMO Communications" (Cambridge 2019). He is a member-at-large on the IEEE Communications Society Board-of-Governors (2020-2022) and is a past member-at-large on the IEEE Signal Processing Society Board-of-Governors (2016-2018). He is a licensed Amateur Radio Operator, a registered Professional Engineer in Texas, a Private Pilot, a Fellow of the National Academy of Inventors, and a Fellow of the IEEE.

Program of the 2021 Asilomar Conference on Signals, Systems, and Computers

Technical Program Chairman
Mario Huemer
Johannes Kepler University Linz

Session A-1 5G and Beyond I

Chair: *Thomas Zemen, Austrian Institute of Technology (AIT)*

A-1.1 Low-Overhead Mobile mmWave communication with Adaptive Beam Refinement and Sector Sweep Intervals
Chanaka Samarathunga, Morteza Hashemi, University of Kansas, United States; Qing Xia, Liangxiao Xin, Li-Hsiang Sun, Mohamed Abouelseoud, Sony R&D Center US, San Jose lab, United States

A-1.2 A Non-cooperative Game-based Approach to Distributed Beam Scheduling in Millimeter-Wave Networks
Xiang Zhang, Shamik Sarkar, Sneha Kasera, Mingyue Ji, University of Utah, United States; Arupjyoti Bhuyan, Idaho National Laboratory, United States

A-1.3 A Highly Reliable Ultralow-Latency Wireless Solution for Industrial Control Loops: Design and Evaluation
Georg Kail, Hannes Muhr, Janos Gila, Martin Schiefer, Reinhard Hladik, Siemens, Austria; Markus Hofer, Stefan Zelenbaba, Thomas Zemen, Austrian Institute of Technology, Austria

A-1.4 Enhanced Dynamic Scheduling for Uplink Latency Reduction in Broadband VoLTE Systems
Ahmet Gizik, NYU Tandon School of Engineering, United States; Ozgun Alkin Sensoy, Bogazici University, Turkey; Engin Masazade, Marmara University, Turkey

Session A-2 5G and Beyond II

Chair: *Zhi-Quan Luo, The Chinese University of Hong Kong*

A-2.1 Interference Reduction in Virtual Cell Optimization
Michal Yemini, Andrea J. Goldsmith, Princeton University, United States; Elza Erkip, New York University, United States

A-2.2 Coded Caching Gains at Low SNR Over Nakagami Fading Channels
Hui Zhao, Antonio Bazco-Nogueras, Petros Elia, EURECOM, France

A-2.3 Data-Driven Optimized Slice Activation in Multi-Tenant 5G Networks
Navid Reyhanian, University of Minnesota, United States; Zhi-Quan Luo, The Chinese University of Hong Kong, Shenzhen, China

Session A-3 Communication Systems Optimization

Chair: *Andreas Knopp, Bundeswehr University Munich*

A-3.1 POVM Design for Qubit State Discrimination
Qi Ding, Catherine Medlock, Alan Oppenheim, Massachusetts Institute of Technology, United States

A-3.2 Baud rate pattern-adaptable dual loop clock recovery for high speed serial links
Gaurav Malhotra, Jalil Kamali, Amir Amirkhany, Samsung, United States

A-3.3 Conjugate Cyclic Feature Detection in the Presence of LEO-Satellite Doppler Effects
Jonas Hofmann, Andreas Knopp, Bundeswehr University Munich, Germany; Chad Spooner, NorthWest Research Associates, United States

Session A-4 Dependable Vehicle-to-Everything Connectivity (invited)

Co-Chairs: *Erik Ström, Chalmers University of Technology, Gothenburg, Sweden and Alexey Vinel, Halmstad University, Halmstad, Sweden*

A-4.1 Improving Resource Allocation for beyond 5G V2X Sidelink Connectivity
Alessandro Bazzi, Vittorio Todisco, University of Bologna, Italy; Claudia Campolo, Antonella Molinaro, University Mediterranea of Reggio Calabria, Italy; Antoine Berthet, Paris-Saclay University, CNRS, CentraleSupelec, France; Stefania Bartoletti, CNR-IEIIT, Italy

A-4.2 Sensitivity Analysis of Beamforming Techniques for Periodic Broadcast V2V Communication
Chouaib Bencheikh Lehocine, Fredrik Brännström, Erik G. Ström, Chalmers University of Technology, Sweden

A-4.3 Implementation of spatially consistent channel models for real-time full stack C-ITS V2X simulations
Aleksei Fedorov, Fredrik Tufvesson, Lund University, Sweden; Nikita Lyamin, Volvo Car Corporation, Sweden

A-4.4 Communications Requirements for Cooperative Automated Driving: Why we don't need URLLC
Arturo Gonzalez, Andres Villamil, Gerhard Fettweis, Technische Universität Dresden, Germany

Session B-2 Baseband Algorithms and Architectures for Millimeter-Wave Massive MIMO (invited)

Chair: *Oscar Castañeda, ETH Zurich, Switzerland*

B-2.1 A Scalable, Modular mm-wave Massive MIMO Uplink Testbed
James Dunn, Greg LaCaille, Harrison Liew, Yue Dai, Lorenzo Iotti, Emily Naviasky, Zhaokai Liu, Zhenghan Lin, University of California, Berkeley, United States

B-2.2 mmWave Massive MIMO in Real Propagation Environments: Performance Evaluation using LuMaMi28GHz
Sara Gunnarsson, MinKeun Chung, Andreas Johansson, Liang Liu, Fredrik Tufvesson, Ove Edfors, Lund University, Sweden; Olof Zander, Zhinong Ying, Sony Research Center, Sweden; Kamal Samanta, Chris Clifton, Sony Semiconductor and Electronic Solutions, Sweden

B-2.3 3D Rainbow Beam Design for Fast Beam Training with Planar True-Time-Delay Arrays in Wideband Millimeter-Wave Systems
Aditya Wadaskar, Veljko Boljanovic, Han Yan, Danijela Cabric, University of California Los Angeles, United States

B-2.4 Hybrid Jammer Mitigation for All-Digital mmWave Massive MU-MIMO
Gian Marti, Oscar Castañeda, Christoph Studer, ETH Zurich, Switzerland; Sven Jacobsson, Ericsson AB, Sweden; Giuseppe Durisi, Chalmers University of Technology, Sweden; Tom Goldstein, University of Maryland, United States

Session B-5 Intelligent Reflecting Surfaces (invited)

Chair: *Robert Schober, University of Erlangen-Nuremberg, Germany*

B-5.1 Communication Models for Reconfigurable Intelligent Surfaces - A Short Tutorial
Marco Di Renzo, CNRS & Paris-Saclay University, France; Sergei Tretiakov, Aalto University, Finland; Andrea Alu, CUNY Advanced Science Research Center, United States; Tie Jun Cui, Shi Jin, Southeast University, China

B-5.2 Multi-IRS Aided Multiuser Communication: Hybrid Deployment and Optimization
Beixiong Zheng, Rui Zhang, National University of Singapore, Singapore; Changsheng You, Southern University of Science and Technology, China

B-5.3 A Primer on Near-Field Beamforming for Arrays and Reconfigurable Intelligent Surfaces
Emil Björnson, Özlem Tugfe Demir, KTH Royal Institute of Technology, Sweden; Luca Sanguinetti, University of Pisa, Italy

B-5.4 Resource Allocation for Active IRS-Assisted Multiuser Communication Systems
Dongfang Xu, Robert Schober, Friedrich-Alexander-University Erlangen-Nurnberg, Germany; Xianghao Yu, The Hong Kong University of Science and Technology, China; Derrick Wing Kwan Ng, The University of New South Wales, Australia

Session B-10 mm-Wave and Hybrid MIMO Systems

Chair: *Martin Haardt, TU Ilmenau*

B-10.1 Calibration of Phase Shifter Network for Hybrid MIMO Systems
Wei Zhang, Yi Jiang, fudan, China

B-10.2 Rate and Diversity Improvement with Beam Hopping in Millimeter Wave Systems
Vasanthan Raghavan, Junyi Li, Ozge Koymen, Qualcomm, United States

B-10.3 Polarization-Based Transmission Tradeoffs in Millimeter Wave Systems
Vasanthan Raghavan, Ali Tassoudji, Yu-Chin Ou, Ozge Koymen, Junyi Li, Qualcomm, United States

B-10.4 Coverage Analysis of Cognitive mmWave Networks with Directional Sensing
Shuchi Tripathi, Abhishek Gupta, Indian Institute of Technology Kanpur, India; SaiDhiraj Amuru, Indian Institute of Technology Hyderabad, India

Session D-13 Machine Learning I

Chair: *Daphney-Stavroula Zois, University at Albany, SUNY*

D-13.1 Sparse Learning of Kernel Transfer Operators
Boya Hou, Subhonmesh Bose, University of Illinois at Urbana-Champaign, United States; Umesh Vaidya, Clemson University, United States

D-13.2 Multi-Stage Gaussian Noise Reduction with Recurrent Neural Networks
Aditya Ranganath, Omar Deguchy, Mukesh Singhal, Roummel Marcia, University of Californa - Merced, United States

D-13.3 Dynamic Feature Selection for Classification in Structured Environments
Sachini Piyoni Ekanayake, Yasitha Warahena Liyanage, Daphney-Stavroula Zois, University at Albany, SUNY, United States

D-13.4 Sparse Reduced-Rank Regression With Adaptive Selection of Groups of Predictors
Quan Wei, Ziping Zhao, ShanghaiTech University, China; Yujia Zhang, East China Normal University, China

Session D-14 Machine Learning II

Chair: *Jose Cadena, Lawrence Livermore National Laboratory*

D-14.1 Decentralized Black-Box Variational Inference for Bayesian Learning on Sensor Networks
Jose Cadena, Priyadip Ray, Ryan Goldhahn, Lawrence Livermore National Laboratory, United States

D-14.2 Feature Learning for Neural-Network-Based Positioning with Channel State Information
Emre Gonultas, Sueda Taner, Cornell University, United States; Howard Huang, Nokia Bell-Labs, United States; Christoph Studer, ETH Zurich, Switzerland

D-14.3 New Results on Graphical Modeling of High-Dimensional Dependent Time Series
Jitendra Tugnait, Auburn University, United States

D-14.4 Kernel-Based Lifelong Multitask Multiview Learning
Rami Mowakeaa, Seung-Jun Kim, University of Maryland, Baltimore County, United States; Darren Emge, Chemical Biological Center, United States

Session D-15 Machine Learning with Graphs (invited)

Chair: *Yanning Shen, University of California, Irvine, USA*

D-15.1 Unifying Random-Asynchronous Algorithms for Numerical Methods, Using Switching Systems Theory
Oguzhan Teke, P. P. Vaidyanathan, California Institute of Technology, United States

D-15.2 Model selection and explainability in neural networks using a polytope interpolation framework
Sarath Shekkizhar, Antonio Ortega, University of Southern California, United States

D-15.3 Online Graph-Guided Inference Using Ensemble Gaussian Processes of Egonet Features
Konstantinos D. Polyzos, Qin Lu, Georgios B. Giannakis, University of Minnesota, United States

D-15.4 Node Embedding based on the Free Energy Distance
Yu Zhu, Santiago Segarra, Rice University, United States; Ananthram Swami, U.S. Army's CCDC Army Research Laboratory, United States

Session E-3 Beamforming I

Chair: *Aboulnasr Hassanien, Wright State University*

E-3.1 Unit Circle Roots Constrained MVDR Beamformer
Arnab Shaw, Jared Smith, Aboulnasr Hassanien, Wright State University, United States

E-3.2 Adaptive Beamforming With A Partially Calibrated Distributed Array
Anil Ganti, Jeffrey Krolik, Duke University, United States

E-3.3 Collaborative Beamforming for Agents with Localization Errors
Erfaun Noorani, John Baras, The University of Maryland, United States; Yagiz Savas, Ufuk Topcu, The University of Texas at Austin, United States; Alec Koppel, Brian Sadler, U.S. Army Research Laboratory, United States

E-3.4 Application of Complex Split-Activation Feedforward Networks to Beamforming
Swaroop Appadwedula, MIT Lincoln Laboratory, United States

Session E-4 Beamforming II

Chair: *Benjamin Friedlander, University of California, Santa Cruz*

E-4.1 The Extended Manifold for Antenna Array Calibration
Benjamin Friedlander, University of California, Santa Cruz, United States

E-4.2 Phased array beam tracking method using coding of the beam gain profile
Gary Ray, Boeing, United States

E-4.3 The Mythical Uniform Linear Antenna Array
Benjamin Friedlander, UC Santa Cruz, United States

E-4.4 Scaling Massive MIMO Radar via Compressive Signal Processing
Maryam Eslami Rasekh, Upamanyu Madhow, University of California Santa Barbara, United States

E-4.5 Waveform Design for Mutual Information Maximization via Minorization-Maximization
Huanyu Zhang, Ziping Zhao, ShanghaiTech University, China; Linlong Wu, University of Luxembourg, Luxembourg

Session E-7 Direction-of-Arrival Estimation

Chair: *P.P. Vaidyanathan, California Institute of Technology*

E-7.1 Direction-of-Arrival Estimation Exploiting Distributed Sparse Arrays
Md. Waqeeb T. S. Chowdhury, Yimin Zhang, Temple University, United States

E-7.2 Collaborative Direction-of-Arrival Estimation Exploiting One-Bit Cross-Correlations
Yimin Zhang, Temple University, United States

E-7.3 Machine Learning-Based Direction-of-Arrival Estimation Exploiting Distributed Sparse Arrays
Md. Saidur Rahman Pavel, Md. Waqeeb T. S. Chowdhury, Yimin Zhang, Temple University, United States

E-7.4 Feature Engineering for DOA Estimation using a Convolutional Neural Network, for Sparse Arrays
Pranav Kulkarni, P. P. Vaidyanathan, California Institute of Technology, United States

Session F-1 Advances in ECG and EEG Signal Processing (invited)

Chair: *Peter Kovacs, Eötvös Loránd University, Hungary*

F-1.1 Color classification of visually evoked potentials by means of Hermite functions
Tamás Dózsa, Péter Kovács, Eötvös Loránd University, Hungary; Carl Böck, Gergő Bognár, Johannes Kepler University Linz, Austria; Jens Meier, Kepler University Hospital, Austria

F-1.2 Real-time analysis of inhomogeneous neuronal firing patterns via Hawkes processes
György Perczel, Zsuzsanna Vágó, Pázmány Péter Catholic University, Hungary; László Gerencsér, Eötvös Loránd Research Network (ELKH), Hungary; Loránd Erőss, Dániel Fabó, National Institute of Clinical Neurosciences, Hungary

F-1.3 Eigenvector-based spatial ECG filtering improved QT delineation in stress test recordings
Cristina Pérez, Alba Martín-Yebra, Juan Pablo Martínez, Esther Pueyo, Pablo Laguna, University of Zaragoza, Spain; Jari Viik, Tampere University of Technology, Finland

F-1.4 Analysis of ECG time-frequency representations as input for deep neural networks
Nicolai Spicher, Peter L. Reichertz Institute for Medical Informatics of TU Braunschweig and Hannover Medical School, Germany

F-1.5 A novel dynamic Principal Component Analysis method, applied to physiological data
Máté Baranyi, Marianna Bolla, Budapest University of Technology and Economics, Hungary; Gyöngyi Szilágyi Kocsisné, I-QRS International Ltd., Hungary

Session F-8 Processing of Physiological Signals

Chair: *Behnaam Aazhang, Rice University*

F-8.1 Lévy Firefly Algorithms Applied to Improve Sequential Adaptive Processing for Fetal Electrocardiograms (ECGs)
William Jenkins, Magni Hussain, Pennsylvania State University, United States

F-8.2 Graph-Based Interpolation of Local Activation Time on the Cardiac Surface
Jennifer Hellar, Romain Cosentino, Behnaam Aazhang, Rice University, United States; Mathews M John, Allison Post, Skylar Buchan, Mehdi Razavi, Texas Heart Institute, United States

F-8.3 Time Series Clustering of Sleep Patterns Utilizing Dynamic Time Warping
Maxwell Thorpe, University of Minnesota, United States; Thomas Rieck, Philip Hagen, Chris Felton, Clifton Haider, David Holmes, Mayo Clinic, United States

Session F-9 Signal Processing for Electrophysiology (invited)

Chair: *Neda Nategh, University of Utah, USA*

F-9.1 Tracking the dynamics of perisaccadic visual signals with magnetoencephalography
Konstantinos Nasiotis, Shahab Bakhtiari, Sylvain Baillet, Christopher Pack, McGill University, Canada; Sujaya Neupane, Masschusetts Institute of Technology, United States

F-9.2 A mechanistically interpretable model of the retinal neural code for natural scenes with multiscale adaptive dynamics
Xuehao Ding, Dongsoo Lee, Satchel Grant, Lane McIntosh, Niru Maheswaranathan, Stephen Baccus, Stanford University, United States; Heike Stein, IDIBAPS, Spain

F-9.3 Dynamical modeling, decoding, and control of multiscale brain networks: from motor to mood
Maryam Shanechi, University of Southern California, United States

F-9.4 Characterizing the spatiotemporal components of extrastriate responses during eye movements
Neda Nategh, University of Utah, United States

Session G-3 Architectures for Radio Frequency Fingerprinting and Wireless Security (invited)

Chair: *Joe Cavallaro, Rice University, USA*

G-3.1 RF Fingerprinting with Dilated Causal Convolutions – An Inherently Explainable Architecture
Scott Kuzdeba, Joseph Carmack, Josh Robinson, BAE Systems, United States

G-3.2 It's a bird, it's a plane, it's "that" UAV: RF fingerprinting during flight
Jerry Gu, Nasim Soltani, M. Yousof Naderi, Kaushik Chowdhury, Northeastern University, United States

G-3.3 Jamming Pattern Recognition over Multi-Channel Networks: A Deep Learning Approach
Ali Pourranjbar, PhD Student of Ecole de Technique Superieure, Canada; Georges Kaddoum, Associate Professor in Ecole de Technique Superieure, Canada; Walid Saad, Professor in Electrical engineering Bradley Department of Electrical and Computer Engineering, Virginia Tech, United States

G-3.4 Radio Frequency Fingerprint Identification for Security in Low-Cost IoT Devices
Guanxiong Shen, Junqing Zhang, Alan Marshall, University of Liverpool, United Kingdom; Mikko Valkama, Tampere University, Finland; Joseph Cavallaro, Rice University, United States

Session G-9 Solutions for IoT Nodes and Energy Constrained IoT Devices (invited)

Chair: *Liesbet Van der Perre, KU Leuven, Belgium*

G-9.1 Utilizing Energy-Quality Trade-Off for Low-Cost ML-Based Compressive Sensing Reconstruction
Hyunsung Kim, Youngjoo Lee, Pohang University of Science and Technology, Republic of Korea

G-9.2 A Low-Power Hardware Platform with LoRa Sensor Node or Base Station Functionality for Environmental Monitoring Applications
Stijn Wielandt, Baptiste Dafflon, Lawrence Berkeley National Laboratory, United States

G-9.3 Energy-Efficient Application-Specific Instruction-Set Processor for Feature Extraction in Smart Vision Systems
Lucas Ferreira, Steffen Malkowsky, Patrik Persson, Karl Åström, Liang Liu, Lund University, Sweden; Sven Karlsson, Technical University of Denmark, Denmark

G-9.4 A Multi-Band Solution for Interacting with Energy-Neutral Devices
Chesney Buyle, Bert Cox, Liesbet Van der Perre, Lieven De Strycker, KU Leuven, Belgium

Session A-5 Machine Learning for Communications (invited)

Co-Chairs: *Mahdi Boloursaz-Mashhadi, Imperial College London, UK and Deniz Gunduz, Imperial College London, UK*

A-5.1 Context-Aware Effective Communications
Tze-Yang Tung, Szymon Kobus, Deniz Gunduz, Imperial College London, IPC Lab, United Kingdom

A-5.2 Distributed Proximal Policy Optimization for Contention-Based Spectrum Access
Akash Doshi, Jeffrey Andrews, University of Texas at Austin, United States

A-5.3 Deep Learning Partial MIMO CSI Feedback by Exploiting Channel Temporal Correlation
Yu-Chien Lin, Zhi Ding, University of California, United States; Ta-Sung Lee, National Yang Ming Chiao Tung University, Taiwan

A-5.4 MetaBayes: A Meta-Learning Framework from a Bayesian Perspective
Tamara AlShammari, Anis Elgabli, Mehdi Bennis, University of Oulu, Finland

Session A-9 Modulation Classification

Chair: *Peter Gerstoft, NoiseLab, University of California, San Diego (UCSD)*

A-9.1 Novel training methodology to enhance deep learning based modulation classification
Venkatesh Sathyanarayanan, Ankush Jolly, Peter Gerstoft, University of California San Diego, United States

A-9.2 Adversarial Filters for Secure Modulation Classification
Alex Berian, Kory Staab, Gregory Ditzler, Tamal Bose, Ravi Tandon, University of Arizona, United States

A-9.3 Rich Feature Deep Learning Classifier for Multiple Simultaneous Radio Signals
Ahsen Uppal, Jeffrey Klein, Howie Huang, The George Washington University, United States; H. Brown Cribbs, The Raytheon Company, United States

A-9.4 SNR-Boosted Automatic Modulation Classification
Clayton Harper, Avi Sinha, Mitchell Thornton, Eric Larson, Darwin Deason Institute for Cyber Security, United States

Session A-10 Neural Networks for Communications

Chair: *Mikko Valkama, Tampere University*

A-10.1 Virtual DPD Neural Network Predistortion for OFDM-based MU-Massive MIMO
Chance Tarver, Joseph Cavallaro, Rice University, United States; Alexios Balatsoukas-Stimming, Eindhoven University of Technology, Netherlands; Christoph Studer, ETH Zurich, Switzerland

A-10.2 Neural Network Based Data Estimation for Unique Word OFDM
Stefan Baumgartner, Gergoe Bognar, Mario Huemer, JKU LIT SAL eSPML Lab, Johannes Kepler University Linz, Austria; Oliver Lang, Johannes Kepler University Linz, Austria

A-10.3 Neural Network Optimal UW-OFDM
Gergő Bognár, Stefan Baumgartner, Oliver Lang, Mario Huemer, Johannes Kepler University Linz, Austria

A-10.4 Deep Learning Based OFDM Physical-Layer Receiver for Extreme Mobility
Jaakko Pihlajasalo, Taneli Riihonen, Jukka Talvitie, Mikko Valkama, Tampere University, Finland; Dani Korpi, Mikko Honkala, Janne Huttunen, Mikko Uusitalo, Nokia Bell Labs, Finland

Session B-9 MIMO Beamforming and Sensing

Chair: *Daniel Bliss, Arizona State University*

B-9.1 Distributed Beamforming Techniques for Flexible Communications Networks
Jacob Holtom, Owen Ma, Andrew Herschfelt, Daniel Bliss, Arizona State University, United States

B-9.2 Spatial Oversampling for All-Digital LoS MIMO
Ahmet Dundar Sezer, Upamanyu Madhow, Mark J. W. Rodwell, University of California, Santa Barbara, United States

B-9.3 Performance Evaluation of Detection-based UWB Ranging in Presence of Interference
Stefan Hechenberger, Holger Arthaber, Technische Universität Wien, Austria; Stefan Tertinek, NXP Semiconductors Austria, Austria

B-9.5 Hierarchical Beamforming for Broadcast Channel
Fengjie Li, Cheng Du, Yi Jiang, Fudan University, China

Session B-11 Physically Consistent Modeling of MIMO Communications (invited)

Chair: *Erik Larsson, Linköping University, Sweden*

B-11.1 Electromagnetic Modeling of Holographic Intelligent Reflecting Surfaces at Terahertz Bands
Konstantinos Dovelos, Boris Bellalta, Universitat Pompeu Fabra, Spain; Stylianos D. Assimonis, Hien Quoc Ngo, Michail Matthaiou, Queen's University Belfast, United Kingdom

B-11.2 Beamspace modeling of multi-mode communications with large intelligent surfaces
Nicolò Decarli, CNR - IEIIT, Italy; Davide Dardari, Univ. of Bologna, Italy

B-11.3 Circuit-Based Model for Multi-Polarized MIMO Systems
Miguel Castellanos, Robert Heath, North Carolina State University, United States

Session B-12 Physically Consistent Modelling of MIMO Systems

Chair: *Christoph Studer, ETH Zürich*

B-12.1 Low-Resolution Massive MIMO with Hardware Power Consumption Constraints
Italo Atzeni, Antti Tölli, University of Oulu, Finland; Giuseppe Durisi, Chalmers University of Technology, Sweden

B-12.2 l^p-l^q-Norm Minimization for Joint Precoding and Peak-to-Average-Power Ratio Reduction
Sueda Taner, Cornell University, United States; Christoph Studer, ETH Zurich, Switzerland

B-12.3 Side Information Effect on Semi-Blind Channel Identification for MIMO-OFDM Communications Systems
Ouahbi Rekik, Anissa Mokraoui, Université Sorbonne Paris Nord, France; Tran Quynh, Vietnam National University, Viet Nam; Trung-Thanh Le, université d'Orléans, France; Karim Abed-meraim, Université d'Orléans, France

Session D-8 Deep Learning and Reinforcement Learning

Chair: *Tara Javidi, UC San Diego*

D-8.1 Improving Depression Assessment With Multi-Task Learning From Speech and Text Information
Clinton Lau, Wai-Yip Chan, Xiaodan Zhu, Queen's University, Canada

D-8.2 Graph Classification: Tradeoffs between Deep Neural Network Architecture and Graph Topology
Mark Cheung, Jose' Moura, Carnegie Mellon University, United States

D-8.3 Communication-Free Two-Stage Multi-Agent DDPG under Partial States and Observations
Joohyun Cho, Mingxi Liu, Yi Zhou, Rong-Rong Chen, University of Utah, United States

D-8.4 Best Arm Identification under Additive Transfer Bandits
Ojash Neopane, Aaditya Ramdas, Aarti Singh, Carnegie Mellon University, United States

D-8.5 Contextual Shortest Path with Unknown Context Distributions
Xinghan Wang, Greg Fields, Tara Javidi, UC San Diego, United States

Session D-18 Theory for Machine Learning

Chair: *Cynthia Rush, Columbia University*

D-18.1 A Minimax Lower Bound for Low-Rank Matrix-Variate Logistic Regression
Batoul Taki, Mohsen Ghassemi, Anand Sarwate, Waheed Bajwa, Rutgers University, United States

D-18.2 Information Theoretic Approach to L-Estimators
Alex Dytso, New Jersey Institute of Technology, United States; Martina Cardone, University of Minnesota, United States; Cynthia Rush, Columbia University, United States

D-18.3 EE-Grad: Exploration and Exploitation for Cost-Efficient Mini-Batch SGD
Mehmet Donmez, Maxim Ragisky, Andrew Singer, University of Illinois at Urbana Champaign, United States; Jeff Ludwig, University of California Irvine, United States

D-18.4 Provable Data Clustering via Innovation Search
Weiwei Li, Mostafa Rahmani, Ping Li, Baidu, United States

Session D-19 Theory of Reinforcement Learning (invited)

Co-Chairs: *Yingbin Liang, The Ohio State University, USA and Shaofeng Zou, University at Buffalo, USA*

D-19.1 Multi-Agent Off-Policy TD Learning: Finite-Time Analysis with Near-Optimal Sample Complexity and Communication Complexity
Ziyi Chen, Yi Zhou, Rongrong Chen, University of Utah, United States

D-19.2 Is Q-Learning Minimax Optimal?
Yuejie Chi, Carnegie Mellon University, United States

D-19.3 Towards Understanding A3C: Non-asymptotic Analysis and Linear Speedup
Han Shen, Tianyi Chen, Rensselaer Polytechnic Institute, United States; Kaiqing Zhang, University of Illinois at Urbana-Champaign, United States; Mingyi Hong, University of Minnesota, United States

D-19.4 Faster Algorithm and Sharper Analysis for Constrained Markov Decision Process
Tianjiao Li, Guanghui Lan, Georgia Institute of Technology, United States; Ziwei Guan, Tengyu Xu, Yingbin Liang, The Ohio State University, United States; Shaofeng Zou, University at Buffalo, the State University of New York, United States

Session E-8 Fundamentals and Bounds in Array Processing

Chair: *Anastasia Lavrenko, University of Twente*

E-8.1 Data-informed CRLB Derivations for Indoor Emitter Localization
Brent Laird, Trac Tran, Johns Hopkins University, United States

E-8.2 Bayesian CRLB for Blind Indoor Localization with Imperfect Receiver Synchronization
Daniel Neunteufel, Holger Arthaber, TU Wien, Austria; Stefan Grebien, TU Graz, Austria

E-8.3 Maximal Unambiguous Range Extension in LFM-CW Radars via Multi-Rate Sampling
Oren Longman, General Motors, Israel; Igal Bilik, Ben-Gurion University of the Negev, Israel

E-8.4 Lateral Location Estimation Accuracy in Ranging Localization Systems with 3D Geometry
Anastasia Lavrenko, University of Twente, Netherlands

Session E-12 Source Localization and Separation I

Chair: *Todd Moon, Utah State University*

E-12.1 Source localization on limited bandwidth signals using autocorrelation-based fingerprinting
Joseph Ipson, Todd Moon, Utah State University, United States

E-12.2 Quasi-norm Kernel-based Emitter Localization
Brent Laird, Trac Tran, Johns Hopkins University, United States

E-12.3 Distributed Root-MUSIC Using Finite-Time Average Consensus
Po-Chih Chen, P. P. Vaidyanathan, California Institute of Technology, United States

E-12.4 Harmonic Retrieval from Coarsely Quantized Measurements
Guoyang Zhang, Yuanbo Cheng, Fangqing Liu, Xiaolei Shang, University of Science and Technology of China, China

Session E-13 Source Localization and Separation II

Chair: *Todd Moon*

E-13.1 Low Latency Time Domain Multichannel Speech and Music Source Separation
Gerald Schuller, Ilmenau University of Technology, Germany

E-13.3 KAMICA, a new deflation ICA algorithm based on Kurtosis alternating maximization
Ahmad Karfoul, Majd Saleh, Université de Rennes 1, France

E-13.4 Synchrosqueezing Transform Matched to Nonlinear Group Delay for Mode Estimation of Ultrasonic Guided Waves
Javaid Ikram, Aditi Chattopadhyay, Antonia Papandreou-Suppappola, Arizona State University, United States

Session F-2 Bioinformatics and Computational Biology

Chair: *Mario Banuelos, California State University Fresno*

F-2.1 Novel structural variant genome detection in extended pedigrees through negative binomial optimization
Andrew Lazar, Suzanne Sindi, Roummel Marcia, University of California, Merced, United States; Mario Banuelos, California State University, Fresno, United States

F-2.2 Sequential Bayesian Inference Using Stochastic Models of Gene Regulatory Networks
Nayely Velez-Cruz, Bahman Moraffah, Antonia Papandreou-Suppappola, Arizona State University, United States

F-2.3 Fully Automated Radiation Therapy Treatment Planning with the Pareto Optimal Projection Search Algorithm
Charles Huang, Lei Xing, Yong Yang, Stanford University, United States

Session F-5 Neural Engineering and Signal Processing

Chair: *Golrokh Mirzaei, Ohio State University*

F-5.1 metaID: A Metamer Identification Algorithm for Improving BCI-based Color Vision Assessment
Hadi Habibzadeh, Daphney-Stavroula Zois, University at Albany, State University of New York, United States; James J. S. Norton, Stratton VA Medical Hospital, United States

F-5.2 Biological Gender Classification from fMRI via Hyperdimensional Computing
Ryan Billmeyer, Keshab Parhi, University of Minnesota, United States

F-5.3 Ensembles of Convolutional Neural Network Pipelines for Diagnosis of Alzheimer Disease
Golrokh Mirzaei, Ohio State University, United States

Session F-6 Neural Signal Processing (invited)

Chair: *Laleh Najafizadeh, Rutgers University, USA*

F-6.1 Multi-frequency functional connectivity network analysis of EEG
Tamanna Munia, Abdullah Karaaslanli, Zoe Dittman, Selin Aviyente, Michigan State University, United States

F-6.2 A Graph-based dynamical characterization and inference in hybrid BCIs
Sarah Ismail Hosni, Seyyed Bahram Borgheai, John McLinden, Yalda Shahriari, University of Rhode Island, United States; Shaotong Zhu, Sarah Ostadabbas, Northeastern University, United States

F-6.3 Dynamic decoding of intention via EEG
Ali Haddad, Laleh Najafizadeh, Rutgers University, United States

Session F-7 Neuroscience-inspired Machine Learning (invited)

Chair: *Cengiz Pehlevan, Harvard University, USA*

F-7.1 Algorithmic insights on continual learning from fruit flies
Yang Shen, Saket Navlakha, Cold Spring Harbor Laboratory, United States; Sanjoy Dasgupta, University of California, San Diego, United States

F-7.2 Perceptron classification with learned synaptic nonlinearities
Yuru Song, Marcus K. Benna, UC San Diego, United States

F-7.3 Towards Human-like Reinforcement Learning
Ida Momennejad, Microsoft Research NYC, United States

F-7.4 Representation learning in neural networks trained with noisy weight updates
Jacob Zavatone-Veth, Cengiz Pehlevan, Harvard University, United States

Session G-5 Energy-Efficient Array Transmitters (invited)

Chair: *Thomas Eriksson, Chalmers University of Technology, Sweden*

G-5.1 Energy-Efficient Array Transmitters Through Outphasing and Over-the-Air Combining
Vesa Lampu, Guixian Xu, Lauri Anttila, Alberto Brihuega, Mikko Valkama, Tampere University, Finland; Marko Kosunen, Vishnu Unnikrishnan, Kari Stadius, Jussi Ryynänen, Aalto University, Finland

G-5.2 Linear Precoding with Equal Antenna Powers for Energy-Efficient Massive MIMO Systems
Sina Rezaei Aghdam, Thomas Eriksson, Chalmers University of Technology, Sweden

G-5.3 Robust PAPR Reduction in Large-Scale MIMO-OFDM using Three-Operator ADMM-type
Shashi Kant, Bo Göransson, Gabor Fodor, KTH Royal Institute of Technology and Ericsson, Sweden; Mats Bengtsson, Carlo Fischione, KTH Royal Institute of Technology, Sweden

G-5.4 Computational Complexity Reduction in Adaptive Digital Predistortion based on Learning Techniques for High Efficient Power Amplifier Linearization
David López-Bueno, Centre Tecnològic de Telecomunicacions de Catalunya (CTTC/CERCA), Spain; Wantao Li, Gabriel Montoro, Pere L. Gilabert, Universitat Politècnica de Catalunya (UPC), Spain

Session G-8 Multifunction RF Signals and Systems (invited)

Chair: *Taneli Riihonen, Tampere University, Finland*

G-8.1 Technological Advances to Facilitate Spectral Convergence
Alex Chiriyath, Andrew Herschfelt, Daniel Bliss, Arizona State University, United States; Sharanya Srinivas, MIT Haystack Observatory, United States

G-8.2 Secure Dual-functional Radar-Communication Transmission: Hardware-Efficient Design
Nanchi Su, Christos Masouros, University College London, United Kingdom; Fan Liu, Southern University of Science and Technology, China; Tharmalingam Ratnarajah, The University of Edinburgh, United Kingdom; Athina Petropulu, Rutgers School of Engineering, United States

G-8.3 A Hardware Prototype for Joint Radar-Communication System Using Spatial Modulation
Dingyou Ma, Tianyao Huang, Yimin Liu, Tsinghua University, China; Nir Shlezinger, Ben-Gurion University, Israel; Yariv Shavit, Yonina C. Eldar, Weizmann Institute of Science, Israel; Moshe Namer, Technion, Israel

G-8.4 Monostatic FMCW Radar Architecture for Multifunction Full-Duplex Radios
Jaakko Marin, Micael Bernhardt, Mikko Heino, Taneli Riihonen, Tampere University, Finland

Session A-6 mm-Wave and Beyond (invited)

Chair: *Andy Molisch, USC, Los Angeles (CA), USA*

A-6.1 Understanding Energy Efficiency and Interference Tolerance in Millimeter Wave Receivers
Panagiotis Skrimponis, Seongjoon Kang, Abbas Khalili, Marco Mezzavilla, Elza Erkip, Sundeep Rangan, New York University, United States; Wonho Lee, Navid Hosseinzadeh, Mark J. W. Rodwell, James F. Buckwalter, University of California, Santa Barbara, United States

A-6.2 Sub-Chain Beam for mmWave Devices: A Trade-off between Power Saving and Beam Correspondence
Jianhua Mo, Boon Loong Ng, Vutha Va, Anum Ali, Jianzhong Charlie Zhang, Samsung Research America, United States; Daehee Park, Chonghwa Seo, Samsung Electronics, Republic of Korea

A-6.3 Directional characteristics of THz outdoor channels - measurement and system performance implications
Jorge Gomez Ponce, Naveed Abbasi, Zihang Cheng, Andreas Molisch, University of Southern California, United States

A-6.4 Evaluation of Detection Accuracy and Efficiency of Considered Beam Alignment Strategies for mmWave Massive MIMO Systems
Mostafa Khalili Marandi, Christoph Jans, Wolfgang Rave, Gerhard Fettweis, TU Dresden, Germany

Session A-11 Physical Layer Security and Privacy

Chair: *Hamid Sadjadpour, University of California, Santa Cruz*

A-11.1 A New Security Scheme for Cloud Storage Systems and Its Performance Evaluation using Avalanche Effect
Hamid Sadjadpour, Shivaswarup Manjakuppam Ashok, UCSC, United States

A-11.2 Wireless Fingerprinting via Deep Learning: The Impact of Confounding Factors
Metehan Cekic, Upamanyu Madhow, University of California, Santa Barbara, United States; Soorya Gopalakrishnan, Qualcomm, United States

A-11.3 RIS Enabled Secure Communication with Covert Constraint
Ufuk Altun, Ertuğrul Başar, Koç University, Turkey

A-11.4 Multiple Noisy Private Remote Source Observations for Secure Function Computation
Onur Günlü, Rafael F. Schaefer, University of Siegen, Germany; Matthieu Bloch, Georgia Institute of Technology, United States

Session A-13 Reconfigurable Intelligent Surfaces (invited)

Chair: *Marco Di Renzo, CentraleSupelec, Paris, France*

A-13.1 Optimization of Reconfigurable Intelligent Surfaces with Electromagnetic Field Exposure Constraints
Alessio Zappone, University of Cassino and Southern Lazio, Italy; Marco Di Renzo, CNRS & Paris Saclay University, France

A-13.2 Channel Estimation for RIS-Aided Millimeter-Wave Massive MIMO Systems
Gui Zhou, Cunhua Pan, Queen Mary University of London, United Kingdom; Hong Ren, Southeast University, China; Kezhi Wang, Northumbria University, United Kingdom

A-13.3 Physical Channel Modeling for RIS-Empowered Wireless Networks in Sub-6 GHz Bands
Fatih Kilinc, Ertugrul Basar, Koç University, Turkey; Ibrahim Yildirim, Istanbul Technical University, Turkey

A-13.4 Joint Beamforming Optimization for Simultaneously Transmitting And Reflecting (STAR) RIS Aided Communications
Xidong Mu, Li Guo, Jiaru Lin, Beijing University of Posts and Telecommunications, China; Yuanwei Liu, Jiaqi Xu, Queen Mary University of London, United Kingdom

Session C-2 Deep Learning for Wireless Networks (invited)

Chair: *Santiago Segarra, Rice University, USA*

C-2.1 Jointly Learned Symbol Detection and Signal Reflection in RIS-Empowered Multi-user MISO Communication Systems
Liuhang Wang, Baoyun Wang, Nanjing University of Posts andTelecommunications, China; Nir Shlezinger Shlezinger, Ben-Gurion University of the Negev, Israel; George Alexandropoulos, National and Kapodistrian University of Athens, Greece; Haiyang Zhang, Yonina Eldar, Weizmann Institute of Science, Israel

C-2.2 Distributed DNN Power Allocation in Cell-Free Massive MIMO
Mahmoud Zaher, LRE Özlem Tuğfe Demir, Emil Björnson, Marina Petrova, KTH Royal Institute of Technology, Sweden

C-2.3 Online Federated Learning Strategies for Collaborative Extended Reality Applications
Nikita Zeulin, Olga Galinina, Sergey Andreev, Tampere University, Finland; Robert W. Heath Jr., North Carolina State University, United States

C-2.4 Energy-Efficient Power Allocation in Wireless Networks using Graph Neural Networks
Boning Li, Santiago Segarra, Rice University, United States; Gunjan Verma, Chirag Rao, US Army Research Laboratory, United States

Session C-5 Learning for Wireless and Sensor Networks

Chair: *Santiago Paternain, Rensselaer Polytechnic Institute, USA*

C-5.1 Learning to Transmit Fresh Information in Energy Harvesting Networks Using Supervised Learning
Shiyang Leng, Samsung Research America, United States; Aylin Yener, The Ohio State University, United States

C-5.2 Double Deep Q Learning with Prioritized Replay For Mobile Relay Beamforming Networks
Spilios Evmorfos, Athina Petropulu, Rutgers University, United States; Konstantinos Diamantaras, International Hellenic University, Greece

C-5.3 Learning-based Distributed Detection with Energy Harvesting
Ghazaleh Ardeshiri, Azadeh Vosoughi, University of Central Florida, United States

C-5.4 Optimal Channel-aware Bayesian Estimation with 1-bit Quantization
Santosh Paudel, Hao Chen, Boise State University, United States

Session C-8 Optimization and Monitoring of Wireless Networks

Chair: *Gang Wang, Beijing Institute of Technology*

C-8.1 Optimal Transmission Threshold and Channel Allocation Strategies for Heterogeneous Sensor Data
Victor Håkansson, Stefan Werner, Norwegian University of Science and Technology, Norway; Naveen K. D. Venkategowda, Linköping University, Sweden

C-8.2 Simultaneous Imaging & Uplink Communication: A Degrees of Freedom Perspective
Nishant Mehrotra, Ashutosh Sabharwal, Rice University, United States

C-8.3 Distributed Edge Counting for Wireless Sensor Networks
Gowtham Muniraju, Cihan Tepedelenlioglu, Andreas Spanias, Arizona State University, United States

C-8.4 Estimating Link Packet Rates From Partial CSMA/CA Network Observations
Yirong Cheng, Ashutosh Sabharwal, Rice University, United States; Eric Graves, Ananthram Swami, US Army Research Lab, United States

C-8.5 Joint 3D Placement and Interference Management for Drone Small Cells
Nima Namvar, Fatemeh Afghah, Northern Arizona University, United States

Session D-9 Estimation and Inference I

Chair: *Stefan Werner, Norwegian University of Science and Technology*

D-9.1 Maps of Road User Occupancy in Intersections and their Impact on Target Tracking Performance
Christian Eliasch, Christoph Mecklenbräuker, Technical University of vienna, Austria; Thomas Blazek, Silicon Austria Labs GmbH, Austria

D-9.2 Distributed Kalman Filtering with Privacy against Honest-but-Curious Adversaries
Ashkan Moradi, Sayed Pouria Talebi, Stefan Werner, Norwegian University of Science and Technology, Norway; Naveen Kumar Dasanadoddi Venkategowda, Linko ̈ping University, Sweden

D-9.3 Efficient Wireless Multi-Channel Selection with Correlated Multi-Armed Bandits
Martin Le, Eduard Jorswieck, TU Braunschweig, Germany

Session D-10 Estimation and Inference II

Chair: *Gongguo Tang, University of Colorado, Boulder*

D-10.1 An Untrained One-layer Convolutional Network-based Method for Line Spectral Estimation
Shuang Li, Deanna Needell, William Swartworth, University of California, Los Angeles, United States

D-10.2 Overlapping Multi-signal classification
Gary Ray, Boeing, United States

Time zone: PDT
Attend Virtually at https://asilomarsscconf-virtual.org/

D-10.3 Data-driven Parameter Estimation Of Contaminated Damped Exponentials
Youye Xie, Michael Wakin, Gongguo Tang, Colorado School of Mines, United States

D-10.4 Parallel Change-Point Detection of Propagating Events in Radio Spectrum
Eyal Nitzan, Topi Halme, Visa Koivunen, Aalto University, Finland

Session D-11 Estimation and Inference III

Chair: *Sung Il Park, Texas A&M University*

D-11.1 AI-Enabled High-Throughput Wireless Telemetry for Effective Photodynamic Therapy
Woo Seok Kim, Hyun-Myung Woo, Sungcheol Hong, Byung-Jun Yoon, Sung Il Park, Texas A&M University, United States; M. Ibrahim Khot, David G. Jayne, University of Leeds, United Kingdom

D-11.2 On the Identification of Symmetric and Antisymmetric Impulse Responses
Jacob Benesty, INRS-EMT, University of Quebec, Canada; Constantin Paleologu, Silviu Ciochina, University Politehnica of Bucharest, Romania

D-11.3 Bayesian Nonparametric Derivation of Spawning in Multi-Object Tracking: from Association to Tracking
Bahman Moraffah, Arizona State University, United States

D-11.4 Bayesian Nonparametric Modeling and Transfer Learning for Tracking Under Measurement Noise Uncertainty
Omar Alotaibi, Antonia Papandreou-Suppappola, Arizona State University, United States

Session D-12 Machine Learning for Data Distributions (invited)

Chair: *Tom Goldstein, University of Maryland, USA*

D-12.1 Generalizing from easy to hard data distributions with Deep Thinking Systems
Avi Schwarzschild, Arjun Gupta, Micah Goldblum, Tom Goldstein, University of Maryland, United States

D-12.2 Gaussian equivalence theorem for shallow neural networks with non-random weights
Galen Reeves, Duke University, United States

D-12.3 Differential Private Data Summarization for Sampling and Estimation
Anshumali Shrivastava, Rice University, United States

D-12.4 Generative Modeling by Estimating Gradients of the Data Distribution
Stefano Ermon, Stanford University, United States

Session E-5 Computational Sampling I (invited)

Chair: *Ayush Bhandari, Imperial College London, Great Britain*

E-5.1 Unlimited Sampling with Hysteresis: Theory and Algorithms
Dorian Florescu, Ayush Bhandari, Imperial College London, United Kingdom; Felix Krahmer, Technical University of Munich, Germany

E-5.2 How Asynchronous Events Encode Video
Karen Adam, Adam Scholefield, Martin Vetterli, Ecole Polytechnique Fédérale de Lausanne, Switzerland

E-5.3 Time encoding and decoding of multidimensional signals with finite rate of innovation
Roxana Alexandru, Pier Luigi Dragotti, Imperial College London, United Kingdom

E-5.4 On the randomized Kaczmarz algorithm for phase retrieval
Patricia Römer, Frank Filbir, Helmholtz Zentrum Muenchen, Germany; Felix Krahmer, Technische Universität München, Germany

E-5.5 Interferometric Lensless Endoscopy: Rank-one Projections of Image Frequencies with Speckle Illuminations
Laurent Jacques, Olivier Leblanc, UCLouvain, Belgium; Siddharth Sivankutty, Cailabs, Rennes, France; Hervé Rigneault, Institut Fresnel, Marseille, France

Session E-6 Computational Sampling II (invited)

Chair: *Ayush Bhandari, Imperial College London, Great Britain*

E-6.1 On the application of modulo-ADCs for compressed sensing
Dheeraj Prasanna, Chandra R. Murthy, Indian Institute of Science, India; Chandrasekhar Sriram, Texas Instruments, India

E-6.3 Recovering Holder smooth functions from noisy modulo samples
Michaël Fanuel, Université de Lille, France; Hemant Tyagi, Inria Lille, France

E-6.4 Neuromorphic Sampling
Chandra Sekhar Seelamantula, Indian Institute of Science, Bangalore, India

E-6.5 FRI Sensing of Laminar Images
Ruiming Guo, Thierry Blu, The Chinese University of Hong Kong, Hong Kong SAR of China

Session F-3 Computational Imaging in Medicine

Chair: *Kyriaki Kostoglou, Technical University Graz, Austria*

F-3.1 Sparse-View CT Reconstruction using Recurrent Stacked Back Projection
Wenrui Li, Gregery Buzzard, Charles Bouman, Purdue University, United States

F-3.2 Two-Exposure Image Fusion based on Cross Attention Fusion
Sha-Wo Huang, Yan-Tsung Peng, Tzu-Hsien Chen, Yung-Ching Yang, National Chengchi University, Taiwan

F-3.3 SkinScan: 3D dermatologic diagnosis and documentation with commodity devices
Merlin Arthur Nau, Andreas Maier, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; Florian Schiffers, Yunhao Li, Bingjie Xu, Jack Tumblin, Marc Walton, Aggelos K. Katsaggelo, Florian Willomitzer, Oliver Cossairt, Northwestern University, United States

F-3.4 Non-Convex Recovery from Phaseless Low-Resolution Blind Deconvolution Measurements using Noisy Masked Patterns
Samuel Pinilla, Tampere University, Finland; Kumar Vijay Mishra, Brian M Sadler, United States CCDC Army Research Laboratory, Adelphi, United States

Session F-4 Computational Imaging, Molecular and Medical Imaging

Chair: *Milos Doroslovacki, The George Washington University*

F-4.1 Fully Reversible Steganography with Authentication in Wavelet Domain for Telemedicine Applications
Adnan Hanif, Milos Doroslovacki, The George Washington University, United States

F-4.2 Efficient training of 3D unrolled neural networks for MRI reconstruction using small databases
Zilin Deng, Burhaneddin Yaman, Chi Zhang, Steen Moeller, Mehmet Akçakaya, University of Minnesota, Twin Cities, United States

F-4.3 Improved Simultaneous Multi-Slice Functional MRI Using Self-supervised Deep Learning
Omer Burak Demirel, Burhaneddin Yaman, Logan Dowdle, Steen Moeller, Luca Vizioli, Essa Yacoub, John Strupp, Cheryl A. Olman, Kamil Ugurbil, Mehmet Akcakaya, University of Minnesota, United States

Session F-10 Signal Processing for Neural and Medical Imaging (invited)

Chair: *Mehmet Akcakaya, University of Minnesota, USA*

F-10.1 Instabilities in Conventional Multi-Coil MRI Reconstruction with Small Adversarial Perturbations
Chi Zhang, Burhaneddin Yaman, Steen Moeller, Mingyi Hong, Mehmet Akcakaya, University of Minnesota, United States; Jinghan Jia, University of Florida, United States; Sijia Liu, MIT-IBM Watson AI Lab,, United States

F-10.2 Deep learning for motion corrected quantitative MRI
Xiaojian Xu, Satya Kothapalli, Jiaming Liu, Weijie Gan, Sayan Kahali, Dmitriy Yablonskiy, Ulugbek Kamilov, Washington University in St. Louis, United States

F-10.3 Temperature and Viscosity Mapping with Relaxation-Based Magnetic Particle Imaging
Mustafa Utkur, Emine Ulku Saritas, Bilkent University, Turkey

F-10.4 Motion-Guided Physics-Based Learning for Cardiac MRI Reconstruction
Kerstin Hammernik, Jiazhen Pan, Thomas Küstner, Daniel Rueckert, Technical University of Munich, Germany

Session G-1 Algorithms, Architectures and Practicalities

Chair: *Fred Harris, UC San Diego*

G-1.1 A Natively Real-Valued FFT Algorithm
Rajesh Thomas, Victor DeBrunner, Linda S. DeBrunner, Florida State University, United States

G-1.2 IIR Filter Sensitivity Predicts Filter Wordlength
Victor DeBrunner, Linda S. DeBrunner, Florida State University, United States

G-1.3 Polyphase Interpolators with Reversed Order of Up-Sampling and Down-Sampling
fred harris, ucsd, United States

G-1.4 Low-cost, High-speed Parallel FIR Filters for RFSoC Front-Ends Enabled by CλaSH
Craig Ramsay, Louise Crockett, Robert Stewart, University of Strathclyde, United Kingdom

Session G-4 Arithmetic and Algorithms

Chair: *Victor DeBrunner, Florida State University*

G-4.1 Multiplier with Reduced Activities and Minimized Interconnect for Inner Product Arrays
Muhammad Usman, Jeong-A Lee, Chosun University, Republic of Korea; Milos D. Ercegovac, University of California, Los Angeles, United States

G-4.2 Adder with Reduced Latency and Minimized Interconnect for Streaming Inner Products
Tooba Arifeen, Abdus Sami Hassan, Jeong-A Lee, Chosun University, Republic of Korea; Milos˘ D. Ercegovac, University of California, United States

Session A-7 Modulation and Coding

Chair: *Christian Hofbauer, Silicon Austria Labs*

A-7.1 Successive Syndrome-Check Decoding of Polar Codes
Seyyed Ali Hashemi, John Cioffi, Stanford University, United States; Marco Mondelli, IST Austria, United States; Andrea Goldsmith, Princeton University, United States

A-7.2 A Multi-User LoRa Receiver Leveraging Advanced Soft Decoding
Mathieu Xhonneux, David Bol, Jérôme Louveaux, Université Catholique de Louvain, Belgium; Joachim Tapparel, Orion Afisiadis, Andreas Burg, Ecole Polytechnique Fédérale de Lausanne, Switzerland; Alexios Balatsoukas-Stimming, Eindhoven University of Technology, Netherlands

A-7.3 An Exploration of the Heterogeneous Unsourced MAC
Stefano Rini, NYCU, Taiwan; Vamsi Krishna Amalladinne, Jean-Francois Chamberland, Texas A&M University, United States

Session A-8 Modulation and Detection

Chair: *Michael D. Zoltowski, Purdue University*

A-8.1 Optimum Performance of Nonlinearly DistortedSignals with General Distributions
João Guerreiro, Rui Dinis, Paulo Montezuma, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal

A-8.2 Use of the Gerchberg-Saxton Algorithm for Denoising of Constant-Envelope OFDM Signals
Kyle Willstatter, Michael D. Zoltowski, Purdue University, United States

A-8.3 Vestigial Sideband OFDM for Adjacent Channel Coexistence of Wireless Networks with Radio Astronomy
Santosh Nagaraj, San Diego State University, United States; Fredric Harris, University of California at San Diego, United States

A-8.4 On the Analytical Communication Performance of LPD QS-CDMA with Reduced Cyclostationary Characteristics
Chryssalenia Koumpouzi, Predrag Spasojevic, Rutgers, the State University of NJ, United States; Fikadu Dagefu, Justin Kong, U.S. Army Research Laboratory, United States

Session A-12 Recent Advances in Simultaneous Transmit-Receive Systems (invited)

Chair: *Ahmed Eltawil, King Abdullah University of Science and Technology, KSA University of California, Irvine, USA*

A-12.1 Self-Interference Cancellation in LTE/5G Transceivers with Sliding Window Kernel Recursive Least Squares Filters
Christina Auer, Thomas Paireder, Mario Huemer, Johannes Kepler University, Austria

A-12.2 Air-Induced Passive Intermodulation in FDD Networks: Modeling, Cancellation and Measurements
Vesa Lampu, Lauri Anttila, Matias Turunen, Mikko Valkama, Tampere University, Finland; Marko Fleischer, Jan Hellmann, Nokia Mobile Networks, Germany

A-12.3 Joint Detection and Self-Interference Cancellation in Full-Duplex Systems Using Machine Learning
Alexios Balatsoukas-Stimming, Eindhoven University of Technology, Netherlands

A-12.4 Independent Component Analysis with Non-linearity Mitigation for MIMO Full-Duplex Systems
Chung-An Shen, Hsi-Hung Lu, National Taiwan University of Science and Technology, Taiwan; Mohammed Fouda, University of California, Irvine, United States; Ahmed Eltawil, King Abdullah University of Science and Technology (KAUST), Saudi Arabia

Session C-1 Decentralized Learning

Chair: *Ceyhun Eksin, TAMU, USA*

C-1.1 Decentralized Fictitious Play in Near-Potential Games
Sarper Aydın, Sina Arefizadeh, Ceyhun Eksin, Texas A&M University, United States

C-1.2 Robust Distance Matrix Completion for Localization using Frank-Wolfe Iterations
Metin Vural, Chun Yuan, Peter Jung, Technical University of Berlin, Germany; Nicola Kleppmann, KT Elektronik, Germany

C-1.4 Projected Pseudo-Mirror Descent in Reproducing Kernel Hilbert Space
Abhishek Chakraborty, NetApp, India; Ketan Rajawat, Indian Institute of Technology Kanpur, India; Alec Koppel, United States Army Research Laboratory, United States

C-1.5 On Distributed Online Convex Optimization with Sublinear Dynamic Regret and Fit
Pranay Sharma, Pramod K. Varshney, Syracuse University, United States; Prashant Khanduri, UNIVERSITY OF MINNESOTA, United States; Lixin Shen, SYRACUSE UNIVERSITY, United States; Donald J. Bucci Jr., LOCKHEED MARTIN, United States

Session C-3 Federated Learning (invited)

Chair: *Aryan Mokhtari, University of Texas at Austin , USA*

C-3.1 Local Adaptivity in Federated Learning: Convergence and Consistency
Jianyu Wang, Gauri Joshi, Carnegie Mellon University, United States; Zheng Xu, Zachary Garrett, Zachary Charles, Luyang Liu, Google, United States

C-3.2 Robust Federated Learning: The Case of Affine Distribution Shifts
Amirhossein Reisizadeh, Ramtin Pedarsani, UCSB, United States; Farzan Farnia, Ali Jadbabaie, MIT, United States

C-3.3 Communication Efficient Distributed Minimax Optimization with Applications in Federated Learning
Mehrdad Mahdavi, Penn State University, United States

C-3.4 Exploiting Shared Representations for Personalized Federated Learning
Liam Collins, Aryan Mokhtari, Sanjay Shakkottai, UT Austin, United States; Hamed Hassani, UNIVERSITY OF PENNSYLVANIA, United States

Session C-9 Reinforcement Learning over Networks (invited)

Co-Chairs: *Tianyi Chen, Rensselaer Polytechnic Institute, USA and Santiago Paternain, Rensselaer Polytechnic Institute, USA*

C-9.1 Multi-Agent Reinforcement Learning in Time-varying Networked Systems
Yiheng Lin, Guannan Qu, Adam Wierman, California Institute of Technology, United States; Longbo Huang, Tsinghua University, China

C-9.2 On-policy Reinforcement Learning Using Ensemble Gaussian Processes for Resource Allocation
Konstantinos D. Polyzos, Qin Lu, Alireza Sadeghi, Georgios B. Giannakis, University of Minnesota, United States

C-9.3 Randomized Linear Programming for Tabular Average-Cost Multi-agent Reinforcement Learning
Alec Koppel, Amrit Bedi, U.S. Army Research Laboratory, United States; Bhargav Ganguly, Vaneet Aggarwal, Purdue University, United States

C-9.4 Communication-efficient Offline Policy Optimization from Distributed Batch Data
Han Shen, Xuefei Li, Tianyi Chen, Rensselaer polytechnic institute, United States; Songtao Lu, Lior Horesh, IBM Thomas J. Watson Research Center, United States

Session D-2 Adversary-Resilient Distributed Machine Learning (invited)

Co-Chairs: *Lili Su, Northeastern University, USA and César A. Uribe, Rice University, USA*

D-2.1 High-Dimensional Robust Mean Estimation via Outlier-Sparsity Minimization
Aditya Deshmukh, Jing Liu, Venugopal Veeravalli, University of Illinois at Urbana-Champaign, United States

D-2.2 Resilient decentralized optimization in multi-agent networks with data injection attacks
Shuhua Yu, Soummya Kar, Carnegie Mellon University, United States; Yuan Chen, Google, United States

D-2.3 Distributed randomized Kaczmarz for adversarial workers
Xia Li, Longxiu Huang, Deanna Needell, University of California, Los Angeles, United States

D-2.4 Communication-Efficient and Fault-Tolerant Social Learning
Mohammad Taha Toghani, Cesar A Uribe, Rice University, United States

Session D-16 Model-based Deep Learning for Inverse Problems in Imaging (invited)

Co-Chairs: *Gregory Ongie, Marquette University, USA; Saiprasad Ravishankar, Michigan State University, USA and Zhishen Huang, Michigan State University, USA*

D-16.1 Computational Imaging with Approximate Message Passing and Learning
Christopher Metzler, University of Maryland College Park, United States; Ruangrawee Kitichotkul, Gordon Wetzstein, Stanford University, United States

D-16.2 Joint reconstruction of image and viewing angle distribution for unknown view tomography
Zhizhen Zhao, Mona Zehni, University of Illinois at Urbana-Champaign, United States

D-16.3 3D Lensless Imaging with Programmable Masks
Yucheng Zheng, M. Salman Asif, University of California, Riverside, United States; Yi Hua, Aswin Sankaranarayanan, Carnegie Mellon University, United States

D-16.4 Descattering and Density Reconstruction in Polyenergetic X-Ray Tomography with Locally Learned Models
Michael T. McCann, Saiprasad Ravishankar, Michigan State University, United States; Marc L. Klasky, Jennifer L. Schei, Los Alamos National Laboratory, United States

Session D-17 Robust Learning with Maximum Correntropy Criterion (invited)

Co-Chairs: *Badong Chen, Xi'an Jiaotong University, China and Siyuan Peng, Guangdong University of Technology, China*

D-17.1 Online robust tensor ring completion for streaming data
Yicong He, University of Central Florida, United States

D-17.2 Towards Sparse Linear Regression With Correntropy-Based Loss Function
Jianyuan Li, Xiong Luo, Maojian Chen, University of Science and Technology Beijing, China

D-17.3 Correntropy based semi-supervised concept factorization for data representation
Siyuan Peng, Guangdong University of Technology, China; Badong Chen, Xi'an Jiaotong University, China

D-17.4 FNPA-MSELM-CCNN: Facial Nerve Paralysis Assessment based on Mixture Cross Entropy Criterion SSELM and Cascade CNN
Xiangyong Tan, Jie Yang, Jiuwen Cao, Hangzhou Dianzi University, China

D-17.5 Correntropy based Sparse ICP for 3D Point Set Registration
Nan Zhou, Xiuhua Xing, Jun Liu, Kechang Fu, Chengdu University of Information Technology, China; Kup-Sze Choi, Centre for Smart Health, School of Nursing, The Hong Kong Polytechnic University, Hong Kong SAR of China

Session E-2 Array Signal Processing for Radar Applications

Chair: *Venkata Pathuri, Silicon Austria Labs GmbH*

E-2.1 Virtual Waveform Diversity with Phase-Coded Radar Waveforms
Michael Zoltowski, Purdue University, United States; Matthew Shuman, Murali Rangaswamy, Air Force Research Laboratory}, United States

E-2.3 Hybrid Filters for Delay-Doppler Resolution Enhancement in Chirp Radar Systems
Chia-Jung Chang, Mark R. Bell, Purdue University, United States

E-2.4 Auto-calibration and Tomographic Reconstruction of Permittivity using a High Resolution Radar System
Venkata Pathuri-Bhuvana, Silicon Austria Labs, Austria; Andreas Och, FAU Erlangen-Nuremberg, Germany, Germany; Stefan Schuster, voestalpine Stahl GmbH, Austria

Session E-9 Joint Communications and Sensing

Chair: *Oliver Lang, Johannes Kepler University Linz, Austria*

E-9.1 Transmit Precoding for Dual-Function Radar-Communication Systems
Jacob Pritzker, Massachusetts Institute of Technology, United States; James Ward, MIT Lincoln Laboratory, United States; Yonina C. Eldar, Weizmann Institute of Science, Israel

E-9.2 Performance Trade-off in Joint Radar & Communications Transmit Beamforming
Nathaniel Raymondi, Ashutosh Sabharwal, Rice University, United States

E-9.3 Interior Bistatic Target Tracking Using Digital Communications Signals
Todd K Moon, Thomas Bradshaw, Mirelle DeSpain, Jacob H Gunther, Utah State University, United States

E-9.4 Vibrational Radar Backscatter Communications
Jessica Centers, Jeffrey Krolik, Duke University, United States

Session E-11 Moving Target Detection and Traffic Monitoring

Chair: *Oliver Lang, Johannes Kepler University Linz, Austria*

E-11.1 A New Approach to Moving Target Detection using Unit Circle Roots Constrained Adaptive Matched Filter
Jared Smith, Arnab Shaw, Aboulnasr Hassanien, Wright State University, United States

E-11.2 Moving Target Tracking with Missing Data in 2-D or Higher Dimension
Myung Cho, Jarod Klinefelter, Henry Chiapa, Leland Ralston, Penn State Behrend, United States

E-11.3 Next-Generation Traffic Monitoring with Distributed Acoustic Sensing Arrays and Optimum Array Processing
Martijn van den Ende, André Ferrari, Anthony Sladen, Cédric Richard, Université Côte d'Azur, France

Session H-1 Blending Physics and Learning for Computational Imaging (invited)

Co-Chairs: *Katherine Bouman, California Institute of Technology, USA and Brendt Wohlberg, Los Alamos National Laboratory, USA*

H-1.1 Learning to Image the Invisible
Katherine Bouman, Caltech, United States

H-1.2 An adversarial learning based approach for unknown view X-ray tomographic reconstruction
Mona Zehni, Zhizhen Zhao, University of Illinois at Urbana-Champaign, United States

H-1.3 Imaging with multi-bounce light
Ioannis Gkioulekas, Carnegie Mellon University, United States

H-1.4 Embracing the challenge of nonlinear models in multi-angular tomography
Yoav Schechner, Vadim Holodovsky, Masada Tzabari, Yonatan Gat, Adam Geva, Technion - Israel Institute of Technology, Israel; Aviad Levis, California Institute of Technology, United States; Rajiv Gupta, Harvard University, United States; Ilan Koren, Weizmann Institute of Science, Israel; Klaus Schilling, Zentrum fur Telematik, Germany

Session H-2 Computer Vision

Chair: *Pedro Julian, Silicon Austria Labs*

H-2.1 Person Detection in Collaborative Group Learning Environments Using Multiple Representations
Wenjing Shi, Marios S. Pattichis, Sylvia Celedón-Pattichis, Carlos LópezLeiva, The University of New Mexico, United States

H-2.2 Truly shift-equivariant convolutional neural networks with adaptive polyphase upsampling
Anadi Chaman, University of Illinois at Urbana-Chamaign, United States; Ivan Dokmanić, University of Basel, Switzerland

H-2.3 Event-based hand shadow recognition with varied light intensity and background subtraction
Diego Gigena Ivanovich, Chunlei Xu, Pedro Julian, Silicon Austria Labs, Austria

H-2.4 Weakly-supervised Semantic Segmentation Using Image Masking
Sangtae Kim, Trung Luong Nguyen, Byonghyo Shim, Seoul National University, Republic of Korea

Session H-6 Signal, Image and Video Processing Education (invited)

Chair: *Marios Pattichis, University of New Mexico, USA*

H-6.1 Long-term Human Video Activity Quantification of Student Participation
Venkatesh Jatla, Sravani Teeparthi, Marios Pattichis, Sylvia Celedón Pattichis, Carlos López Leiva, The University of New Mexico, United States

H-6.2 AI assisted object and activity detection in K-6 classroom environments: A preliminary framework to assist in pedagogical performance evaluation
Samarth Singh, Peter Youngs, Ginger S. Watson, Scott T. Acton, Matthew Korban, University of Virginia, United States

H-6.3 Vertically Integrated Projects (VIP) Program at Purdue University: A Research Experience for Undergraduate Students
Carla B. Zoltowski, Edward J. Delp, Purdue University, United States

H-6.4 COVID-19 Detection using Audio Spectral Features and Machine Learning
Michael Esposito, Sunil Rao, Vivek Narayanaswamy, Andreas Spanias, Arizona State University, United States

Session G-2 Architectures and Implementation

Chair: *Gabriel Falcao, University of Coimbra*

G-2.1 Inter-actions parallel execution on GPU from high-level dataflow synthesis
Aurelien Bloch, Marco Mattavelli, École Polytechnique Feédérale de Lausanne, Switzerland

G-2.2 Compute RAMs: Adaptable Compute and Storage Blocks for DL-Optimized FPGAs
Aman Arora, Bagus Hanindhito, Lizy K. John, The University of Texas at Austin, United States

G-2.3 On the Performance of Link Space Communications using NB-LDPC Codes on Embedded Parallel Systems
Oscar Ferraz, Vitor Silva, Gabriel Falcao, Instituto de Telecomunicações, University of Coimbra, Coimbra, Portugal, Portugal

G-2.4 Memory-Efficient SFDR-Optimized Post-Correction of Analog-to-Digital Converters via Frequency-Selective Look-Up Tables
Morriel Kasher, Predrag Spasojevic, Rutgers University, United States; Michael Tinston, Expedition Technology, Inc., United States

G-2.5 Profile-guided latency optimization for high-level synthesis of dataflow programs
Endri Bezati, Mahyar Emami, James Larus, EPFL, Switzerland; Jorn Janneck, Lund University, Sweden

Session G-6 Hardware Accelerators

Chair: *James Stine, Oklahoma State University*

G-6.1 VLSI Hardware Architecture of Stochastic Low-rank Tensor Decomposition
Lingyi Huang, Chunhua Deng, Bo Yuan, Department of Electrical and Computer Engineering, Rutgers University, United States; Shahana Ibrahim, Xiao Fu, School of Electrical Engineering and Computer Science, Oregon State University, United States

G-6.2 Time-Multiplexed Pilot-Hopping Sequence Detection Architecture for Massive Machine-Type Grant-Free Random Access
Vishal Bangalore Kumar Swamy, Mikael Henriksson, Narges Mohammadi Sarband, Oscar Gustafsson, Linköping University, Sweden

G-6.3 A Reconfigurable Architecture for Improvement and Optimization of Advanced Encryption Standard Hardware
Ryan Swann, James Stine, Oklahoma State University, United States

G-6.4 Instruction Extension of RV32I and GCC Back End for ASCON Lightweight Cryptography Algorithm
Özlem Altınay, Berna Örs, İstanbul Technical University, Turkey

Session G-7 Machine Learning and Hardware Aspects

Chair: *Joe Cavallaro, Rice University*

G-7.1 "MR Q-Learning" Algorithm for Efficient Hardware Implementations
Gian Carlo Cardarilli, Luca Di Nunzio, Rocco Fazzolari, Daniele Giardino, Dario Natale, Marco Re, Sergio Spanò, University of Rome Tor Vergata, Italy

G-7.3 Improving Robustness In Analog Neural Networks By Introducing Sparse Connectivity
Devon Janke, David Anderson, Georgia Institute of Technology, United States

G-7.4 Real-time FPGA-Based Outlier Detection using Autoencoder and LSTM
Nadya Mohamed, Joseph Cavallaro, Rice University, United States

Session B-1 Applications of MIMO Systems

Chair: *Markuu Juntti, University of Oulu*

B-1.1 User Activity Detection and Estimation of Spatially Correlated Channels via AMP in Massive MTC
Hamza Djelouat, Leatile Marata, Markus Leinonen, Hirley Alves, Markku Juntti, University of Oulu, Finland

B-1.2 Distributed Optimization of Multiuser MIMO Relay Network Using Backpropagation Algorithm
Rui Wang, Yi Jiang, Fudan University, China

B-1.3 Is Vector Quantization Good Enough for Access Point Placement?
Govind Ravikumar Gopal, Bhaskar D. Rao, University of California, San Diego, United States; Gabriel Porto Villardi, National Institute of Information and Communications Technology, Japan

B-1.4 Strategies for Colocation of VDE and AIS
Ronald Raulefs, Markus Wirsing, DLR, Germany

B-1.5 Local Diversity and Ultra-Reliable Antenna Arrays
Jens Abraham, Torbjörn Ekman, Norwegian University of Technology and Science, Norway

Session B-3 Distributed and Cell-Free Massive MIMO Systems (invited)

Chair: *Stephan Schwarz, Vienna University of Technology, Austria*

B-3.1 Joint uplink-downlink beamforming optimization in cell-free massive MIMO systems.
Bikshapathi Gouda, Italo Atzeni, Antti Tölli, University of Oulu, Finland

B-3.2 Team precoding towards scalable cell-free massive MIMO networks
Lorenzo Miretti, David Gesbert, EURECOM, France; Emil Björnson, Linköping University and KTH Royal Institute of Technology, Sweden

B-3.3 Distributed Dimension Reduction for Distributed Massive MIMO C-RAN with Finite Fronthaul Capacity
Fred Wiffen, University of Bristol / Toshiba Bristol Research & Innovation Laboratory, United Kingdom; Angela Doufexi, University of Bristol, United Kingdom; Woon Hau Chin, VIAVI Solutions, United Kingdom

B-3.4 Message Passing for a Bayesian Semi-Blind Approach to Cell-free Massive MIMO
Roya Gholami, Dirk Slock, EURECOM, France; Laura Cottatellucci, Friedrich-Alexander-University Erlangen-Nuremberg, Germany

B-3.5 Decentralized Design of Fast Iterative Receivers for Massive MIMO with Spatial Non-Stationarities
Victor Croisfelt, Universidade de São Paulo, Brazil; Taufik Abrão, Universidade de Londrina, Brazil; Abolfazl Amiri, Elisabeth de Carvalho, Petar Popovski, Aalborg University, Denmark

Session B-6 Massive MIMO Communication and Localization beyond 5G (invited)

Chair: *Emil Björnson, Linköping University, Sweden*

B-6.1 Dense antenna arrays with 1-bit ADCs and linear multiuser detection
Amine Mezghani, Faouzi Bellili, University of Manitoba, Canada; Robert W. Heath, NC State University, United States

B-6.2 Cramér-Rao Bounds for Near-Field Localization
Andrea De Jesus Torres, Antonio Alberto D'Amico, Luca Sanguinetti, University of Pisa, Italy; Moe Z. Win, Massachusetts Institute of Technology, United States

B-6.3 Massive MIMO Performance Prediction Based on Network Data Learning
Zhixiong Yang, Poornima Krishnakumar, S. Amir Hosseini, Chris Ng, Blue Danube Systems, United States

B-6.4 Combined Synchronization and Inter-Array Communication Solution for Distributed and Cell-Free Massive MIMO
Gilles Callebaut, Geoffrey Ottoy, Liesbet Van der Perre, KU Leuven (DRAMCO), Belgium

Session C-4 Inference on Graphs

Chair: *Stefan Vlaski, Imperial College London, UK*

C-4.1 Online Graph Learning from Social Interactions
Valentina Shumovskaia, Konstantinos Ntemos, Stefan Vlaski, Ali H. Sayed, EPFL, Switzerland

C-4.2 Network Recovery from Unlabeled Noisy Samples
Nathaniel Josephs, Wenrui Li, Eric Kolaczyk, Boston University, United States

C-4.3 On High-Dimensional Graph Learning Under Total Positivity
Jitendra Tugnait, Auburn University, United States

C-4.4 Deep Anomaly Detection for Network Traffic
Daniel Mortensen, Eric McKinney, Utah State University, United States

Session C-6 Learning with Brain Connectomes (invited)

Chair: *Gonzalo Mateos, University of Rochester, USA*

C-6.1 Structure-function dependencies as informative features for brain decoding and fingerprinting
Dimitri Van De Ville, École Polytechnique Fédérale de Lausanne (EPFL) / University of Geneva, Switzerland; Alessandra Griffa, University of Geneva / École Polytechnique Fédérale de Lausanne (EPFL), Switzerland; Maria Giulia Preti, CIBM Center for Biomedical Imaging, Switzerland / École Polytechnique Fédérale de Lausanne (EPFL) / University of Geneva, Switzerland

C-6.2 Denoising and Classifying Brain Signals using Connectome-Based Models
Myriam Bontonou, Vincent Gripon, Nicolas Farrugia, IMT Atlantique, France

C-6.3 Motion-Invariant Auto-Encoder of Brain Structural Connectomes
Yizi Zhang, David Dunson, Duke University, United States; Meimei Liu, Virginia Tech, United States; Zhengwu Zhang, University of North Carolina at Chapel Hill, United States

Session C-7 Network Science and Applications

Chair: *Stefania Sardellitti, Sapienza University of Rome, Italy*

C-7.1 Flow-Based Clustering and Spectral Clustering: A Comparison
Yasmin SarcheshmehPour, Yu Tian, Linli Zhang, Alex Jung, Aalto University, Finland

C-7.2 Rational Inattention in Choice Overload: Clustering for Discrete Choices
Pankaj Sharma, Lav R. Varshney, University of Illinois at Urbana-Champaign, United States

C-7.3 Causal Graph and Social Network Analysis for the Spread of COVID-19 from Self-reported Indicator Data
Shaoou Chen, Yao Xie, Shihao Yang, Georgia Insititute of Technology, United States

C-7.4 Non-Convex Total Variation Minimization for Signed Graph Cut Clustering
Thomas Dittrich, Gerald Matz, Technische Universität Wien, Austria

Session D-3 Algorithms for Data Analytics I

Chair: *Scott Douglas, Southern Methodist University*

D-3.1 QuantileRK: Solving Large-scale Linear Systems with Corrupted, Noisy Data
Benjamin Jarman, Deanna Needell, University of California, Los Angeles, United States

D-3.2 System Identification via the Adjoint Method
Harish S. Bhat, University of California, Merced, United States

D-3.3 A Hybrid Scattering Transform for Signals with Isolated Singularities
Michael Perlmutter, University of California, Los Angeles, United States; Jieqian He, Mark Iwen, Matthew Hirn, Michigan State University, United States

D-3.4 Online Segmented Recursive Least Squares (OSRLS)
Jae Won Choi, Andrew Singer, University of Illinois Urbana-Champaign, United States; Jeffrey Ludwig, University of California, Irvine, United States

D-3.5 Blind Source Separation Under Signal Covariance Constraints: Criteria and Algorithms
Scott Douglas, Southern Methodist University, United States; Timothy DeFries, Eastern Research Group, United States

Session D-4 Algorithms for Data Analytics II

Chair: *Jamie Haddock, UCLA*

D-4.1 Neural Nonnegative CP Decomposition for Hierarchical Tensor Analysis
Joshua Vendrow, Jamie Haddock, Deanna Needell, UCLA, United States

D-4.2 DC-LiGME: An Efficient Algorithm for Improved Convex Sparse Regularization
Yi Zhang, Isao Yamada, Tokyo Institute of Technology, Japan

D-4.3 FQ-SGD: One-Bit Compressed Distributed Optimization without Exploding Variance
Alexander Stollenwerk, Laurent Jacques, UCLouvain, Belgium

D-4.4 Semi-supervised Nonnegative Matrix Factorization for Document Classification
Jamie Haddock, Thomas Merkh, UCLA, United States; Lara Kassab, Colorado State University, United States; Sixian Li, University of Illinois, Urbana-Champaign, United States; Alona Kryshchenko, California State University, Channel Islands, United States; Rachel Grotheer, Wofford College, United States; Elena Sizikova, New York University, United States; Chuntian Wang, University of Alabama, United States; R. W. M. A. Madushani, Boston Medical Center, United States; Miju Ahn, Southern Methodist University, United States; Deanna Needell, University of California, Los Angeles, United States; Kathryn Leonard, Occidental College, United States

D-4.5 DeepPursuit: Uniting Classical Wisdom and Deep RL for Sparse Recovery
Ziheng Chen, Yue Zhao, Stony Brook University, United States; Sichen Zhong, Splunk, United States; Jianshu Chen, Tencent AI Lab, United States

Session D-6 Applications of Data Analytics

Chair: *Azzedine Zerguine, KFUPM*

D-6.1 Orbit Refinement for Doppler Removal using Observations from Multiple Frequencies, Multiple Ground Sites, and Multiple Overpasses
Jake Gunther, Todd Moon, Charles Swenson, Utah State University, United States

D-6.2 The Entropy Economy: A New Paradigm for Carbon Reduction and Energy Efficiency for the Age of AI
Scott Evans, Tapan Shah, Achalesh Pandey, GE Research, United States

D-6.3 Blind Adaptive Channel Estimation using Structure Subspace Tracking
Abdulmajid Lawal, Qadri Mayyala, King Fahd University of Petroleum & Minerals, Saudi Arabia; Karim Abed-Meraim, University of Orleans, France; Naveed Iqbal, Azzedine Zerguine, KFUPM, Saudi Arabia

D-6.4 Multi-Period Portfolio Optimization for Financial Index Tracking
Xiuyuan Huang, Zepeng Zhang, Ziping Zhao, ShanghaiTech University, China

Session E-1 Array Processing and Multisensor Systems Applications

Chair: *Eugen Pfann, Johannes Kepler University Linz, Austria*

E-1.1 Utilizing Time-of-Flight LIDARs For Spatial Audio Processing
Kanad Sarkar, University of Illinois at Urbana-Champaign, United States; Ryan Corey, Andrew Singer, Univ. of Illinois at Urbana-Champaign, United States

E-1.2 Continuous Phase Modulation of Phase Coded Transmit Waveforms using Multi-Tone Sinusoidal Frequency Modulation
David Hague, Naval Undersea Warfare Center, United States

E-1.3 Feature-Based Acoustic Source Localization in a Pulse-Jet Bagfilter Plant
Maria Anneliese Klaffenböck, Kurt Pichler, Veronika Putz, Christian Kastl, Linz Center of Mechatronics GmbH, Austria; Adnan Husakovic, Anna Mayrhofer, Yvonne Kappacher-Winter, Primetals Technologies Austria GmbH, Austria

Session E-10 Machine Learning Methods in Inverse Problems (invited)

Chair: *Hassan Mansour, Mitsubishi Electric Research Labs (MERL)*

E-10.1 Radar Autofocus Using Deep Priors
Hassan Mansour, Petros Boufounos, Mitsubishi Electric Research Laboratories, United States

E-10.2 KR-LISTA: Re-Thinking Unrolling for Covariance-Driven Inverse Problems
Sina Shahsavari, Pulak Sarangi, Piya Pal, University of California, San Diego, United States

E-10.3 Model-Based Deep Learning with Inexact Data-Consistency Layers
Jiaming Liu, Yu Sun, Weijie Gan, Xiaojian Xu, Ulugbek Kamilov, Washington University in St. Louis, United States; Brendt Wohlberg, Los Alamos National Laboratory, United States

E-10.4 Quantifying uncertainty for ill-posed inverse problems using invertible neural networks; a numerical study
Tristan van Leeuwen, Centrum Wiskunde & Informatica, Netherlands; Gabrio Rizzuti, Utrecht University, Netherlands; Felix Herrmann, Ali Siahkoohi, Georgia Institute of Technology, United States

Session E-17 Theory and Algorithms for Nonlinear Inverse Problems (invited)

Chair: *Kirying Lee, Ohio State University, USA*

E-17.1 Toward practical phase retrieval
Ju Sun, University of Minnesota, United States

E-17.2 Sketching methods for large-scale nonlinear matrix completion
Gregory Ongie, Marquette University, United States

E-17.3 Shared factor low-rank matrix recovery using tensor product norms
Rakshith Sharma Srinivasa, IQVIA, United States; Kiryung Lee, The Ohio State University, United States

E-17.4 Exploring Fundamental Limits of Spatiotemporal Sensing for Non-Linear Inverse problems
Mehmet Hucumenoglu, Pulak Sarangi, Piya Pal, UCSD, United States

Session H-3 Exploring New Areas in Speech Processing (invited)

Chair: *Odette Scharenborg, Delft University of Technology, Netherlands*

H-3.1 The effectiveness of self-supervised representation learning in zero-resource subword modeling
Siyuan Feng, Odette Scharenborg, Delft University of Technology, Netherlands

H-3.2 A translation framework for visually grounded spoken unit discovery
Liming Wang, Mark Hasegawa-Johnson, University of Illinois at Urbana-Champaign, United States

H-3.3 What makes people laugh? Multimodal Humor Detection and Analysis in Videos
Zixiaofan Yang, Lin Ai, Julia Hirschberg, Columbia University, United States

H-3.4 Vowel space area metrics in dysarthric speakers undergoing speech and singing therapy
Laureano Moro-Velazquez, Ankur Butala, Piotr Zelasko, Ashley Paul, Alex Pantelyat, Najim Dehak, Johns Hopkins University, United States

Session H-7 Speech, Audio, Biometrics and Forensics

Chair: *Edward Delp, Purdue University*

H-7.1 Synthesized Speech Detection Using High-Resolution Spectrogram Neural Analysis
Emily Bartusiak, Edward Delp, Purdue University, United States

H-7.2 Fundamental Frequency Tracking In Noisy Environments Using Deep Learning
Eric Hamke, Amir Nafchi, Manel Martinez-Ramon, Balasubramaniam Santhanam, Ramiro Jordan, University Of New Mexico, United States

H-7.3 Multirate Audiometric Filter Bank for Hearing Aid Devices
Alice Sokolova, University of California San Diego & San Diego State University, United States; Dhiman Sengupta, Kuan-Lin Chen, Rajesh Gupta, Fredric Harris, Harinath Garudadri, University of California San Diego, United States; Baris Aksanli, San Diego State University, United States

H-7.4 Privacy-preserving People Identification and Tracking without Use of Facial Recognition
Daisuke Maeda, Sudhanshu Gaur, Hitachi America, Ltd., United States

H-7.5 A nonlinear feature transformation-based multi-user classification algorithm for keystroke dynamics
Chinmay Sahu, Mahesh Banavar, Clarkson University, United States

Session B-4 FDD based MIMO Systems

Chair: *Michael Joham, TU Munich*

B-4.2 Tensor-Based Downlink Channel Reconstruction for FDD Massive MIMO
Lin Chen, Xue Jiang, Xingzhao Liu, Shanghai Jiao Tong University, China; Zhimeng Zhong, Shanghai Huawei Technologies Co. LTD, China; Martin Haardt, Ilmenau University of Technology, Germany

B-4.3 Sparse Power Control for Downlink Cell-Free Massive MIMO Systems with Limited Backhaul Capacities
Jionghui Wang, Bin Wang, Jun Fang, University of Electronic Science and Technology of China, China; Hongbin Li, Stevens Institute of Technology, United States

B-4.4 Unsupervised Learning of Adaptive Codebooks for Deep Feedback Encoding in FDD Systems
Nurettin Turan, Michael Koller, Wolfgang Utschick, Technical University of Munich, Germany; Samer Bazzi, Wen Xu, Huawei Technologies Düsseldorf GmbH, Germany

Session B-7 Massive Random Access I (invited)

Co-Chairs: *Maxime Guillaud, Huawei Technologies and Giuseppe Caire, Technical University of Berlin, Germany*

B-7.1 Sparse Activity Detection in Multi-Cell Massive MIMO Exploiting Channel Large-Scale Fading
Zhilin Chen, Foad Sohrabi, Wei Yu, University of Toronto, Canada

B-7.2 Sparse superposition coding with Bayesian detection for correlated unsourced random access
Patrick Agostini, Zoran Utkovski, Slawomir Stanczak, Fraunhofer Heinrich-Hertz-Institute, Germany

B-7.3 Multi-agent Policy Optimization for Pilot Selection in Delay-constrained Grant-free Multiple Access
Jianan Bai, Zheng Chen, Erik G. Larsson, Linköping University, Sweden

B-7.4 Scaling laws for many-access channels and unsourced random access
Jithin Ravi, Tobias Koch, Universidad Carlos III de Madrid, Spain

B-7.5 An Age of Information Characterization of Frameless ALOHA
Andrea Munari, Francisco Lazaro Blasco, Gianluigi Liva, German Aerospace Center (DLR), Germany; Giuseppe Durisi, Chalmers University of Technology, Sweden

Session B-8 Massive Random Access II (invited)

Co-Chairs: *Maxime Guillaud, Huawei Technologies and Giuseppe Caire, Technical University of Berlin, Germany*

B-8.1 Unsourced Random Access With Authentication and Joint Downlink Acknowledgements
Rados\l{}aw Kotaba, Anders E. Kal{\o}r, Petar Popovski, Israel Leyva-Mayorga, Beatriz Soret, Aalborg University, Denmark; Maxime Guillaud, Luis G. Ordóñez, Huawei Technologies, France

B-8.2 Coded Compressed Sensing with Successive Cancellation List Decoding for Unsourced Random Access with Massive MIMO
Vamsi Amalladinne, Jean-Francois Chamberland, Krishna Narayanan, Texas A&M University, United States

B-8.3 Age of Information in Prioritized Random Access
Khac-Hoang Ngo, Giuseppe Durisi, Alexandre Graell i Amat, Chalmers University of Technology, Sweden

B-8.4 On coding techniques for unsourced multiple-access
Gianluigi Liva, German Aerospace Center (DLR), Germany; Yury Polyanskiy, Massachusetts Institute of Technology, United States

Session C-10 Representation and Learning on Graphs (invited)

Chair: *Sundeep Chepuri, Indian Institute of Science (IISc), India*

C-10.1 Spatio-Temporal Inference of Dynamical Gaussian Processes over Graphs
Qin Lu, Georgios Giannakis, University of Minnesota, United States

C-10.2 A Fast Algorithm for Graph Learning under Attractive Gaussian Markov Random Fields
Jiaxi Ying, José Vinícius de M. Cardoso, Daniel P. Palomar, The Hong Kong University of Science and Technology, Hong Kong SAR of China

C-10.3 Online Change Point Detection for Random Dot Product Graphs
Bernardo Marenco, Paola Bermolen, Marcelo Fiori, Federico Larroca, Facultad de Ingenieria, Universidad de la Republica, Uruguay; Gonzalo Mateos, University of Rochester, United States

C-10.4 Learning a Partial Graph and the Nystrom Extension for Spectral Clustering
Sravanthi Gurugubelli, Sai Kiran Kadambari, Sundeep Prabhakar Chepuri, Indian Institute of Science, India

Session C-11 Signal Processing over Graphs

Chair: *Sundeep Chepuri, Indian Institute of Science, India*

C-11.1 Using Sparse Spectral Shifts in Graph CNNs
Austin Lin, Wendy Summer, John Shi, Mark Cheung, Jose M. F. Moura, Carnegie Mellon University, United States

C-11.2 Recurrent Time-Varying Multi-Graph Convolutional Neural Network for Personalized Cervical Cancer Risk Prediction
Vinay Chakravarthi Gogineni, Valeriya Naumova, Simula Metropolitan for Digital Engineering, Norway; Severin R E Langberg, Jan F Nygård, Mari Nygård, Cancer Registry of Norway, Norway; Markus Grasmair, Stefan Werner, Norwegian University of Science and Technology, Norway

C-11.3 Tensor Canonical Correlation Analysis on Graphs
Thummaluru Siddartha Reddy, INDIAN INSTITUTE OF SCIENCE, India; Sundeep Prabhakar Chepuri, Indian Institute of Science, India

C-11.4 Non-Local Feature Aggregation on Graphs via Latent Fixed Data Structures
Mostafa Rahmani, AWS, United States; Rasoul Shafipour, Microsoft, United States; Ping Li, Baidu USA, United States

C-11.5 Topological Signal Processing over Cell Complexes
Stefania Sardellitti, Sergio Barbarossa, Lucia Testa, Sapienza University of Rome, Italy

Session C-12 Trends in Graph Signal Processing (invited)

Chair: *Geert Leus, Technical University of Delft, The Netherlands*

C-12.1 Transferable Graph Neural Networks on Large-Scale Stochastic Graphs
Luana Ruiz, Luiz F. O. Chamon, Alejandro Ribeiro, University of Pennsylvania, United States

C-12.2 Outlier detection for trajectories via flow-embeddings
Jean-Baptiste Seby, Massachusetts Institute of Technology, United States; Florian Frantzen, Michael Schaub, RWTH Aachen University, Germany

C-12.3 A robust alternative for graph convolutional neural networks via graph neighborhood filters
Victor Tenorio, Samuel Rey, King Juan Carlos University, Spain; Fernando Gama, University of California Berkeley, United States; Santiago Segarra, Rice University, United States; Antonio Marques, Universidad Rey Juan Carlos, Spain

C-12.4 Online Graph Learning from Time-Varying Structural Equation Models
Alberto Natali, Elvin Isufi, Mario Coutino, Geert Leus, Delft University of Technology, Netherlands

Session D-1 Advances in Coupled Matrix and Tensor Factorizations, with Application to Remote Sensing (invited)

Co-Chairs: *Jeremy E. Cohen, Institut de Recherche en Informatique et Systèmes Aléatoires, France and Evrim Acar, SimulaMet, Norway*

D-1.1 A Flexible Optimization Framework for Regularized Matrix-Tensor Factorizations with Linear Couplings
Carla Schenker, Marie Roald, Evrim Acar, Simula Metropolitan Center for Digital Engineering, Norway; Jeremy E. Cohen, IRISA, France

D-1.2 Coupled tensor models accounting for inter-image variability
Ricardo Borsoi, José Bermudez, Federal University of Santa Catarina, Brazil; Clémence Prévost, Konstantin Usevich, David Brie, University of Lorraine, France; Cédric Richard, Côte d'Azur University, France

D-1.3 Multi-Resolution Beta-Divergence NMF for Blind Spectral Unmixing
Valentin Leplat, Université Catholique de Louvain, Belgium; Nicolas Gillis, Université de Mons, Belgium; Cédric Févotte, Université de Toulouse, France

D-1.4 Hyperspectral Super-Resolution via Coupled LL1Tensor Decomposition
Meng Ding, University of Electronic Science and Technology of China, China; Xiao Fu, Oregon State University, United States

Session D-5 Applications of (Machine) Learning

Chair: *Ali Cafer Gurbuz, Mississippi State University*

D-5.1 An Adaptive Algorithm for Joint Cooperative Localization and Orientation Estimation using Belief Propagation
Lukas Wielandner, Erik Leitinger, Klaus Witrisal, Graz University of Technology, Austria

D-5.2 Data Driven Learning of Constrained Measurement Matrices for Signal Reconstruction
Robiulhossain Mdrafi, Ali Cafer Gurbuz, Mississippi State University, United States

D-5.3 Efficient User Localization in Wireless Networks Using Active Deep Learning
Chuan Sun, Morteza Hashemi, University of Kansas, United States

D-5.4 End-to-End Learning for Musical Instruments Classification
Renato Profeta, Gerald Schuller, Ilmenau University of Technology, Germany

Session D-7 Data Analytics for Radar Systems

Chair: *Yimin Zhang, Temple University*

D-7.1 Modified Viterbi-Based Local-Multipath Doppler Difference Estimation in Over-the-Horizon Radar
Vaishali S. Amin, Yimin D. Zhang, Temple University, United States; Braham Himed, AFRL/RYMS, United States

D-7.2 Fast Data-Driven Adaptation of Radar Detection via Meta-Learning
Wei Jiang, Alexander Haimovich, New Jersey Institute of Technology, United States; Mark Govoni, Timothy Garner, U.S. Army DEVCOM Army Research Laboratory, United States; Osvaldo Simeone, King's College London, United Kingdom

D-7.3 Deep Neural Networks for Radar Waveform Classification
Michael Wharton, Philip Schniter, Ohio State, United States; Anne Pavy, Air Force Research Lab, United States

Session E-14 Sparse Arrays in Passive and Active Sensing (invited)

Co-Chairs: *Robin Rajamaki, Aalto University, Finland and Visa Koivunen, Aalto University, Finland*

E-14.1 Rank Properties of Manifold Matrices of Sparse Arrays
Po-Chih Chen, P. P. Vaidyanathan, California Institute of Technology, United States

E-14.2 A Delayed and Subsampled Wideband Sparse Array for Joint Angle and Frequency Estimation
Feiyu Wang, Geert Leus, Delft University of Technology, Netherlands

E-14.3 Active compressive sensing of on-grid coherent scatterers using sparse arrays
Robin Rajamäki, Visa Koivunen, Aalto University, Finland; Piya Pal, University of California, San Diego, United States

E-14.4 Reliable DOA Estimation in Spatially Correlated Noise With Nonuniform Arrays
Kenneth Mills, Fauzia Ahmad, Tongdi Zhou, Temple University, United States; Piya Pal, University of California San Diego, United States

Session E-15 Tensor Models and Processing

Chair: *Panos Markopoulos, Rochester Institute of Technology*

E-15.1 Robust Barron-Loss Tucker Tensor Decomposition
Mahsa Mozaffari, Panos Markopoulos, Rochester Institute of Technology, United States

E-15.2 Robust Low-Rank Tensor Recovery From Quantized and Corrupted Measurements
Ren Wang, Tianqi Chen, University of Michigan, United States; Zhe Xu, Arizona State University, United States; Pengzhi Gao, Baidu Inc., United States

E-15.3 Coupled CP Decomposition of EEG and MEG Magnetometer and Gradiometer Measurements via the Coupled SECSI Framework
Alla Manina, Mikus Grasis, Liana Khamidullina, Jens Haueisen, Martin Haardt, Ilmenau University of Technology, Germany; Alexey Korobkov, Kazan National Research Technical University named after A. N. Tupolev - KAI, Russian Federation

E-15.4 Sample Fourth-order Cumulant Tensor Denoising for DOA Estimation with Coprime L-shaped Array
Hang Zheng, Chengwei Zhou, Yong Wang, Jinfang Zhou, Zhiguo Shi, Zhejiang University, China

Session E-16 Tensor Signal Processing and Applications (invited)

Co-Chairs: *André L. F. de Almeida, Universidade Federal do Ceará, Brazil and Rémy Boyer, Université de Lille, France*

E-16.1 Tensor-based approach for training flexible neural networks
Yassine Zniyed, Université de Toulon, Aix-Marseille Université, CNRS, LIS, Toulon, France, France; Konstantin Usevich, Sebastian Miron, David Brie, CRAN, Université de Lorraine, CNRS, France

E-16.2 From Optimization-Based Computation of Tensor Decompositions to Multilinear Optimization
Muzaffer Ayvaz, Lieven De Lathauwer, KU Leuven, Belgium

E-16.3 Online Rank-Revealing Block-Term Tensor Decomposition
Athanasios Rontogiannis, National Observatory of Athens, Greece; Eleftherios Kofidis, University of Piraeus, Greece; Paris Giampouras, Johns Hopkins University, United States

E-16.4 Tensor-Based Channel Estimation And Beamforming Design For RIS-Aided Millimeter-Wave MIMO Systems
Sepideh Gherekhloo, Khaled Ardah, Martin Haardt, Ilmenau University of Technology, Germany; André L. F. de Almeida, Universidade Federal do Ceará, Brazil

Session H-4 Hyperspectral Image Processing (invited)

Chair: *Wei Li, Beijing Institute of Technology, China*

H-4.1 hyperspectal and LiDAR data classification with direction-aware attention mask and dynamic graph optimization
Mengmeng Zhang, Wei Li, Yuxiang Zhang, Beijing Institute of Technology, China

H-4.2 Hyperspectral Unmixing Based on Nonnegative Tensor Factorization With Double Constraints
Xin-Ru Feng, Heng-Chao Li, Southwest Jiaotong University, China; Qian Du, Mississippi State University, United States

H-4.3 Triplet Autoencoder Network for Unsupervised Hyperspectral Super-Resolution with Nonrigid Misaligned Multispectral Image
Ke Zheng, Lianru Gao, Bing Zhang, Aerospace Information Research Institute, Chinese Academy of Sciences, China; Danfeng Hong, German Aerospace Center (DLR), Germany

H-4.4 Attention-based deep feature learning network for scene classification of hyperspectral images
Kejie Xu, Hong Huang, Peifang Deng, Chongqing University, China

Session H-5 Image Processing

Chair: *Charles Bouman, Purdue University*

H-5.1 Projected Multi-Agent Consensus Equilibrium for Ptychographic Image Reconstruction
Qiuchen Zhai, Greg Buzzard, Charles Bouman, Purdue University, United States; Brendt Wohlberg, Los Alamos National Laboratory, United States

H-5.2 Convolution Padding in Recurrent Neural Networks for Image Denoising with Limited Data
Alex Ho, Jacqueline Alvarez, Roummel Marcia, University of California, Merced, United States

H-5.3 A Low-Cost and Portable Single-Pixel Camera
Erica Lindbeck, Joey Conenna, Nazanin Rahnavard, University of Central Florida, United States

H-5.4 SAR-to-EO Image Translation with Multi-Conditional Adversarial Networks
Armando Cabrera, Miriam Cha, Prafull Sharma, Michael Newey, Massachusetts Institute of Technology, United States

H-5.5 Hyperspectral Image Target Detection Using Deep Ensembles for Robust Uncertainty Quantification
Rajeev Sahay, Daniel Ries, Joshua Zollweg, Sandia National Laboratories, United States; Christopher Brinton, Purdue University, United States

Author List

NAME	SESSION
Aazhang, Behnaam	F-8.2
Abbasi, Naveed	A-6.3
Abed-meraim, Karim	B-12.3
Abed-Meraim, Karim	D-6.3
Abouelseoud, Mohamed	A-1.1
Abraham, Jens	B-1.5
Abrão, Taufik	B-3.5
Acar, Evrim	D-1.1
Adam, Karen	E-5.2
Afghah, Fatemeh	C-8.5
Afisiadis, Orion	A-7.2
Aggarwal, Vaneet	C-9.3
Agostini, Patrick	B-7.2
Ahmad, Fauzia	E-14.4
Ahn, Miju	D-4.4
Ai, Lin	H-3.3
Akcakaya, Mehmet	F-10.1
Akcakaya, Mehmet	F-4.3
Akçakaya, Mehmet	F-4.2
Aksanli, Baris	H-7.3
Alexandropoulos, George	C-2.1
Alexandru, Roxana	E-5.3
Ali, Anum	A-6.2
Alotaibi, Omar	D-11.4
AlShammari, Tamara	A-5.4
Altınay, Özlem	G-6.4
Altun, Ufuk	A-11.3
Alu, Andrea	B-5.1
Alvarez, Jacqueline	H-5.2
Alves, Hirley	B-1.1
Amalladinne, Vamsi	B-8.2
Amalladinne, Vamsi Krishna	A-7.3
Amin, Vaishali S.	D-7.1
Amiri, Abolfazl	B-3.5
Amirkhany, Amir	A-3.2
Amuru, SaiDhiraj	B-10.4
Anderson, David	G-7.3
Andreev, Sergey	C-2.3
Andrews, Jeffrey	A-5.2
Anttila, Lauri	A-12.2
Anttila, Lauri	G-5.1
Appadwedula, Swaroop	E-3.4
Ardah, Khaled	E-16.4
Ardeshiri, Ghazaleh	C-5.3
Arefizadeh, Sina	C-1.1
Arifeen, Tooba	G-4.2
Arora, Aman	G-2.2
Arthaber, Holger	B-9.3
Arthaber, Holger	E-8.2
Ashok, Shivaswarup Manjakuppam	A-11.1
Asif, M. Salman	D-16.3
Assimonis, Stylianos D.	B-11.1
Åström, Karl	G-9.3
Atzeni, Italo	B-3.1
Atzeni, Italo	B-12.1
Auer, Christina	A-12.1
Aviyente, Selin	F-6.1
Aydın, Sarper	C-1.1
Ayvaz, Muzaffer	E-16.2
Baccus, Stephen	F-9.2
Bai, Jianan	B-7.3
Baillet, Sylvain	F-9.1
Bajwa, Waheed	D-18.1
Bakhtiari, Shahab	F-9.1
Balatsoukas-Stimming, Alexios	A-10.1
Balatsoukas-Stimming, Alexios	A-7.2
Balatsoukas-Stimming, Alexios	A-12.3
Banavar, Mahesh	H-7.5
Bangalore Kumar Swamy, Vishal	G-6.2
Banuelos, Mario	F-2.1
Baranyi, Máté	F-1.5
Baras, John	E-3.3
Barbarossa, Sergio	C-11.5
Bartoletti, Stefania	A-4.1
Bartusiak, Emily	H-7.1
Basar, Ertugrul	A-13.3
Başar, Ertuğrul	A-11.3
Baumgartner, Stefan	A-10.2
Baumgartner, Stefan	A-10.3
Bazco-Nogueras, Antonio	A-2.2
Bazzi, Alessandro	A-4.1
Bazzi, Samer	B-4.4
Bedi, Amrit	C-9.3
Bell, Mark R.	E-2.3
Bellalta, Boris	B-11.1
Bellili, Faouzi	B-6.1
Bencheikh Lehocine, Chouaib	A-4.2
Benesty, Jacob	D-11.2

NAME	SESSION
Bengtsson, Mats	G-5.3
Benna, Marcus K.	F-7.2
Bennis, Mehdi	A-5.4
Berian, Alex	A-9.2
Bermolen, Paola	C-10.3
Bermudez, José	D-1.2
Bernhardt, Micael	G-8.4
Berthet, Antoine	A-4.1
Bezati, Endri	G-2.5
Bhandari, Ayush	E-5.1
Bhat, Harish S.	D-3.2
Bhuyan, Arupjyoti	A-1.2
Bilik, Igal	E-8.3
Billmeyer, Ryan	F-5.2
Björnson, Emil	B-3.2
Björnson, Emil	B-5.3
Björnson, Emil	C-2.2
Blazek, Thomas	D-9.1
Bliss, Daniel	B-9.1
Bliss, Daniel	G-8.1
Bloch, Aurelien	G-2.1
Bloch, Matthieu	A-11.4
Blu, Thierry	E-6.5
Böck, Carl	F-1.1
Bognar, Gergoe	A-10.2
Bognár, Gergő	A-10.3
Bognár, Gergő	F-1.1
Bol, David	A-7.2
Boljanovic, Veljko	B-2.3
Bolla, Marianna	F-1.5
Bontonou, Myriam	C-6.2
Borgheai, Seyyed Bahram	F-6.2
Borsoi, Ricardo	D-1.2
Bose, Subhonmesh	D-13.1
Bose, Tamal	A-9.2
Boufounos, Petros	E-10.1
Bouman, Charles	F-3.1
Bouman, Charles	H-5.1
Bouman, Katherine	H-1.1
Bradshaw, Thomas	E-9.3
Brännström, Fredrik	A-4.2
Brie, David	D-1.2
Brie, David	E-16.1
Brihuega, Alberto	G-5.1
Brinton, Christopher	H-5.5
BUCCI Jr., DONALD J.	C-1.5
Buchan, Skylar	F-8.2
Buckwalter, James F.	A-6.1
Burg, Andreas	A-7.2
Butala, Ankur	H-3.4
Buyle, Chesney	G-9.4
Buzzard, Greg	H-5.1
Buzzard, Gregery	F-3.1
Cabrera, Armando	H-5.4
Cabric, Danijela	B-2.3
Cadena, Jose	D-14.1
Callebaut, Gilles	B-6.4
Campolo, Claudia	A-4.1
Cao, Jiuwen	D-17.4
Cardarilli, Gian Carlo	G-7.1
Cardone, Martina	D-18.2
Cardoso, José Vinícius de M.	C-10.2
Carmack, Joseph	G-3.1
Castañeda, Oscar	B-2.4
Castellanos, Miguel	B-11.3
Cavallaro, Joseph	A-10.1
Cavallaro, Joseph	G-3.4
Cavallaro, Joseph	G-7.4
Cekic, Metehan	A-11.2
Celedón Pattichis, Sylvia	H-6.1
Celedón-Pattichis, Sylvia	H-2.1
Centers, Jessica	E-9.4
Cha, Miriam	H-5.4
Chakraborty, Abhishek	C-1.4
Chaman, Anadi	H-2.2
Chamberland, Jean-Francois	A-7.3
Chamberland, Jean-Francois	B-8.2
Chan, Wai-Yip	D-8.1
Chang, Chia-Jung	E-2.3
Charles, Zachary	C-3.1
Chattopadhyay, Aditi	E-13.4
Chen, Badong	D-17.3
Chen, Hao	C-5.4
Chen, Jianshu	D-4.5
Chen, Kuan-Lin	H-7.3
Chen, Lin	B-4.2
Chen, Maojian	D-17.2
Chen, Po-Chih	E-12.3
Chen, Po-Chih	E-14.1
Chen, Rongrong	D-19.1
Chen, Rong-Rong	D-8.3
Chen, Shaoou	C-7.3
Chen, Tianqi	E-15.2
Chen, Tianyi	D-19.3
Chen, Tianyi	C-9.4
Chen, Tzu-Hsien	F-3.2

NAME	SESSION
Chen, Yuan	D-2.2
Chen, Zheng	B-7.3
Chen, Zhilin	B-7.1
Chen, Ziheng	D-4.5
Chen, Ziyi	D-19.1
Cheng, Yirong	C-8.4
Cheng, Yuanbo	E-12.4
Cheng, Zihang	A-6.3
Chepuri, Sundeep Prabhakar	C-11.3
Chepuri, Sundeep Prabhakar	C-10.4
Cheung, Mark	D-8.2
Cheung, Mark	C-11.1
Chi, Yuejie	D-19.2
Chiapa, Henry	E-11.2
Chin, Woon Hau	B-3.3
Chiriyath, Alex	G-8.1
Cho, Joohyun	D-8.3
Cho, Myung	E-11.2
Choi, Jae Won	D-3.4
Choi, Kup-Sze	D-17.5
Chowdhury, Kaushik	G-3.2
Chowdhury, Md. Waqeeb T. S.	E-7.1
Chowdhury, Md. Waqeeb T. S.	E-7.3
Chung, MinKeun	B-2.2
Ciochina, Silviu	D-11.2
Cioffi, John	A-7.1
Clifton, Chris	B-2.2
Cohen, Jeremy E.	D-1.1
Collins, Liam	C-3.4
Conenna, Joey	H-5.3
Corey, Ryan	E-1.1
Cosentino, Romain	F-8.2
Cossairt, Oliver	F-3.3
Cottatellucci, Laura	B-3.4
Coutino, Mario	C-12.4
Cox, Bert	G-9.4
Cribbs, H. Brown	A-9.3
Crockett, Louise	G-1.4
Croisfelt, Victor	B-3.5
Cui, Tie Jun	B-5.1
Dafflon, Baptiste	G-9.2
Dagefu, Fikadu	A-8.4
Dai, Yue	B-2.1
D'Amico, Antonio Alberto	B-6.2
Dardari, Davide	B-11.2
Dasgupta, Sanjoy	F-7.1
de Carvalho, Elisabeth	B-3.5
De Jesus Torres, Andrea	B-6.2
De Lathauwer, Lieven	E-16.2
De Strycker, Lieven	G-9.4
DeBrunner, Linda S.	G-1.1
DeBrunner, Linda S.	G-1.2
DeBrunner, Victor	G-1.1
DeBrunner, Victor	G-1.2
Decarli, Nicolò	B-11.2
DeFries, Timothy	D-3.5
Deguchy, Omar	D-13.2
Dehak, Najim	H-3.4
Delp, Edward	H-7.1
Delp, Edward J.	H-6.3
Demir, Özlem Tugfe	B-5.3
Demirel, Omer Burak	F-4.3
Deng, Chunhua	G-6.1
Deng, Peifang	H-4.4
Deng, Zilin	F-4.2
Deshmukh, Aditya	D-2.1
DeSpain, Mirelle	E-9.3
Di Nunzio, Luca	G-7.1
Di Renzo, Marco	A-13.1
Di Renzo, Marco	B-5.1
Diamantaras, Konstantinos	C-5.2
Ding, Meng	D-1.4
Ding, Qi	A-3.1
Ding, Xuehao	F-9.2
Ding, Zhi	A-5.3
Dinis, Rui	A-8.1
Dittman, Zoe	F-6.1
Dittrich, Thomas	C-7.4
Ditzler, Gregory	A-9.2
Djelouat, Hamza	B-1.1
Dokmanić, Ivan	H-2.2
Donmez, Mehmet	D-18.3
Doroslovacki, Milos	F-4.1
Doshi, Akash	A-5.2
Doufexi, Angela	B-3.3
Douglas, Scott	D-3.5
Dovelos, Konstantinos	B-11.1
Dowdle, Logan	F-4.3
Dózsa, Tamás	F-1.1
Dragotti, Pier Luigi	E-5.3
Du, Cheng	B-9.5
Du, Qian	H-4.2
Dunn, James	B-2.1
Dunson, David	C-6.3
Durisi, Giuseppe	B-8.3

NAME	SESSION
Durisi, Giuseppe	B-7.5
Durisi, Giuseppe	B-2.4
Durisi, Giuseppe	B-12.1
Dytso, Alex	D-18.2
Edfors, Ove	B-2.2
Ekanayake, Sachini Piyoni	D-13.3
Ekman, Torbjörn	B-1.5
Eksin, Ceyhun	C-1.1
Eldar, Yonina	C-2.1
Eldar, Yonina C.	E-9.1
Eldar, Yonina C.	G-8.3
Elgabli, Anis	A-5.4
Elia, Petros	A-2.2
Eliasch, Christian	D-9.1
Eltawil, Ahmed	A-12.4
Emami, Mahyar	G-2.5
Emge, Darren	D-14.4
Ercegovac, Milos D.	G-4.1
Ercegovac, Milosˇ D.	G-4.2
Eriksson, Thomas	G-5.2
Erkip, Elza	A-2.1
Erkip, Elza	A-6.1
Ermon, Stefano	D-12.4
Erőss, Loránd	F-1.2
Eslami Rasekh, Maryam	E-4.4
Esposito, Michael	H-6.4
Evans, Scott	D-6.2
Evmorfos, Spilios	C-5.2
F. O. Chamon, Luiz	C-12.1
Fabó, Dániel	F-1.2
Falcao, Gabriel	G-2.3
Fang, Jun	B-4.3
Fanuel, Michaël	E-6.3
Farnia, Farzan	C-3.2
Farrugia, Nicolas	C-6.2
Fazzolari, Rocco	G-7.1
Fedorov, Aleksei	A-4.3
Felton, Chris	F-8.3
Feng, Siyuan	H-3.1
Feng, Xin-Ru	H-4.2
Ferrari, André	E-11.3
Ferraz, Oscar	G-2.3
Ferreira, Lucas	G-9.3
Fettweis, Gerhard	A-4.4
Fettweis, Gerhard	A-6.4
Févotte, Cédric	D-1.3
Fields, Greg	D-8.5
Filbir, Frank	E-5.4
Fiori, Marcelo	C-10.3
Fischione, Carlo	G-5.3
Fleischer, Marko	A-12.2
Florescu, Dorian	E-5.1
Fodor, Gabor	G-5.3
Fouda, Mohammed	A-12.4
Frantzen, Florian	C-12.2
Friedlander, Benjamin	E-4.1
Friedlander, Benjamin	E-4.3
Fu, Kechang	D-17.5
Fu, Xiao	D-1.4
Fu, Xiao	G-6.1
G. Ström, Erik	A-4.2
Galinina, Olga	C-2.3
Gama, Fernando	C-12.3
Gan, Weijie	E-10.3
Gan, Weijie	F-10.2
Ganguly, Bhargav	C-9.3
Ganti, Anil	E-3.2
Gao, Lianru	H-4.3
Gao, Pengzhi	E-15.2
Garner, Timothy	D-7.2
Garrett, Zachary	C-3.1
Garudadri, Harinath	H-7.3
Gat, Yonatan	H-1.4
Gaur, Sudhanshu	H-7.4
Gerencsér, László	F-1.2
Gerstoft, Peter	A-9.1
Gesbert, David	B-3.2
Geva, Adam	H-1.4
Ghassemi, Mohsen	D-18.1
Gherekhloo, Sepideh	E-16.4
Gholami, Roya	B-3.4
Giampouras, Paris	E-16.3
Giannakis, Georgios	C-10.1
Giannakis, Georgios B.	D-15.3
Giannakis, Georgios B.	C-9.2
Giardino, Daniele	G-7.1
Gigena Ivanovich, Diego	H-2.3
Gila, Janos	A-1.3
Gilabert, Pere L.	G-5.4
Gillis, Nicolas	D-1.3
Gizik, Ahmet	A-1.4
Gkioulekas, Ioannis	H-1.3
Gogineni, Vinay Chakravarthi	C-11.2
Goldblum, Micah	D-12.1
Goldhahn, Ryan	D-14.1
Goldsmith, Andrea	A-7.1
Goldsmith, Andrea J.	A-2.1
Goldstein, Tom	B-2.4

NAME	SESSION
Goldstein, Tom	D-12.1
Gomez Ponce, Jorge	A-6.3
Gonultas, Emre	D-14.2
Gonzalez, Arturo	A-4.4
Gopal, Govind Ravikumar	B-1.3
Gopalakrishnan, Soorya	A-11.2
Göransson, Bo	G-5.3
Gouda, Bikshapathi	B-3.1
Govoni, Mark	D-7.2
Graell i Amat, Alexandre	B-8.3
Grant, Satchel	F-9.2
Grasis, Mikus	E-15.3
Grasmair, Markus	C-11.2
Graves, Eric	C-8.4
Grebien, Stefan	E-8.2
Griffa, Alessandra	C-6.1
Gripon, Vincent	C-6.2
Grotheer, Rachel	D-4.4
Gu, Jerry	G-3.2
Guan, Ziwei	D-19.4
Guerreiro, João	A-8.1
Guillaud, Maxime	B-8.1
Gunduz, Deniz	A-5.1
Günlü, Onur	A-11.4
Gunnarsson, Sara	B-2.2
Gunther, Jacob H	E-9.3
Gunther, Jake	D-6.1
Guo, Li	A-13.4
Guo, Ruiming	E-6.5
Gupta, Abhishek	B-10.4
Gupta, Arjun	D-12.1
Gupta, Rajesh	H-7.3
Gupta, Rajiv	H-1.4
Gurbuz, Ali Cafer	D-5.2
Gurugubelli, Sravanthi	C-10.4
Gustafsson, Oscar	G-6.2
H. Sayed, Ali	C-4.1
Haardt, Martin	B-4.2
Haardt, Martin	E-15.3
Haardt, Martin	E-16.4
Habibzadeh, Hadi	F-5.1
Haddad, Ali	F-6.3
Haddock, Jamie	D-4.1
Haddock, Jamie	D-4.4
Hagen, Philip	F-8.3
Hague, David	E-1.2
Haider, Clifton	F-8.3
Haimovich, Alexander	D-7.2
Håkansson, Victor	C-8.1
Halme, Topi	D-10.4
Hamke, Eric	H-7.2
Hammernik, Kerstin	F-10.4
Hanif, Adnan	F-4.1
Hanindhito, Bagus	G-2.2
Harper, Clayton	A-9.4
harris, fred	G-1.3
Harris, Fredric	A-8.3
Harris, Fredric	H-7.3
Hasegawa-Johnson, Mark	H-3.2
Hashemi, Morteza	A-1.1
Hashemi, Morteza	D-5.3
Hashemi, Seyyed Ali	A-7.1
Hassan, Abdus Sami	G-4.2
Hassani, Hamed	C-3.4
Hassanien, Aboulnasr	E-3.1
Hassanien, Aboulnasr	E-11.1
Haueisen, Jens	E-15.3
He, JIeqian	D-3.3
He, Yan	E-6.2
He, Yicong	D-17.1
Heath, Robert	B-11.3
Heath, Robert W.	B-6.1
Heath Jr., Robert W.	C-2.3
Hechenberger, Stefan	B-9.3
Heino, Mikko	G-8.4
Hellar, Jennifer	F-8.2
Hellmann, Jan	A-12.2
Henriksson, Mikael	G-6.2
Herrmann, Felix	E-10.4
Herschfelt, Andrew	B-9.1
Herschfelt, Andrew	G-8.1
Himed, Braham	D-7.1
Hirn, Matthew	D-3.3
Hirschberg, Julia	H-3.3
Hladik, Reinhard	A-1.3
Ho, Alex	H-5.2
Hofer, Markus	A-1.3
Hofmann, Jonas	A-3.3
Holmes, David	F-8.3
Holodovsky, Vadim	H-1.4
Holtom, Jacob	B-9.1
Hong, Danfeng	H-4.3
Hong, Mingyi	D-19.3
Hong, Mingyi	F-10.1
Hong, Sungcheol	D-11.1
Honkala, Mikko	A-10.4
Horesh, Lior	C-9.4
Hosni, Sarah Ismail	F-6.2

NAME	SESSION
Hosseini, S. Amir	B-6.3
Hosseinzadeh, Navid	A-6.1
Hou, Boya	D-13.1
Hua, Yi	D-16.3
Huang, Charles	F-2.3
Huang, Hong	H-4.4
Huang, Howard	D-14.2
Huang, Howie	A-9.3
Huang, Lingyi	G-6.1
Huang, Longbo	C-9.1
Huang, Longxiu	D-2.3
Huang, Sha-Wo	F-3.2
Huang, Tianyao	G-8.3
Huang, Xiuyuan	D-6.4
Hucumenoglu, Mehmet	E-17.4
Huemer, Mario	A-10.2
Huemer, Mario	A-10.3
Huemer, Mario	A-12.1
Husakovic, Adnan	E-1.3
Hussain, Magni	F-8.1
Huttunen, Janne	A-10.4
Ibrahim, Shahana	G-6.1
Ikram, Javaid	E-13.4
Iotti, Lorenzo	B-2.1
Ipson, Joseph	E-12.1
Iqbal, Naveed	D-6.3
Isufi, Elvin	C-12.4
Iwen, Mark	D-3.3
Jacobsson, Sven	B-2.4
Jacques, Laurent	D-4.3
Jacques, Laurent	E-5.5
Jadbabaie, Ali	C-3.2
Janke, Devon	G-7.3
Janneck, Jorn	G-2.5
Jans, Christoph	A-6.4
Jarman, Benjamin	D-3.1
Jatla, Venkatesh	H-6.1
Javidi, Tara	D-8.5
Jayne, David G	D-11.1
Jenkins, William	F-8.1
Ji, Mingyue	A-1.2
Jia, Jinghan	F-10.1
Jiang, Wei	D-7.2
Jiang, Xue	B-4.2
Jiang, Yi	B-1.2
Jiang, Yi	B-10.1
Jiang, Yi	B-9.5
Jin, Shi	B-5.1
Johansson, Andreas	B-2.2
John, Lizy K.	G-2.2
John, Mathews M	F-8.2
Jolly, Ankush	A-9.1
Jordan, Ramiro	H-7.2
Jorswieck, Eduard	D-9.3
Josephs, Nathaniel	C-4.2
Joshi, Gauri	C-3.1
Julian, Pedro	H-2.3
Jung, Alex	C-7.1
Jung, Peter	C-1.2
Juntti, Markku	B-1.1
K. D. Venkategowda, Naveen	C-8.1
Kadambari, Sai Kiran	C-10.4
Kaddoum, Georges	G-3.3
Kahali, Sayan	F-10.2
Kail, Georg	A-1.3
Kal{\o}r, Anders E.	B-8.1
Kamali, Jalil	A-3.2
Kamilov, Ulugbek	E-10.3
Kamilov, Ulugbek	F-10.2
Kang, Seongjoon	A-6.1
Kant, Shashi	G-5.3
Kappacher-Winter, Yvonne	E-1.3
Kar, Soummya	D-2.2
Karaaslanli, Abdullah	F-6.1
Karfoul, Ahmad	E-13.3
Karlsson, Sven	G-9.3
Kasera, Sneha	A-1.2
Kasher, Morriel	G-2.4
Kassab, Lara	D-4.4
Kastl, Christian	E-1.3
Katsaggelo, Aggelos K.	F-3.3
Khalili, Abbas	A-6.1
Khalili Marandi, Mostafa	A-6.4
Khamidullina, Liana	E-15.3
KHANDURI, PRASHANT	C-1.5
Khot, M. Ibrahim	D-11.1
Kilinc, Fatih	A-13.3
Kim, Hyunsung	G-9.1
Kim, Jiwoo	B-9.4
Kim, Sangtae	H-2.4
Kim, Seung-Jun	D-14.4
Kim, Woo Seok	D-11.1
Kitichotkul, Ruangrawee	D-16.1
Klaffenböck, Maria Anneliese	E-1.3
Klasky, Marc L.	D-16.4
Klein, Jeffrey	A-9.3
Kleppmann, Nicola	C-1.2

NAME	SESSION
Klinefelter, Jarod	E-11.2
Knopp, Andreas	A-3.3
Kobus, Szymon	A-5.1
Koch, Tobias	B-7.4
Kofidis, Eleftherios	E-16.3
Koivunen, Visa	D-10.4
Koivunen, Visa	E-14.3
Kolaczyk, Eric	C-4.2
Koller, Michael	B-4.4
Kong, Justin	A-8.4
Koppel, Alec	C-9.3
Koppel, Alec	C-1.4
Koppel, Alec	E-3.3
Korban, Matthew	H-6.2
Koren, Ilan	H-1.4
Korobkov, Alexey	E-15.3
Korpi, Dani	A-10.4
Kosunen, Marko	G-5.1
Kotaba, Rados\l{}aw	B-8.1
Kothapalli, Satya	F-10.2
Koumpouzi, Chryssalenia	A-8.4
Kovács, Péter	F-1.1
Koymen, Ozge	B-10.2
Koymen, Ozge	B-10.3
Krahmer, Felix	E-5.1
Krahmer, Felix	E-5.4
Krishnakumar, Poornima	B-6.3
Krolik, Jeffrey	E-3.2
Krolik, Jeffrey	E-9.4
Kryshchenko, Alona	D-4.4
Kulkarni, Pranav	E-7.4
Kumar Dasanadoddi Venkategowda, Naveen	D-9.2
Küstner, Thomas	F-10.4
Kuzdeba, Scott	G-3.1
L. F. de Almeida, André	E-16.4
LaCaille, Greg	B-2.1
Laguna, Pablo	F-1.3
Laird, Brent	E-8.1
Laird, Brent	E-12.2
Lampu, Vesa	A-12.2
Lampu, Vesa	G-5.1
Lan, Guanghui	D-19.4
Lang, Oliver	A-10.2
Lang, Oliver	A-10.3
Langberg, Severin R E	C-11.2
Larroca, Federico	C-10.3
Larson, Eric	A-9.4
Larsson, Erik G	B-7.3
Larus, James	G-2.5
Lau, Clinton	D-8.1
Lavrenko, Anastasia	E-8.4
Lawal, Abdulmajid	D-6.3
Lazar, Andrew	F-2.1
Lazaro Blasco, Francisco	B-7.5
Le, Martin	D-9.3
Le, Trung-Thanh	B-12.3
Leblanc, Olivier	E-5.5
Lee, Dongsoo	F-9.2
Lee, Jeong-A	G-4.1
Lee, Jeong-A	G-4.2
Lee, Kiryung	E-17.3
Lee, Ta-Sung	A-5.3
Lee, Wonho	A-6.1
Lee, Youngjoo	G-9.1
Leinonen, Markus	B-1.1
Leitinger, Erik	D-5.1
Leng, Shiyang	C-5.1
Leonard, Kathryn	D-4.4
Leplat, Valentin	D-1.3
Leus, Geert	C-12.4
Leus, Geert	E-14.2
Levis, Aviad	H-1.4
Leyva-Mayorga, Israel	B-8.1
Li, Boning	C-2.4
Li, Fengjie	B-9.5
Li, Heng-Chao	H-4.2
Li, Hongbin	B-4.3
Li, Jianyuan	D-17.2
Li, Junyi	B-10.2
Li, Junyi	B-10.3
Li, Ping	D-18.4
Li, Ping	C-11.4
Li, Shuang	D-10.1
Li, Sixian	D-4.4
Li, Tianjiao	D-19.4
Li, Wantao	G-5.4
Li, Wei	H-4.1
Li, Weiwei	D-18.4
Li, Wenrui	C-4.2
Li, Wenrui	F-3.1
Li, Xia	D-2.3
Li, Xuefei	C-9.4
Li, Yunhao	F-3.3
Liang, Yingbin	D-19.4
Liew, Harrison	B-2.1
Lin, Austin	C-11.1
Lin, Jiaru	A-13.4

NAME	SESSION
Lin, Yiheng	C-9.1
Lin, Yu-Chien	A-5.3
Lin, Zhenghan	B-2.1
Lindbeck, Erica	H-5.3
Liu, Fan	G-8.2
Liu, Fangqing	E-12.4
Liu, Jiaming	E-10.3
Liu, Jiaming	F-10.2
Liu, Jing	D-2.1
Liu, Jun	D-17.5
Liu, Liang	B-2.2
Liu, Liang	G-9.3
Liu, Luyang	C-3.1
Liu, Meimei	C-6.3
Liu, Mingxi	D-8.3
Liu, Sijia	F-10.1
Liu, Xingzhao	B-4.2
Liu, Yimin	G-8.3
Liu, Yuanwei	A-13.4
Liu, Zhaokai	B-2.1
Liva, Gianluigi	B-8.4
Liva, Gianluigi	B-7.5
Liyanage, Yasitha Warahena	D-13.3
Longman, Oren	E-8.3
López Leiva, Carlos	H-6.1
López-Bueno, David	G-5.4
LópezLeiva, Carlos	H-2.1
Louveaux, Jérôme	A-7.2
Lu, Hsi-Hung	A-12.4
Lu, Qin	D-15.3
Lu, Qin	C-9.2
Lu, Qin	C-10.1
Lu, Songtao	C-9.4
Ludwig, Jeff	D-18.3
Ludwig, Jeffrey	D-3.4
Luo, Xiong	D-17.2
Luo, Zhi-Quan	A-2.3
Lyamin, Nikita	A-4.3
Ma, Dingyou	G-8.3
Ma, Owen	B-9.1
Madhow, Upamanyu	A-11.2
Madhow, Upamanyu	B-9.2
Madhow, Upamanyu	E-4.4
Madushani, R. W. M. A.	D-4.4
Maeda, Daisuke	H-7.4
Mahdavi, Mehrdad	C-3.3
Maheswaranathan, Niru	F-9.2
Maier, Andreas	F-3.3
MALHOTRA, Gaurav	A-3.2
Malkowsky, Steffen	G-9.3
Manina, Alla	E-15.3
Mansour, Hassan	E-10.1
Marata, Leatile	B-1.1
Marcia, Roummel	D-13.2
Marcia, Roummel	F-2.1
Marcia, Roummel	H-5.2
Marenco, Bernardo	C-10.3
Marin, Jaakko	G-8.4
Markopoulos, Panos	E-15.1
Marques, Antonio	C-12.3
Marshall, Alan	G-3.4
Marti, Gian	B-2.4
Martínez, Juan Pablo	F-1.3
Martinez-Ramon, Manel	H-7.2
Martín-Yebra, Alba	F-1.3
Masazade, Engin	A-1.4
Masouros, Christos	G-8.2
Mateos, Gonzalo	C-10.3
Mattavelli, Marco	G-2.1
Matthaiou, Michail	B-11.1
Matz, Gerald	C-7.4
Mayrhofer, Anna	E-1.3
Mayyala, Qadri	D-6.3
McCann, Michael T.	D-16.4
McIntosh, Lane	F-9.2
McKinney, Eric	C-4.4
McLinden, John	F-6.2
Mdrafi, Robiulhossain	D-5.2
Mecklenbräuker, Christoph	D-9.1
Medlock, Catherine	A-3.1
Mehrotra, Nishant	C-8.2
Meier, Jens	F-1.1
Merkh, Thomas	D-4.4
Metzler, Christopher	D-16.1
Mezghani, Amine	B-6.1
Mezzavilla, Marco	A-6.1
Mills, Kenneth	E-14.4
Miretti, Lorenzo	B-3.2
Miron, Sebastian	E-16.1
Mirzaei, Golrokh	F-5.3
Mishra, Kumar Vijay	F-3.4
Mo, Jianhua	A-6.2
Moeller, Steen	F-10.1
Moeller, Steen	F-4.2
Moeller, Steen	F-4.3
Mohamed, Nadya	G-7.4
Mohammadi Sarband, Narges	G-6.2
Mokhtari, Aryan	C-3.4

NAME	SESSION
Mokraoui, Anissa	B-12.3
Molinaro, Antonella	A-4.1
Molisch, Andreas	A-6.3
Momennejad, Ida	F-7.3
Mondelli, Marco	A-7.1
Montezuma, Paulo	A-8.1
Montoro, Gabriel	G-5.4
Moon, Todd	D-6.1
Moon, Todd	E-12.1
Moon, Todd K	E-9.3
Moradi, Ashkan	D-9.2
Moraffah, Bahman	D-11.3
Moraffah, Bahman	F-2.2
Moro-Velazquez, Laureano	H-3.4
Mortensen, Daniel	C-4.4
Moura, Jose'	D-8.2
Moura, Jose M. F.	C-11.1
Mowakeaa, Rami	D-14.4
Mozaffari, Mahsa	E-15.1
Mu, Xidong	A-13.4
Muhr, Hannes	A-1.3
Munari, Andrea	B-7.5
Munia, Tamanna	F-6.1
Muniraju, Gowtham	C-8.3
Naderi, M. Yousof	G-3.2
Nafchi, Amir	H-7.2
Nagaraj, Santosh	A-8.3
Najafizadeh, Laleh	F-6.3
Namer, Moshe	G-8.3
Namvar, Nima	C-8.5
Narayanan, Krishna	B-8.2
Narayanaswamy, Vivek	H-6.4
Nasiotis, Konstantinos	F-9.1
Natale, Dario	G-7.1
Natali, Alberto	C-12.4
Nategh, Neda	F-9.4
Nau, Merlin Arthur	F-3.3
Naumova, Valeriya	C-11.2
Naviasky, Emily	B-2.1
Navlakha, Saket	F-7.1
Needell, Deanna	D-10.1
Needell, Deanna	D-2.3
Needell, Deanna	D-4.1
Needell, Deanna	D-3.1
Needell, Deanna	D-4.4
Neopane, Ojash	D-8.4
Neunteufel, Daniel	E-8.2
Neupane, Sujaya	F-9.1
Newey, Michael	H-5.4
Ng, Boon Loong	A-6.2
Ng, Chris	B-6.3
Ng, Derrick Wing Kwan	B-5.4
Ngo, Hien Quoc	B-11.1
Ngo, Khac-Hoang	B-8.3
Nguyen, Trung Luong	H-2.4
Nitzan, Eyal	D-10.4
Noorani, Erfaun	E-3.3
Norton, James J. S.	F-5.1
Ntemos, Konstantinos	C-4.1
Nygård, Jan F	C-11.2
Nygård, Mari	C-11.2
Och, Andreas	E-2.4
Olman, Cheryl A.	F-4.3
Ongie, Gregory	E-17.2
Oppenheim, Alan	A-3.1
Ord\'o\~nez, Luis G.	B-8.1
Örs, Berna	G-6.4
Ortega, Antonio	D-15.2
Ostadabbas, Sarah	F-6.2
Ottoy, Geoffrey	B-6.4
Ou, Yu-Chin	B-10.3
Pack, Christopher	F-9.1
Paireder, Thomas	A-12.1
Pal, Piya	E-10.2
Pal, Piya	E-17.4
Pal, Piya	E-14.3
Pal, Piya	E-14.4
Paleologu, Constantin	D-11.2
Palomar, Daniel P.	C-10.2
Pan, Cunhua	A-13.2
Pan, Jiazhen	F-10.4
Pandey, Achalesh	D-6.2
Pantelyat, Alex	H-3.4
Papandreou-Suppappola, Antonia	D-11.4
Papandreou-Suppappola, Antonia	E-13.4
Papandreou-Suppappola, Antonia	F-2.2
Parhi, Keshab	F-5.2
Park, Daehee	A-6.2
Park, Jeonghun	B-9.4
Park, Sung Il	D-11.1
Pathuri-Bhuvana, Venkata	E-2.4
Pattichis, Marios	H-6.1
Pattichis, Marios S.	H-2.1
PAUDEL, SANTOSH	C-5.4
Paul, Ashley	H-3.4
Pavel, Md. Saidur Rahman	E-7.3

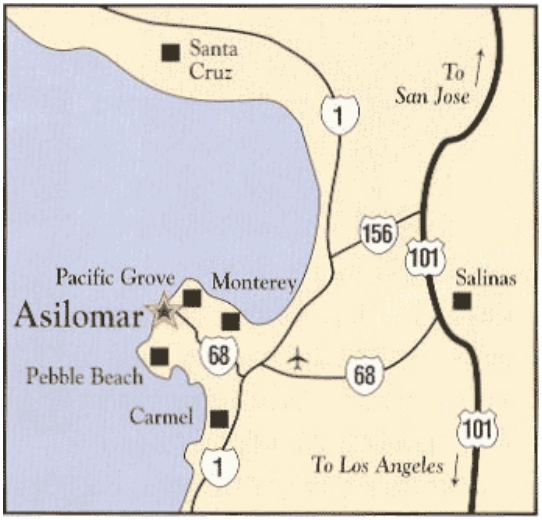
NAME	SESSION
Pavy, Anne	D-7.3
Pedarsani, Ramtin	C-3.2
Pehlevan, Cengiz	F-7.4
Peng, Siyuan	D-17.3
Peng, Yan-Tsung	F-3.2
Perczel, György	F-1.2
Pérez, Cristina	F-1.3
Perlmutter, Michael	D-3.3
Persson, Patrik	G-9.3
Petropulu, Athina	C-5.2
Petropulu, Athina	G-8.2
Petrova, Marina	C-2.2
Pichler, Kurt	E-1.3
Pihlajasalo, Jaakko	A-10.4
Pinilla, Samuel	F-3.4
Polyanskiy, Yury	B-8.4
Polyzos, Konstantinos D.	D-15.3
Polyzos, Konstantinos D.	C-9.2
Popovski, Petar	B-3.5
Popovski, Petar	B-8.1
Porto Villardi, Gabriel	B-1.3
Post, Allison	F-8.2
Pourranjbar, Ali	G-3.3
Prasanna, Dheeraj	E-6.1
Preti, Maria Giulia	C-6.1
Prévost, Clémence	D-1.2
Pritzker, Jacob	E-9.1
Profeta, Renato	D-5.4
Pueyo, Esther	F-1.3
Putz, Veronika	E-1.3
Qiu, Jifang	E-6.2
Qu, Guannan	C-9.1
Quynh, Tran	B-12.3
R. Murthy, Chandra	E-6.1
Raghavan, Vasanthan	B-10.2
Raghavan, Vasanthan	B-10.3
Ragisky, Maxim	D-18.3
Rahmani, Mostafa	D-18.4
Rahmani, Mostafa	C-11.4
Rahnavard, Nazanin	H-5.3
Rajamäki, Robin	E-14.3
Rajawat, Ketan	C-1.4
Ralston, Leland	E-11.2
Ramdas, Aaditya	D-8.4
Ramsay, Craig	G-1.4
Rangan, Sundeep	A-6.1
Ranganath, Aditya	D-13.2
Rangaswamy, Murali	E-2.1
Rao, Bhaskar D.	B-1.3
Rao, Chirag	C-2.4
Rao, Sunil	H-6.4
Ratnarajah, Tharmalingam	G-8.2
Raulefs, Ronald	B-1.4
Rave, Wolfgang	A-6.4
Ravi, Jithin	B-7.4
Ravishankar, Saiprasad	D-16.4
Ray, Gary	D-10.2
Ray, Gary	E-4.2
Ray, Priyadip	D-14.1
Raymondi, Nathaniel	E-9.2
Razavi, Mehdi	F-8.2
Re, Marco	G-7.1
Reeves, Galen	D-12.2
Reisizadeh, Amirhossein	C-3.2
Rekik, Ouahbi	B-12.3
Ren, Hong	A-13.2
Rey, Samuel	C-12.3
Reyhanian, Navid	A-2.3
Rezaei Aghdam, Sina	G-5.2
Ribeiro, Alejandro	C-12.1
Richard, Cédric	D-1.2
Richard, Cédric	E-11.3
Rieck, Thomas	F-8.3
Ries, Daniel	H-5.5
Rigneault, Hervé	E-5.5
Riihonen, Taneli	A-10.4
Riihonen, Taneli	G-8.4
rini, stefano	A-7.3
Rizzuti, Gabrio	E-10.4
Roald, Marie	D-1.1
Robinson, Josh	G-3.1
Rodwell, Mark J. W.	A-6.1
Rodwell, Mark J. W.	B-9.2
Römer, Patricia	E-5.4
Rontogiannis, Athanasios	E-16.3
Rueckert, Daniel	F-10.4
Ruiz, Luana	C-12.1
Rush, Cynthia	D-18.2
Ryynänen, Jussi	G-5.1
S. Watson, Ginger	H-6.2
Saad, Walid	G-3.3
Sabharwal, Ashutosh	C-8.2
Sabharwal, Ashutosh	C-8.4
Sabharwal, Ashutosh	E-9.2
Sadeghi, Alireza	C-9.2
Sadjadpour, Hamid	A-11.1
Sadler, Brian	E-3.3
Sadler, Brian M	F-3.4

NAME	SESSION
Sahay, Rajeev	H-5.5
Sahu, Chinmay	H-7.5
Saleh, Majd	E-13.3
Samanta, Kamal	B-2.2
Samarathunga, Chanaka	A-1.1
Sanguinetti, Luca	B-6.2
Sanguinetti, Luca	B-5.3
Sankaranarayanan, Aswin	D-16.3
Santhanam, Balasubramaniam	H-7.2
Sarangi, Pulak	E-10.2
Sarangi, Pulak	E-17.4
SarcheshmehPour, Yasmin	C-7.1
Sardellitti, Stefania	C-11.5
Saritas, Emine Ulku	F-10.3
Sarkar, Kanad	E-1.1
Sarkar, Shamik	A-1.2
Sarwate, Anand	D-18.1
Sathyanarayanan, Venkatesh	A-9.1
Savas, Yagiz	E-3.3
Schaefer, Rafael F.	A-11.4
Scharenborg, Odette	H-3.1
Schaub, Michael	C-12.2
Schechner, Yoav	H-1.4
Schei, Jennifer L.	D-16.4
Schenker, Carla	D-1.1
Schiefer, Martin	A-1.3
Schiffers, Florian	F-3.3
Schilling, Klaus	H-1.4
Schniter, Philip	D-7.3
Schober, Robert	B-5.4
Scholefield, Adam	E-5.2
Schuller, Gerald	D-5.4
Schuller, Gerald	E-13.1
Schuster, Stefan	E-2.4
Schwarzschild, Avi	D-12.1
Seby, Jean-Baptiste	C-12.2
Seelamantula, Chandra Sekhar	E-6.4
Segarra, Santiago	D-15.4
Segarra, Santiago	C-2.4
Segarra, Santiago	C-12.3
Sengupta, Dhiman	H-7.3
Sensoy, Ozgun Alkin	A-1.4
Seo, Chonghwa	A-6.2
Sezer, Ahmet Dundar	B-9.2
Shafipour, Rasoul	C-11.4
Shah, Tapan	D-6.2
Shahriari, Yalda	F-6.2
Shahsavari, Sina	E-10.2
Shakkottai, Sanjay	C-3.4
Shanechi, Maryam	F-9.3
Shang, Xiaolei	E-12.4
Sharma, Pankaj	C-7.2
Sharma, Prafull	H-5.4
SHARMA, PRANAY	C-1.5
Shavit, Yariv	G-8.3
Shaw, Arnab	E-3.1
Shaw, Arnab	E-11.1
Shekkizhar, Sarath	D-15.2
Shen, Chung-An	A-12.4
Shen, Guanxiong	G-3.4
Shen, Han	D-19.3
Shen, Han	C-9.4
SHEN, LIXIN	C-1.5
Shen, Yang	F-7.1
Shi, John	C-11.1
Shi, Wenjing	H-2.1
Shi, Zhiguo	E-15.4
Shim, Byonghyo	H-2.4
Shlezinger, Nir	G-8.3
Shlezinger, Nir Shlezinger	C-2.1
Shrivastava, Anshumali	D-12.3
Shuman, Matthew	E-2.1
Shumovskaia, Valentina	C-4.1
Siahkoohi, Ali	E-10.4
SIDDARTHA REDDY, THUMMALURU	C-11.3
Silva, Vitor	G-2.3
Simeone, Osvaldo	D-7.2
Sindi, Suzanne	F-2.1
Singer, Andrew	D-18.3
Singer, Andrew	D-3.4
Singer, Andrew	E-1.1
Singh, Aarti	D-8.4
Singh, Samarth	H-6.2
Singhal, Mukesh	D-13.2
Sinha, Avi	A-9.4
Sivankutty, Siddharth	E-5.5
Sizikova, Elena	D-4.4
Skrimponis, Panagiotis	A-6.1
Sladen, Anthony	E-11.3
Slock, Dirk	B-3.4
Smith, Jared	E-3.1
Smith, Jared	E-11.1
Sohrabi, Foad	B-7.1
Sokolova, Alice	H-7.3
Soltani, Nasim	G-3.2
Song, Yuru	F-7.2

NAME	SESSION
Soret, Beatriz	B-8.1
Spanias, Andreas	C-8.3
Spanias, Andreas	H-6.4
Spanò, Sergio	G-7.1
Spasojevic, Predrag	A-8.4
Spasojevic, Predrag	G-2.4
Spicher, Nicolai	F-1.4
Spooner, Chad	A-3.3
Srinivas, Sharanya	G-8.1
Srinivasa, Rakshith Sharma	E-17.3
Sriram, Chandrasekhar	E-6.1
Staab, Kory	A-9.2
Stadius, Kari	G-5.1
Stanczak, Slawomir	B-7.2
Stein, Heike	F-9.2
Stewart, Robert	G-1.4
Stine, James	G-6.3
Stollenwerk, Alexander	D-4.3
Strupp, John	F-4.3
Studer, Christoph	A-10.1
Studer, Christoph	B-2.4
Studer, Christoph	B-12.2
Studer, Christoph	D-14.2
Su, Nanchi	G-8.2
Summer, Wendy	C-11.1
Sun, Chuan	D-5.3
Sun, Ju	E-17.1
Sun, Li-Hsiang	A-1.1
Sun, Yu	E-10.3
Sun, Yu	F-10.2
Swami, Ananthram	D-15.4
Swami, Ananthram	C-8.4
Swann, Ryan	G-6.3
Swartworth, William	D-10.1
Swenson, Charles	D-6.1
Szilágyi Kocsisné, Gyöngyi	F-1.5
T. Acton, Scott	H-6.2
Taki, Batoul	D-18.1
Talebi, Sayed Pouria	D-9.2
Talvitie, Jukka	A-10.4
Tan, Xiangyong	D-17.4
Tandon, Ravi	A-9.2
Taner, Sueda	B-12.2
Taner, Sueda	D-14.2
Tang, Gongguo	D-10.3
Tapparel, Joachim	A-7.2
Tarver, Chance	A-10.1
Tassoudji, Ali	B-10.3
Teeparthi, Sravani	H-6.1
Teke, Oguzhan	D-15.1
Tenorio, Victor	C-12.3
Tepedelenlioglu, Cihan	C-8.3
Tertinek, Stefan	B-9.3
Testa, Lucia	C-11.5
Thomas, Rajesh	G-1.1
Thornton, Mitchell	A-9.4
Thorpe, Maxwell	F-8.3
Tian, Yu	C-7.1
Tinston, Michael	G-2.4
Todisco, Vittorio	A-4.1
Toghani, Mohammad Taha	D-2.4
Tölli, Antti	B-3.1
Tölli, Antti	B-12.1
Topcu, Ufuk	E-3.3
Tran, Trac	E-8.1
Tran, Trac	E-12.2
Tretiakov, Sergei	B-5.1
Tripathi, Shuchi	B-10.4
Tufvesson, Fredrik	A-4.3
Tufvesson, Fredrik	B-2.2
Tuğfe Demir, Özlem	C-2.2
Tugnait, Jitendra	D-14.3
Tugnait, Jitendra	C-4.3
Tumblin, Jack	F-3.3
Tung, Tze-Yang	A-5.1
Turan, Nurettin	B-4.4
Turunen, Matias	A-12.2
Tyagi, Hemant	E-6.3
Tzabari, Masada	H-1.4
Ugurbil, Kamil	F-4.3
Unnikrishnan, Vishnu	G-5.1
Uppal, Ahsen	A-9.3
Uribe, Cesar A	D-2.4
Usevich, Konstantin	D-1.2
Usevich, Konstantin	E-16.1
Usman, Muhammad	G-4.1
Utkovski, Zoran	B-7.2
Utkur, Mustafa	F-10.3
Utschick, Wolfgang	B-4.4
Uusitalo, Mikko	A-10.4
Va, Vutha	A-6.2
Vágó, Zsuzsanna	F-1.2
Vaidya, Umesh	D-13.1
Vaidyanathan, P. P.	D-15.1
Vaidyanathan, P. P.	E-7.4
Vaidyanathan, P. P.	E-12.3
Vaidyanathan, P. P.	E-14.1
Valkama, Mikko	A-10.4

NAME	SESSION
Valkama, Mikko	A-12.2
Valkama, Mikko	G-3.4
Valkama, Mikko	G-5.1
Van De Ville, Dimitri	C-6.1
van den Ende, Martijn	E-11.3
Van der Perre, Liesbet	B-6.4
Van der Perre, Liesbet	G-9.4
van Leeuwen, Tristan	E-10.4
Varshney, Lav R.	C-7.2
VARSHNEY, PRAMOD K.	C-1.5
Veeravalli, Venugopal	D-2.1
Velez-Cruz, Nayely	F-2.2
Vendrow, Joshua	D-4.1
Verma, Gunjan	C-2.4
Vetterli, Martin	E-5.2
Viik, Jari	F-1.3
Villamil, Andres	A-4.4
Vizioli, Luca	F-4.3
Vlaski, Stefan	C-4.1
Vosoughi, Azadeh	C-5.3
Vural, Metin	C-1.2
Wadaskar, Aditya	B-2.3
Wakin, Michael	D-10.3
Walton, Marc	F-3.3
Wang, Baoyun	C-2.1
Wang, Bin	B-4.3
Wang, Chuntian	D-4.4
Wang, Feiyu	E-14.2
Wang, Jianyu	C-3.1
Wang, Jionghui	B-4.3
Wang, Kezhi	A-13.2
Wang, Liming	H-3.2
Wang, Liuhang	C-2.1
Wang, Ren	E-15.2
Wang, Rui	B-1.2
Wang, Xinghan	D-8.5
Wang, Yong	E-15.4
Ward, James	E-9.1
Wei, Quan	D-13.4
Werner, Stefan	C-8.1
Werner, Stefan	D-9.2
Werner, Stefan	C-11.2
Wetzstein, Gordon	D-16.1
Wharton, Michael	D-7.3
Wielandner, Lukas	D-5.1
Wielandt, Stijn	G-9.2
Wierman, Adam	C-9.1
Wiffen, Fred	B-3.3
Willomitzer, Florian	F-3.3
Willstatter, Kyle	A-8.2
Win, Moe Z.	B-6.2
Wirsing, Markus	B-1.4
Witrisal, Klaus	D-5.1
Wohlberg, Brendt	E-10.3
Wohlberg, Brendt	H-5.1
Woo, Hyun-Myung	D-11.1
Wu, Linlong	E-4.5
Xhonneux, Mathieu	A-7.2
Xia, Qing	A-1.1
Xie, Yao	C-7.3
Xie, Youye	D-10.3
Xin, Liangxiao	A-1.1
Xing, Lei	F-2.3
Xing, Xiuhua	D-17.5
Xu, Bingjie	F-3.3
Xu, Chunlei	H-2.3
Xu, Dongfang	B-5.4
Xu, Guixian	G-5.1
Xu, Jiaqi	A-13.4
Xu, Kejie	H-4.4
Xu, Tengyu	D-19.4
Xu, Wen	B-4.4
Xu, Xiaojian	E-10.3
Xu, Xiaojian	F-10.2
Xu, Zhe	E-15.2
Xu, Zheng	C-3.1
Yablonskiy, Dmitriy	F-10.2
Yacoub, Essa	F-4.3
Yamada, Isao	D-4.2
Yaman, Burhaneddin	F-10.1
Yaman, Burhaneddin	F-4.2
Yaman, Burhaneddin	F-4.3
Yan, Han	B-2.3
Yang, Jie	D-17.4
Yang, Shihao	C-7.3
Yang, Yong	F-2.3
Yang, Yung-Ching	F-3.2
Yang, Zhixiong	B-6.3
Yang, Zixiaofan	H-3.3
Yemini, Michal	A-2.1
Yener, Aylin	C-5.1
Yildirim, Ibrahim	A-13.3
Ying, Jiaxi	C-10.2
Ying, Zhinong	B-2.2
Yoon, Byung-Jun	D-11.1
You, Changsheng	B-5.2
Youngs, Peter	H-6.2
Yu, Shuhua	D-2.2

NAME	SESSION
Yu, Wei	B-7.1
Yu, Xianghao	B-5.4
Yuan, Bo	G-6.1
Yuan, Chun	C-1.2
Zaher, Mahmoud	C-2.2
Zander, Olof	B-2.2
Zappone, Alessio	A-13.1
Zavatone-Veth, Jacob	F-7.4
Zehni, Mona	D-16.2
Zehni, Mona	H-1.2
Zelasko, Piotr	H-3.4
Zelenbaba, Stefan	A-1.3
Zemen, Thomas	A-1.3
Zerguine, Azzedine	D-6.3
Zeulin, Nikita	C-2.3
Zhai, Qiuchen	H-5.1
Zhang, Bing	H-4.3
Zhang, Chi	F-10.1
Zhang, Chi	F-4.2
Zhang, Guoyang	E-12.4
Zhang, Haiyang	C-2.1
Zhang, Huanyu	E-4.5
Zhang, Jianzhong Charlie	A-6.2
Zhang, Junqing	G-3.4
Zhang, Kaiqing	D-19.3
Zhang, Linli	C-7.1
Zhang, Mengmeng	H-4.1
Zhang, Rui	B-5.2
Zhang, Wei	B-10.1
Zhang, Xiang	A-1.2
Zhang, Yi	D-4.2
Zhang, Yimin	E-7.1
Zhang, Yimin	E-7.2
Zhang, Yimin	E-7.3
Zhang, Yimin D.	D-7.1
Zhang, Yizi	C-6.3
Zhang, Yujia	D-13.4
Zhang, Yuxiang	H-4.1
Zhang, Zepeng	D-6.4
Zhang, Zhengwu	C-6.3
Zhao, Hui	A-2.2
Zhao, Yue	D-4.5
Zhao, Zhizhen	D-16.2
Zhao, Zhizhen	H-1.2
Zhao, Ziping	D-13.4
Zhao, Ziping	D-6.4
Zhao, Ziping	E-4.5
Zheng, Beixiong	B-5.2
Zheng, Hang	E-15.4
Zheng, Ke	H-4.3
Zheng, Yucheng	D-16.3
Zhong, Sichen	D-4.5
Zhong, Zhimeng	B-4.2
Zhou, Chengwei	E-15.4
Zhou, Gui	A-13.2
Zhou, Jinfang	E-15.4
Zhou, Nan	D-17.5
Zhou, Tongdi	E-14.4
Zhou, Yi	D-19.1
Zhou, Yi	D-8.3
Zhu, Shaotong	F-6.2
Zhu, Xiaodan	D-8.1
Zhu, Yu	D-15.4
Zniyed, Yassine	E-16.1
Zois, Daphney-Stavroula	D-13.3
Zois, Daphney-Stavroula	F-5.1
Zollweg, Joshua	H-5.5
Zoltowski, Carla B.	H-6.3
Zoltowski, Michael	E-2.1
Zoltowski, Michael D.	A-8.2
Zou, Shaofeng	D-19.4


Santa Cruz
To San Jose
1
156
101
Salinas
Pacific Grove
Monterey
Asilomar
68
68
Pebble Beach
Carmel
101
1
To Los Angeles

SS&C Conf. Corp.
P.O. Box 8236
Monterey, CA 93943