FORTY-SIXTH
ASILOMAR CONFERENCE ON
SIGNALS, SYSTEMS AND
COMPUTERS

November 4–7, 2012
Asilomar Hotel and
Conference Grounds

Technical Co-sponsor
Welcome from the General Chairman
Prof. Miloš Doroslovački
The George Washington University

Welcome to this unique conference. Many of us come here from year to year to be exposed to new ideas and to do brainstorming about them in an informal and relaxed way, surrounded by magnificent nature. To cite John Steinbeck, Nobel Prize laureate in literature and local to this part of California: “Ideas are like rabbits. You get a couple and learn how to handle them, and pretty soon you have a dozen.” I am sure that the conference will be stimulating for your future professional endeavors.

The biggest credit for the intellectual value of the conference goes to the Technical Program Chair Erik G. Larsson and his team, made of Technical Area Chairs and Session Chairs, as well as to all of you who contributed with papers. Erik and his team prepared an excellent program of 435 papers, including 171 invited, and a tutorial session. For their outstanding work in shaping the technical program I would like to thank Erik and the Technical Area Chairs: Henk Wymeersch, Gerald Matz, Vincent Poor, Erchin Serpedin, Marius Pesavento, Arye Nehorai, Joe Cavallaro, Ghassan AlRegib and Phil Schniter.

The student paper contest this year attracted 87 submissions out of which 9 were chosen for the final competition. The Student Paper Contest Chair Geert Leus and a panel of judges will select the best three papers after the finalists present their posters on Sunday afternoon. I invite you to attend these presentations and in that way to give support to our young colleagues who will one day build the future of science and technology.

I am looking forward to listening to the plenary talk by Prof. Richard Baraniuk from the Rice University. Rich is an extraordinary researcher, teacher and person. He has been for long time on the frontline of research in compressive sensing, one of the most popular and challenging topics at this conference for several years. I am thrilled, and I guess so are you, to hear from him the report on what has been happening, what is going on now and where to go further.

I wish you three exciting days full of nice talks and walks. I hope that the weather will serve us well and that we will have three beautiful sunsets over the Pacific Ocean.

Miloš Doroslovački, The George Washington University, June 2012
2012 Asilomar Conference
March 11-13, 2012
Asilomar State Beach Conference Center
Paciﬁc Grove, California

Conference Steering Committee

PROF. MONIQUE P. FARGUES
Acting Chair & Conference Coordinator
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437, Code EC/Fa
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. SHERIFF MICHAEL
Secretary
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437, Code EC/Mi
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. FRANK KRAGH
Treasurer
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437, Code EC/Kr
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. SCOTT ACTON
Dept. Electrical & Computer Engineering
University of Virginia
P.O. Box 400743
Charlottesville, VA 22904-4743

PROF. MAITE BRANDT-PEARCE
Electrical & Computer Eng. Dept.
351 McCormick Road
Charlottesville, VA 22904
Mb-p@virginia.edu

PROF. VICTOR E. DEBRUNNER
Dept. of Electrical & Computer Engineering
Florida State University
2525 Pottsdamer Street
Tallahassee, FL 32310-6046

PROF. MILOS ERCEGOVAC
Computer Science Department
University of California, Los Angeles
Los Angeles, CA 90095

PROF. BENJAMIN FRIEDLANDER
University of California, Santa Cruz
Santa Cruz, CA 95064

PROF. frederic j. harris
Dept. of Electrical Engineering
San Diego State University
San Diego, CA 92182

DR. MICHAEL B. MATTHEWS,
PUBLICATIONS CHAIR
ATK Space Systems
10 Ragsdale Drive, Suite 201
Monterey, CA 93940

PROF. LINDA DEBRUNNER
Publicity Chair
Dept. of Electrical & Computer Eng.
Florida State University
2525 Pottsdamer Street
Tallahassee, FL 32310-6046

RALPH D. HIPPENSTIEL
Private Consultant
rhippenstiel@yahoo.com

PROF. W. KENNETH JENKINS
Head of Electrical Engineering
The Pennsylvania State University
129 Electrical Engineering East
University Park, PA 16802-2705

PROF. JAMES A. RITCEY
Dept. of Electrical Engineering
Box 352500, FT-10
University of Washington
Seattle, WA 98195

PROF. MICHAEL SCHULTE
Advanced Micro Devices
11400 Cherisse Drive
Austin, TX 78739
Michael.schulte@amd.com

PROF. EARL E. SWARTZLANDER, JR.
Dept. of Electrical & Computer Eng.
University of Texas at Austin
Austin, TX 78712

PROF. KEITH A. TEAGUE
Chair, School of Electrical & Computer Eng.
202 Engineering South
Oklahoma State University
Stillwater, OK 74078-5032

DR. JAMES SCHROEDER
General Program Chair (ex officio)
Year 2011
Harris Government Comm Systems
Cover Technology Center
MS 1-11B, P.O. Box 0017
Melbourne, FL 32903-0017
Jim.schroeder@harris.com

2012 Asilomar Technical Program Committee

Technical Chair
Prof. Erik G. Larsson
Linköping University

2012 Asilomar
Technical Program Committee Members

A. Communications Systems
Prof. Henk Wymeersch
Chalmers University, Sweden
Email: henkw@chalmers.se

B. MIMO Communications and Signal Processing
Prof. Gerald Matz
TU Vienna, Austria
Email: gerald.matz@nt.tuwien.ac.at

C. Networks
Prof. Vincent Poor
Princeton University
Email: poor@princeton.edu

D. Signal Processing and Adaptive Systems
Prof. Erchin Serpedin
Texas A&M University
Email: serpedin@ece.tamu.edu

E. Array Signal Processing
Prof. Marius Pesavento
TU Darmstadt, Germany
Email: marius.pesavento@nt.tudarmstadt.de

F. Biomedical Signal and Image Processing
Prof. Arye Nehorai
Washington University at St. Louis
Email: nehorai@ese.wustl.edu

G. Architecture and Implementation
Prof. Joe Cavallaro
Rice University
Email: cavallar@rice.edu

H. Speech, Image and Video Processing
Prof. Ghassan AlRegib
Georgia Institute of Technology
Email: alregib@gatech.edu

Student Paper Contest Chair
Prof. Geert Leus
Delft University of Technology
Email: g.j.t.leus@tudelft.nl

Vice Track Chair
Prof. Phil Schniter
Ohio State University
Email: schniter@ece.osu.edu
2012 Asilomar Conference Session Schedule

Sunday Afternoon, November 4, 2012
2:00 - 7:00 PM Registration — Main Lodge
4:00 - 6:30 PM Student Paper Contest — Merrill Hall
7:00 - 9:00 PM Welcoming Dessert Reception — Merrill Hall

Monday Morning, November 5, 2012
7:30 - 9:00 AM Breakfast – Crocker Dining Hall
8:00 AM - 6:00 PM Registration
8:15 - 9:45 AM MA1a — Conference Welcome and Plenary Session
9:45 - 12:00 PM MORNING SESSIONS
MA1b Graphical Models in Signal Processing
MA2b Threshold Limits in Array Processing: Performance Analysis and Methods
MA3b Full-Duplex MIMO Communications
MA4b Green Radio
MA5b Voice Coding
MA6b DSP Architecture for Wireless Communications
MA7b Brain Dynamics: Improving Spatial and Temporal Resolution
MA8b1 Communication Systems I (Poster)
MA8b2 Array Signal Processing I (Poster)
12:00 - 1:00 PM Lunch – Crocker Dining Hall

Monday Afternoon, November 5, 2012
1:30 - 5:10 PM AFTERNOON SESSIONS
MP1a Compressive Sensing
MP1b Signal Processing and Learning in Complex Systems
MP2a Source Localization in Distributed Sensor Arrays
MP2b Network Beamforming
MP3a Large-Scale MIMO Systems
MP3b Coordinated Multi-point
MP4a Cognitive Radio Networks
MP4b Machine-to-Machine Communications and Networks
MP5a Image and Video Coding
MP5b Convex Optimization in Image and Video Analysis
MP6a Computer Arithmetic
MP6b Reconfigurable Architectures, Many-Core, Multi-Core, and SoC
MP7a Medical Image Analysis
MP7b Biological Modeling and Signal Analysis
MP8a1 MIMO Communications and Signal Processing I (Poster)
MP8a2 Signal Processing and Adaptive Systems I (Poster)

Monday Evening, November 5, 2012
6:00 - 9:30 PM Conference Cocktail/Social — Merrill Hall
The Cocktail/Social takes the place of Monday’s dinner. No charge for conference attendees or their guests.

Tuesday Morning, November 6, 2012
7:30 - 9:00 AM Breakfast — Crocker Dining Hall
8:00 AM - 5:00 PM Registration
8:15 - 12:00 PM MORNING SESSIONS
TA1a MIMO in Optical Communications
TA1b Wireless Video Transmission Systems
TA2a Game Theory in Communications
TA2b Coding Theory for the Next-Generation Storage Systems
TA3a Multiuser and Massive MIMO
TA3b Compressive Estimation
TA4a Social Networks
TA4b Signal Processing for Cyber-Security and Privacy in Networks
TA5a 3D Video Processing
TA5b Computer Arithmetic Accelerators for Signal Processing
TA6a Low Power I
TA6b Low Power II
TA7a Biological Networks and Machine Learning
TA7b Sequence and Genome Analysis
TA8a1 Array Signal Processing II (Poster)
TA8a2 Signal Processing and Adaptive Systems II (Poster)
TA8b1 Communication Systems II (Poster)
TA8b2 MIMO Communications and Signal Processing II (Poster)
TA8b3 Architecture and Implementation of Signal Processing Systems (Poster)
12:00 - 1:00 PM Lunch – Crocker Dining Hall

Tuesday Afternoon, November 6, 2012
1:30 - 5:35 PM AFTERNOON SESSIONS
TP1a Network Optimization
TP1b Distributed Signal Processing
TP2a Consensus Based Algorithms
TP2b Cooperative Adaptation and Learning
TP3a Information Theoretic Signal Processing
TP3b Underwater Communications
TP4a Decoding and Detection
TP4b Smart Grid Communications and Networks
TP5a Design Methodologies and Architectures for Communications
TP5b Interference Alignment
TP6a Wireless Full Duplex
TP6b Biological Image Analysis
TP7a MIMO Radar and Waveform Design
TP7b Speech Processing and Speech Recognition
TP8a1 Relay Networks (Poster)
TP8a2 Sensor and Interference Networks (Poster)
TP8a3 Design Methodology and Computer Arithmetic (Poster)
TP8b1 Speech, Image, and Video Processing (Poster)
TP8b2 Biomedical Signal and Image Processing (Poster)

Tuesday Evening  Open Evening — Enjoy the Monterey Peninsula
2012 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 7, 2012

7:30 - 9:00 AM  Breakfast — Crocker Dining Hall
8:00 AM - 12:00 PM Registration — Copyright forms must be turned in before the registration closes at 12:00 noon.

8:15 AM - 12:00 PM  MORNING SESSIONS
WA1a  Feedback and Cooperation
WA1b  Security
WA2a  Distributed Algorithms for Wireless Networks
WA2b  Topics in Wireless Networking
WA3a  Adaptive Signal Processing
WA3b  Compressive Signal Processing
WA4a  Interference and Cognition
WA4b  OFDM(A)
WA5a  Applications of Video Processing
WA5b  Image and Video Classification
WA6a  CSI Feedback
WA6b  Beamforming and Relaying
WA7a  Applications of Sensor Array Processing
WA7b  DOA Estimation
WA8  Tutorial – Coding Methods for Emerging Storage Systems

12:00 - 1:00 PM  Lunch — Meal tickets may be purchased at registration desk. This meal is not included in the registration.

WA8 - TUTORIAL

Coding Methods for Emerging Storage Systems – Prof. Lara Dolecek and Prof. Anxiao (Andrew) Jiang

Abstract - Recent surge in large-scale data storage systems has created an immediate need to develop new coding methodologies attuned to the physical properties of the emerging non-volatile memory technologies. In this tutorial, we will first discuss new channel models for these technologies and demonstrate why the existing coding methods are increasingly inadequate. We will then survey recently proposed error correcting codes, modulation schemes and rewriting codes, all designed to meet the physical characteristics of the non-volatile memories while ensuring maximum lifetime and reliability. The tutorial will conclude with a discussion of several open problems in this area.

Bio: Prof. Lara Dolecek is an assistant professor in the Electrical Engineering Department at UCLA where she heads the Laboratory for Robust Information Systems. She received NSF CAREER Award in 2012, Hellman Fellow award in 2011, and David J. Sakrison Award from the EECS Department at UC Berkeley in 2007. Prof. Anxiao (Andrew) Jiang is an associate professor in Computer Science and Engineering Department of TAMU. He received NSF CAREER Award in 2008 and the 2009 IEEE Communications Society Best Paper Award in Signal Processing and Coding for Data Storage.
Coffee breaks will be at 9:55 AM and 3:10 PM. (Except Monday morning when refreshments will be served outside Merrill Hall from 9:45–10:15 AM)

Monday, November 5, 2012

CONFERENCE WELCOME AND PLENARY SESSION 8:15 – 9:45 AM

1. Welcome from the General Chairperson

   **Prof. Miloš Doroslovački**  
The George Washington University

2. Session MA1a   Distinguished Lecture for the 2012 Asilomar Conference

   **Compressive Sensing: 8 Years After**

   **Prof. Richard G. Baraniuk**  
   Victor E. Cameron Professor  
   Rice University

**Abstract**

Sensing and imaging systems are under increasing pressure to accommodate ever larger and higher-dimensional data sets; ever faster capture, sampling, and processing rates; ever lower power consumption; communication over ever more difficult channels; and radically new sensing modalities. Since its discovery in 2004, compressive sensing (CS) has stimulated a re-thinking of sensor and signal processing system design. In CS, analog signals are digitized and processed not via uniform sampling but via measurements using more general, even random, test functions. In contrast with conventional wisdom, the new theory asserts that one can combine “sub-Nyquist-rate sampling” with large-scale optimization for efficient and accurate signal acquisition when the signal has a sparse structure. In this talk, we will review the progress in field over the last eight years, with a special emphasis on the pros and cons of the technique.
Program of the
2012 Asilomar Conference on
Signals, Systems, and Computers

Technical Program Chairman
Prof. Erik G. Larsson
Linköping University
Session MA1b  Graphical Models in Signal Processing
Chair: Lorenzo Vangelista, University of Padova

MA1b-1  Approximate Message Passing for Spectral Estimation: A Solution to the Gridding Problem? 10:15 AM
Philip Schniter, Ohio State University; Christian Austin, MIT Lincoln Laboratory; Jason Parker, Air Force Research Laboratory

MA1b-2  Local Consensus Estimators for Distributed Learning of Graphical Models 10:40 AM
Qiang Liu, Alexander Ihler, University of California, Irvine

MA1b-3  Sparse Covariance Selection with Edge Restrictions 11:05 AM
Anastasios Kyrillidis, Volkan Cevher, École Polytechnique Fédérale de Lausanne

MA1b-4  Learning Graphical Models for Dynamical Processes 11:30 AM
Andrea Montanari, Jose Bento, Morteza Ibrahimi, Stanford University

Session MA2b  Threshold Limits in Array Processing: Performance Analysis and Methods
Chair: Mohammed Nabil El Korso, TU Darmstadt

MA2b-1  Threshold Performance for Conditional and Unconditional Direction-of-Arrival Estimation 10:15 AM
Yuri I. Abramovich, Defence Science and Technology Organisation; Ben A. Johnson, Lockheed Martin Australia and ITR

MA2b-2  Aspects of Threshold Region Mean-Squared Error Prediction: Method of Interval Errors, Bounds, Taylor’s, and Extensions 10:40 AM
Christ D. Richmond, Larry L. Horowitz, MIT Lincoln Laboratory

MA2b-3  Lower Bounds on the MSE for Mixed Far-Field and Near-Field Sources Direction-of-Arrivals 11:05 AM
Alexandre Renaux, Remy Boyer, Paris XI Univ.; Sylvie Marcos, CNRS

MA2b-4  On the Resolvability of Closely Spaced Targets Using a MIMO Radar 11:30 AM
Mohammed Nabil El Korso, Technische Universität Darmstadt; Frédéric Pascal, Supélec / SONDRA; Marius Pesavento, Technische Universität Darmstadt

Session MA3b  Full-Duplex MIMO Communications
Chair: Dan Bliss, MIT Lincoln Laboratory

MA3b-1  Phase Noise: Understanding the Bottleneck in Full-duplex Designs 10:15 AM
Achaleshwar Sahai, Gaurav Patel, Ashutosh Sabharwal, Rice University

MA3b-2  Hardware and Environmental Phenomenological Limits on Full-Duplex MIMO Relay Performance 10:40 AM
Daniel Bliss, Timothy Hancock, Massachusetts Institute of Technology; Phil Schniter, Ohio State University

MA3b-3  Open Problems in Full Duplex Wireless 11:05 AM
Phil Levis, Stanford University

MA3b-4  Analog and Digital Self-Interference Cancellation in Full-Duplex MIMO-OFDM Transceivers with Limited Resolution in A/D Conversion 11:30 AM
Taneli Riihonen, Aalto University

Session MA4b  Green Radio
Co-Chairs: Cristina Comaniciu, Stevens Institute of Technology and Aylin Yener, Penn State University

MA4b-1  On Energy Harvesting Multi-User Networks with Energy Storage Imperfections 10:15 AM
Kaya Tutuncuoglu, Aylin Yener, Penn State

MA4b-2  Information-Theoretically Achievable Rates in an Energy Harvesting Broadcast Channel 10:40 AM
Omur Ozel, Sennur Ulukus, University of Maryland

MA4b-3  Throughput and Energy Efficiency under Queueing and Secrecy Constraints 11:05 AM
Mustafa Cenk Gursoy, Mustafa Ozmen, Syracuse University

MA4b-4  Non-Invasive Green Small Cell Network 11:30 AM
Baher Mawlawi, Ejder Bastug, Chahé Nerguizian, Sylvain Azarian, Mérouane Debbah, Supelec

Session MA5b  Voice Coding
Chair: Jerry D. Gibson, University of California, Santa Barbara

MA5b-1  Scalable Wideband Speech Coding for IP Networks 10:15 AM
Koji Seto, Tokunbo Ogunfunmi, Santa Clara University

MA5b-2  Multimode Tree Coding of Speech with Backward Pitch Prediction and Perceptual Pre- and Post-weighting 10:40 AM
Ying-Yi Li, Jerry Gibson, University of California, Santa Barbara

MA5b-3  Source Models and Rate Distortion Bounds for Speech 11:05 AM
Jerry Gibson, University of California, Santa Barbara
Session MA6b  DSP Architecture for Wireless Communications
Chair: Ahmed Eltawil, University of California, Irvine

MA6b-1 Verifying Equivalence of Digital Signal Processing Circuits
10:15 AM
Keshab Parhi, University of Minnesota

MA6b-2 Implementation of a Real-Time Wireless Interference Alignment Network
10:40 AM
Jackson Massey, Jonathan Starr, Andreas Gerslauer, Robert Heath, University of Texas at Austin

MA6b-3 ΣΔ Modulators for Low-power Digitally Intensive Radio Transmitters.
11:05 AM
Rashmi Nanda, Dejan Markovic, University of California, Los Angeles

MA6b-4 A Sphere Decoding Approach for The Viterbi Algorithm
11:30 AM
Peter Kairouz, Aolin Xu, Naresh Shanbhag, Andrew Singer, University of Illinois, Urbana-Champaign

Session MA7b  Brain Dynamics: Improving Spatial and Temporal Resolution
Chair: Hubert Preissl, University of Tübingen

MA7b-1 Signal Artefacts in Functional MRI Studies of the Unsedated Human Fetal Brain In-Utero
10:15 AM
Colin Studholm, University of Washington

MA7b-2 New Perspectives in MEG Functional Connectivity
10:40 AM
Paolo Belardinelli, University of Tübingen

MA7b-3 Inferring Biological Network Connectivity Using a Novel Phase Synchronization Technique
11:05 AM
Rathinaswamy Govindan, Children’s National Medical Center; Jan Raethjen, University of Kiel; Adre du Plessis, Children’s National Medical Center

MA7b-4 Spatio-temporal Dynamics in Movement Control: New Vistas for Closed-loop Decoding Using MEG
11:30 AM
Matthias Witte, University of Graz

Session MA8b1  Communication Systems I
Chair: David Browne, MIT Lincoln Laboratory
10:15 AM - 12:00 PM

MA8b1-1 Optimum Training for CSI Acquisition in Cognitive Radio Channels
10:15 AM
Alberto Rico-Alvariño, Carlos Mosquera, Universidad de Vigo
Session MA8b1 Frequency-Selective I/Q Imbalance Compensation for OFDM Receivers Using Decision-Feedback Adaptive Filtering
R. Keith McPherson, Jim Schroeder, Harris Corporation

Session MA8b1 Non-data Aided Symbol and Carrier Synchronization via Band-Edge Filters
Xiaofei Chen, Elettra Venosa, Fredric Harris, San Diego State University; Chris Dick, Xilinx Corp.

Session MA8b1 Coded QPSK Using Balanced Incomplete Block Design
Mohammad Noshad, Maite Brandt-Pearce, University of Virginia

Session MA8b2 Array Signal Processing I
Chair: Marius Pesavento, TU Darmstadt

10:15 AM - 12:00 PM

MA8b2-1 Passive Radar Signal Processing in Single Frequency Networks
Konstanty Bialkowski, I. Vaughan Clarkson, University of Queensland

MA8b2-2 Direct Passive Geolocation under Propagation Speed Uncertainty
Guy Liron, RAFAEL Advanced Defense Systems; Anthony J. Weiss, Tel Aviv University; Alon Amar, RAFAEL Advanced Defense Systems

MA8b2-3 How to Design a Delay-and-Sum Beamformer for Rigid Rotationally Symmetric Arrays?
Karim Helwani, Sascha Spors, Telekom Innovation Laboratories, Technische Universität Berlin; Herbert Buchner, Technische Universität Berlin

MA8b2-4 Optimal Diagonal Loading for Spatial Spectrum Estimation in the Snapshot Deficient Regime
Milutin Pajovic, Massachusetts Institute of Technology/ Woods Hole Oceanographic Institution; James Preisig, Woods Hole Oceanographic Institution; Arthur Baggeroer, Massachusetts Institute of Technology

MA8b2-5 2D DOA Estimation of Multiple Coherent Sources Using a New Antenna Array Configuration
Nizar Tayem, Prince Mohammad Bin Fahd University

MA8b2-6 Performance Analysis on Synthetic Aperture Radar-based Vibration Estimation in Clutter
Qi Wang, Balu Santhanam, Matthew Pepin, Majeed Hayat, University of New Mexico

MA8b2-7 Search Methods for Determining Direction of Arrival Acoustically
David Grasing, Sean Schumer, Anthony Rotolo, US Army

MA8b2-8 Implementation and Demonstration of Receiver-Coordinated Distributed Transmit Beamforming across an Ad-Hoc Radio Network
Pat Bidigare, Miguel Oyarzun, David Raeman, Dave Cousins, Dan Chang, Rich O'Donnell, Raytheon BBN Technologies; Rick Brown, Worcester Polytechnic Institute

Session MP1a Compressive Sensing
Chair: Christoph Studer, Rice University

1:30 PM

MP1a-1 Effect of Spatial Coupling and Bayesian Priors on Compressive Sensing Performance
Arian Maleki, Christoph Studer, Jianing Shi, Richard Baraniuk, Rice University

MP1a-2 Structured Signal Recovery from Single-Bit Measurements
Yaniv Plan, University of Michigan

MP1a-3 CoSAMP with Redundant Dictionaries
Mark Davenport, Stanford University; Deanna Needell, Claremont McKenna College; Michael Wakin, Colorado School of Mines

MP1a-4 Compressed Sensing with Radar Applications
Max Hugel, Holger Rauhut, University of Bonn; Thomas Strohmer, University of California, Davis

Session MP1b Signal Processing and Learning in Complex Systems
Chair: Michael Rabbat, McGill University

1:30 PM

MP1b-1 Dynamics of Social Connections
Lin Li, Anna Scaglione, University of California, Davis
Session MP1b Dynamic Games with Side Information in Economic Networks
Ceyhun Eksin, Pooya Molavi, Alejandro Ribeiro, University of Pennsylvania

Session MP1b Adaptive Decision-Making over Complex Networks
Sheng-Yuan Tu, Ali Sayed, University of California, Los Angeles

Session MP1b A Factor Graph Approach to Diffusion Adaptive Filtering Methods
Andrew Bean, Thomas Riedl, Andrew Singer, University of Illinois, Urbana-Champaign

Session MP2a Source Localization in Distributed Sensor Arrays
Chair: Christoph Mecklenbräuker, TU Vienna

MP2a-1 Convergence Analysis of Distributed PAST Based on Consensus Propagation
Carolina del Socorro Reyes Membreno, Markus Rupp, Vienna University of Technology

MP2a-2 Localization of Acoustic Sources Utilizing a Decentralized Particle Filter
Florian Xaver, Gerald Matz, Vienna University of Technology; Peter Gerstoft, University of California, San Diego; Norbert Görtz, Vienna University of Technology

MP2a-3 Bayesian Sparse Sensing of the Japanese 2011 Earthquake
Peter Gerstoft, University of California, San Diego; Christoph Mecklenbräuker, Vienna University of Technology

MP2a-4 Distributed Source Localization in Subarray Sensor Networks,
Christian Steffens, Michael Rübsamen, Marius Pesavento, Technische Universität Darmstadt

Session MP2b Network Beamforming
Chair: Shahram Shahbazpanahi, University of Ontario Institute of Technology

MP2b-1 Distributed Beamforming in Coarsely Synchronized Relay Networks
Adrian Schad, Technische Universität Darmstadt; Babak Khalaj, Sharif University of Technology; Marius Pesavento, Technische Universität Darmstadt

MP2b-2 Distributed Beamforming for Two-Way Relaying Networks with Individual Power Constraints
Jianshu Zhang, Florian Römer, Martin Haardt, Technische Universität Ilmenau

MP2b-3 Beamforming Design for Two-Way Relay Networks Under Per-Node Power Constraint
Shahram ShahbazPanahi, University of Ontario; Yindi Jing, University of Alberta

Session MP3a Large-Scale MIMO Systems
Co-Chairs: Tom Marzetta, Alcatel-Lucent/Bell-Labs and Saif K. Mohammed, Linköping University

MP3a-1 On the Energy Efficiency/Spectral Efficiency Tradeoff in OFDMs Systems with Large Numbers of Base Station Antennas
Derrick Wing Kwan Ng, Robert Schober, University of British Columbia

MP3a-2 On Coherent Combining of Distributed Observations
Jakob Hoydis, Supelec; Thorsten Wild, Stephan ten Brink, Bell Laboratories, Alcatel-Lucent; Mérouane Debbah, Supelec

MP3a-3 Measured Propagation Characteristics for Very Large MIMO at 2.6 GHz
Xiang Gao, Fredrik Tufvesson, Ove Edfors, Fredrik Rusek, Lund University

MP3a-4 Decentralized (Cell-Free) Large-Scale Antenna System
Alexei Ashikhmin, Thomas L Marzetta, Bell Laboratories; Hong Yang, Alcatel-Lucent

Session MP3b Coordinated Multipoint
Chair: Wing-Kin Ma, The Chinese University of Hong Kong

MP3b-1 A Decentralized Method for Joint Admission Control and Beamforming in Coordinated Multicell Downlink
Hoi-Toi Wai, Win-Kin Ma, Chinese University of Hong Kong

MP3b-2 Analyzing the IA Feasibility Problem via New Tools from Algebraic Geometry
Liangzhong (Steven) Ruan, Vincent Lau, Hong Kong University of Science and Technology

MP3b-3 Design of Coordinated Multi-Point (CoMP) Transmission and Reception Schemes for the 4G Cellular Downlink
Narayan Prasad, NEC Laboratories America, Inc.; Ali Tajer, Princeton University; Xiaodong Wang, Columbia University

MP3b-4 Joint Transceiver Design and Base Station Clustering for Heterogeneous Networks
Mingyi Hong, Meisam Razaviyayn, Ruo-Yu Sun, Zhi-Quan Luo, University of Minnesota
Session MP4a  Cognitive Radio Networks
Chair: Visa Koivunen, Aalto University
MP4a-1  Cooperative Compressive Wideband Power Spectrum Sensing
Dyonisius Dony Ariananda, Geert Leus, Delft University of Technology
MP4a-2  On Hybrid Cooperation in Underlay Cognitive Radio Networks
Nurul Huda Mahmood, Norwegian University of Science and Technology; Ferkan Yilmaz, King Abdullah University of Science and Technology; Geir Egil Øien, Norwegian University of Science and Technology; Mohamed-Slim Alouini, King Abdullah University of Science and Technology
MP4a-3  Sequential Good Channel Search for Multi-channel Cognitive Radio
Raied Caromi, Seshadri Mohan, University of Arkansas, Little Rock; Lifeng Lai, Worcester Polytechnic Institute
MP4a-4  A Sensing Policy Based on Confidence Bounds and a Restless Multi-armed Bandit Model
Jan Oksanen, Visa Koivunen, Aalto University; H. Vincent Poor, Princeton University

Session MP4b  Machine-to-Machine Communications and Networks
Chair: KC Chen, National Taiwan University
MP4b-1  Not Every Bit Counts: Shifting the Focus from Machine to Data for Machine-to-Machine Communications
Chih-Hua Chang, Hung-Yun Hsieh, Hsuan-Jung Su, National Taiwan University
MP4b-2  Exploring Utility-based Optimization and Management for Wireless Sensor Networks and Machine-to-Machine Communications
Petri Mähönen, Janne Riihijarvi, RWTH Aachen University
MP4b-3  Controlling Access Overload and Signaling Congestion in M2M Networks
Rath Yannithamby, Intel Corporation
MP4b-4  Dynamic Spectrum Allocation under Cognitive Cellular Network for M2M Applications
Qing Wang, IBM Research China; Bongjun Ko, IBM T. J. Watson Research Laboratory; Kwang-Cheng Chen, National Taiwan University; Junsong Wang, IBM Research China; Ting He, IBM T. J. Watson Research Laboratory; Yonghua Lin, IBM Research China; Kang-won Lee, IBM T. J. Watson Research Laboratory

Session MP5a  Image and Video Coding
Chair: Marios Pattichis, University of New Mexico
MP5a-1  Dynamically Reconfigurable AVC Deblocking Filter with Power and Performance Constraints
Yuebing Jiang, Marios Pattichis, University of New Mexico
MP5a-2  On the Use of Image Quality Estimators for Improved JPEG2000 Coding
Thien Phan, Phong Vu, Damon Chandler, Oklahoma State University
MP5a-3  Blind Quality Assessment of Videos Using a Model of Natural Scene Statistics and Motion Coherency
Michele Saad, Al Bovik, University of Texas at Austin
MP5a-4  The Emerging High Efficiency Video Coding Standard for Developing Wireless Ultrasound Video Telemedicine Systems
Andreas Panayides, Zinon Antoniou, University of Cyprus; Marios Pattichis, University of New Mexico; Constantinos Pattichis, University of Cyprus

Session MP5b  Convex Optimization in Image and Video Analysis
Chair: Vishal Monga, Penn State University
MP5b-1  Compressive Sensing and Sparse Array Processing
P. P. Vaidyanathan, California Institute of Technology
MP5b-2  Single-Image Super-Resolution Using Multihypothesis Prediction
Chen Chen, James Fowler, Mississippi State University
MP5b-3  L-infinity Regularized Models for Segmentation, Cartoon-Texture Decomposition, and Image Restoration
Hayden Schaeffer, Luminita Vese, University of California, Los Angeles
MP5b-4  Implicit Gibbs Prior Models for Tomographic Reconstruction
Pengchong Jin, Eri Haneda, Charles Bouman, Purdue University

Session MP6a  Computer Arithmetic
Chair: Michael Schulte, AMD Research and University of Wisconsin
MP6a-1  Shared Implementation of Radix-10 and Radix-16 Square Root Algorithm with Limited Precision Primitives
Milos D. Ercegovac, University of California, Los Angeles; Robert McIlhenny, California State University Northridge
MP6a-2  Decimal On-line Multioperand Addition
Carlos Garcia-Vega, Sonia Gonzalez-Navarro, Julio Villalba, Emilio L. Zapata, University of Malaga
Session MP6a
Variable-Accuracy Multiplication Using Approximate Binary Logarithms and Parallel Error Correction
Michael Sullivan, Earl Swartzlander, University of Texas at Austin
MP6a-4 Experiments with Multiplier Reduction Trees
Neil Burgess, David Lutz, ARM

Session MP6b
Reconfigurable Architectures, Many-Core, Multi-Core, and SoC
Chair: Neil Burgess, ARM
MP6b-1 FPGA-based Processor Solution for Front-End Image Detection Applications
Colm Kelly, Thales Air Defence Limited; Roger Woods, Queen’s University Belfast
MP6b-2 Is There a Smarter Way to Use 100 Billion Transistors?
Muhammad Usman Khan, Francis Li, Ying Tiong, Michael Liebelt, Brian Ng, Braden Phillips, University of Adelaide
MP6b-3 Performance and Power Optimizations for Accelerated Processing Units
Michael Schulte, AMD
MP6b-4 Reliable Low Power Distributed Arithmetic Filters via N-modular Redundancy
Muhammad S. Khairy, AmirHossein Gholamipour, Fadi J. Kurdahi, Ahmed M. Eltawil, University of California, Irvine

Session MP7a
Medical Image Analysis
Chair: Alejandro F. Frangi, Alejandro F Frangi, University of Sheffield, Sheffield, UK; Universitat Pompeu Fabra, Barcelona, Spain
MP7a-1 4D Signal Processing for Spatio-Temporal Analysis of Longitudinal 3D Imagery
Guido Gerig, University of Utah
MP7a-2 Computational Diffusion MRI: On Some Recent Advances and Beyond
Rachid Deriche, INRIA Sophia Antipolis
MP7a-3 Analytics for Time-Varying Catheterization Imaging Data: A Probabilistic Approach
Ioannis Kakadiaris, University of Houston
MP7a-4 Estimating 3D Tongue Motion with MR Images
Fangxu Xing, Junghoon Lee, Johns Hopkins University; Emi Z. Murano, University of Maryland; Jonghye Woo, Johns Hopkins University; Maureen Stone, University of Maryland Dental School; Jerry Prince, Johns Hopkins University

Session MP7b
Biological Modeling and Signal Analysis
Chair: Scott T. Acton, University of Virginia
MP7b-1 Cell Mechanics Analysis by Physically-Constrained Optical Flow
Jean-Christophe Olivo-Marin, Timothee Lecomte, Alexandre Dufour, Nancy Guillen, Roman Thibeaux, Institut Pasteur
MP7b-2 Exploitation of Radar Doppler Signatures for Gait Analysis
Jennifer Palmer, Kristin Bing, Amy Sharma, Georgia Tech Research Institute
MP7b-3 A Third-Order Approximate Solution of the EEG Forward Problem in Four-Shell Ellipsoidal Geometry
D. Gutiérrez, M. Alcocer-Sosa, Center of Research and Advanced Studies
MP7b-4 Phase Congruency Singular Value Decomposition for Multi-Scale Neuron Enhancement
Emmanuel Denloye-Ito, Scott Acton, University of Virginia

Session MP8a1
MIMO Communications and Signal Processing I
Chair: Andreas Burg, Ecole Polytechnique Federale de Lausanne (EPFL)
MP8a1-1 Low-Complexity Vector Precoding for Multi-user Systems
Maitane Barrenechea, University of Mondragon; Andreas Burg, École Polytechnique Fédérale de Lausanne; Mikel Mendicute, University of Mondragon
MP8a1-2 Non-Binary Coded Modulation and Iterative Detection for High Spectral Efficiency in MIMO Systems
Nicholas Chang, Davir Romero, MIT Lincoln Laboratory
MP8a1-3 Low-Complexity Lattice Reduction-Aided Channel Inversion Methods for Large Multi-User MIMO Systems
Keke Zu, Rodrigo C. de Lamare, University of York; Martin Haardt, Ilmenau University of Technology
MP8a1-4 Multiuser Detection Performance in Multibeam Satellite Links under Imperfect CSI
Jesús Arnau, Carlos Mosquera, University of Vigo
MP8a1-5 On Convergence Constraint Precoder Design for Iterative Frequency Domain Multiuser SISO Detector
Valtteri Tervo, Antti Tölli, University of Oulu; Juha Karjalainen, Renesas Mobile Europe Oy; Tad Matsumoto, Japan Advanced Institute of Science and Technology
MP8a1-6 Grassmannian Packings from Orbits of Projective Group Representations
Renaud-Alexandre Pitaval, Olav Tirkkonen, Aalto University
Volume of Ball and Hamming-type Bounds for Stiefel Manifold with Euclidean Distance
Renaud-Alexandre Pitaval, Olav Tirkkonen, Aalto University

Distributed Resource Allocation for MISO Downlink Systems via the Alternating Direction Method of Multipliers
Satya Joshi, Marian Codreanu, Matti Latva-aho, Centre for Wireless Communications

Max-Rate MIMO Broadcast DFE Transceiver Design under Power and SER Constraints
Chih-Hao Liu, P. P. Vaidyanathan, California Institute of Technology

Performance of Asymmetric Antenna Configurations in Polarized Channels
Robert Severinghaus, Murali Tummala, John McEachen, Naval Postgraduate School

On Robust Training Sequence Design for Correlated MIMO Channel Estimation
Nafiseh Shariati, KTH Royal Institute of Technology; Jiaheng Wang, Southeast University; Mats Bengtsson, KTH Royal Institute of Technology

The Proportional Fair Sharing Algorithm under i.i.d. Models
Matthew Pugh, University of California, San Diego

Session MP8a2  Signal Processing and Adaptive Systems I
Chair: Lu Chun-Shien, Institute of Information Science, Academia Sinica

1:30 PM - 3:10 PM

Fast Compressed Image Sensing Based on Sampling Matrix Design
Chun-Shien Lu, Hung-Wei Chen, Sung-Hsien Hsieh, Academia Sinica

Particle Filtering for Multivariate State-Space Models
Petar M Djuric, Monica F. Bugallo, Stony Brook University

Extracting Atmospheric Profiles from Hyperspectral Data with Particle Filters
Dustin Rawlings, Jacob Gunther, Todd Moon, Utah State University

Using Dictionary Learning for Improving Hyperspectral Pixel Classification
Andrew Pound, Jacob Gunther, Todd K. Moon, Utah State University; Gustavious P. Williams, Brigham Young University

Fault Localization in Smart Grid Using Wavelet Analysis and Unsupervised Learning
Huaiguang Jiang, Jun Zhang, Wenzhong Gao, University of Denver

Sensitivity of Polynomial Composition and Decomposition for Signal Processing Applications
Sefa Demirtas, Guolong Su, Alan V. Oppenheim, Massachusetts Institute of Technology

A Variable Regularization Control Method for NLMS Algorithm
Junghsi Lee, Hsu-Chang Huang, Yuan-Ze University

Electromagnetic Field Recognition for Proactive Robot Communication Connectivity Maintenance
Mustafa Ayad, Jun Jason Zhang, Richard Voyles, Mohammad Mahoor, University of Denver

A Data Reusage Algorithm Based on Incremental Combination of LMS Filters
Luiz Chamon, Humberto Ferro, Cásio Lopes, University of São Paulo

Superresolution by Compressive Sensing Algorithms
Albert Fannjiang, Wenjing Liao, University of California, Davis

Compressive Ladar Detector Noise Performance
Darryl Sale, Christopher J. Rozell, Justin Romberg, Aaron D. Lanterman, Georgia Institute of Technology

Rank Property of the MIMO Gaussian Wiretap Channel with an Average Power Constraint
Ali Fakoorian, A. Lee Swindlehurst, University of California, Irvine

Nonlinear System Identification Using Compressed Sensing
Manjish Naik, Douglas Cochran, Arizona State University

The Resolution of Derived Secondary Information from Filter Banks May Not Follow Directly from the Signal Models
Victor DeBrunner, Guifeng Liu, Florida State University

MIMO Radar Spatial Compressive Sensing with Unknown Parameters
Marco Rossi, Alexander M. Haimovich, New Jersey Institute of Technology; Yonina C. Eldar, Technion, Israel Institute of Technology

Classification of Multivariate Data Using Dirichlet Process Mixture Models
Petar M Djuric, Stony Brook University; Andre Ferrari, Université de Nice-Sophia Antipolis

Compressed Sensing Radar Amid Noise and Clutter
Peter Tuuk, S. Lawrence Marple, Georgia Tech Research Institute

Session TA1a  MIMO in Optical Communications
Chair: Peter Winzer, Alcatel-Lucent

Physical Layer Security in Space-Division Multiplexed Fiber Optic Communications
Kyle Guan, Emina Soljanin, Peter Winzer, Bell Laboratories, Alcatel-Lucent
Session TA1a  Modeling of Linear and Nonlinear Coupling in Multiple-Mode Fiber Optic Transmission with MIMO Signal Processing
Cristian Antonelli, Antonio Mecozzi, University of L’Aquila; Mark Shtaif, Tel Aviv University

Session TA1b  Wireless Video Transmission Systems
Chair: Andreas Molish, University of Southern California

Session TA2a  Game Theory in Communications
Co-Chairs: Marco Luise and Giacomo Bacci, University of Pisa

Session TA2b  Coding Theory for the Next-Generation Storage Systems
Chair: Lara Dolecek, University of California, Los Angeles

Session TA3a  Multiuser and Massive MIMO
Chair: Nihar Jindal, Broadcom
Session TA3b  Compressive Estimation
Chair: Wee Peng Tay, Nanyang Technological University, Singapore
TA3b-1 Compressive Estimation in AWGN: General Observations and a Case Study
Dinesh Ramasamy, Sriram Venkateswaran, Upamanyu Madhow, University of California, Santa Barbara
TA3b-2 On Application of LASSO for Sparse Support Recovery with Imperfect Correlation Awareness
Piya Pal, P. P. Vaidyanathan, California Institute of Technology
TA3b-3 Compressive Multiplexers for Correlated Signals
Ali Ahmed, Justin Romberg, Georgia Institute of Technology
TA3b-4 Optimal Acquisition Policy for Compressed Measurements with Limited Observations
Sourabh Bhattacharya, Ashutosh Nayyar, Tamer Basar, University of Illinois, Urbana-Champaign

Session TA4a  Social Networks
Chair: Patrick Wolfe, Harvard University
TA4a-1 Hub Discovery in Partial Correlation Graphical Models
Al Hero, University of Michigan
TA4a-2 Geometric Network Analysis Tools
Michael Mahoney, Stanford University
TA4a-3 Learning over Social Networks via Diffusion Adaptation
Xiaochuan Zhao, Ali Sayed, University of California, Los Angeles
TA4a-4 Large Networks of Dynamic Agents: Consensus under Adversarial Disturbances
Dario Bauso, Tamer Basar, University of Illinois, Urbana-Champaign

Session TA4b  Signal Processing for Cyber-Security and Privacy in Networks
Chair: Lalitha Sankar, Arizona State University
TA4b-1 Secure Estimation in Cyber-Physical Systems
Yilin Mo, Bruno Sinopoli, Carnegie Mellon University
TA4b-2 Analyzing Privacy and Utility Using Axioms
Daniel Kifer, Bing-Rong Lin, Penn State University
TA4b-3 Quantifying the Delay-Privacy Trade-off in the Design of a Scheduling Policy
Sachin Kadloor, Negar Kiyavash, University of Illinois, Urbana-Champaign; Parv Venkitasubramaniam, Lehigh University
TA4b-4 A Formal Framework for Joint Privacy and Security Modeling and Analysis in Data and Communication Networks
John Baras, University of Maryland

Session TA5a  3D Video Processing
Chair: Patrick Le Callet, Polytech’Nantes Université de Nantes
TA5a-1 Full-Reference Quality Assessment of Stereoscopic Images by Modeling Binocular Rivalry
Ming-Jun Chen, Che-Chun Su, University of Texas at Austin; Do-Kyoung Kwon, Texas Instruments; Lawrence K. Cormack, Alan Bovik, University of Texas at Austin
TA5a-2 Visual Quality in Stereoscopic 3DTV
Ramanathan Palaniappan, Nikil Jayant, Georgia Institute of Technology; Pravin Mane, VQLink
TA5a-3 Depth Map Estimation in DIBR Stereoscopic 3D Videos Using a Combination of Monocular Cues
Mohammed Aabed, Dogancan Temel, Ghassan AlRegib, Georgia Institute of Technology
TA5a-4 Perceptual Depth Indicator for S-3D Content Based on Binocular and Monocular cues
Pierre Lebreton, Alexander Raake, Telekom Innovation Laboratories; Marcus Barkowsky, Patrick Le Callet, LUNAM Université, Université de Nantes

Session TA5b  Computer Arithmetic Accelerators for Signal Processing
Chair: Roger Woods, Queen’s University Belfast
TA5b-1 Imprecise Arithmetic for Low Power Image Processing
Pietro Albicocco, Gian Carlo Cardarilli, University of Rome Tor Vergata; Alberto Nannarelli, Technical University of Denmark; Massimo Petricca, Marco Re, University of Rome Tor Vergata
TA5b-2 Linearization Using Efficient Complex Polynomial Evaluations
Pouya Dormiani, Milos Ercegovac, University of California, Los Angeles
TA5b-3 FPGA-Accelerated Simulation of Truncated-Matrix Multipliers
George Walters, Penn State Erie, The Behrend College
TA5b-4 A Low-Power Dual-Path Floating-Point Fused Add-Subtract Unit
Jae Hong Min, Jongwook Sohn, Earl E. Swartzlander, Jr., University of Texas at Austin

Session TA6a  Low Power I
Chair: James Stine, Oklahoma State University
TA6a-1 Breaking the 3-D IC Power Delivery Wall
Mircea Stan, Kaushik Mazumdar, University of Virginia
TA6a-2 A Review of QCA Adders and Metrics
Weiqiang Liu, Maire O’Neill, Queen’s University of Belfast; Earl Swartzlander, University of Texas at Austin
Session TA6a  Circuits for Ultra-low Power Millimeter-Scale Sensor Nodes: Progress, Opportunities, and Challenges
Yoonmyung Lee, Dennis Sylvester, David Blaauw, University of Michigan

Session TA6b  Low Power II
Chair: James Stine, Oklahoma State University

Session TA7a  Biological Networks and Machine Learning
Chair: Olgica Milenkovic, University of Illinois, Urbana-Champaign

Session TA7b  Sequence and Genome Analysis
Chair: Sharon Aviran, University of California, Berkeley

Session TA8a  Array Signal Processing II
Chair: Peter Gerstoft, University of California San Diego
Session TA8a2  Signal Processing and Adaptive Systems II

Chair: Nascimento Vitor, Univ. of Sao Paulo

8:15 AM - 9:55 AM

TA8a2-1 Comparison of Least Mean Fourth and Least Mean Square Tracking
Eweda Eweda, Ajman University of Science & Technology

TA8a2-2 Extending MC-SURE to Denoise Sensor Data Streams
Mandoye Ndoye, Chandrika Kamath, Lawrence Livermore National Laboratory

TA8a2-3 Improved Robustness and Accelerated Power Amplifier Identification with Adaptive Wiener Models in the Complex Domain
Robert Dallinger, Markus Rupp, Vienna University of Technology

Session TA8b1  Communication Systems II

Chair: Yao Xie, Duke University

10:15 AM - 12:00 PM

TA8b1-1 Experimental Analysis of Cyclostationary Detectors under Cyclic Frequency Offsets
Eric Rebeiz, Paulo Urriza, Danijela Fabric, University of California, Los Angeles

TA8b1-2 Buffer Aware Power Control for Cognitive Radio Networks
Eman Naguib, Tamer Elbatt, Mohammed Nafie, Nile University
Suboptimal Method for Pilot and Data Power Allocation in Combined Positioning and Communications OFDM Systems
Rafael Montalban, Gonzalo Seco-Granados, Universitat Autònoma de Barcelona; A. Lee Swindlehurst, University of California, Irvine

Stochastic Online Learning under Unknown Time-Varying Models
Pouya Tehrani, Qing Zhao, University of California, Davis

Spectrum Sensing Scheduling in a Cost-based Framework
Aditya Kelkar, Qi Cheng, Oklahoma State University

The Optimal Fusion Rule for Cooperative Spectrum Sensing from a Diversity Perspective
Dongliang Duan, Liuqing Yang, Louis L. Scharf, Colorado State University

Diffuse Mid-UV Communication in the Presence of Obscurants
Derek Young, Jerry Brewer, Jeannette Chang, Tina Chou, Jacques Kvam, Matthew Pugh, Sandia National Labs

Quickest Search for Anomaly Detection
Qing Zhao, Baha Alzalg, University of California, Davis; Ananthram Swami, Army Research Laboratory

Weighted Cyclic Prefix OFDM: PAPR Analysis and Performances Comparison with DFT-precoding
Damien Roque, GIPSA-lab and DGA; Cyrille Siclet, Jean-Marc Brossier, GIPSA-lab; Pierre Siohan, Orange-Labs

Predicting Spectrum Vacancy for Opportunistic Communications
David Browne, MIT Lincoln Laboratory

Cross-Layer Transmission Rate/Power Policy for Cognitive Multi-Access Networks with Imperfect Sensing
Ghada Hatem, Amr El-Keyi, Mohammed Nafie, Nile University

A Cross Layer Routing Protocol for Cognitive Radio Networks Using Channel Activity Tracking
Sandep Gogineni, Syracuse University; Onur Ozdemir, ANDRO Computational Solutions; Engin Masazade, Chilukuri Mohan, Pramod Varshney, Syracuse University

Session TA8b2  MIMO Communications and Signal Processing II
Chair: Ali Tajer, Princeton University

10:15 AM - 12:00 PM

Relaying and Base Station Cooperation: a Comparative Survey for Future Cellular Networks
Raphael Rolny, Marc Kuhn, Armin Wittneben, Swiss Federal Institute of Technology Zurich; Thomas Zasowski, Swisscom ICC

A Feasibility Study on Opportunistic Interference Alignment: Limited Feedback and Sum-Rate Enhancement
Hyun Jong Yang, Stanford University; Won-Yong Shin, Dankook University; Bang Chul Jung, Gyeongsang National University; Arogyaswami Paulraj, Stanford University

Joint Interference and Phase Alignment in Multiuser MIMO Interference Channels
Seyed Morteza Razavi, Tharmalingam Ratnarajah, Mathini Sellathurai, Queen’s University Belfast

User-Aided Sub-Clustering for CoMP Transmission: Feedback Overhead vs. Data Rate Trade-off
Lars Thiele, Fraunhofer Heinrich Hertz Institute

Chance Constrained and Ergodic Robust QoS Power Minimization in the Satellite Downlink
Andreas Gründinger, Arailym Butabayeva, Michael Joham, Wolfgang Utschick, Technische Universität München

Joint Channel and Data Estimation for MIMO Communications with Sparse Pilots
Yejian Chen, Stephan ten Brink, Bell Laboratories, Alcatel-Lucent

Simulated Annealing User Scheduling for Coordinated Heterogeneous MIMO Networks
Hakimeh Purmehdi, Robert Elliott, Witold Krzymien, University of Alberta, and TRLabs

Carrier-Cooperative Zero-Forcing for Power Minimization in Parallel MIMO Broadcast Channels
Stephan Herrmann, Christoph Hellings, Wolfgang Utschick, Technische Universität München

Performance of MMSE Multi-antenna Receiver under Hierarchial Poisson Random Fields of Interferences
Wei Shi, James Ritcey, University of Washington

Concurrent Training and Data Transmission in Multiple-Access Channels
Adriano Pastore, Javier Rodriguez Fonollosa, Universitat Politècnica de Catalunya

Best and Worst-Case Statistics for Linear Beamforming in the MISO Correlated Broadcast Channel
Vasanthan Raghavan, University of Southern California; Stephen Hanly, Macquarie University

From Single- to Multi-User Scheduling in LTE-A Uplink Exploiting Virtual MIMO
Martin Kurras, Lars Thiele, Fraunhofer Heinrich Hertz Institute
Session TA8b3  Architecture and Implementation of Signal Processing Systems
Chair: Jörn W. Janneck, Lund University

10:15 AM - 12:00 PM

TA8b3-1  Receiver Implementations for Co-Channel Interference Suppression in MIMO-OFDM
Johanna Ketonen, Markku Juntti, University of Oulu

TA8b3-2  Implementation of LS, MMSE and SAGE Channel Estimators for Mobile MIMO-OFDM
Johanna Ketonen, Markku Juntti, University of Oulu; Jari Ylioinas, Nokia Siemens Networks; Joseph Cavallaro, Rice University

TA8b3-3  Low Complexity Opportunistic Decoder for Network Coding
Bei Yin, Michael Wu, Guohui Wang, Joseph R. Cavallaro, Rice University

TA8b3-4  Sparse Polynomial Equalization of an RF Receiver via Algorithm, Analog, and Digital Codesign
Andrew Bolstad, Benjamin A. Miller, Karen Gettings, Mike Ericson, Helen Kim, Merlin Green, Dan Santiago, MIT Lincoln Laboratory

TA8b3-5  Implementation of a QPSK Transceiver for Software Defined Radio on a Graphic Processing Unit (GPU)
Rehan Muzammil, M. Salim Beg, The Aligarh Muslim University; Mohsin M. Jamali, University of Toledo

TA8b3-6  Karatsuba Implementation of FIR Filters
Pietro Albicocco, Gian Carlo Cardarilli, Salvatore Pontarelli, Marco Re, University of Rome Tor Vergata

TA8b3-7  Real-Time Hardware Design for Improving Laser Detection and Ranging Accuracy
Jarrod Brown, Graduate Student; Clay Hughes, Linda DeBrunner, Florida State University

TA8b3-8  Dataflow Programming in CAL—Balancing Expressiveness, Analyzability, and Implementability
Johan Eker; Ericsson Research; Jörn Janneck, Lund University

Session TP1a  Network Optimization
Chair: Atilla Eryilmaz, Ohio State University

TP1a-1  Optimizing Transmissions for Wireless Video
Michael Neely, Giuseppe Caire, University of Southern California

TP1a-2  Gossip-Based Random Projection Algorithm for SVMs
Lee Soo Min, Angelia Nedić, University of Illinois, Urbana-Champaign

TP1a-3  Random Hamiltonian Cycles with Random Link Deletions
Joohwan Kim, R. Srikant, University of Illinois, Urbana-Champaign

TP1a-4  Temporal Statistical Characterization of Interference for Joint Encoding and Random Access
C. Emre Koksal, Atilla Eryilmaz, Nithin Sugavanam, Oklahoma State University

Session TP1b  Distributed Signal Processing
Co-Chairs: Hongbin Li and Jun Fang, Stevens Institute of Technology

TP1b-1  Gossip-based Distributed Stochastic Approximation: The Price of Non-double Stochasticity
Gemma Morral, Pascal Bianchi, Gersende Fort, Institut Telecom / Telecom ParisTech / CNRS-LTCI; Jérémie Jakubowicz, Institut Telecom / Telecom Sud Paris

TP1b-2  Distributed Maximum a Posteriori Probability Estimation for Tracking of Dynamic Systems
Felicia Jakubiec, Alejandro Ribeiro, University of Pennsylvania

TP1b-3  Identifying Multiple Infection Sources in a Network
Wuqiong Luo, Wee Peng Tay, Nanyang Technological University

TP1b-4  Distributed Learning in Large Scale Multi-Agent Games: A Modified Fictitious Play Approach
Brian Swenson, Soummya Kar, Carnegie Mellon University

TP1b-5  An Iterative Precoding Approach for Joint Transmission of Distributed Correlated Sources
Jun Fang, University of Electronic Science and Technology of China; Hongbin Li, Stevens Institute of Technology

Session TP2a  Consensus Based Algorithms
Chair: Lara Dolecek, University of California, Los Angeles

TP2a-1  Toward Resource-Optimal Averaging Consensus over the Wireless Medium
Matthew Nokleby, Rice University; Waheed U. Bajwa, Rutgers; Robert Calderbank, Duke University; Behnaam Aazhang, Rice University

TP2a-2  Distributed Average Consensus Using Bounded Transmissions
Sivaraman Dasarathan, Mahesh Banavar, Cihan Tepedelenlioglu, Andreas Spanias, Arizona State University

TP2a-3  Distributed Gram-Schmidt Orthogonalization Based on Dynamic Consensus
Ondrej Sluciak, Vienna University of Technology; Hana Strakova, University of Vienna; Markus Rupp, Vienna University of Technology; Wilfried Ganster, University of Vienna
Session TP2b  Cooperative Adaptation and Learning

Co-Chairs: Danilo Mandic, Imperial College and Ali Sayed, University of California, Los Angeles

TP2b-1  Mean-Square Analysis of Continuous-Time Distributed Estimation Strategies
Vitor Nascimento, University of Sao Paulo; Ali Sayed, University of California, Los Angeles

TP2b-2  Extrinsic Gossip and Reducing Self-reinforcement in Distributed Consensus
Andrew Bean, Angela Nedic, Andrew Singer, University of Illinois, Urbana-Champaign

TP2b-3  Non-linear Least Squares Estimation via Network Diffusion
Simon Li, Anna Scaglione, University of California, Davis

TP2b-4  Fast Cooperative Distributed Learning
Dusan Jakovetic, Jose M F. Moura, Joao Xavier, Carnegie Mellon University

TP2b-5  Exploiting the Noncircularity of Complex Cooperative Learning Systems
Dahir Dini, Danilo Mandic, Imperial College London

Session TP3a  Information Theoretic Signal Processing

Co-Chairs: P. P. Vaidyanathan, California Institute of Technology and Piya Pal, California Institute of Technology

TP3a-1  The Gaussian CEO Problem for a Scalar Source with Memory: A Necessary Condition
Jie Chen, Feng Jiang, Arnold Swindlehurst, University of California, Irvine

TP3a-2  Empiricial Rate-Distortion Study of Compressive Sensing-based Joint Source-Channel Coding
Muriel L. Rambeloinarison, Soheil Feizi, Georgios Angelopoulos, Muriel Medard, Massachusetts Institute of Technology

TP3a-3  Greedy Adaptive Measurements with Signal and Measurement Noise
Entao Liu, Edwin Chong, Louis Scharf, Colorado State University

TP3a-4  Role of Bandwidth in the Quality of Inversion of Linear Multirate Systems with Noise
P. P. Vaidyanathan, Piya Pal, California Institute of Technology
**Session TP4b  Smart Grid Communications and Networks**

Co-Chairs: Anna Scaglione and Zhifang Wang, University of California, Davis

TP4b-1 Demand Response in Radial Distribution Networks  3:30 PM
Na Li, Lingwen Gan, Steven Low, California Institute of Technology; Lijun Chen, University of Colorado at Boulder

TP4b-2 Competitive Privacy in the Smart Grid  3:55 PM
Lalitha Sankar, Princeton University; Soummya Kar, Carnegie Mellon University; H. Vincent Poor, Princeton University

TP4b-3 Secure Network and Information Architectures for Smart Grid Data Analysis and Control  4:20 PM
Marina Thottan, Young Jin Kim, Gary Atkinson, Bell Laboratories, Alcatel-Lucent

TP4b-4 The Impact of Volatile Generation/Load Profile in Smart Grid on the Grid Vulnerability to Cascading Overload Failures  4:45 PM
Zhifang Wang, Xiao Li, Anna Scaglione, University of California, Davis; Robert J. Thomas, Cornell University

TP4b-5 Power Resource Allocation in a Network of Fast Charging Stations  5:10 PM
George Michailidis, Michael Devetsikiotis, Safak Bayram, University of Michigan

**Session TP5a  Design Methodologies and Architectures for Communications**

Chair: Joseph R. Cavallaro, Rice University

TP5a-1 High-Level Architecture Modeling and Exploration for Streaming Applications  1:30 PM
Usman Nazhar Mirza, Flavius Gruian, Lund University

TP5a-2 Sequential Decoding of Non-Binary LDPC Codes on Graphics Processing Units  1:55 PM
David Romero, Nicholas Chang, MIT Lincoln Laboratory

TP5a-3 A GPU Implementation of Belief Propagation Decoder for Polar Codes  2:20 PM
Bharath Kumar Reddy, Nitin Chandrachoodan, Indian Institute of Technology, Madras

TP5a-4 High Performance Efficient Parallel Nonbinary LDPC Decoding on GPU  2:45 PM
Guohui Wang, Hao Shen, Bei Yin, Yang Sun, Joseph R. Cavallaro, Rice University

**Session TP5b  Interference Alignment**

Chair: Tharm Ratnarajah, Queen’s University Belfast

TP5b-1 System-level Performance of Distributed Cooperation  3:30 PM
Ratheesh Mungara, Geordie George, Angel Lozano, Universitat Pompeu Fabra

TP5b-2 On the DoF of the Multiple-Antenna Time Correlated Interference Channel with Delayed CSIT  3:55 PM
Xinping Yi, David Gesbert, Eurecom Institute; Sheng Yang, Mari Kobayashi, École supérieure d’électricité

TP5b-3 Linear Transceiver Design for the Noisy Gaussian MIMO Interference Channel with Partial CSI  4:20 PM
Francesco Negro, Eurecom Institute; Irfan Ghauri, Infineon Technologies France; Dirk Slock, Eurecom Institute

TP5b-4 On the Nuclear Norm Approach for Interference Alignment  4:45 PM
Huiqin Du, Tharm Ratnarajah, Queen’s University Belfast

TP5b-5 Interference Alignment in Coordinated Multi-Point Systems  5:10 PM
Seyed Morteza Razavi, Tharm Ratnarajah, Queen’s University Belfast

**Session TP6a  Wireless Full Duplex**

Chair: Ashutosh Sabharwal, Rice University

TP6a-1 Decode-and-Cancel for Interference Cancellation in Full-duplex Networks  1:30 PM
Jingwen Bai, Ashutosh Sabharwal, Rice University

TP6a-2 Full-Duplex MIMO Relaying: Achievable Rates under Limited Dynamic Range  1:55 PM
Brian Day, Ohio State University; Daniel Bliss, Adam Margetts, MIT Lincoln Laboratory; Philip Schniter, Ohio State University

TP6a-3 Full Duplex Wireless Communications with Partial Interference Cancellation  2:20 PM
Jianshu Zhang, Seyed Omid Taghizadeh Motlagh, Ilmenau University of Technology; Jian Luo, Fraunhofer Heinrich-Hertz-Institute; Martin Haardt, Ilmenau University of Technology

TP6a-4 Wideband Digital Cancellation for Full-Duplex Communications  2:45 PM
Mohammad Ali Khojastepour, Sampath Rangarajan, NEC Laboratories America, Inc.

**Session TP6b  Biological Image Analysis**

Chair: Scott T. Acton, University of Virginia

TP6b-1 Assessment of Wallerian Degeneration by Automated Image Analysis  3:30 PM
Andrea Vaccari, Kanchana Gamage, Sapir Nachum, Barry Condron, Christopher Deppmann, Scott Acton, University of Virginia
Session TP6b  Robust Biological Image Sequence Analysis  3:55 PM
Using Graph Based Approaches
B.S. Manjunath, Diana Delibaltov, Karthikeyen Shanmuga Vadivel, Vignesh Jagadeesh, University of California, Santa Barbara

TP6b-3 A Linear, Transportation-based, Embedding Method for Analyzing Biomedical Images

TP6b-4 An Information Theoretic Framework for MRI Preprocessing, Multiclass Feature Selection and Segmentation of PF Tumors
Shaheen Ahmed, Emory U.; K.M. Iftekharuddin, Old Dominion University; E.O. George, University of Memphis

TP6b-5 The Effect of Image Registration on the Localization of Single Molecules in Microscopy Experiments
Raimund Ober, Edward Cohen, University of Texas at Dallas

Session TP7a  MIMO Radar and Waveform Design
Chair: Martin Haardt, TU Ilmenau

TP7a-1 Transmit Beamspace Design for Direction Finding in Colocated MIMO Radar with Arbitrary Receive Array and Even Number of Waveforms
Arash Khabbazibasmenj, Sergiy Vorobyov, Aboulnasr Hassanian, Matthew Morency, University of Alberta

TP7a-2 Jammer Detection and Estimation with MIMO Radar
Xiufeng Song, Peter Willett, Shengli Zhou, University of Connecticut

TP7a-3 Non-linear Processing for Multicarrier MIMO Radar for Improved Target Resolution
Mir H. Mahmood, Mark R. Bell, Purdue University

TP7a-4 Generating Correlated QPSK Waveforms by Exploiting Real Gaussian Random Variables
Jardak Seifallah Jardak, Tunisia Polytechnic School (TPS)-University of Carthage; Sajid Ahmed, Slim Alouini, King Abdullah University of Science and Technology

Session TP7b  Speech Processing and Speech Recognition
Chair: Tokunbo Ogunfunmi, Santa Clara University

TP7b-1 Reproducing Kernel-based Methods for Extracting and Identifying Noise-Robust Speech Features
Shantanu Chakrabartty, Michigan State University

TP7b-2 Joint Tracking of Clean Speech and Noise Using HMMS and Particle Filters for Robust Speech Recognition
Aleem Mushtaq, Chin-Hui Lee, Georgia Institute of Technology
**TP8a1-8** A Power Saving Dual-Hop Architecture Based on Hybrid Spatial Modulation
*Athanasios Stavridis, Sinan Sinanovic, University of Edinburgh; Marco Di Renzo, French National Center for Scientific Research (CNRS); Harald Haas, University of Edinburgh*

**TP8a1-9** On the Performance Loss of Distributed over Centralized Relay Beamforming
*Qiang Xiao, University of Toronto; Min Dong, University of Ontario Institute of Technology; Ben Liang, University of Toronto*

**TP8a1-10** SNR Advantage of Group Transmissions in Multihop Networks with Amplify-and-forward Relays
*Birsen Sirkeci-Mergen, San Jose State University*

**Session TP8a2 Sensor and Interference Networks**
Chair: *Lifeng Lai, Worcester Polytechnic Institute*

1:30 PM - 3:10 PM

**TP8a2-1** Multiple Access Game with a Cognitive Jammer
*Karim Khalil, Eylem Ekici, Ohio State University*

**TP8a2-2** Stochastic Ordering of Interferences in Large-scale Networks
*Junghoon Lee, Cihan Tepedelenlioglu, Arizona State University*

**TP8a2-3** Improving WLAN-Based Indoor Mobile Positioning Using Sparsity
*Mohammad Pourhomayoun, Mark Fowler, Binghamton University*

**TP8a2-4** Parameter Tracking via Optimal Distributed Beamforming in an Analog Sensor Network
*Feng Jiang, Jie Chen, Lee Swindlehurst, University of California, Irvine*

**TP8a2-5** On the Diversity Multiplexing Tradeoff in a 4-user Clustered Z-channel
*Myung Gil Kang, Young-bin Kim, Wan Choi, Korea Advanced Institute of Science and Technology (KAIST)*

**TP8a2-6** Distributed Cross-Layer Optimal Power and Rate Control in Single-Hop Wireless Interference Networks
*Ying Cui, Stephen Hanly, Macquarie University*

**TP8a2-7** Performance Analysis of Ad Hoc Networks with Interference Alignment
*Yi Luo, Huiqin Du, Tharm Ratnarajah, Dave Wilcox, Queen’s University Belfast*

**TP8a2-8** Convergence Properties of Incremental Subgradient Algorithms for Least-Squares Source Localization
*Michael Rabbat, McGill University; Angelia Nedic, University of Illinois*

**TP8a2-9** Traffic Handling of Hybrid MAC in IEEE 802.15.4 Networks
*Jae-Seok Bang, Hyung-Sin Kim, Yong-Hwan Lee, Seoul National University*

**TP8a2-10** Lifetime Maximization in Distributed Sensor Network with Event Triggered Adaptive Filtering
*Amaresh Malipatil, Yih-Fang Huang, University of Notre Dame*

**Session TP8a3 Design Methodology and Computer Arithmetic**
Chair: *Milos Ercegovac, University of California, Los Angeles*

1:30 PM - 3:10 PM

**TP8a3-1** Runtime Voltage/Frequency Scaling for Energy-Aware Streaming Applications
*Flavius Gruian, Lund University*

**TP8a3-2** Residue Codes for Error Correction in a Combined Decimal/Binary Redundant Floating Point Adder
*Shehab Y. Elsayed, Hossam A. H. Fahmy, Cairo University*

**TP8a3-3** Hardware Implementation of the Hirschman Optimal Transform
*Soumak Mookherjee, Linda DeBrunner, Victor DeBrunner, Florida State University*

**TP8a3-4** Partitioning and Mapping Dynamic Dataflow Programs
*Mehmet Ali Arslan, Jörn Janneck, Krzysztof Kuchcinski, Lund University*

**TP8a3-5** Effects on Power Saving of Butterfly and Inverse Butterfly Nets Integration in Embedded Processors
*Gian Carlo Cardarilli, Princeton University; Luca Di Nunzio, Rocco Fazzolari, Marco Re, Ruby B. Lee, University of Rome Tor Vergata*

**TP8a3-6** Modified Non-restoring Division Algorithm with Improved Delay Profile and Error Correction
*Kihwan Jun, Earl Swartzlander, Jr., University of Texas at Austin*

**TP8a3-7** Analysis of Trade-offs in V2P-Table Design for NAND Flash
*Borja Peleato, Rajiv Agarwal, John Cioffi, Stanford University*

**TP8a3-8** Toward Efficient Execution of Dataflow Actors
*Gustav Cedersjö, Jörn Janneck, Lund University*

**Session TP8b1 Speech, Image, and Video Processing**
Chair: *Michael Santoro, University of Chile / Georgia Tech*

3:30 PM - 5:10 PM

**TP8b1-1** Improved Modeling of the Correlation Between Continuous-Valued Sources in LDPC-Based DSC
*Mojtaba Vaezi, Fabrice Labeau, McGill University*
TP8b1-2 Multispectral Vegetation Detection for Improved SAR CCD  
Bea Yu, Rhonda Phillips, MIT Lincoln Laboratory

TP8b1-3 HVS Based Dictionary Learning for Scalable Sparse Image Representation  
Bojana Begovic, Vladimir Stankovic, Lina Stankovic, University of Strathclyde; Samuel Cheng, School of Electrical and Computer Engineering

TP8b1-4 Regional Features with Adaptable Global Mappings for Recognition Systems  
Katia Estabridis, Naval Air Weapons Center

TP8b1-5 A Robust Super Resolution Method for Video  
Nafise Barzigar, Aminmohammad Roozgard, Samuel Cheng, Pramode Verma, University of Oklahoma

TP8b1-6 An Efficient Video Denoising Method Using Decomposition Approach for Low-Rank Matrix Completion  
Nafise Barzigar, Aminmohammad Roozgard, Samuel Cheng, Pramode Verma, University of Oklahoma

TP8b1-7 Speech Enhancement of Color Noise Using Empirical Mode Decomposition  
Min-Sung Koh, Esteban Rodriguez-Marek, Eastern Washington University

TP8b1-8 Objective Quality Assessment of Multiply Distorted Images  
Dinesh Jayaraman, Anish Mittal, Anush Moorthy, Alan Bovik, University of Texas at Austin

TP8b1-9 Temporal Dispersal of Multiple Representations for Error-Resilient Video Streaming  
Sourabh Khire, Georgia Institute of Technology; Arturo Rodriguez, Cisco Systems; Nikil Jayant, Georgia Institute of Technology

TP8b1-10 A New Map-based Approach to Video De-interlacing Using Forward-Backward Algorithm  
Farhang Vedadi, Shahram Shirani, McMaster University

TP8b1-11 A Novel De-interlacing Method Based on Locally-Adaptive Nonlocal-Means  
Roozbeh Dehghannisiri, Shahram Shirani, McMaster University

TP8b1-12 Regularization Function for Video Super-Resolution Using Auxiliary High Resolution Still Images  
Seyyedeha Najafi, Shahram Shirani, McMaster University

TP8b1-13 Making Image Quality Assessment Robust  
Anish Mittal, Anush Moorthy, Alan Bovik, University of Texas at Austin

TP8b1-14 Blur Identification Based on Spectrum Density Distribution  
Dalong Li, Simske Steve, HP

TP8b1-15 Probabilistic Three-Pass SAR Coherent Change Detection  
Jarred Barber, Stephen Kogon, MIT Lincoln Laboratory

TP8b1-16 A Generalized Likelihood Ratio Test for SAR CCD  
Michael Newey, Gerald Benitez, Stephen Kogon, Massachusetts Institute of Technology Lincoln Laboratory

TP8b1-17 Camera Placement for Handheld 3D Video Communications  
Stephen Mangiat, Jerry Gibson, University of California, Santa Barbara

TP8b1-18 Depth-Less 3D Rendering  
Mashhour Solh, Ghassan AlRegib, Georgia Institute of Technology

Session TP8b2 Biomedical Signal and Image Processing  
Chair: Keshab K. Parhi, University of Minnesota  
3:30 PM - 5:10 PM

TP8b2-1 Ultrasonic Bone Assessment of the Distal Forearm  
Jonathan Kaufman, Gangming Luo, CyberLogic, Inc.; Robert Siffert, Mount Sinai School of Medicine

TP8b2-2 Performance Analysis of a 2-D EEG Compression Algorithm Using an Automatic Seizure Detection System  
Hoda Daou, Fabrice Labeau, McGill University

TP8b2-3 A Novel Method for Tumor Localization and Tracking in Radiation Therapy  
Mohammad Pourhomayoun, Mark Fowler, Zhanpeng Jin, Binghamton University

TP8b2-4 Screening Fundus Images for Diabetic Retinopathy  
Sohini RoyChowdhury, Dara Koozakanani, Keshab K. Parhi, University of Minnesota

TP8b2-5 EEG/MEG Artifact Suppression for Improved Neural Activity Estimation  
Alexander Maurer, Lifeng Miao, Arizona State University; Jun Jason Zhang, University of Denver; Antonia Papandreou-Suppappola, Arizona State University

TP8b2-6 Beta Process Based Adaptive Learning of Immunosignaturing Peptide-Antibody Factors  
Anna Malin, Narayan Kovvali, Antonia Papandreou-Suppappola, Stephen Johnston, Phillip Stafford, Arizona State University

Session WA1a Feedback and Cooperation  
Chair: Giuseppe Abreu, Jacobs University

WA1a-1 Random Access on Graphs: A Survey and New Results  
Enrico Paolini, University of Bologna; Gianluigi Liva, German Aerospace Center (DLR); Marco Chiani, University of Bologna  
8:15 AM

WA1a-2 Node Cooperation with Local Views  
David Kao, Ashutosh Sabharwal, Rice University  
8:40 AM

WA1a-3 A Feedback Strategy for the Full-Duplex Butterfly Network  
Aydin Sezgin, Anas Chaaban, Ruhr-University Bochum; Daniela Tuninetti, University of Illinois, Chicago  
9:05 AM
Session WA1a-4 Characterizing the Mutual Information
Distribution of MIMO Systems: Beyond the Gaussian Approximation
Shang Li, Matthew McKay, Hong Kong University of Science and Technology; Yang Chen, University of Macau

Session WA1b Security
Chair: A. Lee Swindlehurst, University of California, Irvine

WA1b-1 Distributed Jamming for Secure Communication in a Poisson Field of Legitimate Nodes and Eavesdroppers
Wei Shi, James Ritcey, University of Washington

WA1b-2 Deploying Multi-antenna Energy-Harvesting Cooperative Jammers in the MIMO Wiretap Channel
Amitav Mukherjee, Nokia Research Center; Jing Huang, University of California, Irvine

WA1b-3 Unicasting on the S-Graph
Satyanaranaya Vuppala, Giuseppe Abreu, Jacobs University Bremen

WA1b-4 Secrecy Capacity Limits of Multiple Antenna Multiple Eavesdropper Multicast
Jafar Mohammadi, Michal Kaliszcz, Slawomir Stanczak, Berlin Institute of Technology

Session WA2a Distributed Algorithms for Wireless Networks
Chair: Lee Swindlehurst, University of California, Irvine

WA2a-1 Distributed and Autonomous Resource Allocation for Femto-Cellular Networks
Harald Burchardt, University of Edinburgh; Zubin Bharucha, DoCoMo Euro-Labs; Harald Haas, University of Edinburgh

WA2a-2 Universal Computation with Low-Complexity Wireless Relay Networks
Eric Slottke, Raphael Rolny, Armin Wittneben, Swiss Federal Institute of Technology Zurich

WA2a-3 A Unified Analysis of CDF-based Distributed Scheduling in a Heterogeneous Multicell
Yichao Huang, Bhaskar D. Rao, University of California, San Diego

WA2a-4 Unsupervised Algorithms for Distributed Estimation over Adaptive Networks
Muhammad Bin Saeed, Azzedine Zerguine, Salam Zummo, King Fahd University of Petroleum and Minerals; Ali Sayed, University of California, Los Angeles

Session WA2b Topics in Wireless Networking
Chair: Harald Haas, University of Edinburgh

WA2b-1 Joint Design of Multi-resolution Codes and Intra/Inter-layer Network Coding
Tong Wang, Muriel Medard, Lizhong Zheng, Massachusetts Institute of Technology

WA2b-2 Link Allocation, Routing, and Scheduling for Fading Hybrid FSO/RF Networks
Yi Tang, Maite Brandt-Pearce, University of Virginia

WA2b-3 Approximating the Capacity of Wireless Multiple Unicast Networks by Discrete Superposition Model
Nicolas Schrammar, Mikael Skoglund, KTH Royal Institute of Technology

WA2b-4 Convolutional Network Codes for Reliable Point-to-Point Wireless Communication
Samantha Summerson, Rice University; Anuj Batra, Texas Instruments

Session WA3a Adaptive Signal Processing
Chair: Cedric Richard, Univ. de Nice Sophia-Antipolis

WA3a-1 Diffusion Least-Mean Squares over Distributed Networks in the Presence of MAC Errors
Saeed Ghazanfari-Rad, Fabrice Labeau, McGill University

WA3a-2 Stochastic Adaptive Filtering Using Model Combinations
Chandrasekhar Radhakrishnan, Andrew Singer, University of Illinois, Urbana-Champaign

WA3a-3 A Closed-Form Condition for Convergence of the Gaussian Kernel-Least-Mean-Square Algorithm
Cédric Richard, Université de Nice Sophia-Antipolis; Jose Carlos M. Bermudez, Federal University of Santa Catarina, Florianópolis

WA3a-4 Complex Colored Water-Filling Algorithm for Gain Allocation in Proportionate Adaptive Filtering
Kevin Wagner, Naval Research Laboratory; Milos Doroslovacki, George Washington University

Session WA3b Compressive Signal Processing
Chair: Sergiy Vorobyov, University of Alberta

WA3b-1 2D Signal Compression via Parallel Compressed Sensing with Permutations
Hao Fang, Sergiy A. Vorobyov, Hai Jiang, Omid Taheri, University of Alberta

WA3b-2 Detecting an Abrupt Change of Finite Duration
Blaise Kévin Guépié, Lionel Fillatre, Igor Nikiforov, Université de Technologie de Troyes

WA3b-3 Adaptive Sensing: A Tight Lower Bound and the Near-Optimal Compressive Binary Search
Matthew Malloy, Robert Nowak, University of Wisconsin Madison

WA3b-4 Rapid Sensing of Underutilized, Wideband Spectrum Using the Random Demodulator
Andrew Harms, Princeton University; Waheed Bajwa, Rutgers University; Robert Calderbank, Duke University
Session WA4a  Interference and Cognition
Chair: Thomas L Marzetta, Alcatel-Lucent/Bell Labs

WA4a-1  Interference Alignment for Channel-Adaptive Waveform Modulation
Urs Niesen, Thomas Marzetta, Bell Laboratories, Alcatel-Lucent

8:15 AM

WA4a-2  On the Discrete Superposition Model of Partially Cognitive Interference Channels
Nicolas Schrammar, Chao Wang, Lars K. Rasmussen, Mikael Skoglund, KTH Royal Institute of Technology

8:40 AM

WA4a-3  Interference Management for Cognitive Radio Systems Exploiting Primary IR-HARQ: a Constrained Markov Decision Process approach
Romain Tajan, University of Cergy - Pontoise; Charly Poulliat, University of Toulouse; Inbar Fijalkow, University of Cergy - Pontoise

9:05 AM

WA4a-4  Energy-Aware Cooperative Quickest Detection for Cognitive Radio Networks
Yan Xin, Kyungtae Kim, Sampath Rangarajan, NEC Laboratories America, Inc.

9:30 AM

Session WA4b  OFDM(A)
Chair: Michael Zoltowska, Purdue University

WA4b-1  Effect of Oscillator Phase Noise and Processing Delay in Full-Duplex OFDM Repeaters
Taneli Riihonen, Pramod Mathecken, Risto Wichman, Aalto University

10:15 AM

WA4b-2  Weighted CDF-based Scheduling for an OFDMA Relay Downlink with Partial Feedback
Anh Nguyen, Yichao Huang, Bhaskar Rao, University of California, San Diego

10:40 AM

WA4b-3  Transmitter-Side Timing Adjustment to Mitigate Interference between Multiple Nodes for OFDMA Mesh Network
Surgeon Lee, Xiaoli Ma, Georgia Institute of Technology

11:05 AM

WA4b-4  Detection of Code Spread OFDM Based on 0-1 Integer Quadratic Programming
Ali Elgharini, Purdue university

11:30 AM

Session WA5a  Applications of Video Processing
Chair: Mashhour Solh, Texas Instruments Inc.

WA5a-1  Automatic Track Tracing in SAR CCD Images Using Search Cues
Miriam Cha, Rhonda Phillips, MIT Lincoln Laboratory

8:15 AM

WA5a-2  H.264/AVC Data Hiding Based on Intra Prediction Modes for Real Time Applications
Samira Bouchama, Research Center on Scientific and Technical Information; Latifa Hamami, National Polytechnic School of Algiers; Hassina Aliane, Research Center on Scientific and Technical Information

8:40 AM

WA5a-3  A Computer Vision System for Monitoring Vessel Motion in Conjunction with Vessel Wake Measurements
Sam Tan, Jenelle Armstrong Piepmeier, David Kriebel, United States Naval Academy

9:05 AM

Session WA5b  Image and Video Classification
Chair: Dihong Tian, Cisco Systems, Inc.

WA5b-1  A Joint Sparsity Model for Video Anomaly Detection
Xuan Mo, Vishal Monga, Pennsylvania State University; Raja Bala, Zhigang Fan, Xerox Research Center Webster

10:15 AM

WA5b-2  Learning Dictionaries with Graph Embedding Constraints for Image Classification
Karthikeyan Natesan Ramamurthy, Jayaraman J. Thiagarajan, Andreas Spanias, Arizona State University

10:40 AM

WA5b-3  Training Image Classifiers with Similarity Metrics, Linear Programming, and Minimal Supervision
Karl Ni, Ethan Phelps, MIT Lincoln Laboratory; Katherine Bouman, Massachusetts Institute of Technology; Nadya Bliss, MIT Lincoln Laboratory

11:05 AM

WA5b-4  Randomized Tensor-based Algorithm for Image Classification
Ryan Sigurdson, University of Rochester; Carmeliza Navasca, University of Alabama at Birmingham

11:30 AM

Session WA6a  CSI Feedback
Chair: Robert Heath, University of Texas at Austin

WA6a-1  Feedback Bit Allocation in a Gateway Channel
Sung Lock Seo, Jung Hoon Lee, Wan Choi, Korea Advanced Institute of Science and Technology (KAIST)

8:15 AM

WA6a-2  Tomlinson-Harashima Precoding for Multiuser MIMO Systems with Quantized CSI Feedback
Liang Sun, Ming Lei, NEC Labs China

8:40 AM

WA6a-3  Sum Rate Analysis and Quantizer Design for a Quantized Heterogeneous Feedback MIMO OFDMA Downlink
Yichao Huang, Bhaskar D. Rao, University of California, San Diego

9:05 AM

WA6a-4  CSI Feedback Delay and Degrees of Freedom Gain Trade-Off for the MISO Interference Channel
Nam Yoon Lee, Robert Heath, University of Texas at Austin

9:30 AM
Session WA6b  Beamforming and Relaying
Chair: Shahram Shahbazpanahi, University of Ontario Institute of Technology

WA6b-1  SINR Constrained Beamforming for a MIMO Multi-user Downlink System  10:15 AM
Qingjiang Shi, Alcatel-Lucent Shanghai Bell Company; Meisam Razaviyayn, Mingyi Hong, Zhi-Quan Luo, University of Minnesota

WA6b-2  Pragmatic Multi-cell MIMO Beamforming with Decentralized Coordination  10:40 AM
Harri Pennanen, Antti Tölli, Matti Latva-aho, University of Oulu

WA6b-3  A Total Power Minimization Approach to Relay Selection for Two-Way Relay Networks  11:05 AM
Saurabh Talwar, Shahram ShahbazPanahi, University of Ontario Institute of Technology

WA6b-4  Joint Network-Channel-Coded Multi-Way Relaying  11:30 AM
Andreas Winkelbauer, Gerald Matz, Vienna University of Technology

Session WA7a  Applications of Sensor Array Processing
Chair: Marius Pesavento, TU Darmstadt

WA7a-1  Maximum Likelihood Source Localization in a Pipe using Guided Acoustic Waves  8:15 AM
Nicholas O'Donoughue, Joel Harley, Chang Liu, Jose M.F. Moura, Irving Oppenheim, Carnegie Mellon University

WA7a-2  Field Testing of Indirect Displacement Estimation Using Accelerometers  8:40 AM
Viswanadh Kandula, Linda DeBrunner, Victor DeBrunner; Michelle Rambo-Roddenberry, Florida State University

WA7a-3  Wireless Sensor Network Discovery Using Large Aperture Array Signal Processing  9:05 AM
Marc Willerton, Imperial College London; Mahesh Banavar, Xue Zhang, Arizona State University; Athanassios Manikas, Imperial College London; Andreas Spanias, Trevor Thornton, Arizona State University; Anthony Constantinides, Eric Yeatman, Imperial College London

WA7a-4  Clipping Effect on Radiation Pattern in Downtilt Beamforming  9:30 AM
Qingsong Wen, Sungeun Lee, Xiaoli Ma, Georgia Institute of Technology

Session WA7b  DOA Estimation
Chair: Alexandre Renaux, Université d’Orsay

WA7b-1  A Robust L-1 Penalized DOA Estimator  10:15 AM
Ashkan Panahi, Mats Viberg, Chalmers University of Technology

WA7b-2  Adaptive Direction Detection of Extended Targets in Noise Plus Unknown Subspace Interference  10:40 AM
Francesco Bandiera, University of Salento; Olivier Besson, ISAE (Institut Supérieur de l’Aéronautique et de l’Espace); Giuseppe Ricci, University of Salento

WA7b-3  A Semi-algebraic Framework for Approximate CP Decompositions via Joint Matrix Diagonalization and Generalized Unfoldings  11:05 AM
Florian Roemer, Ilmenau University of Technology; Carola Schroeter, (none); Martin Haardt, Ilmenau University of Technology

WA7b-4  Direction of Arrival Estimation of Correlated Signals Using a Dynamic Non-uniform Linear Array  11:30 AM
Dyonisius Dony Ariananada, Geert Leus, Delft University of Technology
<table>
<thead>
<tr>
<th>NAME</th>
<th>SESSION</th>
<th>NAME</th>
<th>SESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aabed, Mohammed</td>
<td>TA5a-3</td>
<td>Bandiera, Francesco</td>
<td>TA8a1-6</td>
</tr>
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<td>Aazhang, Behnaam</td>
<td>TP2a-1</td>
<td>Bandiera, Francesco</td>
<td>WA7b-2</td>
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<td>TA2b-2</td>
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<td>Baraniuk, Richard</td>
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<td>TP8b1-15</td>
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<td>MP8a1-1</td>
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<td>TP8a3-7</td>
<td>Bar-Shalom, Yaakov</td>
<td>TA8a1-9</td>
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<td>Barzigar, Nafise</td>
<td>TP8b1-5</td>
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<td>Basar, Tamer</td>
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<td>TP6b-3</td>
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<td>TP8b1-18</td>
<td>Belardinelli, Paolo</td>
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