

**FORTY-SIXTH
ASILOMAR CONFERENCE ON
SIGNALS, SYSTEMS AND
COMPUTERS**



November 4–7, 2012
Asilomar Hotel and
Conference Grounds

Technical Co-sponsor



FORTY-SIXTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS

Organized in cooperation with

**NAVAL POSTGRADUATE SCHOOL
Monterey, California**

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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

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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 - 10:15 AM	Coffee Social

10:15 AM - 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
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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 Multipoint
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.
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2012 Asilomar Conference Session Schedule

(continued)

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.

Student Paper Contest

Merrill Hall - Sunday, November 4, 2012, 4:00 - 6:30 PM
(Listed in category/track order)

Track A

"Unicasting on the S-Graph"

Satyanaranaya Vuppala and Giuseppe Abreu

Track B

"Volume of Ball and Hamming-type Bounds for Stiefel Manifold with Euclidean Distance"

Renaud-Alexandre Pitaval and Olav Tirkkonen

Track C

"Distributed Gram-Schmidt Orthogonalization Based on Dynamic Consensus"

Ondrej Slučiak, Hana Straková, Markus Rupp, and Wilfried N. Gansterer

Track D

"Identifying Multiple Infection Sources in a Network"

Wuqiong Luo and Wee Peng Tay

"The Gaussian CEO Problem for a Scalar Source with Memory: A Necessary Condition"

Jie Chen, Feng Jiang and A. Lee Swindlehurst

Track E

"Transmit Beam-space Design for Direction Finding in Colocated MIMO Radar with Arbitrary Receive Array and Even Number of Waveforms"

Arash Khabbazi-basmenj, Sergiy A. Vorobyov, Aboulnasr Hassanien, and Matthew W. Morency

Track F

"Screening Fundus Images for Diabetic Retinopathy"

Sohini Roychowdhury, Dara Koozekanani, and Keshab K. Parhi

Track G

"A Low-Power Dual-Path Floating-Point Fused Add-Subtract Unit"

Jae Hong Min, Jongwook Sohn, and Earl E. Swartzlander, Jr.

Track H

"Joint Tracking of Clean Speech and Noise Using HMMs and Particle Filters for Robust Speech Recognition"

Aleem Mushtaq and Chin-Hui Lee

2012 Asilomar Conference Session Schedule

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.

Biography

Richard G. Baraniuk is the Victor E. Cameron Professor of Electrical and Computer Engineering at Rice University. His research interests lie in new theory, algorithms, and hardware for sensing, signal processing, and machine learning. He is a Fellow of the IEEE and AAAS and has received national young investigator awards from the US NSF and ONR, the Rosenbaum Fellowship from the Isaac Newton Institute of Cambridge University, the ECE Young Alumni Achievement Award from the University of Illinois, and the Wavelet Pioneer and Compressive Sampling Pioneer Awards from SPIE. His work on the Rice single-pixel compressive camera has been widely reported in the popular press and was selected by MIT Technology Review as a TR10 Top 10 Emerging Technology for 2007. For his teaching and education projects, including Connexions (cnx.org), he has received the C. Holmes MacDonald National Outstanding Teaching Award from Eta Kappa Nu, Tech Museum of Innovation Laureate Award, the Internet Pioneer Award from the Berkman Center for Internet Society at Harvard Law School, the World Technology Award for Education, the IEEE-SPS Education Award, and the WISE Education Award.

**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 / SONDRRA; 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

MA5b-4 Compressed Sensing Based Scalable Speech 11:30 AM
 Coders
*Bhaskar Rao, Michelle Daniels, University of California,
 San Diego*

Session MA6b DSP Architecture for Wireless Communications

Chair: *Ahmed Eltawil, University of California, Irvine*

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

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

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

MA6b-4 A Sphere Decoding Approach for The Vector 11:30 AM
 Viterbi Algorithm
*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 10:15 AM
 the Unsedated Human Fetal Brain In-Utero
Colin Studholm, University of Washington

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

MA7b-3 Inferring Biological Network Connectivity 11:05 AM
 Using a Novel Phase Synchronization Technique
*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 11:30 AM
 Control: New Vistas for Closed-loop Decoding
 Using MEG
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
*Alberto Rico-Alvariño, Carlos Mosquera, Universidade
 de Vigo*

- MA8b1-2 Spectrum Opportunity Detection with Weak and Correlated Signals
Yao Xie, Duke University; David Siegmund, Stanford University
- MA8b1-3 A Blind Linear Smoothing Method for OFDM Systems without Cyclic Prefix
Xiaodong Yue, Songlin Tian, Xuefu Zhou, University of Central Missouri
- MA8b1-4 Soft-Output Sphere Detection for Coded Unique Word OFDM
Alexander Onic, Alpen-Adria-Universität Klagenfurt; Andreas Schenk, Friedrich-Alexander-Universität Erlangen-Nürnberg; Mario Huemer, Alpen-Adria-Universität Klagenfurt; Johannes B. Huber, Friedrich-Alexander-Universität Erlangen-Nürnberg
- MA8b1-5 A Cross-Layer HARQ Scheme Robust to Imperfect Feedback
Sébastien Marcille, Thales Communications and Security; Philippe Ciblat, Télécom ParisTech; Christophe Le Martret, Thales Communications and Security
- MA8b1-6 A Representation for the Symbol Error Rate of Arbitrary Constellations under AWGN
Adithya Rajan, Cihan Tepedelenlioglu, Arizona State University
- MA8b1-7 Systematic Pruning of Blind Decoding Results
Dongwoon Bai, Jungwon Lee, Sungsoo Kim, Hanju Kim, Inyup Kang, Samsung US R&D Center
- MA8b1-8 Underlay Cognitive Radios with Finite Transmission Modes and Capacity Guarantees for Primary Users
Antonio G. Marques, Javier Ramos, Carlos Figuera, Eduardo Morgado, King Juan Carlos University
- MA8b1-9 Stochastic Soft-Input Soft-Output Detection for Intersymbol Interference Channels
Werner Haselmayr, Bernhard Etzlinger, Andreas Springer, Johannes Kepler University
- MA8b1-10 Generic Low Complex Filter Bank Based Spectrum Sensing Approach for LTE Cognitive Radio
Thomas Schlechter, Mario Huemer, Alpen-Adria Universität Klagenfurt
- MA8b1-11 A Study of Data Rate Equivalent UW-OFDM and CP-OFDM Concepts
Christian Hofbauer, Mario Huemer, Klagenfurt University
- MA8b1-12 Constrained Least-Squares Estimation and Compensation of Phase Noise in OFDM Radio Link
Pramod Mathecken, Taneli Riihonen, Stefan Werner, Risto Wichman, Aalto University School of Electrical Engineering
- MA8b1-13 Stopping Criteria for Iterative Decoding Based on Mutual Information
Jinhong Wu, Samsung Information Systems America; Branimir Vojcic, Jia Sheng, George Washington University

- MA8b1-14 Frequency-Selective I/Q Imbalance Compensation for OFDM Receivers Using Decision-Feedback Adaptive Filtering
R. Keith McPherson, Jim Schroeder, Harris Corporation
- MA8b1-15 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.
- MA8b1-16 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

- MA8b2-9 Algebraic Confidence for Sensor Localization
Jani Saloranta, University of Oulu; Stefano Severi, Jacobs University Bremen; Davide Macagnano, University of Oulu; Giuseppe Abreu, Jacobs University Bremen
- MA8b2-10 Breaking the Isotropic Scattering Assumption in Wide-beam Stripmap SAR Imaging
Jacob Gunther, Utah State University; Chad Knight, Space Dynamics Laboratory; Todd Moon, Utah State University
- MA8b2-11 A Distributed Adaptive GSC Beamformer over Coordinated Antenna Arrays Network for Interference Mitigation
Songtao Lu, Jinping Sun, Beihang University
- MA8b2-12 Spatial Coherence Modeling for Passive Ranging Using Distributed Arrays
Hongya Ge, New Jersey Institute of Technology; Ivars Kirsteins, Naval Undersea Warfare Center
- MA8b2-13 Waveform Diversity and Optimal Change Detection
Carl Rossler, Emre Ertin, Randolph Moses, Ohio State University
- MA8b2-14 Subband Gradient Flow Acoustic Source Separation for Moderate Reverberation Environment
Shuo Li, Milutin Stanacevic, Stony Brook University
- MA8b2-15 Gradient Flow Source Localization in Noisy and Reverberant Environment
Shuo Li, Milutin Stanacevic, Stony Brook University
- MA8b2-16 Analysis of Data Fusion Techniques for Small Arms Fire Localization
David Grasing, George Cakiades, Sachi Desai, U.S. Army RDECOM-ARDEC

Session MP1a Compressive Sensing

Chair: *Christoph Studer, Rice University*

- MP1a-1 Effect of Spatial Coupling and Bayesian Priors on Compressive Sensing Performance 1:30 PM
Arian Maleki, Christoph Studer, Jianing Shi, Richard Baraniuk, Rice University
- MP1a-2 Structured Signal Recovery from Single-Bit Measurements 1:55 PM
Yaniv Plan, University of Michigan
- MP1a-3 CoSaMP with Redundant Dictionaries 2:20 PM
Mark Davenport, Stanford University; Deanna Needell, Claremont McKenna College; Michael Wakin, Colorado School of Mines
- MP1a-4 Compressed Sensing with Radar Applications 2:45 PM
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*

- MP1b-1 Dynamics of Social Connections 3:30 PM
Lin Li, Anna Scaglione, University of California, Davis

MP1b-2	Dynamic Games with Side Information in Economic Networks <i>Ceyhun Eksin, Pooya Molavi, Alejandro Ribeiro, University of Pennsylvania</i>	3:55 PM
MP1b-3	Adaptive Decision-Making over Complex Networks <i>Sheng-Yuan Tu, Ali Sayed, University of California, Los Angeles</i>	4:20 PM
MP1b-4	A Factor Graph Approach to Diffusion Adaptive Filtering Methods <i>Andrew Bean, Thomas Riedl, Andrew Singer, University of Illinois, Urbana-Champaign</i>	4:45 PM

Session MP2a Source Localization in Distributed Sensor Arrays

Chair: *Christoph Mecklenbräuker, TU Vienna*

MP2a-1	Convergence Analysis of Distributed PAST Based on Consensus Propagation <i>Carolina del Socorro Reyes Membreno, Markus Rupp, Vienna University of Technology</i>	1:30 PM
MP2a-2	Localization of Acoustic Sources Utilizing a Decentralized Particle Filter <i>Florian Xaver, Gerald Matz, Vienna University of Technology; Peter Gerstoft, University of California, San Diego; Norbert Görtz, Vienna University of Technology</i>	1:55 PM
MP2a-3	Bayesian Sparse Sensing of the Japanese 2011 Earthquake <i>Peter Gerstoft, University of California, San Diego; Christoph Mecklenbräuker, Vienna University of Technology</i>	2:20 PM
MP2a-4	Distributed Source Localization in Subarray Sensor Networks. <i>Christian Steffens, Michael Rübsamen, Marius Pesavento, Technische Universität Darmstadt</i>	2:45 PM

Session MP2b Network Beamforming

Chair: *Shahram Shahbazpanahi, University of Ontario Institute of Technology*

MP2b-1	Distributed Beamforming in Coarsely Synchronized Relay Networks <i>Adrian Schad, Technische Universität Darmstadt; Babak Khalaj, Sharif University of Technology; Marius Pesavento, Technische Universität Darmstadt</i>	3:30 PM
MP2b-2	Distributed Beamforming for Two-Way Relaying Networks with Individual Power Constraints <i>Jianshu Zhang, Florian Römer, Martin Haardt, Technische Universität Ilmenau</i>	3:55 PM
MP2b-3	Beamforming Design for Two-Way Relay Networks Under Per-Node Power Constraint <i>Shahram ShahbazPanahi, University of Ontario; Yindi Jing, University of Alberta</i>	4:20 PM

- MP2b-4 Improving Achievable Rate for the Two-User SISO Interference Channel with Improper Gaussian Signaling 4:45 PM
Yong Zeng, Mustafa Cenk Yetis, Erry Gunawan, Yong Liang Guan, Nanyang Technological University; Rui Zhang, National University of Singapore

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 1:30 PM
Derrick Wing Kwan Ng, Robert Schober, University of British Columbia
- MP3a-2 On Coherent Combining of Distributed Observations 1:55 PM
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 2:20 PM
Xiang Gao, Fredrik Tufvesson, Ove Edfors, Fredrik Rusek, Lund University
- MP3a-4 Decentralized (Cell-Free) Large-Scale Antenna System 2:45 PM
Alexei Ashikhmin, Thomas L Marzetta, Bell Laboratories, Alcatel-Lucent; 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 3:30 PM
Hoi-Toi Wai, Win-Kin Ma, Chinese University of Hong Kong
- MP3b-2 Analyzing the IA Feasibility Problem via New Tools from Algebraic Geometry 3:55 PM
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 4:20 PM
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 4:45 PM
Mingyi Hong, Meisam Razaviyayn, Ruo-Yu Sun, Zhi-Quan Luo, University of Minnesota

Session MP4a Cognitive Radio Networks

Chair: *Visa Koivunen, Aalto University*

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|--------|--|---------|
| MP4a-1 | Cooperative Compressive Wideband Power Spectrum Sensing
<i>Dyonisius Dony Ariananda, Geert Leus, Delft University of Technology</i> | 1:30 PM |
| MP4a-2 | On Hybrid Cooperation in Underlay Cognitive Radio Networks
<i>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</i> | 1:55 PM |
| MP4a-3 | Sequential Good Channel Search for Multi-channel Cognitive Radio
<i>Raied Caromi, Seshadri Mohan, University of Arkansas, Little Rock; Lifeng Lai, Worcester Polytechnic Institute</i> | 2:20 PM |
| MP4a-4 | A Sensing Policy Based on Confidence Bounds and a Restless Multi-armed Bandit Model
<i>Jan Oksanen, Visa Koivunen, Aalto University; H. Vincent Poor, Princeton University</i> | 2:45 PM |

Session MP4b Machine-to-Machine Communications and Networks

Chair: *KC Chen, National Taiwan University*

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| MP4b-1 | Not Every Bit Counts: Shifting the Focus from Machine to Data for Machine-to-Machine Communications
<i>Chih-Hua Chang, Hung-Yun Hsieh, Hsuan-Jung Su, National Taiwan University</i> | 3:30 PM |
| MP4b-2 | Exploring Utility-based Optimization and Management for Wireless Sensor Networks and Machine-to-Machine Communications
<i>Petri Mähönen, Janne Riihijarvi, RWTH Aachen University</i> | 3:55 PM |
| MP4b-3 | Controlling Access Overload and Signaling Congestion in M2M Networks
<i>Rath Vannithamby, Intel Corporation</i> | 4:20 PM |
| MP4b-4 | Dynamic Spectrum Allocation under Cognitive Cellular Network for M2M Applications
<i>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; Kangwon Lee, IBM T. J. Watson Research Laboratory</i> | 4:45 PM |

Session MP5a Image and Video Coding

Chair: *Marios Pattichis, University of New Mexico*

- MP5a-1 Dynamically Reconfigurable AVC 1:30 PM
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 1:55 PM
Improved JPEG2000 Coding
Thien Phan, Phong Vu, Damon Chandler, Oklahoma State University
- MP5a-3 Blind Quality Assessment of Videos Using a 2:20 PM
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 2:45 PM
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 3:30 PM
Processing
P. P. Vaidyanathan, California Institute of Technology
- MP5b-2 Single-Image Super-Resolution Using 3:55 PM
Multihypothesis Prediction
Chen Chen, James Fowler, Mississippi State University
- MP5b-3 L-infinity Regularized Models for 4:20 PM
Segmentation, Cartoon-Texture Decomposition, and Image Restoration
Hayden Schaeffer, Luminita Vese, University of California, Los Angeles
- MP5b-4 Implicit Gibbs Prior Models for Tomographic 4:45 PM
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 1:30 PM
Radix-16 Square Root Algorithm with Limited Precision Primitives
Milos D. Ercegovac, University of California, Los Angeles; Robert McIlhenny, Californi State University Northridge
- MP6a-2 Decimal On-line Multioperand Addition 1:55 PM
Carlos Garcia-Vega, Sonia Gonzalez-Navarro, Julio Villalba, Emilio L. Zapata, University of Malaga

- MP6a-3 Variable-Accuracy Multiplication Using Approximate Binary Logarithms and Parallel Error Correction 2:20 PM
Michael Sullivan, Earl Swartzlander, University of Texas at Austin
- MP6a-4 Experiments with Multiplier Reduction Trees 2:45 PM
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 3:30 PM
Colm Kelly, Thales Air Defence Limited; Roger Woods, Queen's University Belfast
- MP6b-2 Is There a Smarter Way to Use 100 Billion Transistors? 3:55 PM
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 4:20 PM
Michael Schulte, AMD
- MP6b-4 Reliable Low Power Distributed Arithmetic Filters via N-modular Redundancy 4:45 PM
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 1:30 PM
Guido Gerig, University of Utah
- MP7a-2 Computational Diffusion MRI: On Some Recent Advances and Beyond 1:55 PM
Rachid Deriche, INRIA Sophia Antipolis
- MP7a-3 Analytics for Time-Varying Catheterization Imaging Data: A Probabilistic Approach 2:20 PM
Ioannis Kakadiaris, University of Houston
- MP7a-4 Estimating 3D Tongue Motion with MR Images 2:45 PM
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*

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| MP7b-1 | Cell Mechanics Analysis by
Physically-Constrained Optical Flow
<i>Jean-Christophe Olivo-Marin, Timothee Lecomte,
Alexandre Dufour, Nancy Guillen, Roman Thibaux,
Institut Pasteur</i> | 3:30 PM |
| MP7b-2 | Exploitation of Radar Doppler Signatures for
Gait Analysis
<i>Jennifer Palmer, Kristin Bing, Amy Sharma, Georgia Tech
Research Institute</i> | 3:55 PM |
| MP7b-3 | A Third-Order Approximate Solution of the
EEG Forward Problem in Four-Shell Ellipsoidal
Geometry
<i>D. Gutiérrez, M. Alcocer-Sosa, Center of Research and
Advanced Studies</i> | 4:20 PM |
| MP7b-4 | Phase Congruency Singular Value
Decomposition for Multi-Scale Neuron
Enhancement
<i>Emmanuel Denloye-Ito, Scott Acton, University of Virginia</i> | 4:45 PM |

Session MP8a1 **MIMO Communications and Signal Processing I**

Chair: *Andreas Burg, Ecole Polytechnique Federale de Lausanne (EPFL)*

1:30 PM - 3:10 PM

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

- MP8a1-7 Volume of Ball and Hamming-type Bounds for Stiefel Manifold with Euclidean Distance
Renaud-Alexandre Pitaval, Olav Tirkkonen, Aalto University
- MP8a1-8 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
- MP8a1-9 Max-Rate MIMO Broadcast DFE Transceiver Design under Power and SER Constraints
Chih-Hao Liu, P. P. Vaidyanathan, California Institute of Technology
- MP8a1-10 Performance of Asymmetric Antenna Configurations in Polarized Channels
Robert Severinghaus, Murali Tummala, John McEachen, Naval Postgraduate School
- MP8a1-11 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
- MP8a1-12 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

- MP8a2-1 Fast Compressed Image Sensing Based on Sampling Matrix Design
Chun-Shien Lu, Hung-Wei Chen, Sung-Hsien Hsieh, Academia Sinica
- MP8a2-2 Particle Filtering for Multivariate State-Space Models
Petar M Djuric, Monica F. Bugallo, Stony Brook University
- MP8a2-3 Extracting Atmospheric Profiles from Hyperspectral Data with Particle Filters
Dustin Rawlings, Jacob Gunther, Todd Moon, Utah State University
- MP8a2-4 Using Dictionary Learning for Improving Hyperspectral Pixel Classification
Andrew Pound, Jacob Gunther, Todd K. Moon, Utah State University; Gustavious P. Williams, Brigham Young University
- MP8a2-5 Fault Localization in Smart Grid Using Wavelet Analysis and Unsupervised Learning
Huaiguang Jiang, Jun Zhang, Wenzhong Gao, University of Denver

- MP8a2-6 Sensitivity of Polynomial Composition and Decomposition for Signal Processing Applications
Sefa Demirtas, Guolong Su, Alan V. Oppenheim, Massachusetts Institute of Technology
- MP8a2-7 A Variable Regularization Control Method for NLMS Algorithm
Junghsi Lee, Hsu-Chang Huang, Yuan-Ze University
- MP8a2-8 Electromagnetic Field Recognition for Proactive Robot Communication Connectivity Maintenance
Mustafa Ayad, Jun Jason Zhang, Richard Voyles, Mohammad Mahoor, University of Denver
- MP8a2-9 A Data Reusage Algorithm Based on Incremental Combination of LMS Filters
Luiz Chamon, Humberto Ferro, Cássio Lopes, University of São Paulo
- MP8a2-10 Superresolution by Compressive Sensing Algorithms
Albert Fannjiang, Wenjing Liao, University of California, Davis
- MP8a2-11 Compressive Ladar Detector Noise Performance
Darryl Sale, Christopher J. Rozell, Justin Romberg, Aaron D. Lanterman, Georgia Institute of Technology
- MP8a2-12 Rank Property of the MIMO Gaussian Wiretap Channel with an Average Power Constraint
Ali Fakoorian, A. Lee Swindlehurst, University of California, Irvine
- MP8a2-13 Nonlinear System Identification Using Compressed Sensing
Manjish Naik, Douglas Cochran, Arizona State University
- MP8a2-14 The Resolution of Derived Secondary Information from Filter Banks May Not Follow Directly from the Signal Models
Victor DeBrunner, Guifeng Liu, Florida State University
- MP8a2-15 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
- MP8a2-16 Classification of Multivariate Data Using Dirichlet Process Mixture Models
Petar M Djuric, Stony Brook University; Andre Ferrari, Universite de Nice-Sophia Antipolis
- MP8a2-17 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*

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| TA1a-1 | Physical Layer Security in Space-Division Multiplexed Fiber Optic Communications
<i>Kyle Guan, Emina Soljanin, Peter Winzer, Bell Laboratories, Alcatel-Lucent</i> | 8:15 AM |
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| TA1a-2 | Modeling of Linear and Nonlinear Coupling in Multiple-Mode Fiber Optic Transmission with MIMO Signal Processing
<i>Cristian Antonelli, Antonio Mecozzi, University of L'Aquila; Mark Shtaiif, Tel Aviv University</i> | 8:40 AM |
| TA1a-3 | Mode Coupling in Coherent Mode-Division-Multiplexed Systems: Impact on Capacity and Signal Processing Complexity
<i>Joseph Kahn, Stanford University; Keang-Po Ho, Silicon Image</i> | 9:05 AM |
| TA1a-4 | Experimental Characterization of the Fiber-Optic MIMO Channel
<i>Sebastian Randel, Roland Ryf, Peter Winzer, Bell Laboratories, Alcatel-Lucent</i> | 9:30 AM |

Session TA1b **Wireless Video Transmission Systems**

Chair: *Andreas Molish, University of Southern California*

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|--------|--|----------|
| TA1b-1 | Enhanced Adaptive Streaming over LTE-Advanced Wireless Networks
<i>Jeff Foerster, Intel</i> | 10:15 AM |
| TA1b-2 | Subcarrier Mapping Based on Slice Visibility for Video Transmission over OFDM Channels
<i>Laura Toni, Pamela C. Cosman, Laurence B. Milstein, University of California, San Diego</i> | 10:40 AM |
| TA1b-3 | An Online Learning Framework for Perceptually Optimized Adaptive Video Transmission
<i>Amin Khalek, Robert Heath, University of Texas at Austin</i> | 11:05 AM |
| TA1b-4 | Device-to-Device Communications for Wireless Video Delivery
<i>Negin Golrezaei, Alexandros Dimakis, Andreas F. Molisch, University of Southern California</i> | 11:30 AM |

Session TA2a **Game Theory in Communications**

Co-Chairs: *Marco Luise and Giacomo Bacci, University of Pisa*

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| TA2a-1 | Distributed Spectrum Sharing Policies for Selfish Users with Imperfect Monitoring Ability
<i>Yuanzhang Xiao, Mihaela van der Schaar, University of California, Los Angeles</i> | 8:15 AM |
| TA2a-2 | Energy Efficiency Games in Cloud Computing for Wireless Networks
<i>Tao Lin, Tansu Alpcan, Arun Vishwanath, University of Melbourne</i> | 8:40 AM |
| TA2a-3 | Mean Field Energy Games in Wireless Networks
<i>François Mériaux, Laboratoire des Signaux et Systèmes (L2S); Vineeth S Varma, Orange Labs; Samson Lasaulce, Laboratoire des Signaux et Systèmes (L2S)</i> | 9:05 AM |

TA2a-4	Learning Efficient Satisfaction Equilibrium via Trial and Error in Decentralized Wireless Networks <i>Samir Perlaza, Princeton University; Zhu Han, University of Houston; H. Vincent Poor, Princeton University</i>	9:30 AM
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Session TA2b Coding Theory for the Next-Generation Storage Systems

Chair: *Lara Dolecek, University of California, Los Angeles*

TA2b-1	Content-assisted File Decoding for Nonvolatile Memories <i>Anxiao Jiang, Yue Li, Yue Wang, Texas A&M University; Jehoshua Bruck, California Institute of Technology</i>	10:15 AM
TA2b-2	LDPC Codes on Euclidean Geometries: Trapping Set Structure <i>Qiuju Diao, Ying Tai, Shu Lin, Khaled Abdel-Ghaffar, University of California, Davis</i>	10:40 AM
TA2b-3	Covering Codes for Multilevel Flash Memories <i>Kathryn Haymaker, Christine Kelley, University of Nebraska-Lincoln</i>	11:05 AM
TA2b-4	Comparison of ECC Performance on MLC and TLC Flash Memories <i>Paul H. Siegel, Brian K. Butler, Scott Kayser, Eitan Yaakobi, Xiaojie (Eric) Zhang, University of California, San Diego</i>	11:30 AM

Session TA3a Multiuser and Massive MIMO

Chair: *Nihar Jindal, Broadcom*

TA3a-1	Downlink Outage Probability in MIMO HetNets <i>Harpreet S. Dhillon, University of Texas at Austin; Marios Kountouris, École supérieure d'électricité; Jeff Andrews, University of Texas at Austin</i>	8:15 AM
TA3a-2	Coverage and Capacity in mmWave MIMO Systems <i>Salam Akoum, Omar El Ayach, Robert W. Heath, University of Texas at Austin</i>	8:40 AM
TA3a-3	A Millimeter-Wave Massive MIMO System for Next Generation Mobile Broadband <i>Zhouyue Pi, Jianzhong Zhang, Farooq Khan, Samsung Corp.</i>	9:05 AM
TA3a-4	Towards Improving LTE SU/MU-MIMO Performance: Issues in Channel Estimation, Interpolation and Feedback <i>Ozgun Y. Bursalioglu, Sean A. Ramprasad, Haralabos C. Papadopoulos, NTT DoCoMo Labs</i>	9:30 AM

Session TA3b Compressive Estimation

Chair: *Wee Peng Tay, Nanyang Technological University, Singapore*

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| TA3b-1 | Compressive Estimation in AWGN: General Observations and a Case Study
<i>Dinesh Ramasamy, Sriram Venkateswaran, Upamanyu Madhow, University of California, Santa Barbara</i> | 10:15 AM |
| TA3b-2 | On Application of LASSO for Sparse Support Recovery with Imperfect Correlation Awareness
<i>Piya Pal, P. P. Vaidyanathan, California Institute of Technology</i> | 10:40 AM |
| TA3b-3 | Compressive Multiplexers for Correlated Signals
<i>Ali Ahmed, Justin Romberg, Georgia Institute of Technology</i> | 11:05 AM |
| TA3b-4 | Optimal Acquisition Policy for Compressed Measurements with Limited Observations
<i>Sourabh Bhattacharya, Ashutosh Nayyar, Tamer Basar, University of Illinois, Urbana-Champaign</i> | 11:30 AM |

Session TA4a Social Networks

Chair: *Patrick Wolfe, Harvard University*

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| TA4a-1 | Hub Discovery in Partial Correlation Graphical Models
<i>Al Hero, University of Michigan</i> | 8:15 AM |
| TA4a-2 | Geometric Network Analysis Tools
<i>Michael Mahoney, Stanford University</i> | 8:40 AM |
| TA4a-3 | Learning over Social Networks via Diffusion Adaptation
<i>Xiaochuan Zhao, Ali Sayed, University of California, Los Angeles</i> | 9:05 AM |
| TA4a-4 | Large Networks of Dynamic Agents: Consensus under Adversarial Disturbances
<i>Dario Bauso, Tamer Basar, University of Illinois, Urbana-Champaign</i> | 9:30 AM |

Session TA4b Signal Processing for Cyber-Security and Privacy in Networks

Chair: *Lalitha Sankar, Arizona State University*

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|--------|---|----------|
| TA4b-1 | Secure Estimation in Cyber-Physical Systems
<i>Yilin Mo, Bruno Sinopoli, Carnegie Mellon University</i> | 10:15 AM |
| TA4b-2 | Analyzing Privacy and Utility Using Axioms
<i>Daniel Kifer, Bing-Rong Lin, Penn State University</i> | 10:40 AM |
| TA4b-3 | Quantifying the Delay-Privacy Trade-off in the Design of a Scheduling Policy
<i>Sachin Kadloor, Negar Kiyavash, University of Illinois, Urbana-Champaign; Parv Venkitasubramaniam, Lehigh University</i> | 11:05 AM |
| TA4b-4 | A Formal Framework for Joint Privacy and Security Modeling and Analysis in Data and Communication Networks
<i>John Baras, University of Maryland</i> | 11:30 AM |

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 8:15 AM
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 8:40 AM
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 9:05 AM
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 9:30 AM
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 10:15 AM
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 10:40 AM
Pouya Dormiani, Milos Ercegovac, University of California, Los Angeles
- TA5b-3 FPGA-Accelerated Simulation of Truncated-Matrix Multipliers 11:05 AM
George Walters, Penn State Erie, The Behrend College
- TA5b-4 A Low-Power Dual-Path Floating-Point Fused Add-Subtract Unit 11:30 AM
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 8:15 AM
Mircea Stan, Kaushik Mazumdar, University of Virginia
- TA6a-2 A Review of QCA Adders and Metrics 8:40 AM
Weiqliang Liu, Maire O'Neill, Queen's University of Belfast; Earl Swartzlander, University of Texas at Austin

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| TA6a-3 | Circuits for Ultra-low Power Millimeter-Scale Sensor Nodes: Progress, Opportunities, and Challenges
<i>Yoonmyung Lee, Dennis Sylvester, David Blaauw, University of Michigan</i> | 9:05 AM |
| TA6a-4 | Distributed Power Delivery for Energy Efficient and Low Power Systems
<i>Selcuk Kose, University of South Florida; Eby Friedman, University of Rochester</i> | 9:30 AM |

Session TA6b Low Power II

Chair: *James Stine, Oklahoma State University*

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|--------|---|----------|
| TA6b-1 | The Energy-Efficiency of Asynchronous Architectures
<i>Rajit Manohar, Cornell University</i> | 10:15 AM |
| TA6b-2 | Optimized Low-Power Elementary Function Approximation for Chebyshev Series Approximations
<i>Masoud Sadeghian, Oklahoma State University; James Stine, Oklahoma State University</i> | 10:40 AM |
| TA6b-3 | Yield-Driven Minimum Energy CMOS Circuit Design
<i>Max Korbel, Dylan Stow, Chris Ferguson, David Harris, Harvey Mudd College</i> | 11:05 AM |
| TA6b-4 | Power Efficient Design of Parallel/Serial FIR Filters in RNS
<i>Massimo Petricca, Pietro Albicocco, Gian Carlo Cardarilli, University of Rome Tor Vergata; Alberto Nannarelli, Technical University of Denmark; Marco Re, University of Rome Tor Vergata</i> | 11:30 AM |

Session TA7a Biological Networks and Machine Learning

Chair: *Olgica Milenkovic, University of Illinois, Urbana-Champaign*

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| TA7a-1 | Wavelet Packets Based Clustering for the Study of Functional Connectivity in the Rat Brain
<i>Alessio Medda, Georgia Institute of Technology; Shella Keilholz, Emory University School of Medicine</i> | 8:15 AM |
| TA7a-2 | Reconstructing a Sparse Matrix Using Row and Column Pooling
<i>Or Zuk, Broad Institute of MIT and Harvard</i> | 8:40 AM |
| TA7a-3 | Alignment of Multiple Biological Networks Based on Semi-Markov Random Walk Scores
<i>Sayed Mohammad Ebrahim Sahraeian, Byung-Jun Yoon, Texas A&M University</i> | 9:05 AM |
| TA7a-4 | Reducing the Number of Features for Seizure Prediction of Spectral Power in Intracranial EEG
<i>Yun Park, Brown University; Theoden Netoff, Keshab Parhi, University of Minnesota</i> | 9:30 AM |

Session TA7b Sequence and Genome Analysis

Chair: *Sharon Aviran, University of California, Berkeley*

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| TA7b-1 | Sparse Inference of Regulatory Networks
Using Information-Theoretic Methods
<i>Mo Deng, Amin Emad, Olgica Milenkovic, University of Illinois, Urbana-Champaign</i> | 10:15 AM |
| TA7b-2 | Structural Stabilization of RNA-Protein
Binding Sites through High Linkage SNPs
<i>Matthew Halvorsen, Joshua S. Martin, Wes Sanders, Justin Ritz, Alain Laederach, University of North Carolina, Chapel Hill</i> | 10:40 AM |
| TA7b-3 | Detection of Antipodal Persistence in Large
Scale Differential Gene Expression Experiments
<i>Alfred Hero, Robert Brown, Hamed Firouzi, University of Michigan, Ann Arbor</i> | 11:05 AM |
| TA7b-4 | Efficient Genotyping of Individuals Using
Overlapping Pool Sequencing and Imputation
<i>Farhad Hormozdiari, Zhanyong Wang, Wen-Yun Yang, Eleazar Eskin, University of California, Los Angeles</i> | 11:30 AM |

Session TA8a1 Array Signal Processing II

Chair: *Peter Gerstoft, University of California San Diego*

8:15 AM - 9:55 AM

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| TA8a1-1 | An Analytical Framework for Transmit Beamforming
with Peak Power Constraint
<i>Zhenhua Yu, Xiaoli Ma, G. Tong Zhou, Georgia Institute of Technology</i> |
| TA8a1-2 | On the Applicability of Source Localization Techniques
to Passive Multistatic Radar
<i>Daniel Hack, Lee Patton, Matrix Research, Inc.; Braham Himed, Michael Saville, Air Force Research Laboratory</i> |
| TA8a1-3 | Sparse Frequency Diverse MIMO Radar Imaging
<i>Changchang Liu, Weidong Chen, University of Science and Technology of China</i> |
| TA8a1-4 | EEG Source Localization Using Beamforming in
Energy-Constrained Regions
<i>D. Gutiérrez, C. C. Zaragoza-Martínez, Center of Research and Advanced Studies</i> |
| TA8a1-5 | Hybrid Cramer-Rao Lower Bound for Sniper
Localization via a Helicopter-Based Acoustic Array
<i>Lou Fertig, Georgia Tech Research Institute</i> |
| TA8a1-6 | A ML Localizer of Multiple Radar Targets
<i>Francesco Bandiera, Michele Mancino, Giuseppe Ricci, University of Salento; Danilo Orlando, ELETTRONICA S.p.A.</i> |
| TA8a1-7 | Recursive Updating Algorithm for Robust Capon
Beamforming with Steering Vector Mismatches
<i>Evgeny Mavrychev, Nizhniy Novgorod State Technical University</i> |

- TA8a1-8 A Generalized Sinusoidal Frequency Modulated
Waveform for Active Sonar
*David Hague, John Buck, University of Massachusetts
Dartmouth*
- TA8a1-9 Consistent Linear Tracker with Position and Range Rate
Measurements
*Steven Bordonaro, Naval Undersea Warfare Center; Peter
Willett, Yaakov Bar-Shalom, University of Connecticut*
- TA8a1-10 Joint Adaptive Beamforming and Echo Cancellation
Using a Non Reference Anchor Array Framework
*Karan Nathwani, Rajesh Hegde, Indian Institute of
Technology Kanpur*
- TA8a1-11 Tensor Decompositions with Vandermonde Factor and
Applications in Signal Processing
Mikael Sorensen, Lieven De Lathauwer, KU Leuven
- TA8a1-12 A Correction and Generalization to the Sparse Learning
via Iterative Minimization Method for Target off the Grid
in MIMO Radar Imaging
*Changchang Liu, Li Ding, Weidong Chen, University of
Science and Technology of China*
- TA8a1-13 Synthetic Beamforming with Distributed Digital
Subarrays
Bo-Kai Feng, David Jenn, Naval Postgraduate School
- TA8a1-14 Velocity Spectrum Analysis in Seismic Prospecting
Combining Detection Principles, Beam-space Techniques
and Coherent Signal-Subspace Processing
*Rafael Krummenauer, Martin Tygel, Amauri Lopes,
University of Campinas*
- TA8a1-15 Cooperative Localization in Wireless Networks under
Bandwidth Constraints
*Panos Alevizos, Nikos Fasarakis-Hilliard, Aggelos
Bletsas, Technical University of Crete*
- TA8a1-16 Cramer-Rao Lower Bounds for Estimation of Phase in
LBI Based Localization Systems
*Mohammad Pourhomayoun, Mark Fowler, Binghamton
University*

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*

- TA8a2-4 Efficient FFT Based Comb Filtering without Doing the FFT
Jim Rasmussen, The MITRE Corporation
- TA8a2-5 A Connection-Constraint Algorithm for a Sparse Adaptive Photonic Filter
Suk-seung Hwang, Chosun University; John J. Shynk, University of California, Santa Barbara
- TA8a2-6 Discriminative Dictionary Learning via Mutual Exclusion
Raghu Raj, U.S. Naval Research Laboratory
- TA8a2-7 Convergence Analysis of Clipped Input Adaptive Filters Applied to System Identification
Mehdi Bekrani, Andy W. H. Khong, Nanyang Technological University
- TA8a2-8 Sparse RLS Adaptive Filter with Diagonal Loading
Yuriy Zakharov, University of York; Vitor Nascimento, University of São Paulo
- TA8a2-9 Distributed Consensus Based Joint Resource and Routing Optimization in Wireless Sensor Networks
Markus Leinonen, Marian Codreanu, Markku Juntti, University of Oulu
- TA8a2-10 Tracking Analysis of the ϵ -NSRLMMN Algorithm
Mohammed Faiz, Azzedine Zerguine, King Fahd University of Petroleum and Minerals
- TA8a2-11 Homotopy algorithm Using Dichotomous Coordinate Descent Iterations for Sparse Recovery
Yuriy Zakharov, University of York; Vitor Nascimento, University of São Paulo
- TA8a2-12 Hirschman Uncertainty Using Rényi, Instead of Shannon, Entropy is Invariant to the Rényi Entropy Order
Kirandeep Ghuman, Victor DeBrunner, Florida State University
- TA8a2-13 Joint Distributed Parameter and Channel Estimation in Wireless Sensor Networks via Variational Inference
Aitzaz Ahmad, Erchin Serpedin, Hazem Nounou, Mohamed Nounou, Texas A&M University
- TA8a2-14 Performance Analysis for 2-D Convolution Implemented with the 2-D Modified Discrete Fourier Transform
Chandrashekar Radhakrishnan, University of Illinois; William Jenkins, Pennsylvania State University

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 Cabric, University of California, Los Angeles
- TA8b1-2 Buffer Aware Power Control for Cognitive Radio Networks
Eman Naguib, Tamer Elbatt, Mohammed Nafie, Nile University

- TA8b1-3 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
- TA8b1-4 Stochastic Online Learning under Unknown Time-Varying Models
Pouya Tehrani, Qing Zhao, University of California, Davis
- TA8b1-5 Spectrum Sensing Scheduling in a Cost-based Framework
Aditya Kelkar, Qi Cheng, Oklahoma State University
- TA8b1-6 The Optimal Fusion Rule for Cooperative Spectrum Sensing from a Diversity Perspective
Dongliang Duan, Liuqing Yang, Louis L. Scharf, Colorado State University
- TA8b1-7 Diffuse Mid-UV Communication in the Presence of Obscurants
Derek Young, Jerry Brewer, Jeannette Chang, Tina Chou, Jacques Kvam, Matthew Pugh, Sandia National Labs
- TA8b1-8 Quickest Search for Anomaly Detection
Qing Zhao, Baha Alzalg, University of California, Davis; Ananthram Swami, Army Research Laboratory
- TA8b1-9 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
- TA8b1-10 Predicting Spectrum Vacancy for Opportunistic Communications
David Browne, MIT Lincoln Laboratory
- TA8b1-11 Cross-Layer Transmission Rate/Power Policy for Cognitive Multi-Access Networks with Imperfect Sensing
Ghada Hatem, Amr El-Keyi, Mohammed Nafie, Nile University
- TA8b1-12 A Cross Layer Routing Protocol for Cognitive Radio Networks Using Channel Activity Tracking
Sandeep 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

- TA8b2-1 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

- TA8b2-2 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
- TA8b2-3 Joint Interference and Phase Alignment in Multiuser MIMO Interference Channels
Seyed Morteza Razavi, Tharmalingam Ratnarajah, Mathini Sellathurai, Queen's University Belfast
- TA8b2-4 User-Aided Sub-Clustering for CoMP Transmission: Feedback Overhead vs. Data Rate Trade-off
Lars Thiele, Fraunhofer Heinrich Hertz Institute
- TA8b2-5 Chance Constrained and Ergodic Robust QoS Power Minimization in the Satellite Downlink
Andreas Gründinger, Arailym Butabayeva, Michael Joham, Wolfgang Utschick, Technische Universität München
- TA8b2-6 Joint Channel and Data Estimation for MIMO Communications with Sparse Pilots
Yejian Chen, Stephan ten Brink, Bell Laboratories, Alcatel-Lucent
- TA8b2-7 Simulated Annealing User Scheduling for Coordinated Heterogeneous MIMO Networks
Hakimeh Purmehdi, Robert Elliott, Witold Krzymien, University of Alberta, and TRLabs
- TA8b2-8 Carrier-Cooperative Zero-Forcing for Power Minimization in Parallel MIMO Broadcast Channels
Stephan Herrmann, Christoph Hellings, Wolfgang Utschick, Technische Universität München
- TA8b2-9 Performance of MMSE Multi-antenna Receiver under Hierarchical Poisson Random Fields of Interferences
Wei Shi, James Ritcey, University of Washington
- TA8b2-10 Concurrent Training and Data Transmission in Multiple-Access Channels
Adriano Pastore, Javier Rodríguez Fonollosa, Universitat Politècnica de Catalunya
- TA8b2-11 Best and Worst-Case Statistics for Linear Beamforming in the MISO Correlated Broadcast Channel
Vasanthan Raghavan, University of Southern California; Stephen Hanly, Macquarie University
- TA8b2-12 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: *Atila Eryilmaz, Ohio State University*

- TP1a-1 Optimizing Transmissions for Wireless Video 1:30 PM
Michael Neely, Giuseppe Caire, University of Southern California
- TP1a-2 Gossip-Based Random Projection Algorithm for SVMs 1:55 PM
Lee Soo Min, Angelia Nedich, University of Illinois, Urbana-Champaign
- TP1a-3 Random Hamiltonian Cycles with Random Link Deletions 2:20 PM
Joohwan Kim, R. Srikant, University of Illinois, Urbana-Champaign

TP1a-4 Temporal Statistical Characterization of 2:45 PM
Interference for Joint Encoding and Random Access
*C. Emre Koksall, 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 3:30 PM
Approximation: The Price of Non-double
Stochasticity
*Gemma Morral, Pascal Bianchi, Gersende Fort, Institut
Telecom / Telecom ParisTech / CNRS-LTCl; Jérémie
Jakubowicz, Institut Telecom / Telecom Sud Paris*

TP1b-2 Distributed Maximum a Posteriori Probability 3:55 PM
Estimation for Tracking of Dynamic Systems
*Felicia Jakubiec, Alejandro Ribeiro, University of
Pennsylvania*

TP1b-3 Identifying Multiple Infection Sources in a 4:20 PM
Network
*Wuqiong Luo, Wee Peng Tay, Nanyang Technological
University*

TP1b-4 Distributed Learning in Large Scale 4:45 PM
Multi-Agent Games: A Modified Fictitious Play
Approach
*Brian Swenson, Soumya Kar, Carnegie Mellon
University*

TP1b-5 An Iterative Precoding Approach for Joint 5:10 PM
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 1:30 PM
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 1:55 PM
Bounded Transmissions
*Sivaraman Dasarathan, Mahesh Banavar, Cihan
Tepedelenlioglu, Andreas Spanias, Arizona State
University*

TP2a-3 Distributed Gram-Schmidt Orthogonalization 2:20 PM
Based on Dynamic Consensus
*Ondrej Sluciak, Vienna University of Technology; Hana
Strakova, University of Vienna; Markus Rupp, Vienna
University of Technology; Wilfried Gansterer, University
of Vienna*

TP2a-4 Simultaneous Distributed Sensor 2:45 PM
 Self-Localization and Target Tracking Using Belief
 Propagation and Likelihood Consensus
*Florian Meyer, Erwin Riegler, Ondrej Hlinka, Franz
 Hlawatsch, Vienna University of Technology*

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 3:30 PM
 Distributed Estimation Strategies
*Vitor Nascimento, University of São Paulo; Ali Sayed,
 University of California, Los Angeles*

TP2b-2 Extrinsic Gossip and Reducing 3:55 PM
 Self-reinforcement in Distributed Consensus
*Andrew Bean, Angelia Nedich, Andrew Singer, University
 of Illinois, Urbana-Champaign*

TP2b-3 Non-linear Least Squares Estimation via 4:20 PM
 Network Diffusion
Simon Li, Anna Scaglione, University of California, Davis

TP2b-4 Fast Cooperative Distributed Learning 4:45 PM
*Dusan Jakovetic, Jose M F. Moura, Joao Xavier, Carnegie
 Mellon University*

TP2b-5 Exploiting the Noncircularity of Complex 5:10 PM
 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 1:30 PM
 Source with Memory: A Necessary Condition
*Jie Chen, Feng Jiang, Arnold Swindlehurst, University of
 California, Irvine*

TP3a-2 Empirical Rate-Distortion Study of 1:55 PM
 Compressive Sensing-based Joint Source-Channel
 Coding
*Muriel L. Rambeloarison, Soheil Feizi, Georgios
 Angelopoulos, Muriel Medard, Massachusetts Institute of
 Technology*

TP3a-3 Greedy Adaptive Measurements with Signal 2:20 PM
 and Measurement Noise
*Entao Liu, Edwin Chong, Louis Scharf, Colorado State
 University*

TP3a-4 Role of Bandwidth in the Quality of Inversion 2:45 PM
 of Linear Multirate Systems with Noise
*P. P. Vaidyanathan, Piya Pal, California Institute of
 Technology*

Session TP3b Underwater Communications

Chair: *Geert Leus, TU Delft*

- TP3b-1 Differentially Coherent OFDM with Fractional FFT Demodulation 3:30 PM
Yashar M Aval, Millica Stojanovic, Northeastern University
- TP3b-2 Channel Estimation for Multi-layer Block Transmissions over Underwater Acoustic Channels 3:55 PM
Srinivas Yerramalli, University of Southern California; Zijian Tang, Netherlands Organization for Applied Scientific Research; Urbashi Mitra, University of Southern California
- TP3b-3 Outage Performance of a Multiuser Distributed Antenna System in Underwater Acoustic Channels 4:20 PM
Zhaohui Wang, Shengli Zhou, University of Connecticut; Zhengdao Wang, Iowa State University; Josko Catipovic, Naval Undersea Warfare Center; Peter Willett, University of Connecticut
- TP3b-4 Underwater Channel Aware Routing 4:45 PM
Paolo Casari, Matteo Lazzarin, Michele Zorzi, University of Padova
- TP3b-5 Soft-Adaptive Turbo Equalization- Using Soft Information in Adaptation 5:10 PM
Atulya Yellepeddi, Massachusetts Institute of Technology/ Woods Hole Oceanographic Institute; James Preisig, Woods Hole Oceanographic Institute

Session TP4a Decoding and Detection

Chair: *Rodrigo de Lamare, The University of York*

- TP4a-1 Low-Complexity and Approximative Sphere Decoding of Sparse Signals 1:30 PM
Benjamin Knoop, Till Wiegand, Steffen Paul, University of Bremen
- TP4a-2 Dynamic Threshold Schemes for Multi-Level Nonvolatile Memories 1:55 PM
Frederic Sala, Ryan Gabrys, Lara Dolecek, University of California, Los Angeles
- TP4a-3 Iterative Detection and Decoding for MIMO Systems with Knowledge-Aided Belief Propagation Algorithms 2:20 PM
Jingjing Liu, Peng Li, Rodrigo de Lamare, University of York
- TP4a-4 Quantization, Absorbing Regions and Practical Message Passing Decoders 2:45 PM
Behzad Amiri, University of California, Los Angeles; Shayan Garani Srinivasa, Western Digital Corporation; Lara Dolecek, University of California, Los Angeles

Session TP4b Smart Grid Communications and Networks

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

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| TP4b-1 | Demand Response in Radial Distribution Networks
<i>Na Li, Lingwen Gan, Steven Low, California Institute of Technology; Lijun Chen, University of Colorado at Boulder</i> | 3:30 PM |
| TP4b-2 | Competitive Privacy in the Smart Grid
<i>Lalitha Sankar, Princeton University; Soumya Kar, Carnegie Mellon University; H. Vincent Poor, Princeton University</i> | 3:55 PM |
| TP4b-3 | Secure Network and Information Architectures for Smart Grid Data Analysis and Control
<i>Marina Thottan, Young Jin Kim, Gary Atkinson, Bell Laboratories, Alcatel-Lucent</i> | 4:20 PM |
| TP4b-4 | The Impact of Volatile Generation/Load Profile in Smart Grid on the Grid Vulnerability to Cascading Overload Failures
<i>Zhifang Wang, Xiao Li, Anna Scaglione, University of California, Davis; Robert J. Thomas, Cornell University</i> | 4:45 PM |
| TP4b-5 | Power Resource Allocation in a Network of Fast Charging Stations
<i>George Michailidis, Michael Devetsikiotis, Safak Bayram, University of Michigan</i> | 5:10 PM |

Session TP5a Design Methodologies and Architectures for Communications

Chair: *Joseph R. Cavallaro, Rice University*

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| TP5a-1 | High-Level Architecture Modeling and Exploration for Streaming Applications
<i>Usman Mazhar Mirza, Flavius Gruian, Lund University</i> | 1:30 PM |
| TP5a-2 | Sequential Decoding of Non-Binary LDPC Codes on Graphics Processing Units
<i>David Romero, Nicholas Chang, MIT Lincoln Laboratory</i> | 1:55 PM |
| TP5a-3 | A GPU Implementation of Belief Propagation Decoder for Polar Codes
<i>Bharath Kumar Reddy, Nitin Chandrakhodan, Indian Institute of Technology, Madras</i> | 2:20 PM |
| TP5a-4 | High Performance Efficient Parallel Nonbinary LDPC Decoding on GPU
<i>Guohui Wang, Hao Shen, Bei Yin, Yang Sun, Joseph R. Cavallaro, Rice University</i> | 2:45 PM |

Session TP5b Interference Alignment

Chair: *Tharm Ratnarajah, Queen's University Belfast*

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| TP5b-1 | System-level Performance of Distributed Cooperation
<i>Ratheesh Mungara, Geordie George, Angel Lozano, Universitat Pompeu Fabra</i> | 3:30 PM |
| TP5b-2 | On the DoF of the Multiple-Antenna Time Correlated Interference Channel with Delayed CSIT
<i>Xinping Yi, David Gesbert, Eurecom Institute; Sheng Yang, Mari Kobayashi, École supérieure d'électricité</i> | 3:55 PM |
| TP5b-3 | Linear Transceiver Design for the Noisy Gaussian MIMO Interference Channel with Partial CSI
<i>Francesco Negro, Eurecom Institute; Irfan Ghauri, Infineon Technologies France; Dirk Slock, Eurecom Institute</i> | 4:20 PM |
| TP5b-4 | On the Nuclear Norm Approach for Interference Alignment
<i>Huiqin Du, Tharm Ratnarajah, Queen's University Belfast</i> | 4:45 PM |
| TP5b-5 | Interference Alignment in Coordinated Multi-Point Systems
<i>Seyed Morteza Razavi, Tharm Ratnarajah, Queen's University Belfast</i> | 5:10 PM |

Session TP6a Wireless Full Duplex

Chair: *Ashutosh Sabharwal, Rice University*

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| TP6a-1 | Decode-and-Cancel for Interference Cancellation in Full-duplex Networks
<i>Jingwen Bai, Ashutosh Sabharwal, Rice University</i> | 1:30 PM |
| TP6a-2 | Full-Duplex MIMO Relaying: Achievable Rates under Limited Dynamic Range
<i>Brian Day, Ohio State University; Daniel Bliss, Adam Margetts, MIT Lincoln Laboratory; Philip Schniter, Ohio State University</i> | 1:55 PM |
| TP6a-3 | Full Duplex Wireless Communications with Partial Interference Cancellation
<i>Jianshu Zhang, Seyed Omid Taghizadeh Motlagh, Ilmenau University of Technology; Jian Luo, Fraunhofer Heinrich-Hertz-Institute; Martin Haardt, Ilmenau University of Technology</i> | 2:20 PM |
| TP6a-4 | Wideband Digital Cancellation for Full-Duplex Communications
<i>Mohammad Ali Khojastepour, Sampath Rangarajan, NEC Laboratories America, Inc.</i> | 2:45 PM |

Session TP6b Biological Image Analysis

Chair: *Scott T. Acton, University of Virginia*

- | | | |
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| TP6b-1 | Assessment of Wallerian Degeneration by Automated Image Analysis
<i>Andrea Vaccari, Kanchana Gamage, Sapir Nachum, Barry Condon, Christopher Deppmann, Scott Acton, University of Virginia</i> | 3:30 PM |
|--------|---|---------|

TP6b-2	Robust Biological Image Sequence Analysis Using Graph Based Approaches <i>B.S. Manjunath, Diana Delibaltov, Karthikeyen Shanmuga Vadivel, Vignesh Jagadeesh, University of California, Santa Barbara</i>	3:55 PM
TP6b-3	A Linear, Transportation-based, Embedding Method for Analyzing Biomedical Images <i>G.K. Rohde, W. Wang, S. Basu, D. Slepcev, Carnegie Mellon University</i>	4:20 PM
TP6b-4	An Information Theoretic Framework for MRI Preprocessing, Multiclass Feature Selection and Segmentation of PF Tumors <i>Shaheen Ahmed, Emory U.; K.M. Iftekhharuddin, Old Dominion University; E.O. George, University of Memphis</i>	4:45 PM
TP6b-5	The Effect of Image Registration on the Localization of Single Molecules in Microscopy Experiments <i>Raimund Ober, Edward Cohen, University of Texas at Dallas</i>	5:10 PM

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 <i>Arash Khabbazibasmenj, Sergiy Vorobyov, Aboulnasr Hassanien, Matthew Morency, University of Alberta</i>	1:30 PM
TP7a-2	Jammer Detection and Estimation with MIMO Radar <i>Xiufeng Song, Peter Willett, Shengli Zhou, University of Connecticut</i>	1:55 PM
TP7a-3	Non-linear Processing for Multicarrier MIMO Radar for Improved Target Resolution <i>Mir H. Mahmood, Mark R. Bell, Purdue University</i>	2:20 PM
TP7a-4	Generating Correlated QPSK Waveforms by Exploiting Real Gaussian Random Variables <i>Jardak Seifallah Jardak, Tunisia Polytechnic School (TPS)-University of Carthage; Sajid Ahmed, Slim Alouini, King Abdullah University of Science and Technology</i>	2:45 PM

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 <i>Shantanu Chakrabartty, Michigan State University</i>	3:30 PM
TP7b-2	Joint Tracking of Clean Speech and Noise Using HMMS and Particle Filters for Robust Speech Recognition <i>Aleem Mushtaq, Chin-Hui Lee, Georgia Institute of Technology</i>	3:55 PM

- TP7b-3 Sparsity-Constrained Stranded Gaussian Mixture Hidden Markov Models for Automatic Speech Recognition 4:20 PM
Yong Zhao, Biing-Hwang (Fred) Juang, Georgia Institute of Technology
- TP7b-4 Visual Speech Recognition Using Stereo-Vision Image 4:45 PM
Chao Sui, Mohammed Bennamoun, Roberto Togneri, Serajul Haque, Damien Pontifex, University of Western Australia
- TP7b-5 On the Integration of Time-Frequency Masking Source Separation and Missing Data Speech Recognition in Underdetermined Environments 5:10 PM
Ingrid Jafari, Serajul Haque, Roberto Togneri, Sven Nordholm, University of Western Australia

Session TP8a1 Relay Networks

Chair: *Maite Brandt-Pearce, University of Virginia*

1:30 PM - 3:10 PM

- TP8a1-1 On OFDMA Resource Allocation for Delay Constrained HARQ Systems
Sébastien Marcille, Thales Communications and Security; Philippe Ciblat, Télécom ParisTech; Christophe Le Martret, Thales Communications and Security
- TP8a1-2 Cooperative AF MIMO Wireless Relay Networks under Relay Power Constraint
Hyunggi Kim, Hyuck Kwon, Kanghee Lee, Wichita State University
- TP8a1-3 Average Sum-BER Analysis of AF Two-way Relay Networks with Direct Links
Cihan Tepedelenlioglu, Hyunjun Kim, Arizona State University
- TP8a1-4 Performance Analysis of Amplify-and-Forward Relaying Using Fractional Calculus
Mehdi Mortazawi Molu, Norbert Goertz, Vienna University of Technology
- TP8a1-5 Delay-Optimal Multi-flow Buffered Decode-and-Forward Relay Communications with Limited Renewable Energy Storage
Fan Zhang, Vincent Lau, Hong Kong University of Science and Technology
- TP8a1-6 Relay Selection in Amplify-and-Forward Relay Networks with Frequency Selective Fading
Qingxiong Deng, Andrew G. Klein, Worcester Polytechnic Institute
- TP8a1-7 On SINR Balancing for a Two-Hop Downlink Channel
Jan Schreck, Slawomir Stanczak, Technische Universität Berlin

- 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
- TP8a2-11 Joint Localization and Clock Synchronization for Wireless Sensor Networks
Sundeepr Prabhakar Chepuri, Geert Leus, Alle-Jan van der Veen, Delft University of Technology

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
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- 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-
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*Roozbeh Dehghannasiri, Shahram Shirani, McMaster
University*
- TP8b1-12 Regularization Function for Video Super-Resolution
Using Auxillary High Resolution Still Images
Seyedreza 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 Benitz, 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*

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| WA1a-1 | Random Access on Graphs: A Survey and New Results
<i>Enrico Paolini, University of Bologna; Gianluigi Liva, German Aerospace Center (DLR); Marco Chiani, University of Bologna</i> | 8:15 AM |
| WA1a-2 | Node Cooperation with Local Views
<i>David Kao, Ashutosh Sabharwal, Rice University</i> | 8:40 AM |
| WA1a-3 | A Feedback Strategy for the Full-Duplex Butterfly Network
<i>Aydin Sezgin, Anas Chaaban, Ruhr-University Bochum; Daniela Tuninetti, University of Illinois, Chicago</i> | 9:05 AM |

- WA1a-4 Characterizing the Mutual Information 9:30 AM
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 10:15 AM
Communication in a Poisson Field of Legitimate
Nodes and Eavesdroppers
Wei Shi, James Ritcey, University of Washington
- WA1b-2 Deploying Multi-antenna Energy-Harvesting 10:40 AM
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 11:05 AM
*Satyanarany Vuppala, Giuseppe Abreu, Jacobs
University Bremen*
- WA1b-4 Secrecy Capacity Limits of Multiple Antenna 11:30 AM
Multiple Eavesdropper Multicast
*Jafar Mohammadi, Michal Kaliszan, 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 8:15 AM
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 8:40 AM
Wireless Relay Networks
*Eric Slotke, Raphael Rolny, Armin Wittneben, Swiss
Federal Institute of Technology Zurich*
- WA2a-3 A Unified Analysis of CDF-based Distributed 9:05 AM
Scheduling in a Heterogeneous Multicell
*Yichao Huang, Bhaskar D. Rao, University of California,
San Diego*
- WA2a-4 Unsupervised Algorithms for Distributed 9:30 AM
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 10:15 AM
Intra/Inter-layer Network Coding
*Tong Wang, Muriel Medard, Lizhong Zheng,
Massachusetts Institute of Technology*

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| WA2b-2 | Link Allocation, Routing, and Scheduling for Fading Hybrid FSO/RF Networks
<i>Yi Tang, Maite Brandt-Pearce, University of Virginia</i> | 10:40 AM |
| WA2b-3 | Approximating the Capacity of Wireless Multiple Unicast Networks by Discrete Superposition Model
<i>Nicolas Schrammar, Mikael Skoglund, KTH Royal Institute of Technology</i> | 11:05 AM |
| WA2b-4 | Convolutional Network Codes for Reliable Point-to-Point Wireless Communication
<i>Samantha Summerson, Rice University; Anuj Batra, Texas Instruments</i> | 11:30 AM |

Session WA3a Adaptive Signal Processing

Chair: *Cedric Richard, Univ. de Nice Sophia-Antipolis*

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| WA3a-1 | Diffusion Least-Mean Squares over Distributed Networks in the Presence of MAC Errors
<i>Saeed Ghazanfari-Rad, Fabrice Labeau, McGill University</i> | 8:15 AM |
| WA3a-2 | Stochastic Adaptive Filtering Using Model Combinations
<i>Chandrasekhar Radhakrishnan, Andrew Singer, University of Illinois, Urbana-Champaign</i> | 8:40 AM |
| WA3a-3 | A Closed-Form Condition for Convergence of the Gaussian Kernel-Least-Mean-Square Algorithm
<i>Cédric Richard, Université de Nice Sophia-Antipolis; Jose Carlos M. Bermudez, Federal University of Santa Catarina, Florianópolis</i> | 9:05 AM |
| WA3a-4 | Complex Colored Water-Filling Algorithm for Gain Allocation in Proportionate Adaptive Filtering
<i>Kevin Wagner, Naval Research Laboratory; Milos Doroslovacki, George Washington University</i> | 9:30 AM |

Session WA3b Compressive Signal Processing

Chair: *Sergiy Vorobyov, University of Alberta*

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| WA3b-1 | 2D Signal Compression via Parallel Compressed Sensing with Permutations
<i>Hao Fang, Sergiy A. Vorobyov, Hai Jiang, Omid Taheri, University of Alberta</i> | 10:15 AM |
| WA3b-2 | Detecting an Abrupt Change of Finite Duration
<i>Blaise Kévin Guépié, Lionel Fillatre, Igor Nikiforov, Université de Technologie de Troyes</i> | 10:40 AM |
| WA3b-3 | Adaptive Sensing: A Tight Lower Bound and the Near-Optimal Compressive Binary Search
<i>Matthew Malloy, Robert Nowak, University of Wisconsin Madison</i> | 11:05 AM |
| WA3b-4 | Rapid Sensing of Underutilized, Wideband Spectrum Using the Random Demodulator
<i>Andrew Harms, Princeton University; Waheed Bajwa, Rutgers University; Robert Calderbank, Duke University</i> | 11:30 AM |

Session WA4a Interference and Cognition

Chair: *Thomas L Marzetta, Alcatel-Lucent/Bell Labs*

- WA4a-1 Interference Alignment for Channel-Adaptive Waveform Modulation 8:15 AM
Urs Niesen, Thomas Marzetta, Bell Laboratories, Alcatel-Lucent
- WA4a-2 On the Discrete Superposition Model of Partially Cognitive Interference Channels 8:40 AM
Nicolas Schrammar, Chao Wang, Lars K. Rasmussen, Mikael Skoglund, KTH Royal Institute of Technology
- WA4a-3 Interference Management for Cognitive Radio Systems Exploiting Primary IR-HARQ: a Constrained Markov Decision Process approach 9:05 AM
Romain Tajan, University of Cergy - Pontoise; Charly Poulliat, University of Toulouse; Inbar Fijalkow, University of Cergy - Pontoise
- WA4a-4 Energy-Aware Cooperative Quickest Detection for Cognitive Radio Networks 9:30 AM
Yan Xin, Kyungtae Kim, Sampath Rangarajan, NEC Laboratories America, Inc.

Session WA4b OFDM(A)

Chair: *Michael Zoltowski, Purdue University*

- WA4b-1 Effect of Oscillator Phase Noise and Processing Delay in Full-Duplex OFDM Repeaters 10:15 AM
Taneli Riihonen, Pramod Mathecken, Risto Wichman, Aalto University
- WA4b-2 Weighted CDF-based Scheduling for an OFDMA Relay Downlink with Partial Feedback 10:40 AM
Anh Nguyen, Yichao Huang, Bhaskar Rao, University of California, San Diego
- WA4b-3 Transmitter-Side Timing Adjustment to Mitigate Interference between Multiple Nodes for OFDMA Mesh Network 11:05 AM
Sungeun Lee, Xiaoli Ma, Georgia Institute of Technology
- WA4b-4 Detection of Code Spread OFDM Based on 0-1 Integer Quadratic Programming 11:30 AM
Ali Elgharini, Purdue university

Session WA5a Applications of Video Processing

Chair: *Mashhour Solh, Texas Instruments Inc.*

- WA5a-1 Automatic Track Tracing in SAR CCD Images Using Search Cues 8:15 AM
Miriam Cha, Rhonda Phillips, MIT Lincoln Laboratory
- WA5a-2 H.264/AVC Data Hiding Based on Intra Prediction Modes for Real Time Applications 8:40 AM
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

- WA5a-3 A Computer Vision System for Monitoring Vessel Motion in Conjunction with Vessel Wake Measurements 9:05 AM
Sam Tan, Jenelle Armstrong Piepmeier, David Kriebel, United States Naval Academy
- WA5a-4 Acoustic Monitoring Techniques for Avian Detection and Classification 9:30 AM
Golrokh Mirzaei, Mohammad Wadood Majid, Selin Bastas, University of Toledo; Jeremy Ross, Bowling Green State University; Mohsin Jamali, University of Toledo; Peter Gorveski, Joseph Frizado, Verner Bingman, Bowling Green State University

Session WA5b Image and Video Classification

Chair: *Dihong Tian, Cisco Systems, Inc.*

- WA5b-1 A Joint Sparsity Model for Video Anomaly Detection 10:15 AM
Xuan Mo, Vishal Monga, Pennsylvania State University; Raja Bala, Zhigang Fan, Xerox Research Center Webster
- WA5b-2 Learning Dictionaries with Graph Embedding Constraints for Image Classification 10:40 AM
Karthikeyan Natesan Ramamurthy, Jayaraman J. Thiagarajan, Andreas Spanias, Arizona State University
- WA5b-3 Training Image Classifiers with Similarity Metrics, Linear Programming, and Minimal Supervision 11:05 AM
Karl Ni, Ethan Phelps, MIT Lincoln Laboratory; Katherine Bouman, Massachusetts Institute of Technology; Nadya Bliss, MIT Lincoln Laboratory
- WA5b-4 Randomized Tensor-based Algorithm for Image Classification 11:30 AM
Ryan Sigurdson, University of Rochester; Carmeliza Navasca, University of Alabama at Birmingham

Session WA6a CSI Feedback

Chair: *Robert Heath, University of Texas at Austin*

- WA6a-1 Feedback Bit Allocation in a Gateway Channel 8:15 AM
Sung Lock Seo, Jung Hoon Lee, Wan Choi, Korea Advanced Institute of Science and Technology (KAIST)
- WA6a-2 Tomlinson-Harashima Precoding for Multiuser MIMO Systems with Quantized CSI Feedback 8:40 AM
Liang Sun, Ming Lei, NEC Labs China
- WA6a-3 Sum Rate Analysis and Quantizer Design for a Quantized Heterogeneous Feedback MIMO OFDMA Downlink 9:05 AM
Yichao Huang, Bhaskar D. Rao, University of California, San Diego
- WA6a-4 CSI Feedback Delay and Degrees of Freedom Gain Trade-Off for the MISO Interference Channel 9:30 AM
Namyoon Lee, Robert Heath, University of Texas at Austin

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 10:40 AM
Targets in Noise Plus Unknown Subspace
Interference
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 11:05 AM
Approximate CP Decompositions via Joint Matrix
Diagonalization and Generalized Unfoldings
Florian Roemer, Ilmenau University of Technology; Carola Schroeter, (none); Martin Haardt, Ilmenau University of Technology
- WA7b-4 Direction of Arrival Estimation of Correlated 11:30 AM
Signals Using a Dynamic Non-uniform Linear
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Dyonisius Dony Ariananda, Geert Leus, Delft University of Technology

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Zhang, Jun	MP8a2-5
Zhang, Jun Jason	MP8a2-8
Zhang, Jun Jason	TP8b2-5
Zhang, Rui	MP2b-4
Zhang, Xiaojie (Eric)	TA2b-4
Zhang, Xue	WA7a-3
Zhao, Qing	TA8b1-4
Zhao, Qing	TA8b1-8
Zhao, Xiaochuan	TA4a-3
Zhao, Yong	TP7b-3
Zheng, Lizhong	WA2b-1
Zhou, G. Tong	TA8a1-1
Zhou, Shengli	TP3b-3
Zhou, Shengli	TP7a-2
Zhou, Xuefu	MA8b1-3
Zorzi, Michele	TP3b-4
Zu, Keke	MP8a1-3
Zuk, Or	TA7a-2
Zummo, Salam	WA2a-4

NAME	SESSION
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Notes

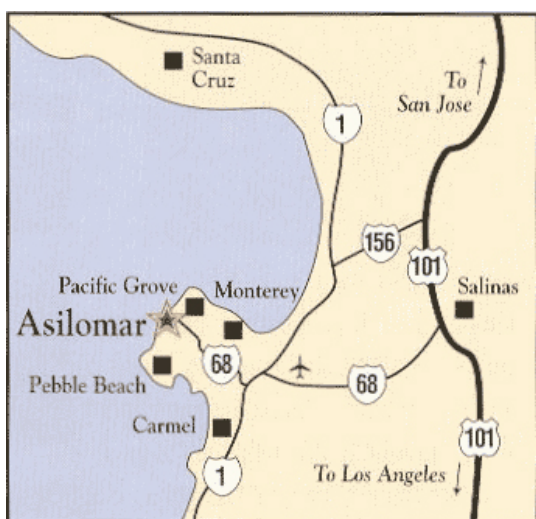
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