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FORTY-THIRD ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS AND COMPUTERS

November 1 - 4, 2009
Asilomar Hotel and
Conference Grounds

Technical Co-sponsor

IEEE
Signal Processing Society ®

FORTY-THIRD ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS

Organized in cooperation with

NAVAL POSTGRADUATE SCHOOL
Monterey, California

ATK MISSION RESEARCH
Monterey, California

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IEEE SIGNAL PROCESSING SOCIETY

CONFERENCE COMMITTEE

Welcome from the General Chairperson

Prof. Maite Brandt-Pearce, University of Virginia

I am pleased to welcome you to the 43rd Asilomar Conference on Signals, Systems and Computers, a unique and special conference with its beautiful venue, relaxed atmosphere and outstanding technical presentations. I find myself coming back, year after year, and being rejuvenated by the experience, both physically and intellectually.

Asilomar's attractions are multifaceted. The venue offers an unsurpassed view of the Pacific Ocean and an intimate camp-like ambiance. Professors, students, and industry representatives can each find sessions of interest within the very diverse topics covered, from traditional signal processing and wireless communications to more modern areas such as digital photography and MIMO radar. The longer presentation times at Asilomar stimulate a deeper technical exchange and attract a good mix of old timers like myself and new eager faces that are the future of the conference and our field

The technical committee, chaired by Jim Schroeder of Harris Corporation, has put together a first-class program composed of 158 invited papers and 236 contributed papers. These have been organized into seven parallel tracks of oral talks with simultaneous poster sessions. Jim has been the best Technical Chair I could have dreamt of, and, from what I have seen, the papers are outstanding this year.

One of the highlights of the program is the Sydney Parker Memorial Lecture to be given by a trio of eloquent speakers, Dolores M. Etter, Geoffrey Orsak, and Sally Wood, who will enlighten us on "The Infinity Project: Ten Years Later". Delores Etter holds the Texas Instruments Distinguished Chair in Engineering Education at Southern Methodist University (SMU). Geoffrey Orsak is Dean of the Lyle School of Engineering at SMU. Sally Woods is currently a Program Director at the National Science Foundation. Their humorous and energetic style is sure to entertain us as we learn about the challenges of introducing engineering into secondary school curricula, i.e., how we will soon all be surpassed by 15 year olds.

We will host a student paper contest chaired this year by John Pierre of the University of Wyoming. A set of student finalist have been selected and will present their papers in front of a panel of judges on Sunday afternoon. The best three will receive awards and accolades at the beginning of the conference plenary session.

As General Chair I extend a warm invitation for you to participate in all aspects of the Asilomar conference: the plenary talk, student paper contest, oral and poster sessions, family style meals, and the obligatory walk along the beach. Enjoy!

Maite Brandt-Pearce, University of Virginia, July 2009

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2009 Asilomar Conference Session Schedule

Sunday Afternoon, November 1, 2009

2:00 - 7:00 PM Registration – Main Lodge
5:00 - 6:30 PM Student Paper Contest – Merrill Hall
7:00 - 9:00 PM Welcoming Reception – Merrill Hall

Monday Morning, November 2, 2009

7:30 - 9:00 AM Breakfast – Crocker Dining Hall
8:00 AM - 6:00 PM Registration

8:30 AM - 12:10 PM MORNING SESSIONS
MA1a Image Retrieval
MA1b Spread Spectrum Networks
MA2a Brain Machine Interfaces I
MA2b Brain Machine Interfaces II
MA3 Adaptivity in Communications
MA4 Mathematical Signal Processing
MA5 MIMO Radar Processing and Design
MA6 Adaptive Signal Processing I
MA7 Integrated Algorithm and Architecture Implementation
MA8a1 Sensor Networks (Poster)
MA8a2 Wireless PAN and LAN (Poster)
MA8b1 Models for Signal and Image Processing (Poster)
MA8b2 Image Processing Methods for Space Applications (Poster)

12:00 - 1:00 PM Lunch – Crocker Dining Hall

Monday Afternoon, November 2, 2009

1:30 - 5:10 PM AFTERNOON SESSIONS
MP1a Wireless Networks
MP1b Wavelets
MP2 Multisensor Array Processing for Radar, Sonar, and Imaging
MP3 Signal and receiver design for modulation and detection with reconfigurable wireless systems
MP4 Image and Video Coding I
MP5 MIMO in Underwater Communications
MP6 Adaptive Signal Processing II
MP7a Communications and Airborne Networks
MP7b Reconfigurable Architectures and Processors
MP8a Hardware Techniques & Implementations (Poster)

Monday Evening, November 2, 2009

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 guest.

2009 Asilomar Conference Session Schedule
(continued)

Tuesday Morning, November 3, 2009

7:30 - 9:00 AM Breakfast – Crocker Dining Hall
8:00 AM - 5:00 PM Registration
8:15 - 9:45 AM TA1a - Conference Welcome and Plenary Session
9:45 - 10:15 AM Coffee Social

10:15 AM - 12:20 PM MORNING SESSIONS
TA1b Network Coding
TA2b Advances in Medical Imaging
TA3b Secure Communications
TA4b Image and Video Enhancement/Filtering
TA5b Image and Video Coding II
TA6b Adaptive Signal Processing III
TA7b Computer Arithmetic I
TA8b1 Communication Systems I (Poster)
TA8b2 Communication Systems II (Poster)

12:00 - 1:00 PM Lunch – Crocker Dining Hall

Tuesday Afternoon, November 3, 2009

1:30 - 5:35 PM AFTERNOON SESSIONS
TP1a Network Design
TP1b Relay Networks
TP2a Reading the Brain -- Decoding Perception and Cognition
TP2b Neural Signal Processing
TP3 Wideband Communications and Interference Management
TP4 Detection and Estimation II
TP5 MIMO Radar
TP6a Speech Coding
TP6b Computational Photography
TP7 Communication Processors and Accelerators
TP8a1 Array and Statistical Signal Processing I (Poster)
TP8a2 Array and Statistical Signal Processing II (Poster)
TP8a3 Adaptive Signal Processing IV (Poster)
TP8b1 MIMO Communications I (Poster)
TP8b2 MIMO Communications II (Poster)

Tuesday Evening, November 3, 2009

8:00 - 10:00 PM Bonfire at the fire pit next to Crocker Hall

2009 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 4, 2009

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.

8:30 AM - 12:35 PM MORNING SESSIONS

WA1	Sparse Representations and Compressive Sensing
WA2a	Functional Imaging
WA2b	Computer Aided Diagnosis
WA3	OFDM and MIMO for Optical Wireless
WA4	Estimation and Detection I
WA5	MIMO Communications: Network Issues and Implications
WA6a	Speech Processing I
WA6b	Speech Processing II
WA7	Computer Arithmetic II
WA8	Resource Allocation and Beamforming for Next Generation Wireless

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

Student Paper Contest

Merrill Hall - Sunday, November 1, 2009
Judging starts at 5:00 PM

(Listed in paper number order)

"Compression-Aware Digital Pan/Tilt/Zoom"
Mina Makar, Aditya Mavlankar, Bernd Girod, Stanford University

"Multi-delay Block Frequency Domain Adaptive Filters with Sparse Partial Subblock Update"
Yifan Sun, Franklin W. Olin College of Engineering; Jie Chen, Keshab K. Parhi, University of Minnesota

"A Fast ACSU Architecture for Viterbi Decoder Using T-Algorithm"
Jinjin He, Huaping Liu, Oregon State University; Zhongfeng Wang, Broadcom Corporation

"Performance Analysis of Relay Channel Estimation"
Panagiota Lioliou, Mats Viberg, Chalmers University; Mikael Coldrey, Ericsson AB

"Performance Bounds for Expander-Based Compressed Sensing with Poisson Noise"
Sina Jafarpour, Princeton University; Rebecca Willett, Maxim Raginsky, Duke University; Robert Calderbank, Princeton University

"Robust Fitting of Ellipses and Spheroids"
Jieqi Yu, Sanjeev Kulkarni, H. Vincent Poor, Princeton University

"Reformulating the Least-Square Source Localization Problem with Contracted Distances"
Giuseppe Destino, Giuseppe Abreu, University of Oulu

"Multichannel Image Restoration Based on Optimization of the Structural Similarity Index"
Maja Temerinac-Ott, Hans Burkhardt, University of Freiburg

2009 Asilomar Conference Session Schedule

Coffee breaks will be at 10:10 AM and 3:10 PM, except on Tuesday morning when refreshments will be served outside Merrill Hall from 9:45-10:15 AM.

Tuesday, November 3, 2009

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

1. Welcome from the General Chairperson:

Prof. Maite Brandt-Pearce
University of Virginia

2. Student Paper Contest: **Dr. John W. Pierre**
University of Wyoming

3. Session TA1a Distinguished Lecture for the 2009 Asilomar Conference

The Infinity Project: Ten Years Later

Delores M. Etter
Southern Methodist University

Geoffrey Orsak
Southern Methodist University

Sally Woods
National Science Foundation

Abstract
The Infinity Project is a leader in high-tech engineering for secondary schools. Developed in 1999, it now reaches over 400 schools in 38 states. This presentation will discuss the initial goals of the program and the challenges of introducing engineering into secondary school curricula. It will also discuss the importance of providing a full package – cutting-edge curriculum, outstanding instructional materials, hands-on design projects, low-cost high impact classroom technology, and best-in-class professional development. We include an assessment of the impact of the Infinity Project – in quantitative and qualitative terms. Finally, we present a glimpse into the next phase of The Infinity Project, and its audience.

Biographies
Delores M. Etter holds the Texas Instruments Distinguished Chair in Engineering Education at Southern Methodist University (SMU). She is also the Director of the Caruth Institute for Engineering Education. Before coming to SMU, Dr. Etter was a faculty member in the Electrical Engineering Department at the United States Naval Academy. From 2005-2007 she was the Assistant Secretary of the Navy for Research, Development, and Acquisition. She is also a former faculty member at the University of Colorado at Boulder and the University of New Mexico, and was a Visiting Professor at Stanford University. She is a member of the National Academy of Engineering and a former member of the National Science Board.

Geoffrey Orsak is Dean of the Lyle School of Engineering at SMU. He is one of the founding members of the Infinity Project, and provided the leadership for this program over the last 10 years. He was formerly an Associate Dean of Engineering for Research at SMU, and a member of the Electrical Engineering Department. He is a former faculty member at George Mason University in Fairfax, VA.

Sally Woods is currently a Program Director at the National Science Foundation. She is a former Dean of Engineering at Santa Clara University, and a member of the Electrical Engineering Department there. She is also one of the founding members of the Infinity Project, and leads the effort for the new edition of the Infinity textbook.

Program of 2009 Asilomar Conference on Signals, Systems, and Computers

Technical Program Chairman
Dr. James Schroeder
Harris Corporation GCS

Session MA1a Image Retrieval

Chair: *Yongyi Yang, Illinois Institute of Technology*

MA1a-1 Content Based Image Retrieval from Chest Radiography Databases — 8:30 AM
Shengwen Guo, Jinshan Tang, Alcorn State University

MA1a-2 Segmentation and Shape-based Retrieval of Neurons — 8:55 AM
Scott Acton, Barry Condron, University of Virginia

MA1a-3 Retrieval of Pneumoconiosis Images Using Multi-scale AM-FM Methods — 9:20 AM
Victor Murray, Marios Pattichis, University of New Mexico; Peter Soliz, VisionQuest Biomedical, LLC

MA1a-4 Online Learning of Relevance Feedback from Expert Readers for Mammogram Retrieval — 9:45 AM
Issam El Naqa, Jung Hun Oh, Washington University School of Medicine; Yongyi Yang, Illinois Institute of Technology

Session MA1b Spread Spectrum Networks

Chair: *Wayne Stark, University of Michigan*

MA1b-1 Tradeoff Between Spoofing and Jamming a Cognitive Radio Network — 10:30 AM
Qihang Peng, Pamela C. Cosman, Laurence B. Milstein, University of California, San Diego

MA1b-2 The Cost of Using Cooperation in a Wireless Network — 10:55 AM
Leonard J. Cimini, Jr, Chien-Chung Shen, Lu Zhang, University of Delaware

MA1b-3 Enhancing Transport Capacity with Optimum Energy Allocation for Geographic Transmissions — 11:20 AM
Tathagata D. Goswami, John M. Shea, Murali Rao, Joseph Glover, University of Florida

MA1b-4 Achievable Rates in Gaussian Parallel Cognitive Relay Networks — 11:45 AM
Debdeep Chatterjee, Tan F. Wong, Ozgur Oyman, University of Florida

Session MA2a Brain Machine Interfaces I

Chair: *Justin Sanchez, U. of FLorida*

MA2a-1 Overcoming Power/Information Tradeoffs in Neural Signal Acquisition — 8:30 AM
Stephen O'Driscoll, Teresa Meng, Stanford University

MA2a-2 Applying information theoretic measures to computation and communication in neural ensembles — 8:55 AM
Jose M Carmena, Ryan T Canolty, Michael C Gastpar, University of California, Berkeley

MA2a-3 A Brain-Machine Interface for Restoring Hand Function Following Paralysis — 9:20 AM
Eric Perreault, Christian Ethier, Eric Pohlmeyer, Emily Oby, Lee Miller, Northwestern University

MA2a-4 A Co-Adaptive Actor-Critic Architecture for Brain-Machine Interfaces — 9:45 AM
Justin Sanchez, Babak Mahmoudi, Jose Principe, University of Florida

Session MA2b Brain Machine Interfaces II

Chair: *Deniz Erdogmus, Northeastern U.*

MA2b-1 Could anyone use a BCI? — 10:30 AM
Brendan Allison, Will update

MA2b-2 The Use of Local Field Potentials in Brain Computer Interfaces — 10:55 AM
Nuri F. Ince, University of Minnesota; Rahul Gupta, VA Medical Center; Sami Arica, Cukurova University; Ahmed H. Tewfik, James Ashe, Giuseppe Pellizzer, University of Minnesota

MA2b-3 Enhancing target detection using a hybrid human-computer system — 11:20 AM
Kenneth Hild, Oregon Health & Science University; Santosh Mathan, Honeywell Laboratories; Misha Pavel, Oregon Health & Science University; Deniz Erdogmus, Northeastern University

MA2b-4 In-vivo Communication using Blood Vessels as the Transport Channel — 11:45 AM
Khursheed Hassan, Jeffrey Andrews, Wolfgang Frey, University of Texas at Austin

Session MA3 Adaptivity in Communications

Chair: *Robert Calderbank, Princeton University*

MA3-1 Feedback via Message Passing in Interference Networks — 8:30 AM
Vaneet Aggarwal, Princeton University; Ashutosh Sabharwal, Rice University

MA3-2 Green Phones – An Adaptive Signal Processing Perspective — 8:55 AM
Arogyaswami Paulraj, Stanford University

MA3-3 Improved Adaptive Bit-Interleaved Coded Modulation for Mobile Radio OFDM Systems Aided by Fading Prediction — 9:20 AM
Tao Jia, The MathWorks Inc.; Alexandra Duel-Hallen, North Carolina State University

MA3-4 Interference Alignment and Related Insights into the Capacity of Wireless Networks — 9:45 AM
Syed Ali Jafar, University of California, Irvine

BREAK — 10:10 AM

MA3-5 Optimal power control and beamforming in multiuser downlink systems — 10:30 AM
M. Chiang, Princeton University; R. Srikant, University of Illinois at Urbana-Champaign; Chee Wei Tan, California Institute of Technology

MA3-6 Position Aware Adaptive Communication Systems — 10:55 AM
Stephan Sand, Ralph Tanbourgi, Christian Mensing, Ronald Raulefs, German Aerospace Center (DLR)

MA3-7 Location-aware Cognitive Sensing for Maximizing Network Capacity 11:20 AM
Peng Jia, Mai Vu, Tho Le-Ngoc, McGill University

MA3-8 Optimized DFT-FB Transceivers over LTV Channels 11:45 AM
Chih-Hao Liu, P. P. Vaidyanathan, California Institute of Technology

Session MA4 Mathematical Signal Processing

Chair: *Tom Taylor, Arizona State University*

MA4-1 Primal-Dual Method for Robust Spectral Estimation of Complex Valued Sequences 8:30 AM
Donald Day, Johns Hopkins University

MA4-2 Robust Fitting of Ellipses and Spheroids 8:55 AM
Jieqi Yu, Sanjeev Kulkarni, Harold Poor, Princeton University

MA4-3 Rank Revealing QR Algorithm Based on Toeplitz Structure for Near-field Sources 9:20 AM
Nizar Tayem, Attanayake Champike, Ayo Abatan, Miami university

MA4-4 Unifying Spherical Harmonic and 2-D Fourier Decompositions of the Array Manifold 9:45 AM
Mário Costa, Helsinki University of Technology; Andreas Richter, Nokia Research Center; Visa Koivunen, Helsinki University of Technology

BREAK 10:10 AM

MA4-5 Matched detector in the presence of interference subspace uncertainty. 10:30 AM
Jean Jacques Fuchs, Université de Rennes 1

MA4-6 Compact Storage of Correlated Data for Content Based Retrieval 10:55 AM
Atul Divekar, Okan Ersoy, Purdue University

MA4-7 Noisy Signal Recovery via Iterative Reweighted L1-Minimization 11:20 AM
Deanna Needell, University of California, Davis

MA4-8 Wideband Discrete Transformation of Acoustic Signals in Underwater Environments 11:45 AM
Nicolas François Josso, GIPSA-lab; Jun Zhang, Antonia Papandreou-Suppappola, Arizona State University; Cornel Ioana, GIPSA-lab; Cedric Gervaise, ENSIETA; Yann Stephan, SHOM; Jérôme I. Mars, GIPSA-lab

Session MA5 MIMO Radar Processing and Design

Chair: *Arye Nehorai, Washington University, St. Louis*

MA5-1 OFDM MIMO Radar for Low Grazing Angle Tracking 8:30 AM
Satyabrata Sen, Arye Nehorai, Washington University in St. Louis

MA5-2 Performance bound for localization of a narrowband source 8:55 AM
Vlad M. Chiriac, Alexander M. Haimovich, New Jersey Institute of Technology; Stuart C. Schwartz, Princeton University

MA5-3 On Designing Unimodular Periodic Sequence Sets with Good Correlations 9:20 AM
Hao He, Duc Vu, University of Florida; Petre Stoica, Uppsala University; Jian Li, University of Florida

MA5-4 Sensor Scheduling with Waveform Design for Dynamic Target Tracking Using MIMO Radar 9:45 AM
Bhavana Manjunath, Jun Zhang, Antonia Papandreou-Suppappola, Darryl Morrell, Arizona State University

BREAK 10:10 AM

MA5-5 MIMO Field Directionality Estimation Using Orientation-Diverse Linear Arrays 10:30 AM
Granger Hickman, Jeffrey Krolik, Duke University

MA5-6 Optimal Waveform Scheduling for Distributed Arrays 10:55 AM
Sofia Suvorova, University of Melbourne; Stephen Searle, Stephen Howard, Defence Science and Technology Organisation; Bill Moran, University of Melbourne

MA5-7 Target Detection in MIMO Radar using Golay Complementary Sequences in the Presence of Doppler 11:20 AM
Tariq Qureshi, Michael Zoltowski, Purdue University; Robert Calderbank, Princeton University

MA5-8 The IFIR-like active beamformer: competitor for MIMO radar? 11:45 AM
Palghat Vaidyanathan, California Institute of Technology; Ching-Chih Weng, California Institute Of Technology

Session MA6 Adaptive Signal Processing I

Chair: *Petar Djuric, SUNY Stony Brook*

MA6-1 Diffusion LMS-Based Distributed Detection Over Adaptive Networks 8:30 AM
Federico S. Cattivelli, Ali H. Sayed, University of California, Los Angeles

MA6-2 Improved Adaptive Filtering Schemes via Adaptive Combination 8:55 AM
Jeronimo Arenas-Garcia, Universidad Carlos III de Madrid; Luis A. Azpicueta-Ruiz, Anibal R. Figueiras-Vidal, Freidrich-Alexander University Erlangen-Nuremberg

MA6-3 Lasso Kalman Filtering for Tracking Sparse Signals 9:20 AM
D Angelosante, S. Roumeliotis, Researcher; G. B. Giannakis, University of Minnesota

MA6-4 On Proportionate-type NLMS Algorithms for Fast Decay of Output Error at All Times 9:45 AM
K Wagner, Researcher; Milos Doroslovacki, George Washington University

BREAK 10:10 AM

MA6-5 Asymptotic Noise Analysis of High Dimensional Consensus 10:30 AM
Usman Khan, Soummya Kar, Jose' Moura, Carnegie Mellon University

MA6-6 Time-space-adaptive distributed state estimation with low-rate inter-sensor communications 10:55 AM
Ondrej Hlinka, Georg Kail, Franz Hlawatsch, Researcher; Petar Djuric, Stony Brook University

MA6-7 Set-Membership Reduced-Rank Algorithms based on Joint Iterative Optimization of Adaptive Filters 11:20 AM
Patrick Clarke, Rodrigo C. de Lamare, University of York

MA6-8 Multi-delay Block Frequency Domain Adaptive Filters with Sparse Partial Subblock Update 11:45 AM
Yifan Sun, F. W. Olin College of Engineering; Jie Chen, Keshab Parhi, University of Minnesota

Session MA7 Integrated Algorithm and Architecture Implementation

Chair: *Roger Woods, Queen's University, Belfast*

MA7-1 Operand Access in Regular Topology Discrete Trigonometric Transforms 8:30 AM
Jarmo Takala, Lassi Nurmi, Harri Sorokin, Tampere University of Technology

MA7-2 Analysis of Twiddle Factor Memory Complexity of Radix-2^i Pipelined FFTs 8:55 AM
Fahad Qureshi, Oscar Gustafsson, Linköping University

MA7-3 Compiler Driven Architecture Design Space Exploration for Embedded DSP Workloads: A Study in Software Programmability Versus Hardware Acceleration. 9:20 AM
Michael Brogioli, Joseph Cavallaro, Rice University

MA7-4 Ultra-fine Programmable Chip-Multiprocessing for FPGA DSP 9:45 AM
Matthew Millford, John McAllister, Queen's University Belfast

BREAK 10:10 AM

MA7-5 A Fast ACSU Architecture for Viterbi Decoder Using T-Algorithm 10:30 AM
Jinjin He, Oregon State University; Zhongfeng Wang, Broadcom Corporation; Huaping Liu, Oregon State University

MA7-6 Fully automated MPSoC design of a H.624 Video Decoder 10:55 AM
Hristo Nikolov, Todor Stefanov, Ed Deprettere, Leiden University

MA7-7 Integration of Dataflow Optimization Techniques into a Software Radio Design Framework 11:20 AM
George Zaki, William Plishker, University of Maryland; Tim O'shea, North Carolina State University; Nick McCarthy, LTS; Shuvra Bhattacharyya, Charles Clancy, University of Maryland; Eric Blossom, Blossom Research

MA7-8 FPGA Prototyping of a High Data Rate LTE Uplink Baseband Receiver 11:45 AM
Guohui Wang, Bei Yin, Kiarash Amiri, Yang Sun, Joseph R. Cavallaro, Rice University

Session MA8a1 Sensor Networks

Chair: *Myron Hattig, Intel Corporation* *8:30 AM - 10:10 AM*

MA8a1-1 A Roesser Model Based Multidimensional Systems Approach for Grid Sensor Networks
Buddika Sumanasena, Peter Bauer, University of Notre Dame

MA8a1-2 Broadcast-based Dynamic Consensus Propagation in Wireless Sensor Networks
Valentin Schwarz, Gerald Novak, Gerald Matz, Vienna University of Technology

MA8a1-3 Computing Geometric Mean over Multiple Access Channel: Error Analysis and Comparisons
Mario Goldenbaum, Slawomir Stanczak, Fraunhofer German-Sino Lab for Mobile Communications

MA8a1-4 Error Resilient Distributed Estimation in Wireless Sensor Networks
Kiran Sampath Kumar, Hongbin Li, Stevens Institute of Technology

MA8a1-5 Distributed Estimation in Sensor Networks Over Binary Symmetric Channels
Kiran Sampath Kumar, Hongbin Li, Stevens Institute of Technology

MA8a1-6 Multi-layer architecture for location systems based on wireless sensor networks
Javier Rodas, Carlos J. Escudero, Universidade da Coruña

MA8a1-7 An Intrusion Detection Framework for Sensor Networks Using Ant Colony
Rajani Muraleedharan, Osadciw Lisa, Syracuse University

MA8a1-8 Cross measurement process with a ZigBee sensor network
Javier Rodas, Carlos J. Escudero, Universidade da Coruña

MA8a1-9 Secure Self-Adaptive Framework for Distributed Smart Home Sensor Network
Rajani Muraleedharan, Lisa Osadciw, Syracuse University

MA8a1-10 Cognitive Security Protocol for Sensor Based VANET Using Swarm Intelligence
Rajani Muraleedharan, Lisa Osadciw, Syracuse University

Session MA8a2 Wireless PAN and LAN

Chair: *Myron Hattig, Intel Corporation* *8:30 AM - 10:10 AM*

MA8a2-1 Interference Aware Link Discovery for Device to Device Communication
Brett Kaufman, Behnaam Aazhang, Rice University; Jorma Lilleberg, Nokia

MA8a2-2 A low-complexity location estimation scheme for indoor wireless Local area networks
Santosh Pandey, Cisco Systems; Manu Parmar, Stanford University

MA8a2-3 Reformulating the Least-Square Source Localization Problem with Contracted Distances
Giuseppe Destino, Giuseppe Abreu, University of Oulu

MA8a2-4 Minimum-Energy Multicast Tree in Cognitive Radio Networks
Wei Ren, Xiangyang Xiao, Qing Zhao, University of California, Davis

MA8a2-5 Multi-band, multi-radio wireless LANs and PANs
Robert Stacey, Intel Corporation

MA8a2-6 Augmenting Wireless LAN Technology for WiFi PAN
Emily Qi, Marc Meylemans, Myron Hattig, Intel Corporation

Session MA8b1 Models for Signal and Image Processing

Chair: *Balu Santhanam, University of New Mexico 10:30 AM - 12:10 PM*

MA8b1-1 Dynamically Reconfigurable Computing Models for Image and Video Processing Applications
G. Alonzo Vera, Micro-RDC; Daniel Llamocca, Marios Pattichis, University of New Mexico; James Lyke, Air Force Research Laboratory

MA8b1-2 Reconstruction of Aerial Images from Fourier Spectral Samples Using Statistical Models
Oliver Jeromin, Marios Pattichis, University of New Mexico

MA8b1-3 Blind Signal Separation and Identification of Mixtures of Images
Felipe P. do Carmo, Joaquim T. de Assis, Vania Vieira Estrela, Alessandra M. Coelho, State University of Rio de Janeiro

MA8b1-4 Mono-Microphone Blind Audio Source Separation Using EM-Kalman Filters and Short+Long Term AR Modeling
Antony Schutz, Siouar Bensaid, Dirk Slock, Eurecom

MA8b1-5 A Nonlocally Weighted Soft-Constrained Natural Gradient Algorithm and Blind Separation of Reverberant Speech Mixtures
Meng Yu, Jack Xin, Yingyong Qi, Hsin-I Yang, Fan-Gang Zeng, University of California, Irvine

MA8b1-6 Statistical Modeling of Multi-camera Images
Rajiv Soundararajan, Alan Bovik, Sriram Vishwanath, University of Texas at Austin

MA8b1-7 On Compressed Sensing and Its Application to Speech and Audio Signals
Mads Græsbøll Christensen, Jan Østergaard, Søren Holdt Jensen, Aalborg University

MA8b1-8 Analysis of Stress in Speech Using Adaptive Empirical Mode Decomposition
James Zhang, Nyaga Mbitiru, Peter Tay, Robert Adams, Western Carolina University

MA8b1-9 Automated Text Content Identification for Document Processing Using a Kernel-based Support Vector Selection Approach
Steven Benveniste, Department of the Air Force; Monique Fargues, Naval Postgraduate School

MA8b1-10 Optical Motion Tracking in Earthquake-Simulation Shake Table Testing: Preliminary Results
Paul Rodriguez, Pontifical Catholica University of Peru

MA8b1-11 Optimal Filters for Extraction and Separation of Periodic Sources
Mads Græsbøll Christensen, Aalborg University; Andreas Jakobsson, Lund University

MA8b1-12 Design and Implementation of a Multispectral Iris Capture System
Hau Ngo, Robert Ives, James Matey, Michael Rhoads, Debbi Choi, United States Naval Academy

MA8b1-13 Multiple Description Spherical Quantization of Sinusoidal Parameters with Repetition Coding of the Amplitudes
Jesper Rindom Jensen, Mads Græsbøll Christensen, Aalborg University; Morten Holm Jensen, Widex A/S; Søren Holdt Jensen, Torben Larsen, Aalborg University

MA8b1-14 Exploiting User / Tool Interactions for Content Based Search
Reid Porter, Christy Ruggiero, Don Hush, Los Alamos National Laboratory

MA8b1-15 Image Encryption Using Discrete Parametric Cosine Transform
Yicong Zhou, Karen Panetta, Tufts University; Sos Agaian, University of Texas at San Antonio

MA8b1-16 Combination of Kalman-Based and Cluster-Based Methods for Reconstruction of Missing Features for Noise Robust Speech Recognition
Arash Mohammadi, York University; Farshad Almasganj, Amirkabir University

MA8b1-17 Image Encryption Algorithms Based on Generalized P-Gray Code Bit Plane Decomposition
Yicong Zhou, Karen Panetta, Tufts University; Sos Agaian, University of Texas at San Antonio

Session MA8b2 Image Processing Methods for Space Applications

Chair: *Steven Suddarth, University of New Mexico 10:30 AM - 12:10 PM*

MA8b2-1 Parametric, Frequency-Domain Approach for Clutter Analysis and Rejection in Remote Sensing
Jeffrey Kern, Sandia National Laboratories

MA8b2-2 Active Learning schemes for Reduced Dimensionality Hyperspectral Classification
Vikram Jayaram, Bryan Usevitch, University of Texas at El Paso

MA8b2-3 A Dynamic Computing Platform for Space Image and Video Processing Applications
Daniel Llamocca, University of New Mexico; Alonzo Vera, Microelectronics Research Development Corporation; Marios Pattichis, University of New Mexico

MA8b2-4 Hierarchical Dense Correspondence for Aerial Video
Mark Duchaineau, Jonathan D. Cohen, Lawrence Livermore National Laboratory

MA8b2-5 3D Reconstruction of Large-Area Terrain from Stereoscopic Airborne Imagery
Curtis Padgett, Yang Cheng, Jet Propulsion Laboratory

MA8b2-6 Advanced Processing for Imaging Nano-Spacecraft
Steven C. Suddarth, COSMIAC

Session MP1a Wireless Networks

Chair: *Wayne Stark, University of Michigan*

MP1a-1 Joint Optimization of Antenna Orientation and Spectrum Allocation for Cognitive Radio Networks 1:30 PM
Wenxuan Guo, Xinming Huang, Worcester Polytechnic Institute

MP1a-2 A Hierarchical Game Approach to Spectrum Sharing 1:55 PM
Mehdi Bennis, Centre for Wireless Communication

MP1a-3 Distributed Estimation over Fading MACs with Multiple Antennas at the Fusion Center 2:20 PM
Anthony Smith, L-3 Communications; Mahesh Banavar, Cihan Tepedelenlioglu, Andreas Spanias, Arizona State University

MP1a-4 Performance Analysis of Slotted ALOHA with Periodic Server Vacations for Energy-efficient Medium Access 2:45 PM
Owens Walker, Murali Tummala, John McEachen, Naval Postgraduate School

Session MP1b Wavelets

Chair: *Morteza Shahram, Stanford University*

MP1b-1 Gain Scaling for Multirate Filter Banks 3:30 PM
Christopher M. Brislawn, Los Alamos National Laboratory

MP1b-2 The Easy Path Wavelet Transform for Optimally Sparse Image Representation 3:55 PM
Gerlind Plonka, University of Duisburg-Essen

MP1b-3 Sparse Data Representation by Tetrolet Transform 4:20 PM
Jens Krommweh, University Duisburg-Essen

MP1b-4 Critically Sampled Wavelets with Composite Dilations 4:45 PM
Glenn Easley, System Planning Corporation; Demetrio Labate, University of Houston

MP1b-5 Wavelet ridge estimation of sparse jointly modulated multivariate oscillations 5:10 PM
Jonathan Lilly, Earth and Space Research; Sofia Olhede, University College London

Session MP2 Multisensor Array Processing for Radar, Sonar, and Imaging

Chair: *Louis Sharf, Colorado State University*

MP2-1 Spatial Correlation for Directional Sensors in Arbitrary Noise Fields 1:30 PM
Henry Cox, Hung Lai, Lockheed Martin; Kristine Bell, George Mason University

MP2-2 Compressed Sensing for MIMO radar - Algorithms and Performance 1:55 PM
Thomas Strohmer, University of California, Davis; Benjamin Friedlander, University of California, Santa Cruz

MP2-3 Expected Likelihood-based Detection-Estimation of Multi-Rank Signals 2:20 PM
Yuri I. Abramovich, Defence Science and Technology Organisation; Ben A. Johnson, Lockheed Martin Australia; Louis L. Scharf, Ali Pezeshki, Colorado State University; Nicholas K. Spencer, Adelaide Research and Innovation, Pty. Ltd.

MP2-4 Basis Pursuit for Robust Passive Acoustic Beamforming 2:45 PM
Ben Shapo, Chris Kreucher, Integrity Applications Incorporated

BREAK 3:10 PM

MP2-5 Multi Face Radar Processing: A New Application of MIMO Radar 3:30 PM
Michael Zatman, QinetiQ North America

MP2-6 Analysis of Circular Aperture SAR Image Formation 3:55 PM
Rajesh Sharma, Northrup Grumman

MP2-7 Detection of Unknown Signals in Unknown, Non-Stationary Noise 4:20 PM
David Browne, MIT Lincoln Laboratory

MP2-8 Polynomial-phase estimation, phase unwrapping and the nearest lattice point problem 4:45 PM
Robby McKilliam, Vaughan Clarkson, University of Queensland; Barry Quinn, Macquarie University; Bill Moran, Melbourne University

MP2-9 Reduced-Rank STAP for MIMO Radar Based on Joint Iterative Optimization of Knowledge-Aided Adaptive Filters 5:10 PM
Rui Fa, Rodrigo C. de Lamare, Patrick Clarke, University of York

Session MP3 Signal and receiver design for modulation and detection with reconfigurable wireless systems

Chair: *Mike Zoltowski, Purdue University*

MP3-1 Spatio-Temporal Scheduling of Complementary Sequences with Application to MIMO-OFDM 1:30 PM
Chad Lau, Michael Zoltowski, Purdue University; Robert Calderbank, Princeton University

MP3-2 Trellis Coded Beamforming Vector Quantization with Fractional Bits Per Antenna 1:55 PM
Chun Kin Au-Yeung, David Love, Purdue University

MP3-3 Performance Bounds for Expander-Based Compressed Sensing with Poisson Noise 2:20 PM
Sina Jafarpour, Princeton University; Rebecca Willett, Maxim Raginsky, Duke University; Robert Calderbank, Princeton University

MP3-4 Sparsity-Aware Cooperative Cognitive Radio Sensing Using Channel Gain Maps 2:45 PM
Seung-Jun Kim, University of Minnesota; Emiliano Dall'Anese, University of Padova; Georgios B. Giannakis, University of Minnesota

BREAK 3:10 PM

MP3-5 Transmission Techniques and Channel Estimation for Spatial Interweave TDD Cognitive Radio Systems 3:30 PM
Francesco Negro, Institut Eurecom; Irfan Ghauri, Infineon Technologies France; Dirk Slock, Institut Eurecom

MP3-6 Effect of Quantization and Channel Errors on Collaborative Spectrum Sensing. 3:55 PM
Sachin Chaudhari, Visa Koivunen, Helsinki University of Technology

MP3-7 Performance Analysis in AF/DF Relay Networks with Beamforming 4:20 PM
Hyunjun Kim, Cihan Tepedelenlioglu, Arizona State University

MP3-8 Dynamic Spectral Shaping in Cognitive Radios with Quality of Service Constraints 4:45 PM
Deepak Joshi, Dimitrie Popescu, Old Dominion University; Octavia Dobre, Memorial University of Newfoundland

MP3-9 Resource Allocation for Cognitive Radio Networks with a Beamforming User Selection Strategy 5:10 PM
Bassem Zayen, Aawatif Hayar, Eurecom; Geir Oien, Norwegian University of Science and Technology

Session MP4 Image and Video Coding I

Chair: *Michael Marcellin, University of Arizona*

MP4-1 Autonomous Decision Making in Layered and Reconfigurable Video Coders 1:30 PM
Nick Mastronarde, Mihaela van der Schaar, University of California, Los Angeles

MP4-2 JPEG2000 ROI-Component Coding 1:55 PM
Joan Bartrina-Rapesta, Joan Serra-Sagrista, Francesc Auli-Llinas, Juan Munoz-Gomez, Universitat Autonoma de Barcelona

MP4-3 Perceptual Distortion Metric for JPEG2000 2:20 PM
Han Oh, Ali Bilgin, Michael Marcellin, University of Arizona

MP4-4 Video compression based on distributed source coding principles 2:45 PM
Zixiang Xiong, Texas A&M University

BREAK 3:10 PM

MP4-5 A Practical Rate Distortion Bound For Inter-Frame Video Coding 3:30 PM
Jing Hu, Cisco Systems; Jerry Gibson, University of California, Santa Barbara

MP4-6 Edge-preserving Depth-map Coding using Tree-based Wavelets 3:55 PM
Alfonso Sanchez, Godwin Shen, Antonio Ortega, University of Southern California

MP4-7 Error Resilient Video Coding for Packet Loss Channels using Bimodal Leaky Prediction 4:20 PM
Ufuk Celikcan, Ertem Tuncel, University of California, Riverside

MP4-8 Enabling Access through Real-Time Sign Language Communication over Cell Phones 4:45 PM
Jaehong Chon, University of Washington; Neva Cherniavsky, INRIA; Eve Riskin, Richard Ladner, University of Washington

Session MP5 MIMO in Underwater Communications

Chair: *Magnus Lundberg Nordenvaad, Lulea Univerity of Technology, Sweden*

MP5-1 A study of multiplicity and diversity in MIMO underwater acoustic communications 1:30 PM
T.C. Yang, US Naval Research Laboratory

MP5-2 Training Sequence Synthesis, Channel Estimation and Symbol Detection for MIMO Underwater Acoustic Communications 1:55 PM
Xiang Su, Jun Ling, University of Florida; Magnus Lundberg Nordenvaad, Luleå University of Technology; Hao He, Jian Li, University of Florida

MP5-3 MIMO OFDM Over Underwater Acoustic Channels 2:20 PM
Milica Stojanovic, Northeastern University

MP5-4 Capacity of MIMO Systems in Shallow Water Acoustic Channels 2:45 PM
Tolga Duman, Arizona State University; John Proakis, University of California, San Diego; Milica Stojanovic, Northeastern University; Andreja Radosevic, University of California, San Diego

BREAK 3:10 PM

MP5-5 The Optimal Training Length for MIMO Frequency-Selective Channel for Time-Varying Channels 3:30 PM
Xiang Zou, James Ritcey, University of Washington

MP5-6 A New Approach for Joint Channel Estimation and Data Detection in MIMO Wireless Systems 3:55 PM
Raquel Machado, Luis Meloni, Renato Lopes, University of Campinas (UNICAMP)

MP5-7 Iterative Estimation of Sparse and Doubly-selective Multi-input Multi-output (MIMO) Channels 4:20 PM
Jun Won Choi, Kyeongyeon Kim, Thomas Riedl, Andrew Singer, University of Illinois at Urbana-Champaign

MP5-8 Space-Time Block Coding for Frequency-Selective and Time-Varying Channels 4:45 PM
Kun Fang, Geert Leus, Delft University of Technology

Session MP6 Adaptive Signal Processing II

Chair: *Steven Grant, Missouri University of Science and Technology*

MP6-1 Variable Step-Size NLMS Algorithms Designed for Echo Cancellation 1:30 PM
Constantin Paleologu, University Politehnica of Bucharest; Jacob Benesty, University of Quebec; Steven L. Grant, University of Missouri-Rolla

MP6-2 A Frequency Domain Doubletalk Detector Based On Cross-Correlation and Extension To Multi-Channel Case 1:55 PM
Mohammad Asif Iqbal, Qualcomm, Inc.; Steven L. Grant, University of Missouri-Rolla; Jack W. Stokes, Microsoft Research

MP6-3 Adaptive Filtering in the Presence of Wide-Band Doppler 2:20 PM
Steven Grant, Missouri University of Science and Technology; James Casalegno, Raytheon

MP6-4 Active Noise Control Based On Kernel Least-Mean-Square Algorithm 2:45 PM
Hua Bao, Issa Panahi, University of Texas at Dallas

BREAK 3:10 PM

MP6-5 Forgetting Factor Selection in RLS Decision-Directed Tracking of Doubly-Selective Channels 3:30 PM
Hyosung Kim, Jitendra Tugnait, Auburn University

MP6-6 Adaptive Cancellation of Acoustic Echoes During Double-Talk Based on an Information Theoretic Criteria 3:55 PM
Jake Gunther, Todd Moon, Utah State University

MP6-7 A soft-input adaptive equalizer algorithm 4:20 PM
Todd Moon, Jacob Gunther, Utah State University

MP6-8 An Exponentially Convergent Adaptive Algorithm for Time-varying IIR Filters 4:45 PM
Geoffrey A. Williamson, Mohammad Abu-Naser, Illinois Institute of Technology; Soura Dasgupta, University of Iowa

Session MP7a Communications and Airborne Networks

Chair: *Biao Chen, Syracuse University*

MP7a-1 Aircraft Free-Space MIMO Communications 1:30 PM
Michael Gans, Air Force Research Laboratory

MP7a-2 MIMO Z-Interference Channels: Capacity Under Strong and Noisy Interference 1:55 PM
Xiaohu Shang, Princeton University; Biao Chen, Syracuse University; Gerhard Kramer, University of Southern California; H. Vincent Poor, Princeton University

MP7a-3 Cognitive CDMA Channelization 2:20 PM
Kanke Gao, Stella Batalama, Dimitris Pados, State University of New York at Buffalo; John Matyjas, Air Force Research Laboratory/RIGE

MP7a-4 Cooperative OTH Communications for Airborne Networks: Advantages and Challenges 2:45 PM
Andrea Rueetschi, University of California, Davis; Matthew Sharp, Cornell University; Anna Scaglione, University of California, Davis

Session MP7b Reconfigurable Architectures and Processors

Chair: *Jose Nunez-Lopez, Bristol University*

MP7b-1 Reconfigurable Computing: Productivity and Performance 3:30 PM
Wayne Luk, Gabriel Coutinho, David Thomas, Imperial College London

MP7b-2 LE1: A configurable, multi-cluster, multi-core VLIW processor for accelerating telecom and media codes 3:55 PM
Vassilios Chouliaras, David Stevens, Nick Glynn, Loughborough University

MP7b-3 Reconfigurable Real-time MIMO Detector on GPU 4:20 PM
Michael Wu, Yang Sun, Joseph Cavallaro, Rice University

MP7b-4 Fast Motion Estimation Using Configurable and Extendable Processing Cores 4:45 PM
Trevor Spiteri, Jose Nunez-Yanez, George Vafiadis, University of Bristol

MP7b-5 Low Power Cell-Based Reconfigurable Reed Solomon Processor 5:10 PM
Ahmed O. El-Rayis, Xin Zhao, Tughrul Arslan, Ahmet T. Erdogan, University of Edinburgh

Session MP8a Hardware Techniques & Implementations

Chair: *Neil Burgess, University of Bristol* *1:30 PM - 3:10 PM*

MP8a-1 An Efficient Hardware Implementation for Interpolating and Decimating Filters
Richard Benson, The MathWorks Inc.

MP8a-2 DVS 926 CPU for Mobile Handheld Devices
Rajalingam A, Kokila B, Vel Tech Multi Tech Dr.Rangarajan Dr.Sakunthala Engineering College

MP8a-3 Scalable Interpolation-based QRD Architecture for Subcarrier-Grouped-Ordering MIMO-OFDM System
Po-Lin Chiu, National Chiao-Tung University; Lin-Zheng Huang, Yuan-Hao Huang, National Tsing-Hua University

MP8a-4 High Speed VLSI Architecture for General Linear Feedback Shift Register (LFSR) Structures
Chao Cheng, Marvell Semiconductor; Keshab K. Parhi, University of Minnesota

MP8a-5 A Novel FIR Filter Implementation Using Truncated MCM Technique
Rui Guo, Lei Wang, Linda S. DeBrunner, Florida State University

MP8a-6 Hardware Implementation of IIR Digital Filters for Programmable Devices
Ramsey Hourani, Johns Hopkins University; Christopher Doss, North Carolina A&T State University; Winser Alexander, North Carolina State University

MP8a-7 Parallel Image Thinning Through Topological Operators On Shared Memory Parallel Machines
Ramzi Mahmoudi, Mohamed Akil, Petr Matas, ESIEE Engineering

MP8a-8 Optimizing correctly-rounded reciprocal square roots for embedded VLIW cores
Claude-Pierre Jeannerod, INRIA; Guillaume Revy, Université de Lyon

MP8a-9 Multiple Constant Multiplication through Residue Number System
Ilir Shuli, Massimo Petricca, Gian Carlo Cardarilli, Univ. Roma Tor Vergata; Alberto Nannarelli, Technical University of Denmark; Marco Re, Univ. Roma Tor Vergata

MP8a-10 Techniques for Avoiding Sign-Extension in Multiple Constant Multiplication
Oscar Gustafsson, Linköping University; Kenny Johansson, Florida State University

MP8a-11 Design of Multiplierless FIR Filters with an Adder Depth Versus Filter Order Trade-Off
Kenny Johansson, Linda DeBrunner, FAMU-FSU College of Engineering; Oscar Gustafsson, Linköping University; Victor DeBrunner, FAMU-FSU College of Engineering

MP8a-12 A Low-Complexity Rate-Compatible LDPC Decoder
Kai Zhang, Worcester Polytechnic Institute

MP8a-13 Hardware Implementation of Real-Time MPEG Analysis and Deblocking for Video Enhancement
Massmo Petricca, Univ. Roma Tor Vergata; Huiying Li, Soren Forchhammer, Alberto Nannarelli, Technical University of Denmark; Marco Re, Univ. Roma Tor Vergata; Jacob D. Andersen, Technical University of Denmark; Gian Carlo Cardarilli, Univ. Roma Tor Vergata

MP8a-14 A Configurable Timing and Communications Engine for Radio Positioning with Implementations for an FPGA or an ASIC
Meredith Beveridge Lecocke, Michael A. Koets, Jennifer L. Alvarez, Larry T. McDaniel, Miles R. Darnell, Michael D. Lillywhite, Southwest Research Institute

MP8a-15 Design and FPGA implementation of a low complexity and accurate real time 3x4 MIMO channel emulator
Omar Nasr, Babak Daneshrad, University of California, Los Angeles

Session TA1b Network Coding

Chair: *Yunnan Wu, Microsoft Research*

TA1b-1 On Cross-Layer Optimizations for Intersession Network Coding on Wireless Networks with Practical Constraints. 10:15 AM
Chih-Chun Wang, Purdue University

TA1b-2 Cross-Layer Utility Maximization Subject to Stability Constraints for Multi-Channel Wireless Networks 10:40 AM
Marian Codreanu, Chathuranga Weeraddana, Matti Latva-aho, University of Oulu

TA1b-3 On Cross-Layer Optimizations for Intersession Network Coding on Wireless Networks with Practical Constraints 11:05 AM
Chih-Chun Wang, Purdue University; Ness B. Shroff, Abdallah Khreishah, Ohio State University

TA1b-4 Physical Layer Network Coding with Unsynchronized Transmitters 11:30 AM
Dumezie Maduike, Henry Pfister, Alex Sprintson, Texas A&M University

TA1b-5 On combining information theoretic and cryptographic approaches to network coding security against the pollution attack 11:55 AM
Aditya Khosla, Svitlana Vyetrenko, Tracey Ho, California Institute of Technology

Session TA2b Advances in Medical Imaging

Chair: *George Zouridakis, U. of Houston*

TA2b-1 Effects of Inflow Variation in a Cerebral Aneurysm - A Image-based Approach for the Analysis of CFD Simulation Data 10:15 AM
Christof Karmonik, Yi Zhang, Methodist Hospital Neurological Institute; Martin Spiegel, University of Erlangen; Thomas Redel, Ashraf Mohamed, Siemens Medical Solutions; Marc Horner, Ralf Kroeger, Robert Grossman, ANSYS, Inc.

TA2b-2 Random Field Model for Cell Segmentation in Transmission Mode Multispectral Microscopy Images 10:40 AM
Xuqing Wu, Shishir Shah, University of Houston

TA2b-3 Compressive Sensing Method for Improved Reconstruction of Gradient-Sparse Magnetic Resonance Images 11:05 AM
Cristiano Miosso, Ricardo von Borries, Joseph Pierluissi, University of Texas at El Paso

TA2b-4 Generalized Pseudo-Polar Fourier Grids and Applications in Registering Ophthalmic Optical Coherence Tomography Images 11:30 AM
Nigel Chou, Joseph Izatt, Sina Farsiu, Duke University

TA2b-5 Multichannel Image Restoration Based on Optimization of the Structural Similarity Index 11:55 AM
Maja Temerinac-Ott, Hans Burkhardt, University of Freiburg

Session TA3b Secure Communications

Chair: *John Hershey, GE Research*

TA3b-1 The Gaussian Wiretap Channel with Noisy Public Feedback: Breaking the High-SNR Ceiling 10:15 AM
Tung Kim, H. Vincent Poor, Princeton University

TA3b-2 Secrecy Capacity Optimization under Cooperation with Perfect Channel State Information 10:40 AM
Jiangyuan Li, Athina Petropulu, Steven Weber, Drexel University

TA3b-3 Secrecy Capacity of Nakagami-m Fading Wireless Channels in the Presence of Multiple Eavesdroppers 11:05 AM
Md. Zahurul Islam Sarkar, Tharmalingam Ratnarajah, Mathini Sellathurai, Queen's University Belfast

TA3b-4 Two Edge Type LDPC Codes for the Wiretap Channel 11:30 AM
Vishwambhar Rathi, Mattias Andersson, Ragnar Thobaben, Royal Institute of Technology; Jorg Kliewer, Klipsch School of Electrical and Computer Engineering; Mikael Skoglund, Royal Institute of Technology

Session TA4b Image and Video Enhancement/ Filtering

Chair: *Manu Parmar, Stanford University*

TA4b-1 Image Matting From a Physical Perspective 10:15 AM
Yuan Shen, Massachusetts Institute of Technology; Ramin Samadani, Mitchell Trott, Hewlett Packard

TA4b-2 Compression-Aware Digital Pan/Tilt/Zoom 10:40 AM
Mina Makar, Aditya Mavlankar, Bernd Girod, Stanford University

TA4b-3 Low-light imaging solutions for mobile devices 11:05 AM
Marius Tico, Kari Pulli, Nokia

TA4b-4 Bias Modeling for Image Denoising 11:30 AM
Priyam Chatterjee, Peyman Milanfar, University of California, Santa Cruz

TA4b-5 A case for denoising before demosaicking color filter array data 11:55 AM
Sung Hee Park, Hyung Suk Kim, Steven Lansel, Manu Parmar, Brian Wandell, Stanford University

Session TA5b Image and Video Coding II

Chair: *Christopher M. Brislawn, Los Alamos National Laboratory*

TA5b-1 A Framework for Perceptual Image Analysis 10:15 AM
Lakshman Prasad, Sriram Swaminarayan, Los Alamos National Laboratory

TA5b-2 A Motion Compensated Approach to Video Quality Assessment 10:40 AM
Anush Moorthy, Alan Bovik, University of Texas at Austin

TA5b-3 Multiple Description Coding of Multiview Images 11:05 AM
Xiaoyu Xiu, Jie Liang, Simon Fraser University

TA5b-4 Perceptual Video Quality Optimization in AWGN Channel Using Low Complexity Channel Code Rate Allocation 11:30 AM
Ting-Lan Lin, Pamela Cosman, University of California, San Diego

TA5b-5 Adaptive multithreaded H.264/AVC decoding 11:55 AM
Henryk Richter, University of Rostock; Benno Stabernack, Fraunhofer Institut für Nachrichtentechnik; Erika Müller, University of Rostock

Session TA6b Adaptive Signal Processing III

Co-Chairs: *John Shynk, University of California, Santa Barbara and Suk-seung Hwang, Chosun University, Korea*

TA6b-1 An Affine Combination of Two LMS Adaptive Filters - Statistical Analysis of an Error Power Ratio Scheme 10:15 AM
Neil Bershad, University of California, Irvine; Jose Carlos Bermudez, Federal University of Santa Catarina; Jean-Yves Tourneret, IRIT-ENSEEIHT

TA6b-2 Adaptive signal processing techniques for clutter removal in radar-based navigation systems 10:40 AM
Yanfeng Liang, Harbin Engineering University; Wenwu Wang, Surrey University; Jonathon Chambers, Loughborough University

TA6b-3 Adaptive Channel Estimation Based on the MIMO-OFDM Preamble 11:05 AM
Suk-seung Hwang, Chosun University

TA6b-4 Tracking Behvior of Adaptive Equalizers in Filtered Multitone Communication Systems 11:30 AM
Pooyan Amini, Behrouz Farhang-Boroujeny, University of Utah

TA6b-5 Diffusion Distributed Kalman Filtering with Adaptive Weights 11:55 AM
Federico S. Cattivelli, Ali H. Sayed, University of California, Los Angeles

Session TA7b Computer Arithmetic I

Chair: *Mike Schulte, University of Wisconsin-Madison*

TA7b-1 Performance of a RISC System Implementing Arithmetic Data Value Speculation 10:15 AM
Daniel Kelly, Braden Phillips, Said Al-Sarawi, University of Adelaide

TA7b-2 Simplifying the Rounding for Newton-Raphson Algorithm with Parallel Remainder Calculation 10:40 AM
Daniel Piso Fernández, Javier Díaz Bruguera, University of Santiago de Compostela

TA7b-3 Floating-Point Implementation of Complex Multiplication 11:05 AM
Earl E. Swartzlander, Jr., University of Texas at Austin; Hani Saleh, Intel Corporation

TA7b-4 A Combined Decimal and Binary Floating-point Divider 11:30 AM
Sonia González-Navarro, University of Málaga; Alberto Nannarelli, Technical University of Denmark; Charles Tsen, Michael Schulte, University of Wisconsin-Madison

TA7b-5 Design and FPGA Implementation of Radix-10 Algorithm for Square Root with Limited Precision Primitives 11:55 AM
Milos D. Ercegovac, University of California, Los Angeles; Robert McIlhenny, California State University Northridge

Session TA8b1 Communication Systems I

Chair: *Bill Moran, University of Melbourne* *10:15 AM - 11:55 AM*

TA8b1-1 EXIT Chart Analysis for the Bit-interleaved Turbo Frequency Domain Equalization under Fast Fading Environments
Chantri Polprasert, James Ritcey, University of Washington

TA8b1-2 Supertight Algebraic Bounds on Q(x)
Giuseppe Abreu, University of Oulu

TA8b1-3 Robust IEEE 802.15.4a Energy Detection Receiver Using Statistical Interference Modeling
Manuel Flury, EPFL; Ruben Merz, Deutsche Telekom Laboratories; Jean-Yves Le Boudec, EPFL

TA8b1-4 Robustness of Joint Bayesian Frequency Offset and Channel Estimation based on Basis Expansion Models
Rami Khal, Junruo Zhang, Yuriy Zakharov, University of York

TA8b1-5 Properties and Performance Bounds of Linear Analog Block Codes
Matthias Rüngeler, Birgit Schotsch, Peter Vary, RWTH Aachen University

TA8b1-6 On Channel-Based User Authentication for Mobile Terminals
Jitendra Tugnait, Hyosung Kim, Auburn University

TA8b1-7 Peak to Average Power Ratio Reduction of an OFDM Signal Using a Practical Selective Mapping Approach with Embedded Side-Information
Benjamin Lee, Douglas L. Jones, Dilip V. Sarwate, University of Illinois at Urbana-Champaign

TA8b1-8 A Novel Uplink Receiver for GSM/EDGE Systems with Orthogonal Sub Channel Feature
Daniele Molteni, Monica Nicoli, Politecnico di Milano

TA8b1-9 On The Suitability Of Bit Mappings To Outer Channel Codes In Iteratively-Decoded BICM
Michael Samuel, Maged Barsoum, University of California, Los Angeles; Michael Fitz, Northrup Grumman

TA8b1-10 On Linear Processing in AWGN Channels with Feedback
Zachary Chance, David Love, Purdue University

TA8b1-11 On the Queueing Delay of Cognitive Communications
Amine Laourine, Shiyao Chen, Lang Tong, Cornell University

TA8b1-12 Cell Hearability Analysis in UTRAN Long Term Evolution Downlink
Alexandra Oborina, Helsinki University of Technology; Tero Henttonen, Nokia Oyj

TA8b1-13 On the Application of BP Decoding to Convolutional and Turbo Codes.
Ahmed Refaey-Ahmed, Sebastien Roy, Paul Fortier, Laval University

TA8b1-14 Congenial Weighting for Interference Canceller with Convolutional Code
Xueyuan Zhao, Zhengang Pan, Hong Kong Applied Science and Technology Research Institute (ASTRI); Roger S.K. Cheng, Hong Kong University of Science and Technology (HKUST); Vincent K.N. Lau, Hong Kong Applied Science and Technology Research Institute (ASTRI)

TA8b1-15 Sum Rate Increase with the Hybrid of Interference Cancellation and Busy Burst Interference Avoidance
Sinan Sinanovic, University of Edinburgh; Gunther Auer, DoCoMo Euro-Labs; Harald Haas, University of Edinburgh

TA8b1-16 Channel Estimation by Inference on Gaussian Markov Random Fields
Thomas Riedl, Jun Won Choi, Andrew Singer, University of Illinois at Urbana-Champaign

TA8b1-17 Optimal Subcarrier Power Allocation for OFDM in Peak-Power-Limited Channels
Qijia Liu, Georgia Institute of Technology; Robert J. Baxley, Georgia Tech Research Institute; G. Tong Zhou, Georgia Institute of Technology

TA8b1-18 On the Outage Performance of Relay Systems in Frequency Selective Fading Channels
Qingxiong Deng, Andrew G. Klein, Worcester Polytechnic Institute

Session TA8b2 Communication Systems II

Chair: *Bill Moran, University of Melbourne* *10:15 AM - 11:55 AM*

TA8b2-1 Spline-based Spectrum Cartography for Cognitive Radios
Gonzalo Mateos, Juan-Andrés Bazerque, Georgios B. Giannakis, University of Minnesota

TA8b2-2 Optimized Differential Bluetooth Demodulator
Bo Yu, Liuqing Yang, University of Florida; Chia-Chin Chong, DoCoMo USA Labs

TA8b2-3 Jamming Mitigation Based on Coded Message-Driven Frequency Hopping
Huahui Wang, Tongtong Li, Michigan State University

TA8b2-4 Delay-Throughput Trade-off With Opportunistic Relaying in Wireless Networks
Yufeng Wang, Shengshan Cui, Alexander Haimovich, New Jersey Institute of Technology

Session TP1a Network Design

Co-Chairs: *Michael Pioro, Lund University and Zbignew Dziong, University of Quebec*

TP1a-1 A Multi-Objective Approach for Joint Throughput and Traffic Engineering Optimization in WDM Networks 1:30 PM
Jorge Crichigno, C. Xie, Wei Shu, University of New Mexico; Min-You Wu, Shanghai Jiao Tong University; Nasir Ghani, University of New Mexico

TP1a-2 Online Impairments-aware Routing within a Path Computation Element 1:55 PM
Fernando Solano, Mateusz Zotkiewicz, Warsaw University of Technology

TP1a-3 Minimization of Label Usage in (G)MPLS Network 2:20 PM
Artur Tomaszewski, Michal Pioro, Lund University

TP1a-4 Measurement Based Routing for Service Overlay Networks 2:45 PM
Wafic Muhi-eddine, Zbigniew Dziong, University of Quebec

Session TP1b Relay Networks

Co-Chairs: *Michael Pioro, Lund University and Zbigniew Dziong, University of Quebec*

TP1b-1 Optimal Power Allocation for Orthogonal Relay Systems 3:30 PM
Fayyaz Ahmed, McMaster University

TP1b-2 Uncoded Transmission in Wireless Relay Networks Using Deterministic Modeling 3:55 PM
Nicolas Schrammar, Mikael Skoglund, Royal Institute of Technology

TP1b-3 Efficient and Accurate Localization in Multihop Networks 4:20 PM
Stefano Severi, Davide Dardari, Universitá di Bologna; Giuseppe Destino, Giuseppe Abreu, Oulun Yliopisto

TP1b-4 Optimal Quantization Allocation For Amplify-Weight-And-Forward Cooperative Links 4:45 PM
Harish Ganapathy, Constantine Caramanis, University of Texas at Austin

Session TP2a Reading the Brain -- Decoding Perception and Cognition

Chair: *Lucas Parra, City College CUNY*

TP2a-1 Decoding cognitive state variables from parietal and frontal cortex 1:30 PM
Bijan Pesaran, Basma Radwan, Boris Revechkis, New York University

TP2a-2 Bayesian reconstruction of perceptual experiences from human brain activity 1:55 PM
Thomas Naselaris, Ryan Prenger, Kendrick Kay, Michael Oliver, Jack Gallant, University of California, Berkeley

TP2a-3 Finding the engram: decoding episodic memory traces from signals in the hippocampus 2:20 PM
Demis Hassabis, Martin Chadwick, Nikolaus Weiskopf, Eleanor Maguire, University College London

TP2a-4 Modeling motor learning connectivity using coordinate-based meta-analysis and TMS/PET 2:45 PM
Angela Laird, Karl Li, Shalini Narayana, University of Texas Health Science Center San Antonio; Larry Price, Texas State University; Robert Laird, St. Mary's University; Peter Fox, University of Texas Health Science Center San Antonio

Session TP2b Neural Signal Processing

Chair: *Karim Oweiss, Michigan State University*

TP2b-1 A hypergraph-based approach to identify the role of higher-order interaction between cortical neurons in stimulus coding 3:30 PM
Mehdi Aghagolzadeh, Seif Eldawlatly, Karim Oweiss, Michigan State University

TP2b-2 Nonlinear Dynamic Modeling of Neural Population Activity for Hippocampal Prostheses 3:55 PM
Dong Song, Rosa Chan, Vasilis Marmarelis, University of Southern California; Robert Hampson, Sam Deadwyler, Theodore Berger, Wake Forest University

TP2b-3 Spatial Proximity based Subspace Decomposition for Movement Direction Decoding of Local Field Potentials 4:20 PM
Vijay Aditya Tadipatri, B. Vikrham Gowreesunker, Ahmed Tewfik, Nuri F. Ince, James Ashe, Giuseppe Pellizzer, University of Minnesota

TP2b-4 Bezier Control Points Image: A Novel Shape Representation Approach for Medical Imaging 4:45 PM
Dajiang Zhu, University of Georgia; Kaiming Li, Lei Guo, Northwestern Polytechnical University; Tianming Liu, University of Georgia

Session TP3 Wideband Communications and Interference Management

Chair: *Jamie Evans, University of Melbourne*

TP3-1 A Centralized Multi-Level Water-Filling Algorithm for Dynamic Spectrum Management 1:30 PM
H. Zou, A. Chowdhery, J. M. Cioffi, Stanford University

TP3-2 Beamforming Design for Interference Mitigation in MIMO Wireless Networks 1:55 PM
Rajiv Agarwal, Stanford University

TP3-3 Minimum Mean Squared Error Interference Alignment 2:20 PM
David Schmidt, Technical University of Munich; Changxin Shi, Randall Berry, Michael Honig, Northwestern University; Wolfgang Utschick, Technical University of Munich

TP3-4 Digital Post-Processing for Reducing A/D Converter Nonlinear Distortion in Wideband Radio Receivers 2:45 PM
Markus Allen, Jaakko Marttila, Mikko Valkama, Tampere University of Technology

BREAK 3:10 PM

TP3-5 Weighted Sum Rate Maximization on Two User Gaussian Interference Channels with Rate Splitting 3:30 PM
Maximilian Riemensberger, Ines Abdelghani, Johannes Lenz, Wolfgang Utschick, Technische Universität München

TP3-6 Outage Rate Regions for the MISO IFC 3:55 PM
Johannes Lindblom, Eleftherios Karipidis, Erik G. Larsson, Linköping University

TP3-7 Low Speed Compressive Sampling ADC for 60GHz UWB Communication 4:20 PM
Jia (Jasmine) Meng, University of Houston; Javad Ahmadi-Shokouh, University of Manitoba; Husheng Li, University of Tennessee; E. Joe Charlson, Zhu Han, University of Houston; Sima Noghanian, University of North Dakota; Ekram Hossain, University of Manitoba

TP3-8 Nonlinear Spreading for Communications in Co-Band Interference Channels 4:45 PM
Robert J. Baxley, Brett T. Walkenhorst, Georgia Tech Research Institute

Session TP4 Detection and Estimation II

Chair: *David Ohm, Zeta Associates*

TP4-1 Blind Source Separation with Low Frequency Compensation for Convolutive Mixtures 1:30 PM
Xiaoming Zhu, Keshab K. Parhi, Warren J. Warwick, University of Minnesota, Twin Cities

TP4-2 GPS AOA Estimation Based on a Modified Despreader 1:55 PM
Suk-seung Hwang, Chosun University; John J. Shynk, University of California, Santa Barbara

TP4-3 Polarimetric MIMO Radar With Distributed Antennas for Target Detection 2:20 PM
Sandeep Gogineni, Arye Nehorai, Washington University in St. Louis

TP4-4 Emitter Location Via Joint 3-D Parametric Estimation 2:45 PM
David Ohm, Zeta Associates, Inc.; S.Lawrence Marple Jr., Oregon State University

BREAK 3:10 PM

TP4-5 A Novel Maximum Likelihood Estimator for GPS Signal Angle of Arrival 3:30 PM
Matthew Brenneman, Yu Tong Morton, Miami University

TP4-6 Impact of Element Positional Errors on Bearing Estimation for Undersea Bottom Mounted, Linear Sonar Arrays 3:55 PM
John Cochran, Igal Bilik, University of Massachusetts, Dartmouth

TP4-7 Elephant Censusing via Geophone Arrays: A Visual Approach for Linear Arrays 4:20 PM
Gabriel Chandler, Ozgur Izmirli, Connecticut College; Caitlin O'Connell-Rodwell, Stanford University; Jason Wood, The Whale Museum

TP4-8 ABF Performance Using Covariance Matrices Derived From Spatial Spectra For Large Arrays 4:45 PM
Joseph Schwarzwalder, Argon ST, Inc.; Kathleen Wage, George Mason University

Session TP5 MIMO Radar

Chair: *Rick Blum, Lehigh University*

TP5-1 On MIMO Radar Transmission Schemes for Ground Moving Target Indication 1:30 PM
Ming Xue, Duc Vu, Luzhou Xu, Jian Li, University of Florida; Petre Stoica, Uppsala University

TP5-2 Finite-sample Optimal Joint Target Detection and Parameter Estimation by MIMO Radars 1:55 PM
Ali Tajer, Guido Jajamovich, Xiaodong Wang, George Moustakides, Columbia University

TP5-3 Target Tracking in Widely Separated Non-coherent Multiple-Input Multiple-Output Radar Systems 2:20 PM
Ruixin Niu, Syracuse University; Rick Blum, Lehigh University; Pramod Varshney, Syracuse University; Andrew Drozd, ANDRO Computational Solutions

TP5-4 A MIMO Radar System Approach to Target Tracking 2:45 PM
Hana Godrich, Alexander Haimovich, New Jersey Institute of Technology; Rick Blum, Lehigh University

BREAK 3:10 PM

TP5-5 Exploiting Correlation in MIMO radar with Angular Diversity 3:30 PM
Tuomas Aittomäki, Visa Koivunen, Helsinki University of Technology

TP5-6 Range And Doppler Estimation In Distributed MIMO Radar 3:55 PM
Yao Yu, Athina Petropulu, Drexel University; H. Vincent Poor, Princeton University; Thomas P.-Y. Yu, Drexe University

TP5-7 Spatial Coherence of Targets in MIMO Radar Applications 4:20 PM
Alexander M. Haimovich, New Jersey Institute of Technology; Rick S. Blum, Lehigh University

TP5-8 Noncoherent versus Coherent MIMO Radar: Simplicity with little loss for Sufficient Numbers of Antennas 4:45 PM
Qian He, Rick S. Blum, Lehigh University

Session TP6a Speech Coding

Chair: *Marios S. Pattichis, University of New Mexico*

TP6a-1 A Speech Packet Loss Concealment Algorithm Using Real-time Speech Quality Measurement and Redundancy Coding 1:30 PM
Jin Ah Kang, Hong Kook Kim, Gwangju Institute of Science and Technology

TP6a-2 Analysis of Wyner-Ziv Quantizers for Packet Loss 1:55 PM
Manohar N. Murthi, Shaminda Subasingha, University of Miami

TP6a-4 Phonetically Switched Tree Coding of speech with a G.727 Code Generator 2:45 PM
Jerry Gibson, Pravin Ramadas, University of California, Santa Barbara

TP6a-5 Generalized Triangular Transform Coding 3:10 PM
Ching-Chih Weng, Chun-Yang Chen, P. P. Vaidyanathan, California Institute of Technology

Session TP6b Computational Photography

Chair: *Pradeep Sen, University of New Mexico*

TP6b-1 Restoration of Images Captured with Combined Conventional and Plenoptic Camera 3:30 PM
Pradeep Sen, Viktor Chekh, UNM Advanced Graphics Lab

TP6b-2 New Results on the Plenoptic 2.0 Camera 3:55 PM
Todor Georgiev, Adobe

TP6b-3 Visual Summaries of Popular Landmarks from Community Photo Collections 4:20 PM
Wei-Chao Chen, Agathe Battestini, Natasha Gelfand, Vidya Setlur, Nokia Research Center

TP6b-4 A Gradient Domain Object Editing Approach and Its Implementation on Mobile Device 4:45 PM
Yingen Xiong, Kari Pulli, Nokia Research Center

Session TP7 Communication Processors and Accelerators

Chair: *Joe Cavallaro, Rice University*

TP7-1 Design of a Cooperative OFDM Transceiver 1:30 PM
Patrick Murphy, Christopher Hunter, Ashutosh Sabharwal, Rice University

TP7-2 Receiver Implementation for MIMO-OFDM with AMC and Precoding 1:55 PM
Johanna Ketonen, Markku Juntti, University of Oulu

TP7-3 Trends and Challenges in LDPC Hardware Decoders 2:20 PM
Tinoosh Mohsenin, Bevan Baas, University of California, Davis

TP7-4 Low Error Rate LDPC Decoders 2:45 PM
Zhengya Zhang, Borivoje Nikolic, Venkat Anantharam, Martin Wainwright, Brian Richards, University of California, Berkeley

BREAK 3:10 PM

TP7-5 Polyphase Channelizer Performs Sample Rate Change Required for both Matched Filtering and Channel Frequency Spacing 3:30 PM
fredric harris, San Diego State University; Chris Dick, Xilinx

TP7-6 Tunable N-Path Mismatch Shaping for Multibit Bandpass Delta-Sigma Modulators 3:55 PM
Waqas Akram, Earl Swartzlander, University of Texas at Austin

TP7-7 MIMO Accelerator: A Design Flow for a Programmable MIMO Decoder Architecture 4:20 PM
Karim Mohammed, Mohamed Ali, Babak Daneshrad, University of California, Los Angeles

TP7-8 Rapid Direct Sequence Spread Spectrum Code Synchronization using a Complex Matched Filter on an FPGA 4:45 PM
Michael A. Koets, Michael D. Lillywhite, Larry T. McDaniel, Meredith Beveridge Lecocke, Southwest Research Institute

Session TP8a1 Array and Statistical Signal Processing I

Chair: *Harry Schmitt, Raytheon Company* *1:30 PM - 3:10 PM*

TP8a1-1 Greedy Sparse Signal Reconstruction From Sign Measurements
Petros Boufounos, Mitsubishi Electric Research Laboratories, Inc.

TP8a1-2 Recovering Tensor Data from Incomplete Measurement via Compressive Sampling
Jason Holloway, Carmeliza Navasca, Clarkson University

TP8a1-3 Multiband Chirp Synthesis for Frequency-Hopped FMCW Radar
Jason Yu, Jeffrey Krolik, Duke University

TP8a1-4 Simultaneous Grating Lobe and Backlobe Rejection with a Line Array of Vector Sensors
Henry Cox, Hung Lai, Lockheed Martin

Session TP8a2 Array and Statistical Signal Processing II

Chair: *Harry Schmitt, Raytheon Company* *1:30 PM - 3:10 PM*

TP8a2-1 Extraction of Time-Frequency Target Features
Tobias Oesterlein, Chensong He, Jorge Quijano, Richard Campbell Jr., Lisa Zurk, Martin Siderius, Portland State University

TP8a2-2 Target Tracking via a Sampling Stack Approach
Hossein Roufarshbaf, Jill Nelson, George Mason University

TP8a2-3 A Distributed Sensor Fusion Algorithm for the Inversion of Sparse Fields
Aurora Schmidt, José M. F. Moura, Carnegie Mellon University

TP8a2-4 Distributed average consensus: Beyond the realm of linearity
Usman Khan, Soummya Kar, Jose' Moura, Carnegie Mellon University

Session TP8a3 Adaptive Signal Processing IV

Chair: *Victor DeBrunner, Florida State University* *1:30 PM - 3:10 PM*

TP8a3-1 An Unbiased Explicit Adaptive Gain and Time-delay Estimation Algorithm
Bernard Levy, University of California, Davis

TP8a3-2 Convergence Analysis of a Frequency Domain Adaptive Filter with Constraints on the Output Weights
Walter Kozacky, Tokunbo Ogunfunmi, Santa Clara University

TP8a3-3 Improving Adaptive Tracking in Time-Frequency Plane Using Varying Number of Adaptive Notch Filters
Hieu Thai, Minh Ta, Victor DeBrunner, Florida State University

TP8a3-4 A new prewhitening-based adaptive filter which converges to the Wiener-solution
Øyvind Lunde Rørtveit, John Håkon Husøy, University of Stavanger

TP8a3-5 Fault Tolerant Fermat Number Transform Domain Adaptive Filters Based on Modulus Replication RNS Architectures
Chandrashekar Radhakrishnan, Kenneth Jenkins, Pennsylvania State university

TP8a3-6 A Strict Stability Limit for Adaptive Gradient Type Algorithms
Robert Dallinger, Markus Rupp, Vienna University of Technology

TP8a3-7 Factor Graphs for Universal Portfolios
Andrew Bean, Andrew Singer, University of Illinois at Urbana-Champaign

TP8a3-8 Blind Adaptive Equalizer For Broadband MIMO Time Reversal STBC Based on PDF Fitting.
Adel Daas, Samir Bendoukha, Stephan Weiss, University of Strathclyde

Session TP8b1 MIMO Communications I

Chair: *Benjamin Friedlander, University of California, Santa Cruz* *3:30 PM - 5:10 PM*

TP8b1-1 Optimal Detection for STBC MIMO systems in spatially correlated Rayleigh Fast Fading Channels with Imperfect Channel Estimation
Junruo Zhang, Yuriy Zakharov, Rami Khal, University of York

TP8b1-2 MIMO Receive Switched Diversity with Imperfect Channel
Cihan Tepedelenlioglu, Adarsh Bangalore Narasimhamurthy, Arizona State University

TP8b1-3 Blind MIMO Using the Golden Code
M. Rezk, B. Friedlander, University of California, Santa Cruz

TP8b1-4 Parametric Compression of Rank-1 Analog Feedback in MIMO-OFDM
Ron Porat, Phil Orlik, Mitsubishi Electric Research Laboratories, Inc.

TP8b1-5 A Simplified Channel Model for MIMO Communications with Polarization
Xiayu Zheng, Erik Lindskog, PureWave Networks, Inc.

TP8b1-6 Fair User Selection for Zero-Forcing Precoding in Multi-User SIMO Systems
Nicolas Schrammar, Royal Institute of Technology; Peter A. Hoeher, University of Kiel

TP8b1-7 On Full Diversity Equalization for Precoded Block Transmission Systems
Shakti Prasad Shenoy, Eurecom; Irfan Ghauri, Infineon Technologies France; Dirk T.M Slock, Eurecom

TP8b1-8 Single and Multiple Antennas Alamouti Receivers for the Reception of Real-Valued Signals Corrupted by Interferences – the Alamouti-SAIC/MAIC Concept
Pascal Chevalier, Florian Dupuy, Thales-Communications

TP8b1-9 Throughput and Capacity of MIMO WiMAX
Christian Mehlführer, Sebastian Caban, Vienna University of Technology; José Antonio García Naya, University of A Coruña; Markus Rupp, Vienna University of Technology

TP8b1-10 Linear Precoders for Multiuser MIMO for finite constellations and a simplified receiver structure under controlled interference
Rizwan Ghaffar, Raymond Knopp, Eurecom

TP8b1-11 Codebook-based Quantized MIMO Feedback for Closed-Loop Transmit Precoding
Man-On Pun, Ron Porat, Philip Orlik, Jinyun Zhang, Mitsubishi Electric Research Laboratories, Inc.; Toshiyuki Kuze, Mistubishi Electric

TP8b1-12 Optimal OSTBC sequence detection over unknown correlated fading channels
Dimitris Papailiopoulos, George Karystinos, Technical University of Crete

TP8b1-13 Performance and Complexity Tradeoffs of Space-Time Modulation and Coding Schemes
Nicholas Chang, Adam Margetts, Andrew McKellips, MIT Lincoln Laboratory

TP8b1-14 Reduced-Complexity LLL Algorithm for Lattice-Reduction-Aided MIMO Detection
Chun-Fu Liao, Yuan-Hao Huang, National Tsing-Hua University

TP8b1-15 Mutual Information Bounds for MIMO Channels under Imperfect Receiver CSI
Adriano Pastore, Michael Joham, Technical University of Munich

TP8b1-16 A Scheme for Fully Polarimetric Multi-user Detection
Songsri Sirianunpiboon, Stephen D. Howard, Defence Science and Technology Organisation; A. Robert Calderbank, Princeton University

Session TP8b2 MIMO Communications II

Chair: *Lee Swindlehurst, University of California, Irvine* *3:30 PM - 5:10 PM*

TP8b2-1 Performance of Different User Selection Algorithms for Transmit Power Minimization
Umer Salim, Dirk Slock, Eurecom

TP8b2-2 Weighted Sum Rate Maximization in the MIMO MAC with Linear Transceivers: Algorithmic Solutions
Christian Guthy, Wolfgang Utschick, Raphael Hunger, Michael Joham, Technische Universität München

TP8b2-3 User Selection in Multiuser MIMO Systems with Secrecy Considerations
Amitav Mukherjee, A. Lee Swindlehurst, University of California, Irvine

TP8b2-4 Iterative Linear MMSE Transmit and Receive Strategies for Cellular MIMO Networks
Ralf Bendlin, Yih-Fang Huang, University of Notre Dame; Michel T. Ivrlac, Josef A. Nossek, Munich University of Technology

TP8b2-5 Optimization of Computational Resource Allocation for Soft MIMO-detection Using Partial Marginalization
Mirsad Cirkic, Daniel Persson, Erik G. Larsson, Linköping University

TP8b2-6 OFDMA Downlink Resource Allocation via ARQ Feedback
Rohit Aggarwal, Ohio State University; Mohamad Assaad, Supelec; C. Emre Koksal, Philip Schniter, Ohio State University

TP8b2-7 Kalman Filter-based Channel Estimation for Amplify and Forward Relay Communications
Xiangyun Zhou, Tharaka Lamahewa, Parastoo Sadeghi, Australian National University

TP8b2-8 Distributed Gain Matrix Optimization in Non-Regenerative MIMO Relay Channels
Raphael Rolny, Jörg Wagner, Celal Esli, Armin Wittneben, Swiss Federal Institute of Technology Zurich

TP8b2-9 Spatial Loop Interference Suppression in Full-Duplex MIMO Relays
Taneli Riihonen, Stefan Werner, Risto Wichman, Helsinki University of Technology

TP8b2-10 Spectrum Efficient Cooperative Relaying based on Outage-Multiplexing Tradeoff Analysis
Youngwook Ko, Sergiy Vorobyov, Masoud Ardakani, University of Alberta

TP8b2-11 Power Allocation for Irregularly Modulated MIMO Signaling with Iterative Frequency Domain Detector
Juha Karjalainen, Antti Tölli, Marian Codereanu, Markku Juntti, Tad Matsumoto, University of Oulu

TP8b2-12 The Geometry of the MIMO Broadcast Channel Rate Region Under Linear Filtering at High SNR
Raphael Hunger, Paul de Kerret, Michael Joham, Technische Universität München

TP8b2-13 Weighted Sum Rate Maximization in the MIMO MAC with Linear Transceivers: Asymptotic Results
Raphael Hunger, Michael Joham, Christian Guthy, Wolfgang Utschick, Technische Universität München

TP8b2-14 Performance Analysis of Relay Channel Estimation
Panagiota Lioliou, Mats Viberg, Chalmers University of Technology; Mikael Coldrey, Ericsson research

TP8b2-15 On the Diversity-Multiplexing Tradeoff of Multiuser Amplify & Forward Multihop Networks
Joerg Wagner, Armin Wittneben, Swiss Federal Institute of Technology Zurich

TP8b2-16 Optimal DMT of Dynamic Decode-and-Forward Protocol on a Half-Duplex Relay Channel With Arbitrary Number of Antennas at Each Node
Sanjay Karmakar, Mahesh K. Varanasi, University of Colorado at Boulder

Session WA1 Sparse Representations and Compressive Sensing

Chair: *Rebecca Willett, Duke University*

WA1-1 Sparse Online Learning via Truncated Gradient 8:30 AM
John Langford, Lihong Li, Yahoo! Research; Tong Zhang, Rutgers University

WA1-2 Compressive Distilled Sensing: Sparse Recovery using Adaptivity in Compressive Measurements 8:55 AM
Jarvis Haupt, University of Wisconsin; Rui Castro, Columbia University; Robert Nowak, University of Wisconsin-Madison

WA1-3 Signal recovery from corrupted measurements 9:20 AM
Jason Laska, Mark Davenport, Richard Baraniuk, Rice University

WA1-4 Group Testing Strategies for Recovery of Sparse Signals in Noise 9:45 AM
Mark Iwen, University of Minnesota

BREAK 10:10 AM

WA1-5 Computationally Efficient Sparse Bayesian Learning via Belief Propagation 10:30 AM
Xing Tan, Jian Li, University of Florida

WA1-6 A Multi-Sensor Compressed Sensing Receiver: Performance Bounds and Simulated Results 10:55 AM
Benjamin Miller, Joel Goodman, Keith Forsythe, MIT Lincoln Laboratory; John Z. Sun, Vivek K Goyal, Massachusetts Institute of Technology

WA1-7 Robust Sparsity Pattern Recovery 11:20 AM
Galen Reeves, Michael Gastpar, University of California, Berkeley

WA1-8 Nyquist Folding Analog-to-Information Receiver:Autonomous Information Recovery Using Quadrature Mirror Filtering 11:45 AM
Phillip Pace, Naval Postgraduate School; Gerald Fudge, Antone Kusmanoff, L-3 Communications

Session WA2a Functional Imaging

Chair: *Vince Calhoun, U. of New Mexico*

WA2a-1 Integration of MEG, EEG, MRI, and fMRI: Cortically constrained estimates of transient and oscillatory activity 8:30 AM
Matti S. Hämäläinen, Massachusetts General Hospital

WA2a-2 Examining the Relationship between Brain Function and Structure on Voxel-by-Voxel-Basis 8:55 AM
Satoru Hayasaka, Wake Forest University

WA2a-3 Electricity and Magnetism: Two views of the Brain in Action 9:20 AM
Mark Cohen, UCLA School of Medicine

WA2a-4 MEG and fMRI for nonlinear estimation of neural activity 9:45 AM
Sergey M. Plis, Terran Lane, University of New Mexico; Michael P. Weisend, Vince D. Calhoun, MIND Research Network

Session WA2b Computer Aided Diagnosis

Chair: *Fred Ham, Florida Institute Technology*

WA2b-1 Denoising of medical imagery using a nonseparable third-order statistical approach 10:30 AM
Samuel Kozaitis, Tim Young, Florida Institute of Technology

WA2b-2 Transient Radiation Modeling of Short-Pulse Laser Detection of Tumors in Animal Model 10:55 AM
Gopalendu Pal, Pennsylvania State University; Amir Sajjadi, Kunal Mitra, Michael Grace, Florida Institute of Technology

WA2b-3 Generation and Analysis of Blast Waves for Blast Trauma and Injury Research 11:20 AM
Daniel Kirk, Florida Institute of Technology

WA2b-4 Segmentation of Airway Trees from Multislice CT using Fuzzy Logic 11:45 AM
Kok Liang Tan, Toshiyuki Tanaka, Keio University; Hidetoshi Nakamura, Tokyo Electric Power Hospital; Toru Shirahata, Hiroaki Sugiura, Keio University

Session WA3 OFDM and MIMO for Optical Wireless

Chair: *Jean Armstrong, Monash University*

WA3-1 Fundamental limits of diversity coherent reception on atmospheric optical channels 8:30 AM
Aniceto Belmonte, Technical University of Catalonia; Joseph Kahn, Stanford University

WA3-2 Spatial Multiplexing and Diversity Techniques for Multiple Element Optical Wireless Links 8:55 AM
Mohamed D.A. Mohamed, Steve Hranilovic, McMaster University

WA3-3 Non-pilot based synchronization for ACO-OFDM 9:20 AM
Sarah Kate Wilson, Santa Clara University

WA3-4 Multi-Input Multi-Output (MIMO) indoor optical wireless communications 9:45 AM
Dominic O'Brien, University of Oxford

BREAK 10:10 AM

WA3-5 Papr Reduction for Beamforming OFDM Via Constellation-Beam Modification 10:30 AM
Kuang Xu, Douglas L. Jones, University of Illinois at Urbana-Champaign

WA3-6 Adaptive Coding and Modulation for Hybrid FSO/RF Systems 10:55 AM
Yi Tang, Maite Brandt-Pearce, Stephen Wilson, University of Virginia

WA3-7 Alamouti coding for indoor optical wireless communications using ACO-OFDM 11:20 AM
Jean Armstrong, Monash University

WA3-8 Joint Power Control, Beamforming and BS Assignment for Optimal SIR Assignment 11:45 AM
Yosia Hadisusanto, Volker Jungnickel, Lars Thiele, Fraunhofer German-Sino Lab for Mobile Communications

Session WA4 Estimation and Detection I

Chair: *Neil Patwari, University of Utah*

WA4-1 A Novel Autofocusing Approach for Estimating Directions-of-Arrival of Wideband Signals 8:30 AM
Piya Pal, P. P. Vaidyanathan, California Institute of Technology

WA4-2 Spectral Estimation for Clutter Processing in Digital Radars by Dimension-Adaptive Particle Swarm Optimization (DA-PSO) 8:55 AM
Lisa Osadciw, Yanjun Yan, Syracuse University

WA4-3 Region-of-Importance Detection Based on Fusion of Audio and Video 9:20 AM
Tao Wu, Cuong Vu, Qi Cheng, Damon Chandler, Oklahoma State University

WA4-4 Adaptive Learning for Damage Classification in Structural Health Monitoring 9:45 AM
Debejyo Chakraborty, Narayan Kovvali, Antonia Papandreou-Suppappola, Aditi Chattopadhyay, Arizona State University

BREAK 10:10 AM

WA4-5 Detection of Structural Defects in Pipes using Time Reversal of Guided Waves 10:30 AM
Nicholas O'Donoughue, Joel Harley, José M.F. Moura, Carnegie Mellon University; Yuanwei Jin, University of Maryland Eastern Shore

WA4-6 Capturing Dynamics on Multiple Time Scales: A Hybrid Approach for Cluttered Electromagnetic Data 10:55 AM
Norma Pawley, Kary Myers, John Galbraith, Steven Brumby, Los Alamos National Laboratory

WA4-7 A LBI Based Emitter Location Estimator with Platform Trajectory Optimality 11:20 AM
Ran Ren, Mark L. Fowler, State University of New York at Binghamton

WA4-8 Multichannel Parametric Rao Test in Partially Homogeneous Environment 11:45 AM
Pu Wang, Hongbin Li, Stevens Institute of Technology; Braham Himed, Air Force Research Laboratory

Session WA5 MIMO Communications: Network Issues and Implications

Chair: *Dan Bliss, MIT Lincoln Laboratory*

WA5-1 Optimal Windowing in MIMO OFDM for Network Interference Suppression 8:30 AM
Andrew Copeland, Daniel Bliss, Andrew McKellips, MIT Lincoln Laboratory

WA5-2 A MAC/PHY Cross-Layer Approach to Enable Concurrent Transmissions in MIMO AD-HOC Networks 8:55 AM
Eren Eraslan, Babak Daneshrad, University of California, Los Angeles; Jae Kim, The Boeing Company; Injong Rhee, Sungro Yoon, North Carolina State University

WA5-3 Transmission Capacity of Multiple Antenna Ad-Hoc Networks without Channel State Information at the Transmitter and Interference Cancelation at the Receiver 9:20 AM
Rahul Vaze, Robert Heath, University of Texas at Austin

WA5-4 Exploiting Multiple Antennas in Overlaid Wireless Spatial Networks 9:45 AM
Marios Kountouris, Supelec; Jeffrey Andrews, University of Texas at Austin

BREAK 10:10 AM

WA5-5 Spectral-Efficiency of Multi-Antenna Links in Ad-Hoc Wireless Networks with Limited TX CSI 10:30 AM
Siddhartan Govindasamy, F. W. Olin College of Engineering; Daniel W. Bliss, MIT Lincoln Laboratory; David H. Staelin, Massachusetts Institute of Technology

WA5-6 Cooperative Jamming in MIMO Ad-Hoc Networks 10:55 AM
Jianqi Wang, A. Lee Swindlehurst, University of California, Irvine

WA5-7 Compress-Forward Relaying With Quantized Channel State Feedback 11:20 AM
Sha Yao, Mikael Skoglund, Royal Institute of Technology

WA5-8 Diversity-Multiplexing-Delay Tradeoff of a DDF Protocol on a Half-Duplex ARQ Relay Channel 11:45 AM
Sanjay Karmakar, Mahesh K. Varanasi, University of Colorado at Boulder

Session WA6a Speech Processing I

Chair: *Balu Santhanam, University of New Mexico*

WA6a-1 A Blind Algorithm for Recovering Articulator Positions from Acoustics 8:30 AM
John Hogden, Los Alamos National Laboratory

WA6a-2 The Geometry of the Articulatory Region That Produces a Speech Sound 8:55 AM
Chao Qin, Miguel Carreira-Perpinan, University of California, Merced

WA6a-3 On a Sturm--Liouville Framework for Continuous and Discrete Frequency Modulation 9:20 AM
Balu Santhanam, University of New Mexico

WA6a-4 Probabilistic state mapping as a model for speech production 9:45 AM
Kaustubh Kalgaonkar, Mark Clements, Georgia Institute of Technology

Session WA6b Speech Processing II

Chair: *Adele Doser, Sandia National Laboratories*

WA6b-1 A Hybrid Approach to Adapting Acoustic and Pronunciation Models for Non-native Speech Recognition 10:30 AM
Yoo Rhee Oh, Hong Kook Kim, Gwangju Institute of Science and Technology

WA6b-2 Time-Frequency Correlation Based Missing-Feature Reconstruction for Robust Speech Recognition in Background Noise Conditions 10:55 AM
Wooil Kim, John Hansen, University of Texas at Dallas

WA6b-3 Support Vector Machine Based Speaker Identification Systems Using GMM Parameters 11:20 AM
Vijendra Raj Apsingekar, Phillip De Leon, New Mexico State University

WA6b-4 Re-estimation of Linear Predictive Parameters in Sparse Linear Prediction 11:45 AM
Daniele Giacobello, Aalborg University; Manohar Murthi, University of Miami; Mads Græsbøll Christensen, Søren Holdt Jensen, Aalborg University; Marc Moonen, Katholieke Universiteit Leuven

Session WA7 Computer Arithmetic II

Chair: *Braden Phillips, University of Adelaide*

WA7-1 Implementation of Recursive Ling Adders 8:30 AM
Neil Burgess, University of Bristol

WA7-2 Design and Evaluation of Decimal Array Multipliers 8:55 AM
Saeid Gorgin, Ghassem Jaberipur, Shahid Beheshti University; Behrooz Parhami, University of California, Santa Barbara

WA7-3 Accurately Rounded Truncated Multiplication for Low Power Dissipation 9:20 AM
Son Bui, James E. Stine, Oklahoma State University

WA7-4 Unified Floating Point Multiplication of Normalized and Subnormal Numbers with Injection Rounding 9:45 AM
Dave Lutz, ARM, Inc.

BREAK 10:10 AM

WA7-5 Digital/Analog Arithmetic with Continuous-Valued Residues 10:30 AM
Behrooz Parhami, University of California, Santa Barbara

WA7-6 CORDIC Instruction Set Extensions for Matrix Decompositions on Software Defined Radio Processors 10:55 AM
Murugappan Senthilvelan, Sandbridge Technologies; Mihai Sima, University of Victoria; Daniel Iancu, Sandbridge Technologies; Javier Hormigo, University of Málaga; Michael Schulte, University of Wisconsin

WA7-7 Function Approximation based on Estimated Arithmetic Operators 11:20 AM
Arnaud Tisserand, IRISA, CNRS-Univ. Rennes

WA7-8 Low Precision Table Based Complex Reciprocal Approximation 11:45 AM
Pouya Dormiani, Milos Ercegovac, University of California, Los Angeles; Jean-Michel Muller, Ecole Normale Superieure de Lyon

Session WA8 Resource Allocation and Beamforming for Next Generation Wireless

Chair: *Vaughan Clarkson, University of Queensland*

WA8-1 Cooperative Architectures: MU-MIMO Spectral Efficiency and Costs of Channel State Information 8:30 AM
Sean Ramprashad, DoCoMo USA Labs; Giuseppe Caire, University of Southern California

WA8-2 A Dynamic Spectrum Leasing (DSL) Framework for Spectrum Sharing in Cognitive Radio Networks 8:55 AM
Sudharman Jayaweera, University of New Mexico; Carlos Mosquera, Universidad de Vigo

WA8-3 Election Games for Resource Allocation in Heterogenous Wireless Networks 9:20 AM
Amitav Mukherjee, University of California, Irvine

WA8-4 Should One Always Connect to the Base Station With the Strongest Signal? 9:45 AM
Amin Jafarian, University of Texas at Austin; Uri Erez, Tel Aviv University; Sriram Vishwanath, University of Texas at Austin

BREAK 10:10 AM

WA8-5 A Message-passing Approach to Distributed Resource Allocation in Uplink DFT-Spread-OFDMA Systems 10:30 AM
Kai Yang, Columbia University; Narayan Prasad, NEC Labs America; Xiaodong Wang, Columbia University

WA8-6 Sum-Rate Maximizing Beamforming in Multicell Systems with Limited Feedback 10:55 AM
Ramya Bhagavatula, Robert Heath, University of Texas at Austin

WA8-7 CDF of the Spectral-Efficiency of A Simple Distributed Channel Assignment Algorithm in Spatially Distributed Wireless Networks 11:20 AM
Siddhartan Govindasamy, Elena Koukina, F. W. Olin College of Engineering

WA8-8 An EM-Based Beamforming Algorithm for WCDMA Downlink Signals 11:45 AM
Sheng-Luen Wei, John J. Shynk, University of California, Santa Barbara

Author List

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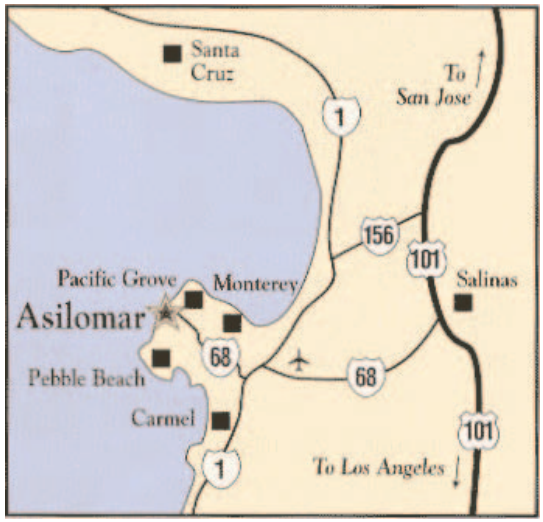
Santa Cruz
To San Jose
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Pebble Beach
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