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Forty-Fourth Asilomar Conference on Signals, Systems and Computers

November 7–10, 2010
Asilomar Hotel and
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FORTY-FOURTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS

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Welcome from the General Chairperson

Prof. Linda S. DeBrunner, Florida State University

It is my great pleasure to welcome you to the Forty-Fourth Asilomar Conference on Signals, Systems, and Computers. This conference provides a special opportunity for those of us who return year after year—to refresh our spirits and reinvigorate our research. I hope that those of you attending for the first time will find the conference as rewarding as I do. This conference provides an opportunity to share ideas with the top researchers in our field in a relaxed and friendly atmosphere. Be sure to take the opportunity to meet someone new at the family-style meals, and don't forget to enjoy a walk on the beach.

For the Sydney Parker Memorial Lecture, we are very fortunate to have a keynote address by Dr. Ronald W. Shafer, HP Fellow in the Media Communication and Networking Laboratory at Hewlett-Packard Laboratories. His talk, "A Celebration of DSP Technologies," will combine a retrospective look at the development of the discipline with a peek into the future. His talk will provide a unique framework to view the contributions of the conference this year.

The Asilomar Conference provides a supportive environment for students to present their research. This year we had 91 submissions to the student paper contest, chaired by Xinmiao Zhang. On Sunday afternoon before the Welcome Reception, the 9 finalists will present their posters to a panel of judges. I hope you have a chance to view their posters or hear their presentations during the sessions later in the week.

The success of this meeting is due to Miloš Doroslovački from The George Washington University. I want to thank him for making my job so enjoyable. He recruited outstanding technical area chairs, who then recruited outstanding session chairs. They all worked hard to create a superb technical program of 454 papers (including about 200 invited papers). I would like to thank the Technical Program Committee: Erik G. Larsson, Robert W. Heath, Jr., Ananthram Swami, Petar M. Djurić, Antonia Papandreou-Suppappola, Murray H. Loew, Miloš D. Ercegovac, David V. Anderson, and James A. Ritcey. I also want to thank all the session chairs and participants for making this another great Asilomar Conference.

Special thanks go to Sue Netzorg, Monique Fargues, Mike Matthews, Frank Kragh and Murali Tummala who perform the tasks that make this conference happen. Year after year they provide countless hours of service in arranging the venue and meals, publishing the proceedings, providing publicity, reviewing contracts and signing checks. I would like to personally thank each of them for their help and support.

I hope that you enjoy everything that Asilomar has to offer!

Linda S. DeBrunner, Florida State University, June 2010

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2010 Asilomar Conference Session Schedule

Sunday Afternoon, November 7, 2010

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

Monday Morning, November 8, 2010

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 Tensors Methods in Signal Processing
MA2b MIMO Interference Networks
MA3b Security in Wireless Networks
MA4b New Trends in Sequential System Identification
MA5b Biomotivated Recognition and Detection
MA6b Computer Arithmetic I
MA7b Biological Models of Speech Perception and Their Applications in Automatic Speech Processing
MA8b1 Communication Systems I (Poster)
MA8b2 Selected Topics in Image Processing (Poster)
MA8b3 Applications of Compressive Sensing (Poster)

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

Monday Afternoon, November 8, 2010

1:30 - 5:10 PM AFTERNOON SESSIONS
MP1a Interference Channels
MP1b Trends for Future Wireless Systems
MP2a MIMO Secrecy
MP2b MIMO Relays
MP3a New Trends in Information Theory and Networks
MP3b Learning and Optimization in Dynamic Networks
MP4a Biomedical Image Analysis
MP4b Advances in Adaptive Algorithms
MP5 Statistical Signal Processing for Complex Systems
MP6 Communication Processors and Accelerators
MP7a Video Compression
MP7b Advances in Keyword Spotting
MP8a1 Communication Systems II (Poster)
MP8a2 Speech Enhancement (Poster)
MP8a3 Selected Topics in Speech and Audio (Poster)
MP8a4 Adaptive Signal Processing in Communications (Poster)
MP8a5 Array-based Estimation (Poster)

Monday Evening, November 8, 2010

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.

2010 Asilomar Conference Session Schedule
(continued)

Tuesday Morning, November 9, 2010

7:30 - 9:00 AM Breakfast — Crocker Dining Hall
8:00 AM - 5:00 PM Registration

8:15 - 12:00 PM MORNING SESSIONS
TA1a Network Error Correction and Physical Layer Security
TA1b Coding
TA2a Signal Processing for Communications Receivers
TA2b Communications Under Doppler Spread
TA3a Recursive Reconstruction of Sparse Sequences
TA3b Self-Organizing Networks: Architectures, Protocols and Algorithms
TA4a Shape and Time in Biomedical Images
TA4b Mathematical Methods for Biomedical Signals and Images
TA5 Compressive Sensing
TA6a Reconfigurable Architectures, Algorithms and Applications
TA6b Array Processing and Beamforming
TA7 Image and Video Enhancement
TA8a1 Cooperative and Cognitive Transmission in Multi-Antenna Networks I (Poster)
TA8a2 Cognitive Networking (Poster)
TA8a3 Adaptive Signal Processing: Theory and Applications (Poster)
TA8b1 Cooperative and Cognitive Transmission in Multi-Antenna Networks II (Poster)
TA8b2 Architectures, Implementations, and Tools I (Poster)
TA8b3 Architectures, Implementations, and Tools II (Poster)

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

Tuesday Afternoon, November 9, 2010

1:30 - 5:10 PM AFTERNOON SESSIONS
TP1a Advances in Multihop and Distributed Wireless Transmission
TP1b Wireless Communications
TP2a MIMO Underwater Acoustic Communications
TP2b MIMO for Ad Hoc Networks
TP3a Non-Stationary Processing of Environments
TP3b Network Information Theory
TP4a Modeling for Biomedical Imaging
TP4b Adaptive Filters - Theory and Applications
TP5a Statistical Signal Processing for Neural Signals
TP5b Integrated Multimodal Sensing
TP6a Computer Arithmetic II
TP6b Computer Arithmetic III
TP7a Microphone Array Processing for Speech Applications I
TP7b Microphone Array Processing for Speech Applications II
TP8a1 Low Complexity Implementation and Receiver Issues (Poster)
TP8a2 Detection & Estimation in Networks (Poster)
TP8a3 Techniques in Networking and Communications (Poster)
TP8b1 Scheduling, Relaying and Routing (Poster)
TP8b2 Statistical and Adaptive Signal Processing (Poster)
TP8b3 Biomedical Signals and Images (Poster)

Tuesday Evening, November 9, 2010

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

2010 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 10, 2010

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	Cooperative Communications
WA1b	Communication Theory
WA2a	Interference Management I
WA2b	Interference Management II
WA3a	Sensor Networks
WA3b	Multiuser Beamforming and Interference Channels
WA4	Advances on Adaptive Filtering and Applications
WA5	Statistical Signal Processing
WA6a	Estimation and Detection
WA6b	SOC Architectures and Applications
WA7a	Sparse Representations in Image Processing
WA7b	MIMO Radar

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 7, 2010, 4:30 - 6:30 PM

"Outage Probability of MISO Broadcast Systems with Noisy Channel Side Information"
Alon Shalev Housfater, Teng Joon Lim, University of Toronto

"Distributed Learning under Imperfect Sensing in Cognitive Radio Networks"
Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, USC

"Biologically Inspired Coupled Antenna Array for Direction of Arrival Estimation"
Murat Akcakaya, Washington University in St. Louis; Carlos H. Muravchik, Universidad Nacional de La Plata; Arye Nehorai, Washington University in St. Louis

"Weighted Sum-Rate Maximization for a Set of Interfering Links via Branch and Bound"
Chathuranga Weeraddana, Marian Codreanu, Matti Latva-aho, University of Oulu; Anthony Ephremides, University of Maryland

"A Low Energy High Speed Reed-Solomon Decoder Using Decomposed Inversionless Berlekamp-Massey Algorithm"
Hazem A.Ahmed, Hamed Salah, Tallal ElShabrawy, German University in Cairo; Hossam A. H. Fahmy, Cairo University

"ρ-Domain Rate Control for JPEG XR"
Duncan Chan, Jie Liang, Simon Fraser University; Chengjie Tu, Microsoft Corp.

"Achievable Rates in Two-user Interference Channels with Finite Inputs and (Very) Strong Interference"
Frederic Knabe, Aydin Sezgin, Ulm University

"Distributed Signature Learning and Calibration for Large-Scale Sensor Networks"
Naveen Ramakrishnan, Emre Ertin, Randolph Moses, The Ohio State University

"The Role of Channel Distribution Information in the Cross-Layer Design of Opportunistic Scheduler for MIMO Networks"
Sheu-Sheu Tan, University of California, San Diego; Adam Anderson, University of South Florida; James Zeidler, University of California, San Diego

2010 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 8, 2010

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

1. Welcome from the General Chairperson

Prof. Linda DeBrunner
Florida State University

2. Session MA1a Distinguished Lecture for the 2010 Asilomar Conference

A Celebration of DSP Technology

Dr. Ronald W. Schafer
Multimedia Communication and Networking Lab
Hewlett-Packard Laboratories
Palo Alto, CA 94304

Abstract
DSP is an indispensable technology with widespread impact in many areas of application; however, it has take 60 years or more to get to where we are today. Thus, it may be interesting and worthwhile to take a look at how the DSP technology domain originated and evolved. In this talk, I will look back at some of what I consider to be the most important milestones and the people behind them, examine some of the key interactions with other technologies, consider the importance of unfettered application-centric research, and comment on the importance of education in the evolution of DSP. The goal of this analysis is to provide a platform from which to admire and celebrate the past progress and make guesses about what the future might hold for the field of DSP.

Biography
Ronald W. Schafer received BSEE (1961) and MSEE (1962) degrees from the University of Nebraska and a Ph.D. (1968) degree from MIT. From 1968 to 1974 he was a member of the Acoustics Research Department, Bell Laboratories, Murray Hill, NJ, where he contributed to some of the earliest research on digital signal processing. In 1974 he joined Georgia Tech as John and Marilu McCarty Professor of Electrical and Computer Engineering. Over a thirty-year academic career, he introduced literally thousands of students to the field of digital signal processing and supervised graduate student research in speech processing, image processing, biomedical signal processing, and communication signal processing. He played a major role in establishing the Center for Signal and Image Processing at Georgia Tech as a major force in DSP education and research, and in 1982 he co-founded Atlanta Signal Processors, Inc., one of the first companies to provide design tools for DSP systems.

Dr. Schafer retired from Georgia Tech as Professor Emeritus in 2004. Now he is a HP Fellow in the Multimedia Communication and Networking Laboratory at Hewlett-Packard Laboratories in Palo Alto, CA, where his research focuses on acoustic signal processing and immersive communications.

Dr. Schafer is a Fellow of the IEEE and the Acoustical Society of America, and he is a member of the National Academy of Engineering. He has co-authored numerous widely used textbooks including Digital Signal Processing (1975), Digital Processing of Speech Signals (1978), Signal Processing First (2003), Discrete-Time Signal Processing (2009), and Theory and Application of Digital Speech Processing (2010). He has received numerous awards for teaching and research including the 1985 Distinguished Professor Award from Georgia Tech, the 1980 IEEE Emanuel R Piori Award, the 1992 IEEE James H. Mulligan, Jr. Education Medal, and he received the 2010 IEEE Jack S. Kilby Medal.

Program of the
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Prof. Miloš Doroslovački
The George Washington University

Session MA1b Tensors Methods in Signal Processing

Chair: *Martin Haardt, Technical University Ilmenau*

MA1b-1 Overview of Recent Advances in Numerical Tensor Algebra 10:15 AM
Göran Bergqvist, Erik G. Larsson, Linköping University

MA1b-2 Blind Estimation of SIMO Channels Using A Tensor-Based Subspace Method 10:40 AM
Bin Song, Florian Roemer, Martin Haardt, Ilmenau University of Technology

MA1b-3 New Simultaneous (Generalized) Schur Decomposition Methods for the Computation of the Canonical Polyadic Decomposition 11:05 AM
Mikael Sorensen, University of Nice; Lieven De Lathauwer, K.U. Leuven

MA1b-4 A k-dimensional Subspace-based Tensor Factorization Approach for Underdetermined Blind Identification 11:30 AM
Bahador Makki Abadi, Saeid Sanei, Dave Marshall, Cardiff University

Session MA2b MIMO Interference Networks

Chair: *Syed Jafar, University of California, Irvine*

MA2b-1 On Relay-Interference Networks with Quantized Feedback 10:15 AM
Erdem Koyuncu, Hamid Jafarkhani, University of California, Irvine

MA2b-2 Connecting Interference Alignment and Distributed Storage Through Rank Minimization 10:40 AM
Dimitris Papailiopoulos, Alexandros Dimakis, University of Southern California

MA2b-3 Real Interference Alignment 11:05 AM
Abolfazl Motahari, Shahab Oveisgharan, Mohammad Ali Maddah-Ali, Amir Khandani, University of Waterloo

MA2b-4 On the Capacity of a Class of Degraded MIMO Z Interference Channels with Degraded Message Sets 11:30 AM
Fabio Fernandes, Sriram Vishwanath, University of Texas at Austin

Session MA3b Security in Wireless Networks

Co-Chairs: *Dennis Goeckel, University of Massachusetts, Amherst and Don Towsley, University of Massachusetts, Amherst*

MA3b-1 From Uncertainty to Secrecy: A Dynamic Approach 10:15 AM
Sheng Xiao, Weibo Gong, Donald Towsley, University of Massachusetts

MA3b-2 Secrecy Coverage 10:40 AM
Amites Sarkar, Western Washington University; Martin Haenggi, University of Notre Dame

MA3b-3 Control of Wireless Networks with Secrecy 11:05 AM
C. Emre Koksal, Ohio State University; Ozgur Ercetin, Yunus Sarikaya, Sabanci University

MA3b-4 Embedding Covert Information Flow 11:30 AM
Stefano Marano, Vincenzo Matta, Unversity of Salerno; Lang Tong, Cornell University

Session MA4b New Trends in Sequential System Identification

Chair: *Cédric Richard, Université de Nice Sophia-Antipolis*

MA4b-1 Adaptive Systems of Particle Filters 10:15 AM
Petar Djuric, Mónica Bugallo, Stony Brook University

MA4b-2 Exact Particle Flow for Nonlinear Filters 10:40 AM
Fred Daum, Jim Huang, Raytheon Company

MA4b-3 Non-linear Adaptive Filtering with Kernel Functions: An Overview 11:05 AM
Weifeng Liu, University of Florida; Cédric Richard, Université de Nice Sophia-Antipolis; José Princìpe, University of Florida; Simon Haykin, McMaster University

MA4b-4 On Attributes of the CKF and its Relationship to the UKF 11:30 AM
Simon Haykin, McMaster University

Session MA5b Biomotivated Recognition and Detection

Chair: *Visar Berisha, Raytheon Missile Systems*

MA5b-1 Evaluating Brain Software Simulations using Common Test Suite 10:15 AM
Richard Hammet, David V. Anderson, Georgia Institute of Technology

MA5b-2 Making Decisions About Unseen Data: Semi-Supervised Learning at Different Levels of Specificity 10:40 AM
Visar Berisha, Raytheon Company; Ailar Javadi, Alexander Gray, David V. Anderson, Richard Hammet, Georgia Institute of Technology

MA5b-3 High Resolution Radar Analysis of Human Gait 11:05 AM
Gerald Benitz, Shourov Chatterji, Daniel Gilbert, Paul Monticciolo, Rowland O'Flaherty, Mikael Yamaguchi, Aimee D'Onofrio, MIT Lincoln Laboratory

MA5b-4 Using Machines to Improve Human Saliency Detection 11:30 AM
Nikhil Rao, Tyler Karrels, Robert Nowak, Tim Rogers, University of Wisconsin-Madison

Session MA6b Computer Arithmetic I

Chair: *M. Schulte, AMD Research and Advanced Development Labs*

MA6b-1 Arithmetic Techniques Employed in the Next-Generation AMD FPU Core — 10:15 AM
Debjit Das Sarma, Advanced Micro Devices; David Oliver, Veloce Technologies; Alexandru Fit-Florea, NVidia; Scott Hilker, Kevin Hurd, Kelvin Goveas, Jay Fleischman, Mark Gibson, Michael Estlick, Advanced Micro Devices

MA6b-2 Design and FPGA Implementation of Radix-10 Combined Division/Square Root Algorithm with Limited Precision Primitives — 10:40 AM
Miloš D. Ercegovac, University of California, Los Angeles; Robert McIlhenny, California State University Northridge

MA6b-3 Assessment of Butterfly Network VLSI Shifter Circuit — 11:05 AM
Neil Burgess, University of Bristol

MA6b-4 An Optimized Recursive High Radix Divide Unit with Multipartite Memory Lookup — 11:30 AM
James Stine, Amey Phadke, Surpriya Tike, Justin Remington, Oklahoma State University

Session MA7b Biological Models of Speech Perception and Their Applications in Automatic Speech Processing

Chair: *Nima Mesgarani, Johns Hopkins University*

MA7b-1 Frequency Domain Perceptual Linear Prediction (FDPLP) — 10:15 AM
Hynek Hermansky, Sriram Ganapathy, Samuel Thomas, The Johns Hopkins University

MA7b-2 Perceptual Artifacts in Speech Noise Suppression — 10:40 AM
Devangi N. Parikh, David V. Anderson, Georgia Institute of Technology

MA7b-3 Point Process Models of Spectro-Temporal Modulation Events for Speech Recognition — 11:05 AM
Aren Jansen, Nima Mesgarani, Johns Hopkins University; Partha Niyogi, University of Chicago

MA7b-4 Noise Robust Encoding of Speech in the Primary Auditory Cortex — 11:30 AM
Nima Mesgarani, Johns Hopkins University

Session MA8b1 Communication Systems I

Chair: *Joerg Kliewer, New Mexico State University*

10:15 AM - 12:00 PM

MA8b1-1 Dual Domain Echo Cancellers for Multirate Discrete Multitone Systems
Neda Ehtiati, Benoit Champagne, McGill University

MA8b1-2 Finite Random Matrices for Blind Spectrum Sensing
Giuseppe Abreu, University of Oulu; Wensheng Zhang, Yukitoshi Sanada, Keio University

MA8b1-3 MAP Detection with Soft Information in an Estimate and Forward Relay Network
Corina I. Serediuc, Rice University; Jorma Lilleberg, University of Oulu / Nokia; Behnaam Aazhang, Rice University

MA8b1-4 Assisted Radio Field Prediction with Application to Cognitive Radio
Michele Scagliola, Carlos Mosquera, Veronica Santalla del Rio, University of Vigo

MA8b1-5 Robust AF Relay Transmission with Multiple Source-Destination Pairs under Channel Uncertainty
Yupeng Liu, Athina Petropulu, Drexel University

MA8b1-6 A Mutual Information based Iteration Stop Rule for Turbo Decoding
Jinhong Wu, Atheros Communications, Inc.; Branimir Vojcic, Jia Sheng, George Washington University

MA8b1-7 Cooperation Diversity for OFDM with Iterative Reception and Independent CFO per Node
Thomas Ketseoglou, California State University

MA8b1-8 Joint Transmitter Adaptation and Power Control in Multi-User Wireless Systems with Target SIR Requirements
Dimitrie C. Popescu, Shiny Abraham, Old Dominion University

MA8b1-9 Complexity Reduction for Vehicular Channel Estimation Using the Filter-Divergence Measure
Laura Bernadó, Thomas Zemen, FTW Forschungszentrum Telekommunikation Wien; Alexander Paier, Vienna University of Technology; Johan Karedal, Lund University

MA8b1-10 Feasibility and Limitations in Relaying Broadcast Signals
Eun-Hee Shin, Dongwoo Kim, Hanyang University

MA8b1-11 An Improved Synchronization Scheme for OFDMA Systems with Initial Ranging Transmissions
Sungeun Lee, Xiaoli Ma, Georgia Institute of Technology

MA8b1-12 Syndrome Based Adaptive Complexity Channel Decoding and Turbo Equalization for ATSC DTV
Klaus Hueske, Jan Geldmacher, Jürgen Götze, TU Dortmund University

MA8b1-13 Joint Signal Detection and Classification of Mobile WiMAX and LTE OFDM Signals for Cognitive Radio
Alaa Al-Habashna, Octavia A. Dobre, Ramachandran Venkatesan, Memorial University of Newfoundland; Dimitrie C. Popescu, Old Dominion University

MA8b1-14 Cooperative Game-Theoretic Solutions to Spectrum Sharing in Cognitive Radios
Jayaprakash Rajasekharan, Jan Eriksson, Visa Koivunen, Aalto University

MA8b1-15 Calibration of Random Phase Rotation for Multi-Band OFDM UWB Signals
Huilin Xu, Liuqing Yang, University of Florida

MA8b1-16 Wideband Spectrum Sensing for Cognitive Radios in Unknown Noise via Power Spectrum Analysis
Jitendra Tugnait, Auburn University

MA8b1-17 Fair Resource Allocation for Hybrid FSO/RF Networks
Yi Tang, Maite Brandt-Pearce, University of Virginia

MA8b1-18 MCM OFDM Using Sparse Signals
Victor DeBrunner, Florida State University; Jim Schroeder, Harris Corporation

Session MA8b2 Selected Topics in Image Processing

Chair: *Christopher Rozell, Georgia Institute of Technology*

10:15 AM - 12:00 PM

MA8b2-1 Sparse Coding for Spectral Signatures in Hyperspectral Images
Adam Charles, Georgia Institute of Technology; Bruno Olshausen, University of California, Berkeley; Christopher Rozell, Georgia Institute of Technology

MA8b2-2 Distributed Compressed Sensing of Hyperspectral Images via Blind Source Separation
Mohammad Golbabaee, Simon Arberet, Pierre Vandergheynst, Ecole Polytechnique Fédérale de Lausanne

MA8b2-3 Automatic Feature Extraction in Laser Rangefinder Data Using Geometric Invariance
Jean-Charles Noyer, Régis Lherbier, Univ. Lille Nord-de-France

MA8b2-4 A Novel Facial Expression Recognition Method Using Fast BEMD Based Edge Detection
James Zhang, Zijing Qin, Peter Tay, Robert Adams, Western Carolina University

MA8b2-5 Plenoptic Rendering on GPUs
Todor Georgiev, Andrew Lumsdaine, Georgi Chunev, Adobe

MA8b2-6 Complexity and Quality Evaluation of Structure Extrapolation Methods Within a Fully Automatic Inpainting Framework
Patrick Ndjiki-Nya, Dimitar Doshkov, Martin Koeppel, Thomas Wiegand, Fraunhofer Institute for Telecommunications - Heinrich-Hertz-Institut

MA8b2-7 Multi-modal Image Fusion using Window-based ICA and Fractal Dimension
Lu Han, North Carolina State University; Shubha Kadambe, Rockwell Collins Company; Hamid Krim, North Carolina State University

MA8b2-8 A Regularized Optimization Approach for AM-FM Reconstructions
Paul Rodriguez, Pontificia Universidad Catolica del Peru; Victor Murray, Marios S. Pattichis, University of New Mexico

MA8b2-9 Block Based Completion for Video Stabilization
Stephen Mangiat, University of California, Santa Barbara; Yi-Jen Chiu, Intel Corporation

MA8b2-10 ρ-Domain Rate Control for JPEG XR
Duncan Chan, Jie Liang, Simon Fraser University; Chengjie Tu, Microsoft Corp.

Session MA8b3 Applications of Compressive Sensing

Chair: *Sergiy Vorobyov, University of Alberta Edmonton, Canada*

10:15 AM - 12:00 PM

MA8b3-1 Empirical Risk Minimization-Based Analysis of Segmented Compressed Sampling
Omid Taheri, Sergiy Vorobyov, University of Alberta

MA8b3-2 Localization in Wireless Networks via Spatial Sparsity
Sofia Nikitaki, Panagiotis Tsakalides, University of Crete & FORTH-ICS

MA8b3-3 Joint Typical Analysis for Compressive Sensing Based Multi Sensor Systems
Sangjun Park, Junho Lee, Heungno Lee, Gwangju Institute of Science and Technology (GIST)

MA8b3-4 Compressive Imaging using Approximate Message Passing and a Markov-Tree Prior
Subhojit Som, Lee C Potter, Philip Schniter, Ohio State University

MA8b3-5 Computable Quantification of the Stability of Sparse Signal Reconstruction
Gongguo Tang, Arye Nehorai, Washington University in St. Louis

MA8b3-6 Signal Recovery from Low Frequency Components
Yonina C. Eldar, Technion - Israel Institute of Technology; Volker Pohl, Technical University Berlin

Session MP1a Interference Channels

Chair: *Eduard Jorswieck, Technische Universität Dresden*

MP1a-1 Learning to Precode in Outage Minimization Games over MIMO Interference Channels 1:30 PM
Elena Veronica Belmega, Hamidou Tembine, Samson Lasaulce, Laboratoire des signaux et systèmes

MP1a-2 Achievable Rates and Upper Bounds for the Interference Relay Channel 1:55 PM
Anas Chaaban, Aydin Sezgin, Ulm University

MP1a-3 Bargaining and Beamforming in Interference Channels 2:20 PM
Rami Mochaourab, Eduard A. Jorswieck, Dresden University of Technology; Zuleita Ka Ming Ho, David Gesbert, Eurecom

MP1a-4 Optimal Distributed Beamforming for MISO Interference Channels 2:45 PM
Jiaming Qiu, Texas A&M University; Rui Zhang, National University of Singapore; Zhi-Quan Luo, University of Minnesota; Shuguang Cui, Texas A&M University

Session MP1b Trends for Future Wireless Systems

Chair: *Tom Marzetta, Bell Labs*

MP1b-1 Fading Models and Metrics for Contemporary Wireless Systems 3:30 PM
Nihar Jindal, University of Minnesota; Angel Lozano, UPF

MP1b-2 Doubling Throughput in Cellular Networks with Higher-order Sectorization 3:55 PM
Howard Huang, Reinaldo Valenzuela, Cuong Tran, Susan Walker, Dragan Samardzija, Bell Laboratories, Alcatel-Lucent

MP1b-3 Performance of TDD-based MU-MIMO Systems: Multiuser Diversity Interference Mitigation and CSI Costs 4:20 PM
Haralabos Papadopoulos, DOCOMO USA Labs; Giuseppe Caire, University of Southern California; Sean Ramprashad, DOCOMO USA Labs

MP1b-4 Making MIMO Really Work: The 400-Antenna Base Station 4:45 PM
Thomas Marzetta, Alexei Ashikhmin, Bell Laboratories, Alcatel-Lucent

Session MP2a MIMO Secrecy

Chair: *A. Lee Swindlehurst, University of California, Irvine*

MP2a-1 Secrecy in Gaussian MIMO Bidirectional Broadcast Wiretap Channels: Transmit Strategies 1:30 PM
Sara Al-Sayed, Aydin Sezgin, Ulm University

MP2a-2 Maximization of Worst-Case Secrecy Rates in MIMO Wiretap Channels 1:55 PM
Anne Wolf, Eduard A. Jorswieck, Dresden University of Technology

MP2a-3 Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading 2:20 PM
Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drexel University

MP2a-4 Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy Capacity 2:45 PM
Wei Shi, James Ritcey, University of Washington

Session MP2b MIMO Relays

Chair: *Ozgur Oyman, Intel*

MP2b-1 Beamforming for Network-coded MIMO Two-way Relaying 3:30 PM
Taemin Kim, Bernd Bandemer, Arogyaswami Paulraj, Stanford University

MP2b-2 Residual Self-Interference in Full-duplex MIMO Relays After Null-Space Projection and Cancellation 3:55 PM
Taneli Riihonen, Stefan Werner, Risto Wichman, Aalto University

MP2b-3 Self-Interference Suppression in Full-Duplex MIMO Relays 4:20 PM
Panagiota Lioliou, Mats Viberg, Chalmers University of Technology; Mikael Coldrey, Fredrik Athley, Ericsson AB

MP2b-4 Optimal Channel Estimation and Training Design for MIMO Relays 4:45 PM
Ting Kong, Yingbo Hua, University of California, Riverside

Session MP3a New Trends in Information Theory and Networks

Co-Chairs: *Sanjay Shakkottai, University of Texas at Austin and Jeff Andrews, University of Texas at Austin*

MP3a-1 On Information Theoretic Games for Interference Networks 1:30 PM
Suvarup Saha, Randall Berry, Northwestern University

MP3a-2 Correlation of Link Outages in Low-mobility Wireless Networks 1:55 PM
Radha Krishna Ganti, Jeffrey Andrews, University of Texas at Austin

MP3a-3 On Information Utility and Generalization of Data Processing Inequality 2:20 PM
Tara Javidi, University of California, San Diego

MP3a-4 On the Significance of Linear Codes in Networks 2:45 PM
Jiening Zhan, Michael Gastpar, University of California, Berkeley

Session MP3b Learning and Optimization in Dynamic Networks

Co-Chairs: *Qing Zhao, University of California, Davis and Keqin Liu, University of California, Davis*

MP3b-1 Distributed Learning Under Imperfect Sensing in Cognitive Radio Networks 3:30 PM
Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California

MP3b-2 The Asymptotics of Duplication-Deletion Random Graphs 3:55 PM
Maziyar Hamdi, Vikram Krishnamurthy, University of British Columbia

MP3b-3 No-Regret Routing for Ad-hoc Wireless Networks 4:20 PM
Abhijeet Bhorkar, Tara Javidi, University of California, San Diego

MP3b-4 Dynamic Optimization and Learning for Renewal Systems 4:45 PM
Michael Neely, University of Southern California

Session MP4a Biomedical Image Analysis

Chair: *Ronald Summers, National Institutes of Health*

MP4a-1 Haustral Fold Detection for CT Colonography Images Using Gabor Filter 1:30 PM
Zhuoshi Wei, Jianhua Yao, Shijun Wang, Ronald Summers, National Institutes of Health

MP4a-2 Human Activity Recognition Via Motion and Vision Data Fusion 1:55 PM
Chun Zhu, Qi Cheng, Weihua Sheng, Oklahoma State University

MP4a-3 Segmentation and Pseudo-coloring of High-Speed Bright-Field Microscopy Images of the Beating Embryonic Heart 2:20 PM
Sandeep Bhat, Michael Liebling, University of California, Santa Barbara

MP4a-4 A Scheme of Bandwidth Allocation for the Transmission of Medical Data 2:45 PM
Di Lin, Fabrice Labeau, McGill University

Session MP4b Advances in Adaptive Algorithms

Co-Chairs: *Sergios Theodoridis, University of Athens and Isao Yamada, Tokyo Institute of Technology*

MP4b-1 Adaptive Estimation of Sparse Signals using the Method of Multipliers 3:30 PM
Daniele Angelosante, Georgios B. Giannakis, University of Minnesota

MP4b-2 Time- and Coefficient-Selective Diffusion Strategies for Distributed Parameter Estimation 3:55 PM
Stefan Werner, Aalto University School of Science and Technology; Yih-Fang Huang, University of Notre Dame

MP4b-3 Tracking Behavior of Mobile Adaptive Networks 4:20 PM
Sheng-Yuan Tu, Ali H. Sayed, University of California, Los Angeles

MP4b-4 Low Complexity Projection-based Adaptive Algorithm for Sparse System Identification and Signal Reconstruction 4:45 PM
Konstantinos Slavakis, University of Peloponnese; Sergios Theodoridis, University of Athens; Isao Yamada, Tokyo Institute of Technology

Session MP5 Statistical Signal Processing for Complex Systems

Chair: *Monica Bugallo, SUNY Stony Brook*

MP5-1 Likelihood Consensus: Principles and Application to Distributed Particle Filtering 1:30 PM
Ondrej Hlinka, Ondrej Sluciak, Franz Hlawatsch, Institute of Communications and Radio-Frequency Engineering, Vienna University of Technology; Petar Djuric, Stony Brook University; Markus Rupp, Institute of Communications and Radio-Frequency Engineering, Vienna University of Technology

MP5-2 Particle Filtered Modified Compressive Sensing (PF-mod-CS) for Tracking Signal Sequences 1:55 PM
Samarjit Das, Namrata Vaswani, Iowa State University

MP5-3 Compressed Sensing using Generalized Polygon Samplers 2:20 PM
Kanke Gao, Stella Batalama, Dimitris Pados, State University of New York at Buffalo; Bruce Suter, Air Force Research Laboratory

MP5-4 Particle Filtering with Mode Tracking: Potential for Application to Numerical Weather Prediction 2:45 PM
Sarah Dance, Joanne Pocock, Amos Lawless, University of Reading

BREAK 3:10 PM

MP5-5 Compressible Priors for Natural Image Statistics 3:30 PM
Volkan Cevher, EPFL STI IEL LIONS

MP5-6 Unsupervised Bayesian Analysis for Gene Expression Analysis 3:55 PM
Cécile Bazot, Nicolas Dobigeon, Jean-Yves Tourneret, University of Toulouse; Alfred O. Hero, University of Michigan

MP5-7 Multiple Sensor Sequential Tracking of Neural Activity: Algorithm and FPGA Implementation 4:20 PM
Lifeng Miao, Jun Zhang, Chaitali Chakrabarti, Antonia Papandreou-Suppappola, Arizona State University

MP5-8 Adaptive Parameter Estimation of Cardiovascular Signals Using Sequential Bayesian Techniques 4:45 PM
Shwetha Edla, Jun Jason Zhang, John Spanias, Antonia Papandreou-Suppappola, Chaitali Chakrabarti, Arizona State University

Session MP6 Communication Processors and Accelerators

Chair: *J. Cavallaro, Rice University*

MP6-1 Reconfigurable MIMO Transceiver Design using the Tunable Channel Decomposition 1:30 PM
Jing Wang, Gerald Sobelman, University of Minnesota

MP6-2 A WiMAX/LTE Compliant FPGA Implementation of a High-Throughput Low-Complexity 4x4 64-QAM Soft MIMO Receiver 1:55 PM
Vadim Smolyakov, Dimpesh Patel, University of Toronto; Mahdi Shabany, University of Toronto / Sharif University; Glenn Gulak, University of Toronto

MP6-3 An Ultra Low Power SIMD Processor for Wireless Communications 2:20 PM
Mark Woh, Sangwon Seo, Scott Mahlke, Trevor Mudge, University of Michigan; Chaitali Chakrabarti, Arizona State University

MP6-4 Combined Channel and Hardware Noise Resilient Viterbi Decoder — 2:45 PM
Amr Hussien, Muhammed Khairy, Amin Khajeh, Ahmed Eltawil, Fadi Kurdahi, University of California, Irvine

BREAK — 3:10 PM

MP6-5 Implementation of Greedy Algorithms for LTE Sparse Channel Estimation — 3:30 PM
Patrick Maechler, Pierre Greisen, Benjamin Sporrer, Sebastian Steiner, Norbert Felber, Andreas Burg, ETH Zurich

MP6-6 A Low Energy High Speed Reed-Solomon Decoder Using Decomposed Inversionless Berlekamp-Massey Algorithm — 3:55 PM
Hazem A. Ahmed, Hamed Salah, Tallal ElShabrawy, German University in Cairo; Hossam A. H. Fahmy, Cairo university

MP6-7 Design of Large Polyphase Filters in the Quadratic Residue Number System — 4:20 PM
Gian Carlo Cardarilli, Università degli Studi di Roma "Tor Vergata"; Alberto Nannarelli, Technical University of Denmark; Yann Oster, Thales Alenia Space; Massimo Petricca, Marco Re, Università degli Studi di Roma "Tor Vergata"

MP6-8 FPGA Implementation Analysis of Polyphase Channelizer Performing Sample Rate Change Required for both Matched Filtering and Channel Frequency Spacing — 4:45 PM
Mehmod Awan, Aalborg University; fred harris, San Diego State University; Chris Dick, Xilinx, Inc.; Peter Koch, Aalborg University

Session MP7a Video Compression

Chair: *Cheolhong Ang, Qualcomm, Inc.*

MP7a-1 Spectral Entropy-Based Quantization Matrices for H.264/AVC Video Coding — 1:30 PM
Malavika Bhaskaranand, Jerry Gibson, University of California, Santa Barbara

MP7a-2 Motion Blur Adaptive Rate Control — 1:55 PM
Cheolhong An, Qualcomm Inc.

MP7a-3 Compressive Sensing based Multiview Video coding — 2:20 PM
Parmida Beigi, Xiaoyu Xiu, Jie Liang, Simon Fraser University

MP7a-4 Frame Corruption Estimation from Route Messages for Video Coding over Mobile Ad Hoc Networks — 2:45 PM
Yiting Liao, Jerry Gibson, University of California, Santa Barbara

Session MP7b Advances in Keyword Spotting

Chair: *Mark A. Clements, Georgia Institute of Technology*

MP7b-1 Speech/Audio Indexing and Retrieval: Improving Precision — 3:30 PM
Marsal Gavaldà, Nexidia Inc; Mark Clements, Georgia Institute of Technology; Robert Morris, Maria Koulikov, Peter Cardillo, Jon Arrowood, Nexidia Inc

MP7b-2 Phonological Feature Based Analysis for Keyword Recognition — 3:55 PM
Abhijeet Sangwan, John H.L. Hansen, CRSS: Center for Robust Speech Systems

MP7b-3 Word-Subword Based Keyword Spotting with Implications in OOV Detection — 4:20 PM
Jan Cernocky, Igor Szoke, Mirko Hannemann, Stefan Kombrink, Brno University of Technology

MP7b-4 Enhanced Open Vocabulary Spoken Term Detection — 4:45 PM
Bhuvana Ramabhadran, IBM T. J. Watson Research Center

Session MP8a1 Communication Systems II

Chair: *Martin Haardt, Technical University Ilmenau*

1:30 PM - 3:10 PM

MP8a1-1 Uplink Interference Scenarios in Two-Tier Networks
Zhenning Shi, Alcatel Lucent - Shanghai Bell; Mark Reed, Ming Zhao, National ICT Australia (NICTA); He Wang, Australian National University

MP8a1-2 Rethinking Capacity Per Unit Cost
Matthew Nokleby, Behnaam Aazhang, Rice University

MP8a1-3 Efficiency of Rate-maximization Game Under Bounded Channel Uncertainty
Amod J.G. Anandkumar, Advanced Signal Processing Group; Animashree Anandkumar, Laboratory for Information and Decision Systems; Sangarapillai Lambotharan, Jonathon Chambers, Advanced Signal Processing Group

MP8a1-4 A Semidefinite Programming Approach to Cooperative Localization in Wireless Sensor Networks
Ning Wang, Liuqing Yang, University of Florida

MP8a1-5 A Self-Organizing Solution for Interference Avoidance in TDD Underlay Femtocells
Francesco Pantisano, Centre for Wireless Communication (CWC) + Dipartimento di Elettronica Informatica e Sistemistica (DEIS); Kaveh Ghaboosi, Mehdi Bennis, Centre for Wireless Communication (CWC); Roberto Verdone, Dipartimento di Elettronica Informatica e Sistemistica (DEIS)

MP8a1-6 GLRT Based Cooperative Spectrum Sensing with Location Information
Ning Han, Hongbin Li, Jun Fang, Stevens Institute of Technology

MP8a1-7 Iterative Decoding on Divided Trellis for Turbo Codes
Jinhong Wu, Atheros Communications, Inc.; Branimir Vojcic, Jia Sheng, George Washington University

MP8a1-8 Detection of CPM Based on Second-Order Cyclostationarity
Amy Malady, A. A. (Louis) Beex, Virginia Tech

MP8a1-9 Determination of Cyclic Delay for CDD Utilizing RMS Delay Spread in OFDMA Multiuser Scheduling Systems
Seong-Ho Hur, University of California, San Diego; Min-Joong Rim, Dong-Kook University; Bhaskar D. Rao, James R. Zeidler, University of California, San Diego

MP8a1-10 Effective SINR Distribution in MIMO OFDM Systems
Alexandra Oborina, Visa Koivunen, Helsinki University of Technology; Tero Henttonen, Nokia Oyj

MP8a1-11 Pilot Design for OFDM-Based Non-Regenerative Relay Networks in the Presence of Phase Noise
Payam Rabiei, Won Namgoong, Naofal Al-Dhahir, University of Texas at Dallas

MP8a1-12 Sum-Rate Maximization by Bandwidth Re-allocation for Two Users in Partial Frequency Reuse Cellular Networks
Bujar Krasniqi, Technische Universität Wien; Martin Wolkerstorfer, FTW Forschungszentrum Telekommunikation Wien; Christian Mehlfuehrer, Christoph Mecklenbrauker, Technische Universität Wien

MP8a1-13 Performance of UWB MIMO Relay Systems in Real UWB Channels
Kiattisak Maichalernnukul, Trung Kien Nguyen, Feng Zheng, Thomas Kaiser, University of Hannover

Session MP8a2 Speech Enhancement

Chair: *David Anderson, Georgia Institute of Technology*

1:30 PM - 3:10 PM

MP8a2-1 Combined Reduction of Time Varying Harmonic and Stationary Noise Using Frequency Warping
Thomas Esch, Matthias Rüngeler, Florian Heese, Peter Vary, RWTH Aachen University

MP8a2-2 Comparison of Various Adaptive Kalman Filtering Algorithms Applied to Single Microphone Blind Audio Source Separation
Siouar Bensaid, Dirk Slock, Eurecom

MP8a2-3 A MAP Criterion for Detecting the Number of Speakers at Frame Level in Model-based Single-Channel Speech Separation
Pejman Mowlaee, Mads Græsbøll Christensen, Zheng-Hua Tan, Søren Holdt Jensen, Aalborg University

MP8a2-4 Toward Overcoming Fundamental Limitation in Frequency-Domain Blind Source Separation for Reverberant Speech Mixtures
Lae-Hoon Kim, Mark Hasegawa-Johnson, University of Illinois at Urbana-Champaign

MP8a2-5 Auditory Motivated Analysis Based Speech enhancement
Novlene Zoghlami, Zied Lachiri, ENIT

MP8a2-6 Modified Fermat Transforms for Reliable and Efficient De-noising of Speech Signals
Chandra Radhakrishnan, Kenneth Jenkins, Pennsylvania State University; Carnell Hunter, Virginia Commonwealth University; Robert Nickel, Bucknell University

Session MP8a3 Selected Topics in Speech and Audio

Chair: *Jerry Gibson, University of California, Santa Barbara*

1:30 PM - 3:10 PM

MP8a3-1 Improved Design Method for Nearly Linear-Phase Recursive Digital Filters Using Unconstrained Least-pth Minimax Optimization
Sunil B. Nagaraj, Rajeev Nongpiur, Andreas Antoniou, University of Victoria

MP8a3-2 Frequency Dependent GTD Coders
Ching-Chih Weng, P. P. Vaidyanathan, California Institute of Technology

MP8a3-3 Time-Scale Modification of Audio Signals Using Multi-Relative Onset Time Estimations in Sinusoidal Transform Coding
Jonathan Kim, Mark Clements, Georgia Institute of Technology

MP8a3-4 Tandeming Analysis of Perceptual Pre-weighting and Post-weighting Multimode Tree Coder
Ying-Yi Li, Pravin Ramadas, Jerry Gibson, University of California, Santa Barbara

MP8a3-5 Improved Approach for Calculating Model Parameters in Speaker Recognition Using Gaussian Mixture Models
Prashant Metkar, Aaron Cohen, Keshab Parhi, University of Minnesota-Twin Cities

MP8a3-6 An Efficient Constant-Q Spectrum Analyzer Architecture Using Polyphase Filter Bank
Xiaofei Chen, San Diego State University; Elettra Venosa, Seconda Università degli Studi di Napoli; fred harris, San Diego State University

MP8a3-7 Online Meeting Recognizer with Multichannel Speaker Diarization
Shoko Araki, Takaaki Hori, Masakiyo Fujimoto, Shinji Watanabe, Takuya Yoshioka, Tomihiro Nakatani, NTT Communication Science Laboratories

MP8a3-8 Low Complexity 3D Source Localization Using Pseudointensity Vectors
Daniel P. Jarrett, Emanuël A.P. Habets, Patrick A. Naylor, Imperial College London

MP8a3-9 Cyclic Matching Pursuits with Multiscale Time-Frequency Dictionaries
Bob Sturm, Mads Græsbøll Christensen, Aalborg University

Session MP8a4 Adaptive Signal Processing in Communications

Chair: *Martin Haardt, Technical University Ilmenau*

1:30 PM - 3:10 PM

MP8a4-1 A New Algorithm for Sidelobe Suppression and Performance Comparison in DFT-OFDM Cognitive Radios
Mohamed Marey, Octavia A. Dobre, Memorial university

MP8a4-2 An Iterative Widely Linear Interference Suppression Algorithm based on Auxiliary Vector Filtering
Lei Wang, University of York; Nuan Song, Ilmenau University of Technology; Rodrigo C. de Lamare, University of York; Martin Haardt, Ilmenau University of Technology

MP8a4-3 Non-negative Distributed Regression for Data Inference in Wireless Sensor Networks
Jie Chen, Université de Technologie de Troyes; Cédric Richard, Université de Nice Sophia-Antipolis; Paul Honeine, Université de Technologie de Troyes; Jose Carlos M. Bermudez, Federal University of Santa Catarina

MP8a4-4 Blind Adaptive Equalizer Based on PDF Matching for Rayleigh Time-Varying Channels
Adel Daas, Stephan Weiss, University of Strathclyde

MP8a4-5 A Systematic Approach to Incorporate Deterministic Prior Knowledge in Broadband Adaptive MIMO Systems
Herbert Buchner, Berlin University of Technology

Session MP8a5 Array-based Estimation

Chair: *John Shynk, University of California, Santa Barbara*

1:30 PM - 3:10 PM

MP8a5-1 Emitter Position and Velocity Estimation Given Time and Frequency Differences of Arrival
Alon Amar, Geert Leus, Delft University of Technology; Benjamin Friedlander, University of California, Santa Cruz

MP8a5-2 Exploring Sensitivity of Joint Diagonalization in Convolutive Blind Source Separation
Savaskan Bulek, Nurgun Erdol, Florida Atlantic University

MP8a5-3 Blind Phase-Shift-Based DOA Estimation
John Shynk, Sheng-Luen Wei, University of California, Santa Barbara

MP8a5-4 A Joint AOA, AOD and Delays Estimation of Multipath Signals based on Beamforming Techniques
Ismehene Chahbi, Badii Jouaber, Institut TELECOM, Telecom SudParis

MP8a5-5 Using Moment Finite Rate of Innovation for LIDAR Waveform Complexity Estimation
Juan Castorena, Charles Creusere, David Voelz, New Mexico State University

MP8a5-6 Hybrid Tensor Decomposition for Sound Source Separation
Na Li, Carmeliza Navasca, Clarkson University

MP8a5-7 Multi-Objective Optimized OFDM Radar Waveform for Target Detection in Multipath Scenarios
Satyabrata Sen, Arye Nehorai, Washington University in St. Louis

Session TA1a Network Error Correction and Physical Layer Security

Chair: *Joerg Kliewer, New Mexico State University*

TA1a-1 Interactive Protocols for Secure Network Coding 8:15 AM
Mahdi Jafari, Christina Fragouli, Ecole Polytechnique Fédérale de Lausanne; Suhas Diggavi, University of California, Los Angeles

TA1a-2 Network Coding on Planar Networks under Node-Based Byzantine Attack 8:40 AM
Oliver Kosut, Lang Tong, Cornell University; David Tse, University of California, Berkeley

TA1a-3 Capacity Reservation Algorithms for Mitigating Byzantine Failures in Communication Networks 9:05 AM
Khushboo Kanjani, Mohammad Asad Chaudhry, Alex Sprintson, Texas A&M University

TA1a-4 Network RS codes: Efficient Byzantine Adversary Localization 9:30 AM
Hongyi Yao, California Institute of Technology; Sidharth Jaggi, Minghua Chen, Chinese University of Hong Kong

Session TA1b Coding

Chair: *Lang Tong, Cornell University*

TA1b-1 Complex Number RS Coded OFDM with Systematic Noise in the Guard Interval 10:15 AM
Mario Huemer, Christian Hofbauer, Klagenfurt University; Johannes B. Huber, University of Erlangen-Nuremberg

TA1b-2 Extrinsic Compensation for Cycles in Message Passing Decoders 10:40 AM
Todd Moon, Jacob Gunther, Utah State University

TA1b-3 Convergence-Optimal Quantizer Design of Distributed Contraction-based Iterative Algorithms with Quantized Message Passing 11:05 AM
Ying Cui, Vincent K. N. Lau, Hong Kong University of Science and Technology

TA1b-4 On Secure Communication over a Class of Degraded Relay Networks 11:30 AM
Amir Salimi, Joerg Kliewer, New Mexico State University

Session TA2a Signal Processing for Communications Receivers

Chair: *Mats Viberg, Chalmers University of Technology*

TA2a-1 Decision Feedback Equalization With Sparsity Driven Thresholding 8:15 AM
Jovana Ilic, Thomas Strohmer, University of California, Davis; Raymond Guan, Intel Corporation

TA2a-2 The Effect of Unreliable LLR Storage on the Performance of MIMO-BICM 8:40 AM
Clemens Novak, Vienna University of Technology; Christoph Studer, Andreas Burg, ETH Zurich; Gerald Matz, Vienna University of Technology

TA2a-3 On Performance Prediction of an Iterative Multi-Antenna Receiver 9:05 AM
Jarkko Huusko, Juha Karjalainen, Markku Juntti, University of Oulu

TA2a-4 Doppler Estimation and Correction for Shallow Underwater Acoustic Communications 9:30 AM
Kenneth A. Perrine, Karl F. Nieman, Terry L. Henderson, Keith H. Lent, Terry J. Brudner, Brian L. Evans, University of Texas at Austin

Session TA2b Communications Under Doppler Spread

Chair: *Geert Leus, Delft University of Technology*

TA2b-1 Heavy-tailed Doppler Spectra in Underwater Acoustic Communication Channels 10:15 AM
Paul van Walree, Roald Otnes, Trond Jenserud, Norwegian Defence Research Establishment

TA2b-2 Channel Equalization and Estimation of Multi-Sale Multi-Lag Wireless Channels 10:40 AM
Geert Leus, Delft University of Technology; Urbashi Mitra, University of Southern California

TA2b-3 Approximate Message-Passing-Based Decoding for Unknown Sparse Doubly Selective Channels 11:05 AM
Philip Schniter, Ohio State University

TA2b-4 OFDM over Doppler-Distorted Channels: Fractional FFT Demodulation 11:30 AM
Srinivas Yerramalli, University of Southern California; Milica Stojanovic, Northeastern University; Urbashi Mitra, University of Southern California

Session TA3a Recursive Reconstruction of Sparse Sequences

Chair: *Namrata Vaswani, Iowa State University*

TA3a-1 On the Role of the Properties of the Non-zero Entries on Sparse Signal Recovery 8:15 AM
Y. Jin, Bhaskar D. Rao, University of California, San Diego

TA3a-2 Video Concealment via Matrix Completion at High Missing Rates 8:40 AM
Trac Tran, Johns Hopkins University

TA3a-3 Exact Reconstruction Conditions and Error Bounds for Regularized Modified Basis Pursuit (Reg-Modified-BP) 9:05 AM
Wei Lu, Namrata Vaswani, Iowa State University

TA3a-4 Iterative Weighted l_1 Optimization for Compressed Sensing and Coding 9:30 AM
Amin Khajehnejad, Alex Dimakis, Babak Hassibi, California Institute of Technology

Session TA3b Self-Organizing Networks: Architectures, Protocols and Algorithms

Chair: *Vasileios Pappas, IBM*

TA3b-1 Synchronization of Coupled Oscillators 10:15 AM
A. Kevin Tang, Cornell University

TA3b-2 A Spatial Computing Approach to Distributed Algorithms 10:40 AM
Jacob Beal, BBN

TA3b-3 Fast Biologically-inspired Synchronization of Periodic Events 11:05 AM
Prithwish Basu, BBN

TA3b-4 Joint Admission Control & Interference Avoidance in Self-Organized Femtocells 11:30 AM
Kaveh Ghaboosi, Carlos H. M. Lima, Mehdi Bennis, Centre for Wireless Communications, University of Oulu; Allen B. MacKenzie, Virginia Polytechnic Institute and State University; Matti Latva-aho, Centre for Wireless Communications, University of Oulu

Session TA4a Shape and Time in Biomedical Images

Chair: *David Shattuck, UCLA Geffen School of Medicine*

TA4a-1 Spatio-Temporal Image Analysis for Longitudinal and Time-Series Image Data 8:15 AM
Guido Gerig, University of Utah

TA4a-2 Imaging and Shape Analysis of the Moving Human Fetal Brain In-Utero 8:40 AM
Colin Studholme, University of California, San Francisco

TA4a-3 Extraction of Functional Subnetworks in Autism Using Multimodal MRI 9:05 AM
James Duncan, Michael An, Lawrence Staib, Kevin Pelphrey, Yale University

TA4a-4 Multivariate Statistical Analysis of Deformation Momenta Relating Anatomical 9:30 AM
Sarang Joshi, University of Utah

Session TA4b Mathematical Methods for Biomedical Signals and Images

Chair: *Murray Loew, George Washington University*

TA4b-1 Statistically Optimal Modular Partitioning of Directed Graphs 10:15 AM
Yu-Teng Chang, Dimitrios Pantazis, Richard Leahy, University of Southern California

TA4b-2 A Hierarchical Morphological Match Metric for Neuron Image Data 10:40 AM
Saurav Basu, Barry Condron, Scott T. Acton, University of Virginia

TA4b-3 Fisher Information for EMCCD Imaging with Application to Single Molecule Microscopy 11:05 AM
Jerry Chao, University of Texas at Dallas; Elizabeth Ward, University of Texas Southwestern Medical Center at Dallas; Raimund Ober, University of Texas at Dallas

TA4b-4 On Parameter Estimation for Diffusion Processes in Real-time Biosensors 11:30 AM
Manohar Shamaiah, Xiaohu Shen, Haris Vikalo, University of Texas at Austin

Session TA5 Compressive Sensing

Chair: *Ali Pezeshki, Colorado State University*

TA5-1 Target Estimation Using Compressive Sensing for Distributed MIMO Radar 8:15 AM
Sandeep Gogineni, Arye Nehorai, Washington University in St. Louis

TA5-2 Sparse Signal Recovery with Dynamic Update of Overcomplete Dictionary 8:40 AM
M. Salman Asif, Justin Romberg, Georgia Institute of Technology

TA5-3 Robust Layered Sensing: From Sparse Signals to Sparse Residuals 9:05 AM
Vassilis Kekatos, Georgios B. Giannakis, University of Minnesota

TA5-4 Tracking and Smoothing of Time-Varying Sparse Signals via Approximate Belief Propagation 9:30 AM
Justin Ziniel, Lee C. Potter, Philip Schniter, Ohio State University

BREAK 9:55 AM

TA5-5 Performance Analysis of Stochastic Signal Detection with Compressive Measurements 10:15 AM
Thakshila Wimalajeewa, Hao Chen, Pramod K. Varshney, Syracuse University

TA5-6 Compressed Sensing of Different Size Block-Sparse Signals: Efficient Recovery 10:40 AM
Ali Ziaei, Ali Pezeshki, Saeid Bahmanpour, Mahmood Reza Azimi-Sadjadi, Colorado State University

TA5-7 Analog Sparse Approximation for Compressed Sensing Recovery 11:05 AM
Christopher Rozell, Georgia Institute of Technology; Pierre Garrigues, IQ Engines, Inc.

TA5-8 High Resolution Radar via Compressive Illumination 11:30 AM
Emre Ertin, Ohio State University

Session TA6a Reconfigurable Architectures, Algorithms and Applications

Chair: *F. de Dinechin, Ecole Normale Supérieure de Lyon*

TA6a-1 A Generic and Versatile Architecture for Inference of Evolutionary Trees under Maximum Likelihood 8:15 AM
Nikolaos Alachiotis, Alexandros Stamatakis, Technische Universität München

TA6a-2 Is there a Tradeoff Between Programmability and Performance 8:40 AM
Walid Najjar, University of California, Riverside; Jason Villarreal, Jacquard Computing Inc.

TA6a-3 FPGA-Optimised Random Number Generators 9:05 AM
David Thomas, Wayne Luk, Imperial College

TA6a-4 A 128-tap Complex FIR Filter Processing 20 Gigasamples/s in a Single FPGA 9:30 AM
Florent de Dinechin, Honoré Takeugming, École Normale Supérieure de Lyon; Jean-Marc Tanguy, Bell Laboratories, Alcatel-Lucent

Session TA6b Array Processing and Beamforming

Chair: *Ivars Kirsteins, Naval Undersea Warfare Center*

TA6b-1 Efficient Frequency Invariant Beamforming using Virtual Arrays 10:15 AM
Piya Pal, P. P. Vaidyanathan, California Institute Of Technology

TA6b-2 Robust Adaptive Beamforming via Estimating Steering Vector Based on Semidefinite Relaxation 10:40 AM
Arash Khabbazibasmenj, Sergiy Vorobyov, Aboulnasr Hassanien, University of Alberta

TA6b-3 Adaptive Beamforming using Distributed Antenna Arrays: Joint versus Distributed Processing 11:05 AM
Hongya Ge, New Jersey Institute of Technology; Ivars P. Kirsteins, Naval Undersea Warfare Center; Xiaoli Wang, New Jersey Institute of Technology

TA6b-4 Remodulation of DVB–T Signals for Use in Bistatic Passive Radar 11:30 AM
Stephen Searle, University of Melbourne; Stephen Howard, James Palmer, Defence Science & Technology Organisation

Session TA7 Image and Video Enhancement

Chair: *Manu Parmar, Qualcomm, Inc.*

TA7-1 Camera Technology at the Dawn of Digital Renascence Era — 8:15 AM
Sergio Goma, Mickey Aleksic, Qualcomm Inc.; Todor Georgiev, Adobe Systems

TA7-2 Rethinking the Sampling Topologies for Image Quality Estimation in Computational Imaging System Design — 8:40 AM
Kathrin Berkner, Ricoh Innovations, Inc

TA7-3 Novel YUV 8bpp Subsampling Pattern — 9:05 AM
Sergio Goma, Mickey Aleksic, Qualcomm Inc.

TA7-4 Robust Image Registration for Multi-frame Mobile Applications — 9:30 AM
Marius Tico, Kari Pulli, Nokia Research Center

BREAK — 9:55 AM

TA7-5 Quality-controlled Motion-compensated Interpolation — 10:15 AM
Mina Makar, Derek Pang, Yao-Chung Lin, Bernd Girod, Stanford University

TA7-6 A Constrained Optimization Perspective on Joint Spatial Resolution and Dynamic Range Enhancement — 10:40 AM
Vishal Monga, Umamahesh Srinivas, Pennsylvania State University

TA7-7 Enhancing Video by Combining IR and Visible Light — 11:05 AM
Ramin Samadani, Tom Malzbender, Hewlett Packard; Prabath Gunawardane, University of California, Santa Cruz

TA7-8 Bleed-Through Removal Using Multispectral Image Data — 11:30 AM
Trace Griffiths, Gene A. Ware, Todd Moon, Jacob Gunther, Utah State University

Session TA8a1 Cooperative and Cognitive Transmission in Multi-Antenna Networks I

Chair: *Kaibin Huang, Yonsei University*

8:15 AM - 9:55 AM

TA8a1-1 Randomized Two-Way Relay Cooperation
Saeed Bagheri, University of California, Davis; Francesco Verde, University Federico II; Donatella Darsena, University of Napoli Parthenope; Anna Scaglione, University of California, Davis

TA8a1-2 Distributed Beamforming for Two-way Relay Networks with Reciprocal Channels
Meng Zeng, Texas A&M University; Rui Zhang, National University of Singapore; Shuguang Cui, Texas A&M University

TA8a1-3 Balanced Precoding for Decode-and-Forward Based MIMO Relay Communications
Jongyeol Ryu, Wan Choi, Korea Advanced Institute of Science and Technology

TA8a1-4 Superposition Coding Based Cooperative Communication with Relay Selection
Hobin Kim, Pamela C. Cosman, Laurence B. Milstein, University of California, San Diego

TA8a1-5 Optimal Power Allocation in Linearly Coded OFDMA Relay Networks
Honghai Yu, Sumei Sun, Institute for Infocomm Research

TA8a1-6 Distributed Gain Allocation in Non-Regenerative Multiuser Multihop MIMO Networks
Raphael Rolny, Jörg Wagner, Armin Wittneben, Swiss Federal Institute of Technology Zurich

TA8a1-7 Optimal Spectrum Sharing in MIMO Cognitive Radio Networks via Semidefinite Programming
Ying Jun Zhang, Anthony Man-Cho So, Chinese University of Hong Kong

TA8a1-8 Two-way Communications for Cooperative Multiple Source Pairs Through a Multi-antenna Relay
Chin Choy Chai, Chau Yuen, Institute for Infocomm Research

TA8a1-9 Maximum Achievable Diversity of Coded MIMO-OFDM Amplify-and-Forward Relaying Systems
Changick Song, Inkyu Lee, Korea University

TA8a1-10 Max-Min Weighted SIR in Coordinated Multicell MIMO Downlink System
*Desmond W.H. Cai, Tony Q.S. Quek, Institute for Infocomm Research, A*STAR*

TA8a1-11 On the Optimization of Two-way AF MIMO Relay Channel with Beamforming
Namjeong Lee, Korea Advanced Institute of Science and Technology; Chan-Byoung Chae, Bell Laboratories, Alcatel-Lucent; Osvaldo Simeone, New Jersey Institute of Technology; Joonhyuk Kang, Korea Advanced Institute of Science and Technology

TA8a1-12 Is Conflict Always Bad? From the Interference Management Perspective
Chan-Byoung Chae, Kai Yang, Simon Yiu, Doru Calin, Bell Laboratories, Alcatel-Lucent

TA8a1-13 Feasible Rate Improvement Using Common Message Decoding for Multicell Networks
Hayssam Dahrouj, Wei Yu, University of Toronto

TA8a1-14 Switched Diversity Strategies for Dual-Hop Relaying Networks
Fakhreddine Gaaloul, Redha Radaydeh, Mohamed-Slim Alouini, Korea Advanced Institute of Science and Technology

TA8a1-15 Stochastic Feedback Control for Multi-Antenna Interference Channel
Rong Ran, Hong Kong University of Science and Technology; Kaibin Huang, Yonsei University; Vincent K. N. Lau, Hong Kong University of Science and Technology; Dongku Kim, Yonsei University

TA8a1-16 Asymptotic Performance of Linear Receivers in Network MIMO
Jakob Hoydis, Mari Kobayashi, Mérouane Debbah, Supélec

Session TA8a2 Cognitive Networking

Chair: *Georgios Giannakis, University of Minnesota*

8:15 AM - 9:55 AM

TA8a2-1 Cooperative Wideband Spectrum Sensing Using Radio Frequency Sensor Networks
Volkan Sonmezer, Turkish Air Force; Murali Tummala, John McEachen, Naval Postgraduate School

TA8a2-2 Spectrum Leasing via Cooperative Opportunistic Routing
Davide Chiarotto, University of Padova; Osvaldo Simeone, New Jersey Institute of Technology; Michele Zorzi, University of Padova

TA8a2-3 Effect of Jamming on Distributed Spectrum Sensing in a Cognitive Radio Network
V Sriram Siddhardh (Sid) Nadendla, Hao Chen, Pramod K Varshney, Syracuse University

TA8a2-4 Performance Analysis of Weighted Centroid Algorithm for Primary User Localization in Cognitive Radio Networks
Jun Wang, Paulo Urriza, Yuxing Han, Danijela Čabrić, University of California, Los Angeles

TA8a2-5 Optimizing User Densities for Spectrum Allocation with Applications in Femtocell Networks
Brett Kaufman, Rice University; Jorma Lilleberg, Nokia; Behnaam Aazhang, Rice University

Session TA8a3 Adaptive Signal Processing: Theory and Applications

Chair: *Todd Moon, Utah State University*

8:15 AM - 9:55 AM

TA8a3-1 Spacecraft Adaptive Control Evaluation
Timothy Sands, Naval Postgraduate School (USAF); Jae Jun Kim, Brij Agrawal, Naval Postgraduate School

TA8a3-2 A Novel Block Fast Array RLS Algorithm Applied to Linear Flight Strip-Map SAR Imaging
Roger West, Todd Moon, Jacob Gunther, Utah State University

TA8a3-3 An Adaptive IIR Filter with Constraints on the Output Power Level
Walter Kozacky, Tokunbo Ogunfunmi, Santa Clara University

TA8a3-4 On the Robust and Efficient Computation of the Kalman Gain for Multichannel Adaptive Filtering with Application to Acoustic Echo Cancellation
Karim Helwani, Herbert Buchner, Sascha Spors, Deutsche Telekom Laboratories, Berlin University of Technology

TA8a3-5 An Interval Method for State Estimation in Biological Systems
Maria Angels de Luis Balaguer, Cranos Williams, North Carolina State University

TA8a3-6 A 0.18um CMOS Narrow-band LNA Linearization Using Digital Base-band Post-Distortion
Ifiok Umoh, Talal Al-attar, Tokunbo Ogunfunmi, Santa Clara University

TA8a3-7 Tracking the Time-varying Sparsity of Channel Coefficients in Shallow Water Acoustic Communications
Ananya Sen Gupta, James Preisig, Woods Hole Oceanographic Institution

TA8a3-8 A Normalized Least Mean Fourth Algorithm with Improved Stability
Eweda Eweda, Ajman University of Science & Technology; Azzedine Zerguine, King Fahd University of Petroleum & Minerals

TA8a3-9 An Approach to Stabilizing the Fast Array RLS Adaptive Filter Using Homogeneous Coordinates in Projective Geometry
Todd Moon, Utah State University; Kevin Hencke, University of Maryland; Jacob Gunther, Utah State University

TA8a3-10 Two Product-Space Formulations for Unifying Multiple Metrics in Set-Theoretic Adaptive Filtering
Masahiro Yukawa, Niigata University; Isao Yamada, Tokyo Institute of Technology

TA8a3-11 On the Relation Between Blind System Identification and Subspace Tracking and Associated Generalizations
Herbert Buchner, Karim Helwani, Berlin University of Technology

Session TA8b1 Cooperative and Cognitive Transmission in Multi-Antenna Networks II

Chair: *Kaibin Huang, Yonsei University*

10:15 AM - 12:00 PM

TA8b1-1 Enhanced Limited-Coordination Strategies for Multi-User MIMO Systems
Obadamilola Aluko, Purdue University; Bruno Clerckx, Samsung Advanced Institute of Technology; David J. Love, James V. Krogmeier, Purdue University

TA8b1-2 Relay Channel with Non-causal Interference Information at the Source
Kagan Bakanoglu, Elza Erkip, Polytechnic Institute of NYU

TA8b1-3 Distortion-Aware Link Adaptation in Cooperative MIMO Relay Networks
Ozgur Oyman, Jeffrey Foerster, Intel Labs

TA8b1-4 Beamforming on the Interference MISO Interference Channel with Multi-user Decoding Capability
Zuleita Ka Ming Ho, David Gesbert, Eurecom; Eduard A. Jorswieck, Dresden University of Technology; Rami Mochaourab, Eurecom

TA8b1-5 Multiuser MIMO in Distributed Antenna Systems
Robert W. Heath Jr., University of Texas at Austin; Tao Wu, Young Hoon Kwon, Huawei Technologies, Co. Ltd.

TA8b1-6 DMT Analysis of Opportunistic Multi-relay Networks with Different Relaying Capabilities
Mohamed Abouelseoud, Aria Nosratinia, University of Texas at Dallas

TA8b1-7 Throughput of Low-Power Network MIMO Cellular Systems
Shi Jin, Southeast University; Matthew McKay, Hong Kong University of Science and Technology; Kai-Kit Wong, University College London; Xiqi Gao, Southeast University

TA8b1-8 Coordinated Single-Cell vs Multi-Cell Transmission with Limited-Capacity Backhaul
Nima Seifi, Mats Viberg, Chalmers University of Technology; Robert W. Heath Jr., Jun Zhang, University of Texas at Austin; Mikael Coldrey, Ericsson AB

TA8b1-9 Decentralized Coordinated Multi-cell Beamforming for Sum Rate Maximization
Harri Pennanen, Antti Tölli, Centre for Wireless Communications, University of Oulu

TA8b1-10 Statistical Beamforming in Wyner Cellular Network
Rusdha Muharar, Vasanthan Raghavan, Jamie Evans, Stephen Hanly, University of Melbourne

TA8b1-11 MMSE Transceiver Design for Coordinated Base Station Systems: Distributive Algorithm
Tadilo Endeshaw, Luc Vandendorpe, Batu Chalise, University Catholique de louvain

TA8b1-12 CSI Signaling for Decentralized Coordinated Beamforming in TDD Multi-cell MIMO Systems
Petri Komulainen, Antti Tölli, Markku Juntti, University of Oulu

TA8b1-13 Outage Probability of MISO Broadcast Systems with Noisy Channel Side Information
Alon Shalev Housfater, Teng Joon Lim, University of Toronto

TA8b1-14 Multi-femtocells MIMO Processing via Amplify and Forward over the Cable (AFc)
Jonathan Gambini, Umberto Spagnolini, Politecnico di Milano

TA8b1-15 Predictive Limited Feedback for Cooperative Transmission
Ramya Bhagavatula, Robert W. Heath Jr., University of Texas at Austin

TA8b1-16 Throughput Analysis of MIMO Cooperative Decode-and-Forward ARQ Protocols
Ilmu Byun, KiJun Jeon, Hyangsun You, Kwang Soon Kim, Yonsei University

Session TA8b2 Architectures, Implementations, and Tools I

Chair: *B. Phillips, University of Adelaide*

10:15 AM - 12:00 PM

TA8b2-1 Rate-Compatible LDPC Code Decoder Using Check-Node Merging
Anton Blad, Oscar Gustafsson, Linköping University; Meng Zheng, Zesong Fei, Beijing Institute of Technology

TA8b2-2 A Scalable and Programmable Modular Queue Manager Architecture
Qi Zhang, Roger Woods, Alan Marshall, Queen's University Belfast

TA8b2-3 Hardware Implementation of DBNS Recoding for ECC Processor
Thomas Chabrier, IRISA, University of Rennes; Danuta Pamula, IRISA, University of Rennes, Silesian University of Technology; Arnaud Tisserand, IRISA, CNRS

TA8b2-4 Temperature Aware Power Optimization for Multicore Floating-Point Units
Wei Liu, Alberto Nannarelli, Technical University of Denmark

TA8b2-5 Fast, Bit-Accurate Simulation of Truncated-Matrix Multipliers and Squarers
George Walters, Pennsylvania State University Erie; Michael Schulte, AMD Research and Advanced Development Labs

TA8b2-6 A Redundant Decimal Floating-Point Adder
Karim Yehia, Hossam A. H. Fahmy, Cairo University

TA8b2-7 Arithmetic Operators Based on the Binary Stored-Carry-or-Borrow Representation
Daniel Torno, Exorand Technology; Behrooz Parhami, University of California, Santa Barbara

TA8b2-8 Three Engines to Solve Verification Constraints of Decimal Floating-Point Operations
Amr Sayed-Ahmed, Hossam A. H. Fahmy, Cairo University

TA8b2-9 Algorithm and Architecture for On-Line Decimal Powering Computation
Mahmoud Hassan, Tarek ElDeeb, SilMinds; Hossam A. H. Fahmy, Cairo University

TA8b2-10 Degrading Precision Arithmetic for Low Power Signal Processing
Massimo Petricca, Gian Carlo Cardarilli, Università degli Studi di Roma "Tor Vergata"; Alberto Nannarelli, Technical University of Denmark; Marco Re, Pietro Albicocco, Università degli Studi di Roma "Tor Vergata"

TA8b2-11 Low-Complexity Parallel Evaluation of Powers Exploiting Bit-Level Redundancy
Muhammad Abbas, Oscar Gustafsson, Anton Blad, Linköping University

TA8b2-12 Memristor-based Arithmetic
K'Andrea Bickerstaff, Researcher; Earl Swartzlander, Jr., University of Texas at Austin

Session TA8b3 Architectures, Implementations, and Tools II

Chair: *B. Phillips, University of Adelaide*

10:15 AM - 12:00 PM

TA8b3-1 A New Approach for TCP/IP Offload Engine Implementation in Embedded Systems
Koji Hashimoto, Vasily Moshnyaga, Fukuoka University

TA8b3-2 Scalable Multi-core Sonar Beamforming with Computational Process Networks
John Bridgman, Gregory Allen, Brian L. Evans, University of Texas at Austin

TA8b3-3 ASIP Data Plane Processor for Multi-Standard Interleaving and De-Interleaving
Mohit Wani, Zoran Miljanić, Predrag Spasojević, Rutgers University; Jerry Redington, Tensilica Inc.

TA8b3-4 Architecture of a Programmable SoC for Flexible Radio Processing
Onkar Sarode, Zoran Miljanic, Predrag Spasojevic, Rutgers University

TA8b3-5 On Prediction to Dynamically Assign Heterogeneous Microprocessors to the Minimum Joint Power State to Achieve Ultra Low Power Cloud Computing
Kranthimanoj Nagothu, Brian Kelley, Jeff Prevost, University of Texas at San Antonio

TA8b3-6 Parallel - Pipelined Radix-2^2 FFT Architecture for Real Valued Signals
Manohar Ayinala, Keshab Parhi, University of Minnesota

TA8b3-7 Butterfly and Inverse Butterfly nets integration on Altera NIOS-II embedded processor
Gian Carlo Cardarilli, Luca Di Nunzio, Rocco Fazzolari, Marco Re, University of Rome "Tor Vergata"; Ruby Lee, Princeton University

TA8b3-8 Internal Quantization in FIR Filters Implemented Using Multiple Constant Multiplications
Guifeng (Rick) Liu, Linda DeBrunner, Victor DeBrunner, Florida State University; Kenny Johansson, Airborne Hydrography AB

TA8b3-9 Effect of Order on MCM Implementations of FIR Filters
Abhijit Patil, Linda DeBrunner, Florida State University

TA8b3-10 Selectable Bandwidth Filter Formed from Perfect Reconstruction Polyphase Filter Bank
fred harris, San Diego State University

TA8b3-11 Reconfigurable Multiple Constant Multiplication using Minimum Adder Depth
Mathias Faust, Nanyang Technological University; Oscar Gustafsson, Linköping University; Chip-Hong Chang, Nanyang Technological University

Session TP1a Advances in Multihop and Distributed Wireless Transmission

Chair: *Raymond Knopp, EURECOM*

TP1a-1 Structured Lattice Codes for Wireless Relay Networks 1:30 PM
Suhas Diggavi, Ecole Polytechnique Fédérale de Lausanne / University of California, Los Angeles

TP1a-2 Bounds and Lattice Strategies for Faded Relay Interference Channels 1:55 PM
Abdellatif Zaidi, Luc Vandendorpe, University Catholique de Louvain

TP1a-3 Low-complexity Multiple-relay Strategies for Improving Uplink Coverage in 4G Wireless Networks 2:20 PM
Erhan Yilmaz, Raymond Knopp, Eurecom

TP1a-4 An Industrial Perspective of Relaying 2:45 PM
Federico Boccardi, Volker Braun, Bell Laboratories, Alcatel-Lucent

Session TP1b Wireless Communications

Chair: *Aydin Sezgin, University of Ulm*

TP1b-1 Identifying Wireless Users via Power Amplifier Imperfections 3:30 PM
Sepideh Dolatshahi, Georgia Institute of Technology; Adam Polak, Dennis Goeckel, University of Massachusetts Amherst

TP1b-2 Full-duplex Wireless Communications Using Off-the-Shelf Radios: Feasibility and First Results 3:55 PM
Melissa Duarte, Ashutosh Sabharwal, Rice University

TP1b-3 Low Complexity Approximate Maximum Throughput Scheduling for LTE 4:20 PM
Stefan Schwarz, Christian Mehlführer, Markus Rupp, Vienna University of Technology

TP1b-4 A Stochastic Association Mechanism for Macro-to-Femtocell Handover 4:45 PM
Carlos H. M. Lima, Kaveh Ghaboosi, Mehdi Bennis, Centre for Wireless Communications, University of Oulu; Allen B. MacKenzie, Virginia Polytechnic Institute and State University; Matti Latva-aho, Centre for Wireless Communications, University of Oulu

Session TP2a MIMO Underwater Acoustic Communications

Chair: *Milica Stojanovic, Northeastern University*

TP2a-1 Precoding in MIMO Underwater Acoustic Communications 1:30 PM
Andrew C. Singer, Erica Daly, Jun Won Choi, University of Illinois; James Preisig, Woods Hole Oceanographic Institution

TP2a-2 Progressive MIMO-OFDM Reception over Time-varying Underwater Acoustic Channels 1:55 PM
Jianzhong Huang, Jie Huang, Shengli Zhou, Peter Willett, University of Connecticut

TP2a-3 Rate Bounds for Underwater Relay Channels using MIMO methods 2:20 PM
Chiranjib Choudhuri, Urbashi Mitra, University of Southern California

TP2a-4 MIMO-OFDM Receiver Design for Channels with Path-Specific Doppler Distortion 2:45 PM
Kai Tu, Tolga M. Duman, Arizona State University; John Proakis, University of California; Milica Stojanovic, Northeastern University

Session TP2b MIMO for Ad Hoc Networks

Chair: *Nihar Jindal, University of Minnesota*

TP2b-1 Transmission Capacity of Multi-antenna Ad Hoc Networks with CSMA 3:30 PM
Jeffrey Andrews, Radha Krishna Ganti, Andrew Hunter, University of Texas at Austin

TP2b-2 MIMO Beamforming with Quantized Feedback in Ad Hoc Networks: Transmission Capacity Analysis 3:55 PM
Matthew McKay, Hong Kong University of Science and Technology

TP2b-3 Optimal SISO and MIMO Spectral Efficiency to Minimize Hidden-Node Network Interference 4:20 PM
Daniel Bliss, Lincoln Labs

TP2b-4 Optimized Multi-Antenna Communication in Ad Hoc Networks with Opportunistic Routing 4:45 PM
Nihar Jindal, Niranjay Ravindran, Peng Wu, Joseph Blomer, University of Minnesota

TP2b-5 The Role of Channel Distribution Information in the Cross-Layer Design of Opportunistic Scheduler for MIMO Networks 5:10 PM
Sheu-Sheu Tan, University of California, San Diego; Adam Anderson, University of South Florida; James R. Zeidler, University of California, San Diego

Session TP3a Non-Stationary Processing of Environments

Chair: *Cornel Ioana, Grenoble Institute of Technology, GIPSA-lab*

TP3a-1 Stable Scatterers Detection and Tracking in Heterogeneous Clutter by Repeat-Pass SAR Interferometry 1:30 PM
Gabriel Vasile, CNRS

TP3a-2 Non-stationary Signal Analysis in Water Pipes Monitoring 1:55 PM
Cornel Ioana, Grenoble INP

TP3a-3 Non-stationary Damage State Estimation in Complex Structures Using Time Delay Embedding 2:20 PM
Clyde Coelho, Subhasish Mohanty, Antonia Papandreou-Suppappola, Aditi Chattopadhyay, Arizona State University

TP3a-4 Estimation of Thermo-hydrodynamic Parameters in Energy Production Systems Using Non-stationary Signal Processing 2:45 PM
Florin Birleanu, GIPSA-lab

Session TP3b Network Information Theory

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

TP3b-1 Opportunistic Interference Alignment effects in Cooperative Broadcast of Multiple-Source 3:30 PM
Saeed Bagheri, University of California, Davis; Shrut Kirti, Cornell University; Anna Scaglione, University of California, Davis

TP3b-2 Study of Throughput and Latency in Finite-buffer Coded Networks 3:55 PM
Nima Torabkhani, Georgia Institute of Technology; Badri Vellambi Ravisankar, University of South Australia; Faramarz Fekri, Georgia Institute of Technology

TP3b-3 Asymptotic Interference Alignment for Network Coding Applications 4:20 PM
Viveck Cadambe, Syed Jafar, Hamed Maleki, University of California, Irvine

TP3b-4 Outage Analysis and Optimization for Block Asynchronous Users 4:45 PM
Amir Khandani, University of Waterloo

Session TP4a Modeling for Biomedical Imaging

Chair: *Scott Acton, University of Virginia*

TP4a-1 Image-based Dynamical Modeling in Developmental Plant Biology 1:30 PM
Amit Roy-Chowdhury, University of California, Riverside

TP4a-2 A 3D Cellular Resolution Gene Expression Atlas for Drosophila Embryogenesis 1:55 PM
David Knowles, LBNL

TP4a-3 Fluorescence Microscopic Imaging and Image Analysis of the Cytoskeleton 2:20 PM
Gerlind Herberich, Thomas Wuerflinger, Antonio Sechi, RWTH Aachen University; Reinhard Windoffer, Rudolf Leube, University Hospital Aachen; Til Aach, RWTH Aachen University

TP4a-4 Point-Spread Function Model for Fluorescence Macroscopy Imaging 2:45 PM
Praveen Pankajakshan, Institut Pasteur; Zvi Kam, Weizmann Institute; Josiane Zérubia, Laure Blanc-Feraud, INRIA; Gilbert Engler, INRA; Alain Dieterlen, Université de Haute-Alsace; Jean-Christophe Olivo-Marin, Institut Pasteur

Session TP4b Adaptive Filters - Theory and Applications

Chair: *José Carlos M. Bermudez, Federal University of Santa Catarina*

TP4b-1 A Stochastic Analysis of the NLMS Algorithm Implemented in Finite Precision 3:30 PM
Neil Bershad, University of California, Irvine; Jose Carlos M. Bermudez, Federal University of Santa Catarina

TP4b-2 Comparison of LMS and NLMS Adaptive Filters with a Non-stationary Input 3:55 PM
Eweda Eweda, Ajman University of Science & Technology

TP4b-3 Steady State Analysis of the Conventional CLMS and Augmented CLMS Algorithms for Noncircular Complex Signals 4:20 PM
Danilo Mandic, Yili Xia, Imperial College; Scott Douglas, Southern Methodist University

TP4b-4 An Alternate View of Nonlinear Adaptive Filters 4:45 PM
Tokunbo Ogunfunmi, Santa Clara University

TP4b-5 Diffusion LMS with Communications Constraints 5:10 PM
Øyvind Lunde Rørtveit, John Håkon Husøy, University of Stavanger; Ali H. Sayed, University of California, Los Angeles

Session TP5a Statistical Signal Processing for Neural Signals

Chair: *Selin Aviyente, Michigan State University*

TP5a-1 Brain Controlled Robotic Platform Using Steady State Visual Evoked Potentials Acquired by EEG 1:30 PM
Saumitra Dasgupta, Michael Fanton, Jonathan Pham, Michael Willard, Bahram Shafai, Deniz Erdogmus, Northeastern University

TP5a-2 Information-Theoretic Approaches to Identifying Parsimonious Causal Network Models of Functional Connectivity in Ensemble Neural Recordings 1:55 PM
Christopher Quinn, Todd Coleman, Negar Kiyavash, University of Illinois at Urbana-Champaign; Nicho Hatsopoulos, University of Chicago

TP5a-3 Multi-block PLS Model for Group Corticomuscular Activity Analysis in Parkinson Disease 2:20 PM
Joyce Chiang, Z. Jane Wang, University of British Columbia; Martin J. McKeown, Pacific Parkinsons Research Centre, University of British Columbia

TP5a-4 Information Theoretic Approach to Quantifying Causal Neural Interactions from EEG 2:45 PM
Ying Liu, Michigan State University; Edward Bernat, Florida State University; Selin Aviyente, Michigan State University

Session TP5b Integrated Multimodal Sensing

Chair: *Muralidhar Rangaswamy, Air Force Research Laboratory*

TP5b-1 Agile Multi-modal Tracking with Dependent Measurements 3:30 PM
Jun Zhang, Arizona State University; Quan Ding, Steven Kay, University of Rhode Island; Antonia Papandreou-Suppappola, Arizona State University; Muralidhar Rangaswamy, Air Force Research Laboratory

TP5b-2 Sensor Integration for Classification 3:55 PM
Steven Kay, Quan Ding, University of Rhode Island; Muralidhar Rangaswamy, Air Force Research Laboratory

TP5b-3 Closed-Loop Tracking Using Multimodal RF/EO Sensors 4:20 PM
Sean O'Rourke, A. Lee Swindlehurst, Center for Pervasive Communications and Computing

TP5b-4 Design and Performance of a Multimodal Radar Test-Bed for Progressive Resolution Enhancement 4:45 PM
Surendra S. Bhat, Ram M. Narayanan, Pennsylvania State University

Session TP6a Computer Arithmetic II

Chair: *N. Burgess, Bristol University*

TP6a-1 Instruction Set Extensions and Hardware Designs for Triple DES Processing on a Multithreaded Software Defined Radio Platform 1:30 PM
Chris Jenkins, University of Wisconsin-Madison; Michael Schulte, AMD Research and Advanced Development Labs; John Glossner, Sandbridge Technologies

TP6a-2 Opportunities for Estimating Arithmetic in Decimation Filters 1:55 PM
Chao Liu, University of Adelaide; Oscar Gustafsson, Linköping University; Brian Ng, Braden Phillips, University of Adelaide

TP6a-3 Computer Arithmetic Implemented with QCA: A Progress Report 2:20 PM
Earl Swartzlander, Jr., University of Texas at Austin; Heumpil Cho, Qualcomm Inc.; Inwook Kong, Samsung; Seong-Wan Kim, University of Texas at Austin

TP6a-4 Overcoming Double-rounding Errors Under IEEE 754-2008 Using Software 2:45 PM
David Lutz, ARM; Neil Burgess, University of Bristol

Session TP6b Computer Arithmetic III

Chair: *A. Tenca, Synopsis*

TP6b-1 Complex Division with an FMA 3:30 PM
Claude-Pierre Jeannerod, INRIA, Universite de Lyon; Nicolas Louvet, Universite Claude Bernard Lyon 1, Universite de Lyon; Jean-Michel Muller Muller, CNRS, Universite de Lyon

TP6b-2 Shaping Probability Density Function of Quantization Noise in Fixed Point Systems 3:55 PM
Karthick Parashar, Daniel Menard, Romuald Rocher, Olivier Sentieys, University of Rennes-1, IRISA/INRIA

TP6b-3 Towards a Highly Efficient Implementation of Sequential Montgomery Multiplication 4:20 PM
Joao Carlos Neto, University of Sao Paulo; Alexandre Tenca, Synopsys, Inc.; Wilson Ruggiero, University of Sao Paulo

TP6b-4 Multi-Operand Decimal Addition by Efficient Reuse of a Binary Carry-Save Adder Tree 4:45 PM
Alvaro Vazquez, INRIA; Elisardo Antelo, University of Santiago de Compostela

TP6b-5 On Equivalences and Fair Comparisons Among Residue Number Systems with Special Moduli 5:10 PM
Behrooz Parhami, University of California, Santa Barbara

Session TP7a Microphone Array Processing for Speech Applications I

Co-Chairs: *Bhiksha Raj, Carnegie Mellon University and John McDonough, Disney Research*

TP7a-1 Sparse Sensing with Coprime Arrays 1:30 PM
P. P. Vaidyanathan, Piya Pal, California Institute of Technology

TP7a-2 A Second-Order-Statistics-based Solution for Online Multichannel Noise Tracking and Reduction 1:55 PM
Mehrez Souden, INRS; Jingdong Chen, Wevoice Inc.; Jacob Benesty, Sofiene Affes, INRS

TP7a-3 Blind Speech Extraction Combining ICA-based Noise Estimation and Less-Musical-Noise Nonlinear Post Processing 2:20 PM
Hiroshi Saruwatari, Yu Takahashi, Kiyohiro Shikano, Nara Institute of Science and Technology; Kazunobu Kondo, Yamaha Corp.

TP7a-4 Maximum Negentropy Beamforming using Complex Generalized Gaussian Distribution Model 2:45 PM
Kenichi Kumatani, Barbara Rauch, Saarland University; John McDonough, Disney Research Pittsburgh; Dietrich Klakow, Saarland University

Session TP7b Microphone Array Processing for Speech Applications II

Co-Chairs: *Bhiksha Raj, Carnegie Mellon University and John McDonough, Disney Research*

TP7b-1 Localization Based on Source Sparsity 3:30 PM
Petros Boufounos, Mitsubishi Electric Research Labs; Bhiksha Raj, Carnegie Mellon University

TP7b-2 Group Delay Based Methods for Recognition of Distant Talking Speech 3:55 PM
Rohan Mandala, Mrityunjaya Shukla, Rajesh Hegde, IIT Kanpur

TP7b-3 Microphone Array Processing for Distance Speech Capture: A Probe Study 4:20 PM
Tao Yu, Chi Zhang, John H.L. Hansen, CRSS: Center for Robust Speech Systems

TP7b-4 A Prototype of Distant-talking Interface for Control of Interactive TV 4:45 PM
Maurizio Omologo, Fondazione Bruno Kessler

TP7b-5 An Acoustic Front-End for Interactive TV Incorporating Multichannel Acoustic Echo Cancellation and Blind Signal Extraction 5:10 PM
Klaus Reindl, Yuanhang Zheng, Anthony Lombard, Andreas Schwarz, Walter Kellermann, University of Erlangen-Nuremberg

Session TP8a1 Low Complexity Implementation and Receiver Issues

Chair: *Raghu Rao, Xilinx*

1:30 PM - 3:10 PM

TP8a1-1 A Low Complexity Square Root MMSE MIMO Decoder
Raghu Rao, Helen Tarn, Raied Mazahreh, Chris Dick, Xilinx, Inc.

TP8a1-2 Low-Complexity Seysen's Algorithm based Lattice Reduction-Aided MIMO Detection for Hardware Implementations
Lukas Bruderer, Christian Senning, Andreas Burg, ETH Zurich

TP8a1-3 Low Complexity PARAFAC Ceceiver for MIMO-OFDMA System in the Presence of Multi-Access Interference
Avik Santra, Hari K.V.S., Indian Institute of Science

TP8a1-4 Adaptive Stream Mapping Multi Antenna Systems with Low Complexity Iterative Detection
Danshan Chen, Alister Burr, University of York

TP8a1-5 A Unified Receiver for MIMO Communication With Imperfect Channel Knowledge
Meriam Rezk, Benjamin Friedlander, University of California, Santa Cruz

TP8a1-6 Performance of a MIMO Receiver Using Joint Channel-Symbol Estimation in the Presence of Channel Errors
Meriam Rezk, Benjamin Friedlander, University of California, Santa Cruz

TP8a1-7 Design of High Performance MIMO Receivers for LTE/LTE-A Uplink
Meilong Jiang, Narayan Prasad, NEC Labs America, Inc.; Xiaodong Wang, Columbia University

TP8a1-8 Generalized Spatial Modulation
Abdelhamid Younis, University of Edinburgh; Raed Mesleh, Jacobs University Bremen; Harald Haas, University of Edinburgh

TP8a1-9 Decision Directed Channel Estimation for Reducing Pilot Overhead in LTE-A
Johanna Ketonen, Markku Juntti, University of Oulu; Jari Ylioinas, Nokia Siemens Networks

TP8a1-10 A Novel Structure for MMSE Transceivers over Slowly Time-varying Channels
Chih-Hao Liu, P. P. Vaidyanathan, California Institute of Technology

TP8a1-11 Transmission Techniques and User Selection Schemes for Maximizing Throughput in Multiuser MIMO Systems
Anh Nguyen, Bhaskar D. Rao, University of California, San Diego

TP8a1-12 Multi-User Beamforming and User Pairing For WiMAX
Thomas Svantesson, Pengcheng Zhan, Gokhan Korkmaz, ArrayComm, LLC

Session TP8a2 Detection & Estimation in Networks

Chair: *John Walsh, Drexel University*

1:30 PM - 3:10 PM

TP8a2-1 Delay Constrained Detection in Wireless Sensor Networks
Srikanth Hariharan, Ohio State University; Leonardo Bachega, Purdue University; Ness Shroff, Ohio State University; Charles Bouman, Purdue University

TP8a2-2 Malicious Node Detection via Physical Layer Data
Tyler Hardy, Richard Martin, Ryan Thomas, Air Force Institute of Technology

TP8a2-3 Secure Distributed Detection in the Presence of Eavesdroppers
V Sriram Siddhardh (Sid) Nadendla, Hao Chen, Pramod K Varshney, Syracuse University

TP8a2-4 Coding Perspectives for Collaborative Estimation Over Networks
Sivagnanasundaram Ramanan, John Walsh, Drexel University

TP8a2-5 Distributed State and Field Estimation Using a Particle Filter
Florian Xaver, Christoph Mecklenbräuker, Vienna University of Technology; Peter Gerstoft, University of California, San Diego; Gerald Matz, Vienna University of Technology

TP8a2-6 Detection and Tracking with a Wireless Magnetic Sensor Network
Mehmet Akif Antepli, Middle East Technical University; Sevgi Zubeyde Gurbuz, TUBITAK Space Technologies Research Institute; Elif Uysal-Biyikoglu, Middle East Technical University

TP8a2-7 Distributed Gauss-Newton Method for Localization in Ad-hoc Networks
Benjamín Béjar Haro, Pavle Belanovic, Santiago Zazo Bello, Universidad Politécnica de Madrid

TP8a2-8 Multitarget Tracking with the Cubature Kalman Probability Hypothesis Density Filter
Davide Macagnano, Giuseppe Thadeu Freitas de Abreu, Centre for Wireless Communications, University of Oulu

Session TP8a3 Techniques in Networking and Communications

Chair: *A. Lee Swindlehurst, University of California, Irvine*

1:30 PM - 3:10 PM

TP8a3-1 Optimal MISO Pre-Equalization for Filter Bank Based Multicarrier Systems
Marius Caus, Ana Isabel Pérez-Neira, Technical University of Catalonia (UPC)

TP8a3-2 Mean Shift Based Segmentation for Time Frequency Analysis of Packet Based Radio Signals
Goran Ivković, Predrag Spasojević, Ivan Šeškar, Rutgers University

TP8a3-3 An AOA Estimator for Multiple GPS Signals Using a Modified Despreader
Suk-seung Hwang, Chosun University; John Shynk, University of California, Santa Barbara

TP8a3-4 Distributed Source Coding in Large Wireless Sensor Networks
Joan Enric Barcelo Llado, Antoni Morell Pérez, Gonzalo Seco Granados, Universitat Autonoma de Barcelona

TP8a3-5 An Active Distributed Approach for Cyber Attack Detection
Hoa Nguyen, Sandeep Gutta, Qi Cheng, Oklahoma State University

TP8a3-6 Distributed Signature Learning and Calibration for Large-Scale Sensor Networks
Naveen Ramakrishnan, Emre Ertin, Randolph Moses, Ohio State University

Session TP8b1 Scheduling, Relaying and Routing

Chair: *Phil Schniter, Ohio State University*

3:30 PM - 5:10 PM

TP8b1-1 Admission Control Based Joint Bandwidth and Power Allocation in Multi-User DF Relay Networks
Xiaowen Gong, Sergiy Vorobyov, Chintha Tellambura, University of Alberta

TP8b1-2 Broadcast-Relay-Broadcast Channels
Liang Chen, University of Maryland

TP8b1-3 Opportunistic Scheduling Using ARQ feedback in Multi-Cell Downlink
Sugumar Murugesan, Philip Schniter, Ness Shroff, Ohio State University

TP8b1-4 Routing Policy-dependent Hop Count Distribution in Wireless Ad Hoc Networks
Golaleh Rahmatollahi, Leibniz University of Hannover; Giuseppe Abreu, University of Oulu

TP8b1-5 Polar Codes for Compress-and-Forward in Binary Relay Channels
Ricardo Blasco-Serrano, Ragnar Thobaben, Vishwambhar Rathi, Mikael Skoglund, Royal Institute of Technology

Session TP8b2 Statistical and Adaptive Signal Processing

Chair: *Victor DeBrunner, Florida State University*

3:30 PM - 5:10 PM

TP8b2-1 CDF Resampling for Dataset Expansion in Gaussian Mixture Models Density Estimation
Alessio Medda, The Henry M. Jackson Foundation for the Advancement of Military Medicine, USAARL; Victor DeBrunner, Florida State University

TP8b2-2 Time Reversal Beamforming of Guided Waves in Pipes with a Single Defect
Nicholas O'Donoughue, Joel Harley, Jose' M.F. Moura, Carnegie Mellon University

TP8b2-3 On the Predictability of Phase Noise Modeled as Flicker FM Plus White FM
Siamak Yousefi, Joakim Jalden, Royal Institute of Technology

TP8b2-4 Detection of Circular and Noncircular Signals in the Presence of Circular White Gaussian Noise
Xi-Lin Li, Tulay Adali, Matthew Anderson, University of Maryland, Baltimore County

TP8b2-5 Statistical Spectral Analysis of Random Gramian Matrices
Davide Macagnano, Giuseppe Thadeu Freitas de Abreu, Centre for Wireless Communications, University of Oulu

TP8b2-6 High-speed Nano-imaging Using Dynamic Mode AFM: A MAP Detection Approach
Naveen Kumar, Iowa State University; Govind Saraswat, Pranav Agarwal, University of Minnesota; Aditya Ramamoorthy, Iowa State University; Murti Salapaka, University of Minnesota

TP8b2-7 A Modified Total Variation Approach for Single Frequency Inverse Scattering
Hatim Alqadah, University of Cincinnati; Matthew Ferrara, Air Force Research Laboratory; Howard Fan, University of Cincinnati

TP8b2-8 A New Method for Moving-Average Parameter Estimation
Petre Stoica, Uppsala University; Lin Du, Jian Li, University of Florida; Tryphon Georgiou, University of Minnesota

TP8b2-9 Clutter Covariance Matrices for GMTI MIMO Radar
Joshua Kantor, Dan Bliss, MIT Lincoln Laboratory

TP8b2-10 Asymptotic Efficiency of Distributed Estimation from Constant Modulus Sensor Transmissions
Cihan Tepedelenlioglu, Mahesh Banavar, Andreas Spanias, Arizona State University

TP8b2-11 Superfast Algorithm for Minimum Variance (Capon) Spectral Estimation
Larry Marple, Georgia Tech Research Institute; Majid Adeli, Huaping Liu, Oregon State University

TP8b2-12 Equidistributed Sampling Sequences for Spectral Analysis
Mustafa Al-Ani, Andrzej Tarczynski, University of Westminster

TP8b2-13 An Online Method for Time-varying Spatial Spectrum Estimation Using a Towed Acoustic Array
Jeffrey Rogers, Jeffrey Krolik, Duke University

TP8b2-14 Sample Covariance Based Estimation of Capon Algorithm Error Probabilities
Christ Richmond, MIT Lincoln Laboratory; Ramis Movassagh, Alan Edelman, Massachusetts Institute of Technology; Robert Geddes, MIT Lincoln Laboratory

TP8b2-15 An Optimal Spatio-Temporal Filter for Extraction and Enhancement of Multi-Channel Periodic Signals
Jesper Rindom Jensen, Mads Græsbøll Christensen, Søren Holdt Jensen, Aalborg University

TP8b2-16 A Closed Form for False Location Injection under Time Difference of Arrival
Lauren Huie, Air Force Research Laboratory; Mark Fowler, State University of New York at Binghamton

Session TP8b3 Biomedical Signals and Images

Chair: *Murray Loew, The George Washington University*

3:30 PM - 5:10 PM

TP8b3-1 Prediction of Biologically Active Regions in Protein Sequences via Best Basis Selection
Ravi Narasimhan, Applied Micro Circuits Corporation

TP8b3-2 Combination of a FIR Filter with a Genetic Algorithm for the Extraction of a Fetal ECG
Mohamed Amine Guettouche, Malika Kedir, Assya Bousbia-Salah, University of Sciences and Technology Houari Boumediene (USTHB)

TP8b3-3 Modeling of the Beat of a Cardiac Signal by Gaussians
Malika Kedir, Hafid Hariz, Saliha Ould-Slimane, University of Sciences and Technology Houari Boumediene (USTHB)

TP8b3-4 Optimal Estimation in DNA Microarrays via Global Optimization
Sang Hyun Lee, Manohar Shamaiah, Haris Vikalo, University of Texas at Austin

TP8b3-5 Design and Implementation of a Long Range Iris Recognition System
Justin De Villar, Robert Ives, James Matey, US Naval Academy

TP8b3-6 Using an FPGA to Accelerate the Hough Transform in Iris Recognition
Jennifer Shafer, Hau Ngo, Robert Ives, United States Naval Academy

Session WA1a Cooperative Communications

Chair: *Xiaoli Ma, Georgia Institute of Technology*

WA1a-1 Robust Collaborative Spectrum Sensing in Cognitive Radio 8:15 AM
Huaiyu Dai, Chengzhi Li, North Carolina State University

WA1a-2 Performance Analysis of AF/DF Beamforming Relay Networks with Multiple Relay Antennas 8:40 AM
Hyunjun Kim, Cihan Tepedelenlioglu, Arizona State University

WA1a-3 Achieving Joint Diversity in MIMO Relay Networks with Low-Complexity Equalizers 9:05 AM
Giwan Choi, Georgia Institute of Technology; Wei Zhang, Qualcomm Inc.; Xiaoli Ma, Georgia Institute of Technology

WA1a-4 Hybrid Relay Selection in Heterogenous Relay Networks 9:30 AM
Mohamed Abouelseoud, Aria Nosratinia, University of Texas at Dallas

Session WA1b Communication Theory

Chair: *Visa Koivunen, Aalto University*

WA1b-1 Equivocation of Eve Using Two Edge Type LDPC Codes for the Erasure Wiretap Channel 10:15 AM
Vishwambhar Rathi, Mattias Andersson, Ragnar Thobaben, Royal Institute of Technology (KTH); Joerg Kliewer, New Mexico State University; Mikael Skoglund, Royal Institute of Technology (KTH)

WA1b-2 Achievable Rates in Two-user Interference Channels with Finite Inputs and (Very) Strong Interference 10:40 AM
Frederic Knabe, Aydin Sezgin, Ulm University

WA1b-3 On the Optimality of Channel Inversion with Diversity 11:05 AM
Yuan Zhang, Cihan Tepedelenlioglu, Arizona State University

WA1b-4 Outage Analysis for Hybrid Relaying in the Parallel Relay Network 11:30 AM
Samantha Summerson, Behnaam Aazhang, Rice University

Session WA2a Interference Management I

Chair: *Eduard Jorswieck, Technische Universität Dresden*

WA2a-1 Randomized On-Off Signaling for Asynchronous Interference Channels 8:15 AM
Kamyar Moshksar, Amir Khandani, University of Waterloo

WA2a-2 Learning Based Mechanisms for Interference Mitigation in Self-Organized Femtocell Networks 8:40 AM
Mohsin Nazir, Mehdi Bennis, Kaveh Ghaboosi, Centre for Wireless Communications, University of Oulu; Allen B. MacKenzie, Virginia Polytechnic Institute and State University; Matti Latva-aho, Centre for Wireless Communications, University of Oulu

WA2a-3 Spectrum Allocation and Power Control in OFDM-Based Cognitive Radios with Target SINR Constraints 9:05 AM
Dimitrie C. Popescu, Deepak R. Joshi, Old Dominion University; Octavia A. Dobre, Memorial University of Newfoundland

WA2a-4 Weighted Sum-Rate Maximization for a Set of Interfering Links via Branch and Bound 9:30 AM
Chathuranga Weeraddana, Marian Codreanu, Matti Latva-aho, University of Oulu; Anthony Ephremides, University of Maryland

Session WA2b Interference Management II

Chair: *Anna Scaglione, University of California at Davis*

WA2b-1 A Study on the Optimal Degrees-of-Freedom of Cellular Networks: Opportunistic Interference mitigation 10:15 AM
Bang Chul Jung, Gyeongsang National University; Dohyung Park, Samsung Electronics Co., Ltd.; Won-Yong Shin, Harvard University

WA2b-2 Transport Capacity for Networks of Interfering Multiple-Access Channels 10:40 AM
Christian Peel, Pengcheng Zhan, ArrayComm, LLC

WA2b-3 Interference Management through Mobile Relays in Ad Hoc Networks 11:05 AM
Rohit Naini, Pierre Moulin, University of Illinois at Urbana-Champaign

WA2b-4 Interference Alignment Through Staggered Antenna Switching for MIMO BC With No CSIT 11:30 AM
Chenwei Wang, Tiangao Gou, Syed Jafar, University of California, Irvine

Session WA3a Sensor Networks

Chair: *Milica Stojanovic, Massachusetts Institute of Technology*

WA3a-1 Sensor Scheduling for Energy-Efficient Target Tracking in Sensor Networks — 8:15 AM
George Atia, Jason Fuemmeler, Venugopal Veeravalli, University of Illinois at Urbana-Champaign

WA3a-2 Clustered Ad-Hoc Networks in the Presence of Interference — 8:40 AM
Andrej Stefanov, Milica Stojanovic, Northeastern University

WA3a-3 Maximizing Lifetime in Wireless Sensor Networks Under Opportunistic Routing — 9:05 AM
Michal Kaliszan, Slawomir Stanczak, Fraunhofer German-Sino Lab for Mobile Communications

WA3a-4 Distributed Averaging in Wireless Sensor Networks Under an ALOHA-like Communication Protocol — 9:30 AM
Valentin Schwarz, Gerald Matz, Vienna University of Technology

Session WA3b Multiuser Beamforming and Interference Channels

Chair: *Dan Bliss, MIT Lincoln Labs*

WA3b-1 A Robust and Efficient Transmission Technique for the LTE Downlink — 10:15 AM
Gerhard Wunder, Jan Schreck, Fraunhofer MCI, Heinrich-Hertz-Institut

WA3b-2 Robust Transceiver Design for K-Pairs Quasi-Static MIMO Interference Channels via Semi-Definite Relaxation — 10:40 AM
Eddy Chiu, Vincent K. N. Lau, Hong Kong University of Science and Technology; Tao Wu, Sheng Liu, Huawei Technologies, Co. Ltd.

WA3b-3 MIMO Interference Channel with Confidential Messages: Game Theoretic Beamforming Designs — 11:05 AM
Ali Fakoorian, A. Lee Swindlehurst, University of California, Irvine

WA3b-4 On Duality in the MISO Interference Channel — 11:30 AM
Francesco Negro, Eurecom; Irfan Ghauri, Infineon France; Dirk Slock, Eurecom

Session WA4 Advances on Adaptive Filtering and Applications

Co-Chairs: *Jerónimo Arenas-García, Universidad Carlos III de Madrid and Magno Teofilo Madeira da Silva, University of Sao Paulo*

WA4-1 Nonlinear Adaptive Filtering via Soft Clustered Linear Models — 8:15 AM
Andrew C. Singer, Kyeongyeon Kim, Jun Won Choi, University of Illinois; Suleyman Serdar Kozat, Koc University

WA4-2 Sparsity-Cognizant Subspace Tracking for Dimensionality Reduction — 8:40 AM
Ioannis Schizas, Georgios B. Giannakis, University of Minnesota

WA4-3 Bacterial Motility via Diffusion Adaptation — 9:05 AM
Jianshu Chen, Xiaochuan Zhao, Ali H. Sayed, University of California, Los Angeles

WA4-4 Adaptive Reduced-Rank Beamforming Constrained Least Squares Algorithm Based on the Set-Membership Framework — 9:30 AM
Lei Wang, Rodrigo C. de Lamare, The University of York

BREAK — 9:55 AM

WA4-5 Advances in Identification and Compensation of Nonlinear Systems by Adaptive Volterra Models — 10:15 AM
Marcus Zeller, Walter Kellermann, University of Erlangen-Nuremberg

WA4-6 Adaptive Pre-distortion Techniques Based on Orthogonal Polynomials — 10:40 AM
Robert Dallinger, Vienna University of Technology; Henri Ruotsalainen, Risto Wichman, Aalto University School of Science and Technology; Markus Rupp, Vienna University of Technology

WA4-7 PtNLMS Algorithm Obtained by Minimization of Mean Square Error Modeled by Exponential Functions — 11:05 AM
Kevin Wagner, Naval Research Laboratory; Miloš Doroslovački, The George Washington University

WA4-8 Iterative State Estimation — 11:30 AM
Thomas J. Riedl, Andrew C. Singer, University of Illinois at Urbana-Champaign

Session WA5 Statistical Signal Processing

Chair: *Daniel Fuhrmann, Michigan Technological University*

WA5-1 Biologically Inspired Coupled Antenna Array for Direction of Arrival Estimation — 8:15 AM
Murat Akcakaya, Washington University in St. Louis; Carlos H. Muravchik, Universidad Nacional de La Plata; Arye Nehorai, Washington University in St. Louis

WA5-2 Exploiting a Constellation of Narrowband RF Sensors to Detect and Track Moving Targets 8:40 AM
Chris Kreucher, Integrity Applications Incorporated; J. Webster Stayman, Johns Hopkins University; Ben Shapo, Integrity Applications Incorporated; Mark Stuff, Michigan Tech Research Institute

WA5-3 On the Use of Mismatched Wiener Filtering for the Characterization of Non-stationary Channels 9:05 AM
Adrian Ispas, RWTH Aachen University; Laura Bernadó, Telecommunications Research Center Vienna; Meik Dörpinghaus, Gerd Ascheid, RWTH Aachen University; Thomas Zemen, Telecommunications Research Center Vienna

WA5-4 A Lower Bound on the Estimator Variance for the Sparse Linear Model 9:30 AM
Sebastian Schmutzhard, University of Vienna; Alexander Jung, Franz Hlawatsch, Vienna University of Technology; Zvika Ben-Haim, Yonina C. Eldar, Technion - Israel Institute of Technology

BREAK 9:55 AM

WA5-5 Knowledge-aided Parametric GLRT for Space-Time Adaptive Processing 10:15 AM
Pu Wang, Hongbin Li, Stevens Institute of Technology; Braham Himed, Air Force Research Laboratory

WA5-6 Joint Estimation of Target Reflectivity and Local Oscillator Phases in a MIMO Radar Systems with Distributed Assets 10:40 AM
Changyu Sun, Daniel Fuhrmann, Michigan Technological University

WA5-7 Comparison of Nonparametric and Parametric Time-Varying Methods for Quantifying Phase Synchrony 11:05 AM
Ali Mutlu, Selin Aviyente, Michigan State University

WA5-8 Maximum-Likelihood and Best Invariant Orientation Estimation 11:30 AM
Ian Clarkson, University of Queensland; Stephen Howard, Defence Science & Technology Organisation; William Moran, University of Melbourne; Douglas Cochran, Arizona State University; Megan Dawson, University of Queensland

Session WA6a Estimation and Detection

Chair: *Cihan Tepedelenlioglu, Arizona State University*

WA6a-1 Joint Map Estimation and Localization using Distance Measurements to Landmarks with Unknown Location 8:15 AM
Andreas Richter, Aalto University

WA6a-2 Distributed Detection over Gaussian Multiple Access Channels with Constant Modulus Signaling 8:40 AM
Cihan Tepedelenlioglu, Sivaraman Dasarathan, Arizona State University

WA6a-3 Matching Pursuits May Yield Superior Results to Orthogonal Matching Pursuits When Secondary Information is Estimated From the Signal Model 9:05 AM
Guifeng (Rick) Liu, Victor DeBrunner, Florida State University

WA6a-4 Adaptive Sensing and Target Tracking of a Simple Point Target with Online Measurement Selection 9:30 AM
Aashish Poudel, Daniel Fuhrmann, Michigan Technological University

Session WA6b SOC Architectures and Applications

Chair: *E. Deprettere, Leiden University*

WA6b-1 PREcision Timed (PRET) Machine 10:15 AM
Isaac Liu, Edward A. Lee, University of California, Berkeley

WA6b-2 Time-predictable Chip-Multiprocessor Design 10:40 AM
Martin Schoebrl, Technical University of Denmark

WA6b-3 Design and Implementation of Real-time Signal Processing Applications on Heterogeneous Multiprocessor Arrays 11:05 AM
Hsiang-Huang Wu, Chung-Ching Shen, University of Maryland; Michael Schulte, AMD Research and Advanced Development Labs; Tong Zhang, Rensselaer Polytechnical Institute; Shuvra Bhattacharyya, University of Maryland

WA6b-4 Buildings as Cyber-physical Energy Systems 11:30 AM
Yuvraj Agarwal, Thomas Weng, Rajesh Gupta, University of California, San Diego

Session WA7a Sparse Representations in Image Processing

Chair: *Shubha Kadambe, Rockwell Collins*

WA7a-1 Compressive Sensing and Vector Quantization Based Image Compression 8:15 AM
Shubha Kadambe, Rockwell Collins Inc.

WA7a-2 Image Sequence Change Detection via Sparse Representations 8:40 AM
Andrew Lingg, Wright State University; Edmund Zelnio, Air Force Research Laboratory; Frederick Garber, Brian Rigling, Wright State University

WA7a-3 Parameterized Deformation Sparse Coding via Tree-Structured Parameter Search 9:05 AM
Brandon Burdge, Kenneth Kreutz-Delgado, Joseph Murray, University of California, San Diego

WA7a-4 A Unified FOCUSS Framework for Learning Sparse Dictionaries and Non-squared Error 9:30 AM
Brandon Burdge, Kenneth Kreutz-Delgado, Joseph Murray, University of California, San Diego

Session WA7b MIMO Radar

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

WA7b-1 High Resolution Parameter Estimation for Ultra-Wideband MIMO Radar 10:15 AM
Jussi Salmi, Aalto University; Seun Sangodoyin, Andreas Molisch, University of Southern California

WA7b-2 Quadrature Slow-Time MIMO Radar with Experimental Results 10:40 AM
Jason Yu, Jeffrey Krolik, Duke University

WA7b-3 The Applicability of GMTI MIMO Radar 11:05 AM
Michael Zatman, QinetiQ North America

WA7b-4 MIMO-VSAR: A High Resolution Radar System for Imaging Moving Scenes 11:30 AM
Benjamin Friedlander, University of California, San Diego

Author List

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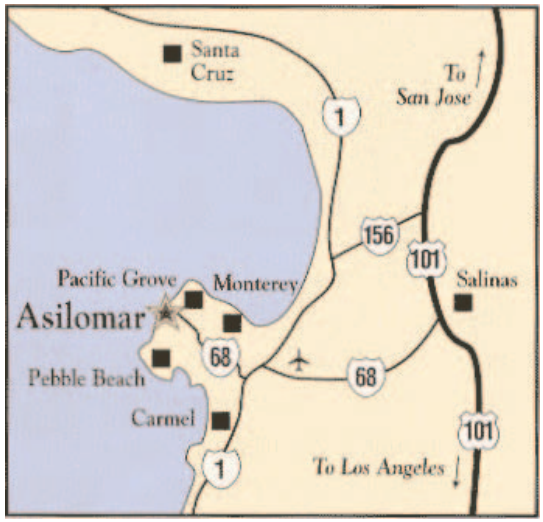
Santa Cruz
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Pebble Beach
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