Fortieth Asilomar Conference on Signals, Systems and Computers

October 29 - November 1, 2006
Asilomar Hotel and
Conference Grounds

In Cooperation with

IEEE
Signal Processing Society ®

FORTIETH
ASILOMAR CONFERENCE ON
SIGNALS, SYSTEMS & COMPUTERS

Organized in cooperation with

NAVAL POSTGRADUATE SCHOOL
Monterey, California

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and

IEEE SIGNAL PROCESSING SOCIETY

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Welcome from the General Chairman

Prof. Scott Acton, University of Virginia

Happy Birthday Asilomar! The Asilomar Conference on Signals, Systems and Computers is 40. The Asilomar Conference stands in stark contrast to its peer conferences in communications and signal processing. I cherish the relaxed atmosphere, the kitschy cabins on the striking Pacific coast, the family-style meals, and the high-quality interaction of the workshop-like sessions.

The Sydney Parker Memorial Lecture will be given by Professor Kim Mish, Presidential Professor of Structural Engineering at the University of Oklahoma. Dr. Mish will answer the question of "Why Structural Health Monitoring Needs Signal Processing Researchers." After meeting Kim at Mickey Mantle's Steakhouse (no kidding), I am confident that his talk will be both stimulating and challenging.

The conference includes a student paper contest that highlights the finalists who will present posters on Sunday evening. I hope that Asilomar will always be an inviting place for aspiring graduate students making their first conference presentations.

This year's technical program features exciting advances in traditional and MIMO communication systems, networking, adaptive systems, array processing, biomedical signal and image processing, multi-rate processing, architectures, hardware implementation, and speech, image and video processing. The person who made this exciting program possible is Dr. Victor DeBrunner, Professor and Chair of ECE at Florida State University. Please join me in thanking Victor for his effort to make this a memorable, high quality conference. Victor recruited top-rate technical area chairs who, without exception, recruited session chairs and invited papers from the world's top researchers in the area. Victor did a wonderful job of managing the 558 submitted papers (including 211 invited papers) and creating this year's set of extraordinary sessions.

I would also like to thank the remainder of the Conference Committee, the Steering Committee and the Technical Area Chairs. Special thanks go to Dr. Monique Fargues, who knows all things Asilomar, and to Sue Netzorg, who has been the administrative force behind the program and the registration process for a number of years.

Enjoy Asilomar.

Scott Acton, University of Virginia, July 2006

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2006 Asilomar Conference Session Schedule

Sunday Afternoon, October 29

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

Monday Morning, October 30

7:30 - 9:00 AM	Breakfast – Crocker Dining Hall
8:00 AM - 6:00 PM	Registration
8:15 - 9:45 AM	MA1a – Conference Opening and Plenary Session
9:45 - 10:15 AM	Coffee Social

10:15 - 12:00 PM MORNING SESSIONS

MA1b	Capacity of Ad Hoc Networks
MA2b	MIMO Radar
MA3b	Temporal Analysis and Mining in Multimedia
MA4b	Advances in Medical Imaging
MA5b	DSP Architectures and Implementations
MA6b	MIMO Ad Hoc Networks
MA7b	Adaptive Systems for Communications

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

Monday Afternoon, October 30

1:30 - 5:10 PM AFTERNOON SESSIONS

MP1a	Functional Imaging
MP1b	Advanced Optical Techniques for Biology
MP2	Multi-user Information Theory
MP3	Adaptive Filters
MP4	Sensor Networks
MP5	Computer Arithmetic
MP6	Multi-user MIMO Methods
MP7	Image and Video Processing
MP8a1	Performance Analysis for Communications (Poster)
MP8a2	Statistical Signal Processing and Applications I (Poster)
MP8b1	Biometrics and Security in Image Processing (Poster)
MP8b2	Wireless Networks (Poster)

Monday Evening, October 30

6:30 - 9:30 PM Conference Cocktail/Social – Merrill Hall
The Cocktail/Social takes the place of Monday's dinner. No charge for conference attendees or their guest.

2006 Asilomar Conference Session Schedule
(continued)

Tuesday Morning, October 31

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

8:30 AM - 12:10 PM MORNING SESSIONS
TA1 Active Sensing and Waveform Diversity
TA2 MIMO Scheduling
TA3 Computer-aided Diagnosis
TA4 Applications of Multirate DSP
TA5 VLSI Digital Signal Processing
TA6 MIMO Channel Modeling
TA7 Models for Image and Video Processing
TA8a1 Adaptive Systems and Algorithms (Poster)
TA8a2 Video Coding and Analysis (Poster)
TA8a3 Speech and Audio Processing (Poster)
TA8b1 DSP Applications and Systems (Poster)
TA8b2 Statistical Signal Processing and Applications II (Poster)
TA8b3 Space-Time Coding (Poster)

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

Tuesday Afternoon, October 31

1:30 - 5:10 PM AFTERNOON SESSIONS
TP1 Topics in Speech Processing for Next Generation Systems
TP2 Resource Allocation in Networks
TP3a Sparse Adaptive Systems
TP3b Blind Source Separation
TP4 Detection and Estimation
TP5 Integrated Algorithms and Architectures
TP6 MIMO Systems with Limited Feedback
TP7a Advanced Beamforming in Medical Imaging
TP7b Remote Sensing
TP8a1 MIMO Systems (Poster)
TP8a2 Numerical Processing (Poster)
TP8b1 OFDM (Poster)
TP8b2 Biomedical Applications (Poster)

Tuesday Evening, October 31

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

2006 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 1

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

8:30 AM - 12:10 PM MORNING SESSIONS

WA1a	Geospatial Image Processing
WA1b	Super-resolution Image and Video Enhancement
WA2a	Distributed Optimization in Wireless Communications
WA2b	Emerging Applications of Communication Theory
WA3a	Clinical and Pharmaceutical Imaging
WA3b	Biomedical Signal and Image Processing
WA4	Nonlinear Filtering and Target Tracking
WA5a	Reconfigurable Computing
WA5b	Low Power Techniques
WA6	MIMO Equalization
WA7a	Audio Coding and Processing
WA7b	Wireless Networks
WA8a1	Coding, Decoding, and Receiver Design (Poster)
WA8a2	Array Signal Processing (Poster)

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

Poster session Sunday, October 29, in Merrill Hall. Setup begins at 4:00PM. Judging begins at 5:00PM. Posters remain for the duration of the Welcoming Reception.

Category A – Communications Systems and Networking
"Joint Design and Separation Principle for Opportunistic Spectrum Access"
Yunxia Chen, University of California, Davis; Qing Zhao, University of California, Davis; Ananthram Swami, Army Research Laboratory

Category B – Adaptive Systems and Processing
"Steady-State Performance Comparison of Bayesian and Standard Adaptive Filtering"
Tayeb Sadiki, Dirk T. M. Slock, Eurocom Institute, Sophia Antipolis, France

Category C – Array Processing and Statistical Signal Processing
"Topology for Global Average Consensus"
Soummya Kar, Carnegie Mellon University; Jose Moura, Carnegie Mellon University

Category D – Biomedical Signal and Image Processing
"Particle Filter Tracking of Multiple Rolling Leukocytes in Vivo"
Jing Cui, University of Virginia; Scott Acton, University of Virginia; Zongli Lin, University of Virginia

Category F – Architecture and Implementation
"Real-Time Processing of Ultrasound Images with Speckle Reducing Anisotropic Diffusion"
Wenqian Wu, University of Virginia; Scott Acton, University of Virginia; John Lach, University of Virginia

Category G – Speech, Video and Audio Processing
"Video Modeling via Spatio-Temporal Adaptive Localized Learning (STALL)"
Yunfei Zheng, West Virginia University; Xin Li, West Virginia University

2006 Asilomar Conference Session Schedule

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

Monday, October 30

CONFERENCE OPENING AND PLENARY SESSION 8:30 – 9:45 AM

1. Welcome from the General Chairperson:

Prof. Scott Acton
University of Virginia

2. Session MA1a Sidney Parker Memorial Lecture for the 2006 Asilomar Conference

Kyran Daniel John Mish
Presidential Professor of Structural Engineering
Director, Fears Structural Engineering Laboratory
School of Civil Engineering and Environmental Science
The University of Oklahoma
Phone: (405) 325-1010
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Why Structural Health Monitoring Needs Signal Processing Researchers

Abstract
Structural health monitoring has become one of the most important research venues in the engineering profession. The need to evaluate the current health of critical structures, including levees, pipelines, dams, tunnels and high-rise buildings, is a capability that is essential for timely societal response to extreme events such as earthquakes, hurricanes, tornados, or terrorist attacks. Much of the current research in structural health monitoring is based on classical structural dynamics techniques, which serve to limit the applicability of the monitoring effort to relatively low levels of damage. These constraints are in substantial part due to the nature of how structural engineers idealize mechanical systems,

including serious oversimplifications on the nature of transient response. Electrical engineering curricula stress an understanding of systems analysis and transient response that is often much more relevant towards understanding the dynamic response of large structures. Hence the field of electrical engineering offers great advantages for advancing the state of the art of structural health monitoring in areas ranging from sensor design to signal processing, and electrical engineering sensibilities are essential for successful research efforts in this all-important engineering field.

Biography

Kyran (Kim) Mish received his B.S. in Mathematics, his M.S. in Structural Mechanics, and his Ph.D. in Computational Mechanics, all from the University of California, Davis, in 1981, 1985, and 1987, respectively. He is currently a Presidential Professor of Structural Engineering and Director of the Fears Structural Engineering Laboratory at the University of Oklahoma, where he does work in structural mechanics and computational engineering. He has a productive history in engineering practice, including service as a faculty member at the University of California at Davis, professional practice as a bridge engineer in California, and management experience as the founding director of the Center for Computational Engineering at Lawrence Livermore National Laboratory. His current research efforts are in earthquake engineering and national security venues.

Program of 2006
Asilomar Conference
on
Signals, Systems, and Computers

Technical Program Chairman
Victor DeBrunner
Florida State University

Session MA1b Capacity of Ad Hoc Networks

Chair: *Jeff Andrews*

MA1b-1 Regularity, Interference, and Capacity of Large Ad Hoc Networks — 10:15 AM
Martin Haenggi, Radha Krishna Ganti, University of Notre Dame

MA1b-2 On the link Ergodic Capacity of MIMO MANETs using Cooperation — 10:40 AM
Renato Moraes, Federal University of Santa Catarina; Hamid Sadjadpour, J. J. Garcia-Luna-Aceves, University of California, Santa Cruz

MA1b-3 Transmission capacity of wireless ad hoc networks with channel variations — 11:05 AM
Steven Weber, Drexel University; Jeffrey Andrews, University of Texas at Austin

MA1b-4 Two-Scale Wireless Networks — 11:30 AM
Radhika Gowaikar, Babak Hassibi, California Institute of Technology

MA1b-5 Loss and Jitter in Communication Networks - An Information Theoretic Perspective — 11:55 AM
Syed Jafar, University of California, Irvine

Session MA2b MIMO Radar

Chair: *Jian Li*

MA2b-1 Coherent Multiple-Input Multiple-Output Radar with Transmit and Receive Adaptivity — 10:15 AM
Frank C. Robey, Scott Coutts, Massachusetts Institute of Technology Lincoln Laboratory

MA2b-2 High Resolution Capabilities of MIMO-Radar — 10:33 AM
Nikolaus Lehmann, Alexander Haimovich, New Jersey Institute of Technology; Rick Blum, Lehigh University; Len Cimini, University of Delaware

MA2b-3 On Probing Pulse Design for MIMO Radar — 10:51 AM
Jian Li, University of Florida; Petre Stoica, Uppsala University; Yao Xie, University of Florida

MA2b-4 MIMO Radar Ambiguity Functions — 11:09 AM
Geoffrey San Antonio, Daniel Fuhrmann, Washington University in St. Louis

MA2b-5 Combined Generalized Likelihood Ratio Processing Method for Multistatic Radar Systems — 11:27 AM
Amin G. Jaffer, Bruce W. Evans, Raytheon Space and Airborne Systems; Peter Zulch, Air Force Research Laboratory; Muralidhar Rangaswamy, USAF AFRL

MA2b-6 Beamforming issues in modern MIMO Radars with Doppler — 11:45 AM
Chun-Yang Chen, P. P. Vaidyanathan, California Institute Of Technology

Session MA3b Temporal Analysis and Mining in Multimedia

Chair: *Lexing Xie*

MA3b-1	Multicue segmentation of spoken conversations *S. Basu, S. Gupta, Microsoft Research*	10:15 AM
MA3b-2	Modeling speech dynamics with probabilistic graphical models *M. Reyes-Gomez, N. Jojic, Microsoft Research; D. Ellis, Columbia University*	10:40 AM
MA3b-3	Guided multimedia pattern mining *Lexing Xie, Shahram Ebadollahi, IBM Research*	11:05 AM
MA3b-4	The Computational Extraction of Spatio-Temporal Phrasing Structures in Solo Multimodal Dance *Vidyarani Dyaberi, Hari Sundaram, Thanassis Rikakis, Jodi James, Gang Qian, Arizona State University*	11:30 AM
MA3b-5	Merging Segmentations of Low-level and Mid-level Time Series for Audio Class Discovery *Regunathan Radhakrishnan, Ajay Divakaran, Mitsubishi Electric Research Labs.*	11:55 AM

Session MA4b Advances in Medical Imaging

Chair: *Rohit Bhargava*

MA4b-1	Distinguished photons: advances in multispectral imaging approaches for in-vivo fluorescence imaging *James Mansfield, Richard Levenson, CRI*	10:15 AM
MA4b-2	Optical Sectioning of Live Cells via Hyperspectral Confocal Fluorescence Imaging *David Haaland, Howland Jones, Michael Sinclair, Roberto Rebeil, David Melgaard, Sandia National Laboratories*	10:40 AM
MA4b-3	Infrared and Raman Micro-Spectroscopy of Cells: Toward an Understanding of the Spectral Features that Distinguish Normal from Cancerous Cells. *Max Diem, Northeastern University*	11:05 AM
MA4b-4	Multimodal microscopy for im vivo imaging of tissue microstructure *Stavros Demos, Lawrence Livermore National Laboratory*	11:30 AM
MA4b-5	Data processing for tissue histopathology using IR spectral data *Rohit Bhargava, Frances Keith, Rong Kong, Anusha Priya, University of Illinois at Urbana-Champaign*	11:55 AM

Session MA5a DSP Architectures and Implementations

Chair: *Joseph R. Cavallaro*

MA5a-1 Automatic floating-point to fixed-point transformations 10:15 AM
Kyungtae Han, Alex G. Olson, Brian L. Evans, University of Texas at Austin

MA5a-2 Transport Triggered Architecture Processor for Mixed-Radix FFT 10:40 AM
Teemu Pitkänen, Risto Mäkinen, Jari Heikkinen, Tero Partanen, Jarmo Takala, Tampere University of Technology

MA5a-3 Technology Driven DSP Architecture Optimization within a High-Level Block Diagram Based Design Flow 11:05 AM
Dejan Markovic, Brian Richards, Robert Brodersen, University of California, Berkeley

MA5a-4 FPGA Implementation of Dynamic Threshold Sphere Detection for MIMO Systems 11:30 AM
Kiarash Amiri, Joseph R. Cavallaro, Rice University

MA5a-5 Structured Interleavers and Decoder Architectures for Zigzag Codes 11:55 AM
Tejas Bhatt, Victor Stolpman, Nokia Inc.

Session MA6b MIMO Ad hoc Networks

Chair: *Jim Zeidler*

MA6b-1 Medium Access Control for Multi-Antenna Networks using Multi-User Coding 10:15 AM
Christopher Shaw, Christian Peel, A. Lee Swindlehurst, Brigham Young University

MA6b-2 Performance of Transmit Precoding in Time-Varying Point-to-Point and Multi-User MIMO Channels 10:40 AM
Adam Anderson, James Zeidler, University of California, San Diego; Michael Jensen, Brigham Young Univeristy

MA6b-3 Exploiting Diversity Gain in MIMO Equipped Ad hoc Networks 11:05 AM
Ece Gelal, Gentian Jakllari, Srikanth Krishnamurthy, University of California, Riverside

MA6b-4 Distributed link scheduling, power control and routing for multi-hop wireless MIMO networks 11:30 AM
Yih-Hao Lin, Rene Cruz, Larry Milstein, Tara Javidi, University of California, San Diego

MA6b-5 Improving Channel Access Scheduling with Opportunistic Cooperation Among MIMO Nodes 11:55 AM
J. J. Garcia-Luna-Aceves, Hamid Sadjadpour, X. Wang, University of California, Santa Cruz

Session MA7b Adaptive Systems for Communications

Chair: *Stephan Weiss*

MA7b-1 Low Complexity Equalizers for HSDPA UMTS Mode — 10:15 AM
Christian Mehlfuehrer, Markus Rupp, Technical University of Vienna

MA7b-2 A Scheme for Fast Joint Estimation of Data Symbols and Doubly Dispersive Channel Coefficients — 10:40 AM
Philip Schniter, Sungjun Hwang, The Ohio State University

MA7b-3 Interference Suppression in Turbo-MIMO Systems — 11:05 AM
Edward S Warner, Ian K Proudler, Malcolm D. Macleod, Qinetiq Ltd

MA7b-4 Affine Projection Algorithm Based Direct Adaptations for Adaptive Nonlinear Predistorters — 11:30 AM
Dayong Zhou, Victor DeBrunner, University of Oklahoma

MA7b-5 Adaptive Receivers for Space-Time Spreading over Dispersive Channels — 11:55 AM
Samir Bendoukha, University of Strathclyde; Mahmoud Hadef, Queen Mary, University of London; Stephan Weiss, University of Strathlcyde

Session MP1a Functional Imaging

Chair: *Dana Brooks*

MP1a-1 Array Response Kernel for EEG in Four-Shell Ellipsoidal Geometry — 1:30 PM
David Gutierrez, CINVESTAV; Arye Nehorai, Washington University in St. Louis

MP1a-2 Fast and Efficient Stored Matrix Techniques for Optical Tomography — 1:55 PM
Guangzhi Cao, Charles A. Bouman, Kevin J. Webb, Purdue University

MP1a-3 Kernel methods for analysis of functional neuroimages — 2:20 PM
Ana Lukic, Miles Wernick, Illinois Institute of Technology; Nikolas Galatsanos, University of Ioannina; Yongyi Yang, Illinois Institute of Technology; Stephen Strother, The Roman Institute and University of Toronto

MP1a-4 Controlling Dimensionality in a Systems Approach to Dynamic Multimodal Functional Brain Imaging — 2:45 PM
Srinivas Laxminarayan, Northeastern University; Solomon Diamond, Massachusetts General Hospital; Gilead Tadmor, Eric Miller, Northeastern University; David Boas, Massachusetts General Hospital; Dana H. Brooks, Northeastern University

Session MP1b Advanced Optical Techniques for Biology

Chair: *Brian Helmke*

MP1b-1	"RoboLase": A robotic laser scissors and tweezers microscope *Michael Berns, University of California, Irvine; Linda Shi, Jaclyn Nascimento, University of California, San Diego; Nicole Wakida, Alexander Dvornikov, University of California, Irvine; Norman Baker, University of California, San Diego; Elliot Botvinick, University of California, Irvine*	3:30 PM
MP1b-2	Tracking actin-based movements with light *Daniel Fletcher, University of California, Berkeley*	3:55 PM
MP1b-3	Whole-cell flagellum-based motility studied using back focal plane interferometry in a laser trap transducer *William Guilford, Laura Aust, University of Virginia; Karen Bernd, Davidson College*	4:20 PM
MP1b-4	Spatiotemporal Analysis of Actin Ruffling Dynamics in Living Cells *Lawrence Huang, Brian P. Helmke, University of Virginia*	4:45 PM

Session MP2 Multi-user Information Theory

Chair: *Sriram Vishwanath*

MP2-1	Scalable Feedback Protocol Asymptotically Achieving Broadcast Channel Sum-capacity *Chan-Soo Hwang, John M. Cioffi, Stanford University*	1:30 PM
MP2-2	Energy Allocation, Relay Selection and Ordering in Orthogonal Relay Networks *Jesús Gómez-Vilardebó, CTTC; Ana I. Perez-Neira, Universitat Politècnica de Catalunya*	1:55 PM
MP2-3	On the Sum-Rate of Broadcast Channels with Outdated 1-Bit Feedback *Bo Niu, Osvaldo Simeone, Oren Somekh, Alexander Haimovich, New Jersey Institute of Technology*	2:20 PM
MP2-4	Spectrum-Sensing Opportunistic Wireless Relay Networks: Outage and Diversity Performance *Kyounghwan Lee, Aylin Yener, Pennsylvania State University*	2:45 PM
	BREAK	3:10 PM
MP2-5	On the distortion exponent of some layered transmission schemes *Kapil Bhattad, Krishna Narayanan, Texas A&M University; Giuseppe Caire, University of Southern California*	3:30 PM
MP2-6	New results on source and channel coding error exponents with respect to end-to-end delay *Anant Sahai, University of California, Berkeley*	3:55 PM
MP2-7	On Noisy Feedback in Networks *Michael Gastpar, University of California, Berkeley*	4:20 PM

MP2-8 Non-collaborative cognitive co-existence in wireless networks 4:45 PM
Syed Jafar, University of California, Irvine

Session MP3 Adaptive Filters

Chair: *Milos Doroslovacki*

MP3-1 Convergence analysis of the LMS algorithm under slowly varying conditions using the Langevin equation 1:30 PM
Simon Haykin, McMaster University

MP3-2 Distributed recursive least-squares strategies over adaptive networks 1:55 PM
Ali H. Sayed, Cassio G. Lopes, University of California, Los Angeles

MP3-3 Convergence and performance issues for autocorrelation based adaptive channel shortening 2:20 PM
John MacLaren Walsh, Cornell University; Richard K. Martin, Air Force Institute of Technology; C. Richard Johnson, Jr., Cornell University

MP3-4 Convergence of proportionate-type LMS adaptive filters and choice of gain matrix 2:45 PM
Milos Doroslovacki, George Washington University; Hongyang Deng, Acoustic Technologies Inc.; Kevin Wagner, Naval Research Laboratory

BREAK 3:10 PM

MP3-5 Mean-Square Performance Analysis of the Normalized Subband Adaptive Filter 3:30 PM
Kong-Aik Lee, Institute for Infocomm Research; Woon-Seng Gan, Nanyang Technological University; Sen-Maw Kuo, Northern Illinois University

MP3-6 Steady-State Performance Comparison of Bayesian and Standard Adaptive Filtering 3:55 PM
Tayeb Sadiki, Dirk T. M. Slock, Institut Eurecom

MP3-7 An Interval-based Algorithm for Adaptive IIR Filters 4:20 PM
Senanu Ocloo, William Edmonson, North Carolina State University

MP3-8 Optimization in the complex domain and the widely-linear LMS adaptive filters 4:45 PM
Tulay Adali, Hualiang Li, Nicolle Correa, Haleh Safavi, University of Maryland, Baltimore County

Session MP4 Sensor Networks

Chair: *Venu Veeravalli*

MP4-1 Cross-Layer Optimization and Information Assurance in Decentralized Detection over Wireless Sensor Networks 1:30 PM
Lingjia Liu, Jean-Francois Chamberland, Texas A&M University

MP4-2 Topology for Global Average Consensus 1:55 PM
Soummya Kar, Jose M.F. Moura, Carnegie Mellon University

MP4-3 Distributed Inference in the Presence of Byzantine Sensors 2:20 PM
Stefano Marano, Vincenzo Matta, University of Salerno; Lang Tong, Cornell University

MP4-4 Smart sleeping strategies for localization and tracking in sensor networks 2:45 PM
Jason Fuemmeler, Venugopal Veeravalli, University of Illinois at Urbana-Champaign

BREAK 3:10 PM

MP4-5 Channel Aware Particle Filtering for Tracking in Sensor Networks 3:30 PM
Onur Ozdemir, Ruixin Niu, Pramod Varshney, Syracuse University

MP4-6 Fundamental bounds to Distributed Detection with Limited Sensing Range 3:55 PM
Venkatesh Saligrama, Shuchin Aeron, Erhan Ermis, Boston University

MP4-7 Multicluster ALLIANCES: A Hight Throughput and Energy Efficient Approach for Wireless Sensor Networks 4:20 PM
A. Elanchezhiyan, H. Yang, J. C. de Oliveira, Athina P. Petropulu, Drexel University

MP4-8 Multi-Channel Smart Antennas in Wireless Ad Hoc Networks 4:45 PM
Yimin Zhang, Moeness Amin, Villanova University

Session MP5 Computer Arithmetic

Chair: *Earl E. Swartzlander, Jr.*

MP5-1 A Radix-10 Combinational Multiplier 1:30 PM
Tomas Lang, University of California, Irvine; Alberto Nannarelli, Danish Technical University

MP5-2 On the Design of an On-line Complex Householder Transform 1:55 PM
Robert McIlhenny, California State University, Northridge; Milos Ercegovac, University of California, Los Angeles

MP5-3 Adaptive CORDIC Algorithm 2:20 PM
Terence Rodrigues, Earl Swartzlander, University of Texas at Austin

MP5-4 Generating function approximations at compile time 2:45 PM
Jean-Michel Muller, CNRS/LIP

BREAK 3:10 PM

MP5-5 16-bit Binary Multiplication Using High Radix Analog Digits 3:30 PM
Mitra Mirhassani, Majid Ahmadi, University of Windsor; Graham Jullien, University of Calgary

MP5-6 Arithmetic Processor for Solving Tri-Diagonal Systems of Linear Equations 3:55 PM
Milos Ercegovac, University of California, Los Angeles; Jean-Michel Muller, ENS Lyon

MP5-7 Improving Floating-Point Performance by Not Fusing Multiply-Add 4:20 PM
David Lutz, Chris Hinds, ARM

MP5-8 Arithmetic Units for Software Defined Radio 4:45 PM
Michael Schulte, Suman Mamidi, Christipher Jenkins, Emily Blem, University of Wisconsin-Madison; John Glossner, Sandbridge Technologies

Session MP6 Multi-user MIMO Methods

Chair: *Xiaodong Wang*

MP6-1 Coverage Spectral Efficiency of Cellular Systems with Cooperative Base Stations 1:30 PM
Yifan Liang, Taesang Yoo, Andrea Goldsmith, Stanford University

MP6-2 Achievable rates of MIMO downlink beamforming with non-perfect CSI: a comparison between "quantized" and "analog" feedback 1:55 PM
Nihar Jindal, University of Minnesota; Mari Kobayashi, Centro Tecnológico Telecomunicaciones Cataluña; Giuseppe Caire, University of Southern California

MP6-3 How Much Training is Required for Multiuser MIMO? 2:20 PM
Thomas Marzetta, Bell Laboratories, Lucent Technologies

MP6-4 Multiuser Diversity - Multiplexing Tradeoff in MIMO Broadcast Channels with Limited Feedback 2:45 PM
Marios Kountouris, France Telecom R&D; Ruben de Francisco, David Gesbert, Dirk T. M. Slock, Institut Eurecom; Thomas Salzer, France Telecom R&D

BREAK 3:10 PM

MP6-5 Calculus for MIMO Multiuser Performance Measures 3:30 PM
Holger Boche, Eduard Jorsweick, Aydin Sezgin, Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut

MP6-6 MSE Based Optimization of Multiuser MIMO MAC with Partial CSI 3:55 PM
Xi Zhang, Eduard Jorswieck, Björn Ottersten, Royal Institute of Technology (KTH); Arogyaswami Paulraj, Stanford University

MP6-7 Some Results on the Asymptotic Downlink Capacity of MIMO Multi-user Networks 4:20 PM
Raul de Lacerda, Mérouane Debbah, Institut Eurecom

MP6-8 Jointly Optimized MIMO Multiuser Precoding System with Channel Mismatch 4:45 PM
Kyeong Jin Kim, Nokia Inc.; Charlie Zhang, Motorola Inc.

Session MP7 Image and Video Processing

Chair: *Trac Tran*

MP7-1 Optimal Tilings for Image and Video Compression 1:30 PM
Kai-Lung Hua, Ilya Pollak, Mary Comer, Purdue University

MP7-2 Prediction of High Resolution Data from a Coded Low Resolution Grid within the Context of SRC — 1:55 PM
Andrew Segall, Sharp Laboratories of America

MP7-3 Three-Dimensional Subband Coding of Video with 3-D BCWT — 2:20 PM
Linning Ye, Jiangling Guo, Tanja Karp, Brian Nutter, Sunanda Mitra, Texas Tech University

MP7-4 Multidimensional Nonsubsampled Hourglass Filter Banks: Geometry of Passband Support and Filter Design — 2:45 PM
Yue Lu, Minh N. Do, University of Illinois at Urbana-Champaign

BREAK — 3:10 PM

MP7-5 On Local Computation of Wavelet Coefficients in the Dual-Tree Complex Wavelet Transform — 3:30 PM
Iman El-Shehaby, Trac D. Tran, The Johns Hopkins University

MP7-6 Registration of Surfaces to 3D Images Using Rigid Body Surfaces — 3:55 PM
Bing Li, University of Virginia; Steven Millington, Medical University of Vienna; Donald Anderson, University of Iowa; Scott T. Acton, University of Virginia

MP7-7 3D Motion Estimation from Three Orthographic Views without Matching Constraints or Brightness Gradients — 4:20 PM
Stefan Lehmann, Andrew Bradley, University of Queensland

MP7-8 A Subspace Method for Fourier Based Image Registration — 4:45 PM
Min Xu, Pramod Varshney, Syracuse University

Session MP8a1 Performance Analysis for Communications

MP8a1-1 Simulation and Analysis of 2.4 GHz Propagation in a Medium-Size Conference Room
Dennis R. Morgan, Jonathan Ling, Bell Laboratories, Lucent Technologies

MP8a1-2 Vandermonde-form Preserving Matrices And The Generalized Signal Richness Preservation Problem
Borching Su, P. P. Vaidyanathan, California Institute of Technology

MP8a1-3 Low Complexity Simulation Algorithm for TH-UWB MMSE RAKE Receiver
Marina Marjanovic, Polytecnical University of Madrid

MP8a1-4 On the Duality of Layered Transmission for Fading and Packet Erasure Channels
Farzad Etemadi, Hamid Jafarkhani, University of California, Irvine

MP8a1-5 An Achievable Rate Region for Interference Channels with Common Information
Jinhua Jiang, Yan Xin, Garg Hari Krishna, National University of Singapore

MP8a1-6 Random Projections for Sparse Channel Estimation and Equalization
Benjamin Friedlander, University of California, Santa Cruz

MP8a1-7 Fast Convergence with Q-expectation in EM-based Blind Iterative Detection
Wenbin Guo, Shuguang Cui, University of Arizona

MP8a1-8 A Comparison of Indoor and Outdoor Spatial Correlation Measurements at 2.4 GHz
Leslie Wood, William Hodgkiss, University of California, San Diego

MP8a1-9 On the Dual Decomposition Based Sum Capacity Maximization for Vector Broadcast Channel
Marian Codreanu, Markku Juntti, Matti Latva-aho, University of Oulu

MP8a1-10 Ergodicity of Wireless Channels and Temporal Prediction
Yogananda Isukapalli, Bhaskar Rao, University of California, San Diego

MP8a1-11 Strict Convexity of the QoS Feasible Region for Log-Convex Interference Functions
Martin Schubert, Holger Boche, Slawomir Stanczak, Fraunhofer Institute for Telecommunications - Heinrich-Hertz-Institut

MP8a1-12 Design of Multi-Carrier Modulation for Doubly Selective Channels Based on a Complexity-Constrained Achievable Rate Metric
Sibasish Das, Philip Schniter, The Ohio State University

MP8a1-13 Shift Orthogonal Phase Modulation Tutorial
Douglas Hermes, Frank Kragh, Naval Postgraduate School

MP8a1-14 Performance Characterization of Random Proximity Sensor Networks
Agostino Capponi, California Institute of Technology; Lance Kaplan, U.S. Army Research Laboratory; Concetta Pilotto, California Institute of Technology

MP8a1-15 Fading Broadcast Channels with One-Sided Feedback
Rajiv Agarwal, John M. Cioffi, Stanford University

MP8a1-16 Performance of Pre- and Post Equalization for FSK Signals in the Presence of Multipath Environments
Shu-Ting Lee, Sally Wood, Santa Clara University; Michael Ready, John Treichler, Applied Signal Technology, Inc

Session MP8a2 Statistical Signal Processing and Applications I

Chair: *Rabi Madan*

MP8a2-1 Chirplet Signal Decomposition for Echo Detection and Estimation
Logan Sorenson, Yufeng Lu, Fernando Martinez Vallina, Jafar Saniie, Illinois Institute of Technology

MP8a2-2 Enhanced Simultaneous Camera Calibration and Path Estimation
Melanie Rudoy, Charles Rohrs, Massachusetts Institute of Technology

MP8a2-3 Multi-Pitch Estimation using Harmonic MUSIC
Mads Græsbøll Christensen, Aalborg University; Andreas Jakobsson, Karlstad University; Søren Holdt Jensen, Aalborg University

MP8a2-4 Joint Detection and Localization in Sensor Networks Based on Local Decisions
Ruixin Niu, Pramod Varshney, Syracuse University

MP8a2-5 Consensus-Based Distributed Estimation of Random Signals with Wireless Sensor Networks
Ioannis Schizas, Georgios B. Giannakis, University of Minnesota

MP8a2-6 A Novel Dynamic Filter Switching Algorithm to Track People using Acoustic Sensors
Himanshu Shah, Darryl Morrell, Arizona State University

MP8a2-7 An Algorithm for Estimating Bridge Deflection from Accelerometer Measurements
Richard Vaccaro, Mayrai Gindy, University of Rhode Island; Hani Nassif, Rutgers, The State University of New Jersey; Jana Velde, University of Rhode Island

MP8a2-8 Chirp classification using hidden Markov models
Charles Creusere, Nikil Balachandran, New Mexico State University

MP8a2-9 New Non-Stationary Target Feature Identification and Detection Techniques
Lawrence Marple, Oregon State University; Muralidhar Rangaswamy, Air Force Research Laboratory

MP8a2-10 Passive Acoustic Detection of Divers Using Single Hydrophone
Xiaoling Chen, Tureli Uf, Stevens Institute of Technology

MP8a2-11 Signal Processing for Optical Power Spectrum Monitoring
Chia-Yin Che, Centre for Ultra-Broadband Information Networks; Robin J. Evans, National ICT Australia (NICTA)

MP8a2-12 Performance Capabilities of UWB Localization and Tracking Systems
Divya Rao, Richard Barton, University of Houston

MP8a2-13 Instantaneous Frequency Estimation Using Sequential Bayesian Techniques
Ying Li, Antonia Papandreou-Suppappola, Darryl Morrell, Arizona State University

MP8a2-14 Wavelet Based Structure Damage Detection
Alessio Medda, Victor DeBrunner, Kyran Mish, University of Oklahoma

MP8a2-15 Fast Iterative Maximum-Likelihood Algorithm (FIMLA) for Multipath Mitigation in GPS Receivers
Mohamed Sahmoudi, Moeness Amin, Villanova University

MP8a2-16 A Geometric Approach to Multi-Stage Detection
Ananya Sen Gupta Sen Gupta, Andrew Singer, University of Illinois at Urbana-Champaign

Session MP8b1 Biometrics and Security in Image Processing

Chair: *Robert Ives*

MP8b1-1 Face Recognition Using Gabor Wavelets
Vinay Kumar, Global Academy of Technology; Shreyas B S, B.M.S College of Engineering

MP8b1-2 Adaptive fingerprint binarization by frequency domain analysis
Josef Strom Bartunek, Mikael Nilsson, Jorgen Nordberg, Ingvar Claesson, Blekinge Institute of Technology

MP8b1-3 Non-Orthogonal Iris Recognition Using a One-Dimensional Approach
Ruth Gaunt, Robert W. Ives, Delores Etter, U.S. Naval Academy

MP8b1-4 Image Preprocessing for Non-Orthogonal Iris Recognition
Lauren R. Kennell, Robert W. Ives, Randy P. Broussard, U.S. Naval Academy

MP8b1-5 Colluder Detection for Nonlinear Collusion Attacks
Yingwei Yao, University of Illinois at Chicago

MP8b1-6 Biometrics for Human Face Reconstruction in 3D
Frédérique Robert-Inacio, L2MP-ISEN Toulon; Frédéric Caudal, Cédric Rousset, ISEN Toulon

MP8b1-7 Uncooled Infrared Imaging Face Recognition using Kernel-based Feature Vector Selection
Ioannis Alexandropoulos, Monique Fargues, Naval Postgraduate School

Session MP8b2 Wireless Networks

MP8b2-1 Time-Delay Set-Selection
William Clarkson, Dale Joachim, Tulane University

MP8b2-2 Digital Notch Filters - A Number Theoretic Approach
Siwoo Noh, Fred Taylor, University of Florida

MP8b2-3 Low-SNR analysis of cellular systems with cooperative base stations and mobiles
Osvaldo Simeone, Oren Somekh, Yeheskel Bar-Ness, New Jersey Institute of Technology; Umberto Spagnolini, Politecnico di Milano

MP8b2-4 Spectrally Efficient Cooperative Diversity Protocols for Wireless Networks
Tharm Ratnarajah, Mathini Sellathurai, Queen's University Belfast

MP8b2-5 Outage-Optimal Transmission Strategies for Rayleigh Fading Relay Channels
Yonglan Zhu, Yan Xin, Pooi-Yuen Kam, National University of Singapore

MP8b2-6 Low Complexity Multiuser MIMO Scheduling with Channel Decompositio
Xiaojie Zhang, Samsung Electronics; Jungwoo Lee, Seoul National University

MP8b2-7 Upper Bounds on the Ergodic and Outage Capacities of Relay Networks Using UWB Links
Zolfa Zeinalpour-Yazdi, Telecommunications Research Center Vienna (ftw.); Masoumeh Nasiri-Kenari, Sharif University of Technology; Joachim Wehinger, Christoph Mecklenbräuker, Telecommunications Research Center Vienna (ftw.)

MP8b2-8 On Interface Rate Allocation for a Fiber Aided Wireless Network Architecture
Siddharth Ray, Muriel Medard, Lizhong Zheng, Massachusetts Institute of Technology

MP8b2-9 OFDM2A: A Centralized Resource Allocation Policy for Multi-hop Cellular Backhaul
Ozgur Oyman, Intel Corporation

MP8b2-10 Cooperative Transmission Protocol With Full Diversity and Low Complexity Iterative Detection
Sajid Ahmed, Zhiguo Ding, Tharm Ratnarajah, Colin Cowan, Queen's University Belfast

MP8b2-11 Outage Capacity of Two-Phase Space-Time Coded Cooperative Multicasting
Aitor del Coso, CTTC; Osvaldo Simeone, Yeheskel Bar-Ness, New Jersey Institute of Technology; Christian Ibars, CTTC

MP8b2-12 Distributed MIMO for Cellular Networks with Multihop Transmission Protocols
Ingmar Hammerström, Marc Kuhn, Armin Wittneben, ETH-Zurich

MP8b2-13 Rate-Diversity Trade-offs in Interference Channels with and without Cooperation
Chaitanya Rao, Babak Hassibi, California Institute of Technology

MP8b2-14 Two-way Communication for IEEE 802.11n WLANs using Decode and Forward Relays
Marc Kuhn, Azadeh Ettefagh, Ingmar Hammerström, Armin Wittneben, ETH-Zurich

MP8b2-15 Low Complexity Adaptive Modulation for 802.11n Beamforming Systems
Pengfei Xia, Huaning Niu, Chiu Ngo, Samsung Electronics

MP8b2-16 Lifetime Maximization for Joint Estimation in Wireless Sensor Networks
Bing Hwa Cheng, University of California, Los Angeles; Aria Nosratinia, University of Texas at Dallas; Kung Yao, University of California, Los Angeles

MP8b2-17 Joint Design and Separation Principle for Opportunistic Spectrum Access
Yunxia Chen, Qing Zhao, University of California, Davis; Ananthram Swami, Army Research Laboratory

MP8b2-18 Initial Synchronization for 802.16e Downlink
Tejas Bhatt, Vishwas Sundaramurthy, Nokia Inc.; Jianzhong (Charlie) Zhang, Motorola Inc.; Dennis McCain, Nokia Inc.

MP8b2-19 An Achievable Rate Region for a Multiuser Half Duplex Two-Way Channel
Debashis Dash, Ahmad Khoshnevis, Ashutosh Sabharwal, Rice University

MP8b2-20 Interference-Aware Scheduling and Routing in Unstructured Wireless Networks
Joseph Thomas, University of Maryland

MP8b2-21 Synchronization and Performance of a Cooperative Pulse Transmission Algorithm for a Wireless Network of Active Sensors
T. Owens Walker III, Murali Tummala, J. Bret Michael, Naval Postgraduate School

MP8b2-22 A Systematic Construction of LDPC Codes for Relay Channel in Time-Division mode
Alexandre de Baynast, Arnab Chakrabarti, Ashutosh Sabharwal, Behnaam Aazhang, Rice University

MP8b2-23 A New Bound on the Outage Probability of Orthogonal Space-time Coded Systems with Antenna Selection
Shahab Sanayei, ArrayComm LLC

MP8b2-24 Resolving Wireless Collisions in Random Access Networks
Frank Prihoda, Athina P. Petropulu, Drexel University

Session TA1 Active Sensing and Waveform Diversity

Chair: *Antonia P.-S*

TA1-1 Adaptive Waveform Design for a Multi-Antenna Radar System 8:30 AM
Benjamin Friedlander, University of California, Santa Cruz

TA1-2 Virtual Array Processing for Active Sensing 8:55 AM
Louis Scharf, Colorado State University; Ali Pezeshki, Princeton University

TA1-3 Sequential Detection of a Target in Compound-Gaussian Clutter 9:20 AM
Jiang Wang, Arye Nehorai, Washington University in St. Louis

TA1-4 A Subspace-Based Approach to Sea Clutter Suppression For Improved Target Detection 9:45 AM
Sandeep Sira, Douglas Cochran, Antonia Papandreou-Suppappola, Darryl Morrell, Arizona State University; William Moran, University of Melbourne; Stephen Howard, Defense Science and Technology Organization

BREAK 10:10 AM

TA1-5 Polarization Diversity for Radar Detection 10:30 AM
Robert Calderbank, Princeton University; Stephen Howard, Defense Science and Technology Organization; William Moran, University of Melbourne; Ali Pezeshki, Princeton University; Michael Zoltowski, Purdue University

TA1-6 Spatial Transmit Processing using Long-Term Channel Statistics and Pilot Signaling on Selected Antennas 10:55 AM
David Hammarwall, Björn Ottersten, Royal Institute of Technology (KTH)

TA1-7 Superimposed vs. Conventional Pilots for Channel Estimation 11:20 AM
Aditya Jagannatham, Bhaskar Rao, University of California, San Diego

TA1-8 Asymptotic Noise Analysis of Time Reversal Detection 11:45 AM
Yuanwei Jin, Jose M.F. Moura, Carnegie Mellon University

Session TA2 MIMO Scheduling

Chair: *Elif Uysal-Biyikoglu*

TA2-1 Dirty Paper Coding vs. Linear Precoding for MIMO Broadcast Channels 8:30 AM
Juyul Lee, Nihar Jindal, University of Minnesota

TA2-2 Quantizer Design for Feedback in MIMO Broadcasting Systems 8:55 AM
Charles Swannack, Massachusetts Institute of Technology; Elif Uysal-Biyikoglu, The Ohio State University; Gregory Wornell, Massachusetts Institute of Technology

TA2-3 On User Selection for Multiple Antenna Wireless Networks with Contention-Based Feedback and Delay Constraints 9:20 AM
Seung Young Park, David Love, Purdue University; Daeyoung Park, Samsung Electronics

TA2-4 Opportunistic Feedback for the MIMO Downlink with Linear Receivers 9:45 AM
Taiwen Tang, Robert W. Heath Jr., University of Texas at Austin; Sunghyun Cho, Samsung Advanced Institute of Technology

BREAK 10:10 AM

TA2-5 Differentiated rate scheduling for MIMO broadcast channels with estimation errors 10:30 AM
Babak Hassibi, Ali Vakili, Amir F. Dana, California Institute of Technology

TA2-6 A Beamforming and Combining Strategy for MIMO-OFDM over Doubly Selective Channels 10:55 AM
Sibasish Das, Philip Schniter, The Ohio State University

TA2-7 Spatial and Temporal Power Allocation for MISO Systems with Delayed Feedback 11:20 AM
Venkata Sreekanta Reddy Annapureddy, Srikrishna Bhashyam, Indian Institute of Technology Madras

TA2-8 An Efficient MAC Protocol for MIMO-OFDM Ad hoc Networks 11:45 AM
Duong Hoang, Ronald A. Iltis, University of California, Santa Barbara

Session TA3 Computer-aided Diagnosis

Chair: *Mia K. Markey*

TA3-1 Computer Aided Diagnosis in Mammography: Its Development and Early Challenges 8:30 AM
Brian Dolan, University of California, San Francisco

TA3-2 Registration of DCE MR Images for Computer-aided Diagnosis of Breast Cancer 8:55 AM
Qiu Wu, University of Texas at Austin; Gary Whitman, University of Texas M. D. Anderson Cancer Center; Donald Fussell, Mia Markey, University of Texas at Austin

TA3-3 Adaptive and Robust Techniques (ART) for Thermoacoustic Tomography in Breast Cancer Detection 9:20 AM
Yao Xie, Bin Guo, Jian Li, University of Florida; Geng Ku, Lihong Wang, Texas A&M University

TA3-4 Atherosclerotic Plaque Motion Analysis from Ultrasound Videos 9:45 AM
Sergio E. Murillo, Marios S. Pattichis, University of New Mexico; Christos Loizou, Intercollege Limassol Campus; Constantinos S. Pattichis, University of Cyprus; Efthyvoulos Kyriacou, Cyprus Institute of Neurology and Genetics; Anthony G. Constantinides, Andrew Nicolaides, Imperial College

BREAK 10:10 AM

TA3-5 Tumor Classification in Histological Images of Prostate Using Color Texture 10:30 AM
Ali Tabesh, Mikhail Teverovskiy, Aureon Laboratories, Inc.

TA3-6 Gene Expression Based CNS Tumor Prototype for Automatic Tumor Detection 10:55 AM
Atiqul Islam, Khan Iftekharuddin, E. Olusegun George, University of Memphis

TA3-7 Estimating Respiratory Parameters using Intra-Arterial Partial Pressure Measurements 11:20 AM
Aleksandar Jeremic, Kenneth Tan, McMaster University

TA3-8 Particle Filter Tracking of Multiple Rolling Leukocytes in Vivo 11:45 AM
Jing Cui, Scott T. Acton, Zongli Lin, University of Virginia

Session TA4 Applications of Multirate DSP

Chair: *Chuck Creusere*

TA4-1 Double Density Complex Wavelet Based Image Cartoon-Texture Decomposition 8:30 AM
Gary hewer, Wei Kuo, Grant Hanson, Frederick Sickman, NAVAIR

TA4-2 Analysis of multi-rate filters and signal design for projected image superimposition 8:55 AM
Amir Said, Hewlett Packard

TA4-3 Analyizing Reversible Lapped Transformations using RENG Probing 9:20 AM
Charles Creusere, V. Mahitha Prasad, New Mexico State University

TA4-4 Symmetry-preserving Lattice Vector Quantization for Reversible Half Sample Symmetric FIR Filter Bands 9:45 AM
Christopher M. Brislawn, Brendt Wohlberg, Los Alamos National Laboratory

BREAK 10:10 AM

TA4-5 Video Processing Using the 3-Dimensional Surfacelet Transform 10:30 AM
Yue Lu, Minh N. Do, University of Illinois at Urbana-Champaign

TA4-6 A Precoding and Equalisation Design Based on Oversampled Filter Banks for Dispersive Channels with Correlated Noise} 10:55 AM
Chunguang Liu, Chi Hieu Ta, Stephan Weiss, University of Strathclyde

TA4-7 Efficient Implementation of FIR Filter Based Rational Sampling Rate Converters Using Constant Matrix Multiplication 11:20 AM
Oscar Gustafsson, Hakan Johansson, Linkoping University

TA4-8 An Iterative Weighted Norm Algorithm for Total Variation Regularization 11:45 AM
Paul Rodriguez, Brendt Wohlberg, Los Alamos National Laboratory

Session TA5 VLSI Digital Signal Processing

Chair: *W. Kenneth Jenkins*

TA5-1 Arithmetic for VLSI Signal Processing 8:30 AM
Earl Swartzlander, University of Texas at Austin

TA5-2 VLSI Architectures for JPEG 2000 EBCOT: Design Techniques and Challenges 8:55 AM
Yijun Li, Magdy Bayoumi, University of Louisiana at Lafayette

TA5-3 An architectural comparison of Reed-Solomon soft-decoding algorithms 9:20 AM
Arshad Ahmed, Naresh Shanbhag, Ralf Koetter, University of Illinois at Urbana-Champaign

TA5-4 An Exploration of Hardware Architectures for Face Detection 9:45 AM
Kevin Irick, Pennsylvania State University; Theocharis Theocharides, University of Cyprus; Vijaykrishnan Narayanan, Mary Jane Irwin, Pennsylvania State University

BREAK 10:10 AM

TA5-5 High Performance VLSI Signal Processing Using Multiple Base Representations 10:30 AM
Graham Jullien, Vassil Dimitrov, University of Calgary; Roberto Muscedere, University of Windsor

TA5-6 Fault Tolerance in Adaptive VLSI Signal Processors Subject to Fixed and Transient Hardware Errors 10:55 AM
Kenneth Jenkins, Siddharth Pal, Jagdish Sabarad, Pennsylvania State University

TA5-7 Truncated Multiplication with Symmetric Correction 11:20 AM
Hyuk Park, Earl Swartzlander, University of Texas at Austin

TA5-8 Fixed-Width Multi-Level Recursive Multipliers 11:45 AM
Kevin Biswas, Huapeng Wu, Majid Ahmadi, University of Windsor

Session TA6 MIMO Channel Modeling

Chair: *Visa Koivunen*

TA6-1 State-Space Modeling and Propagation Parameter Tracking: Multitarget tracking based approach 8:30 AM
Jussi Salmi, Andreas Richter, Visa Koivunen, Helsinki University of Technology

TA6-2 On Doubly-Dispersive MIMO Channels 8:55 AM
Gerald Matz, Technische Universitaet Wien

TA6-3 The Contribution of Distributed Diffuse Scattering in Radio Channels to Channel Capacity: Estimation and Modelling 9:20 AM
Andreas Richter, Helsinki University of Technology

TA6-4 Detecting Specular Propagation Paths in the Presence of Distributed Scattering in Angle and Delay Domains 9:45 AM
Cássio Ribeiro, Nokia Institute of Technology; Andreas Richter, Visa Koivunen, Helsinki University of Technology

BREAK 10:10 AM

TA6-5 Evaluation of propagation parameter estimation results based on realistic channels 10:30 AM
Markus Landmann, Reiner S. Thoma, Ilmenau University of Technology

TA6-6 MIMO Cross Polarisation Channel Characterisation and Performance of Turbo MIMO Concepts in Measured Indoor and Outdoor Environments 10:55 AM
Christian Schneider, Markus Landmann, Reiner S. Thoma, Ilmenau University of Technology

TA6-7 A Novel Wideband MIMO Channel Model and McMaster's Wideband MIMO Software Defined Radio 11:20 AM
Nelson Costa, Simon Haykin, McMaster University

TA6-8 Higher Order SVD based Subspace Estimation to Improve Multi-Dimensional Parameter Estimation Algorithms 11:45 AM
Florian Roemer, Martin Haardt, Ilmenau University of Technology

Session TA7 Models for Image and Video Processing

Chair: *Ilya Pollak*

TA7-1 Quality-aware video streaming in wireless mesh networks with optima dynamic routing and time allocation 8:30 AM
H-P Shiang, D. Krishnaswamy, M. van der Schaar, University of California, Los Angeles

TA7-2 Optimally sparse image representations using shearlets. 8:55 AM
Demetrio Labate, North Carolina State University; Wang-Q Lim, Washington University; Glenn Easley, System Planning Corporation

TA7-3 Video Modeling via Spatio-Temporal Adaptive Localized Learning (STALL) 9:20 AM
Yunfei Zheng, Xin Li, West Virginia University

TA7-4 Statistical Analysis of Shape Matching Using Distribution of Distances 9:45 AM
Mireille Boutin, Mary Comer, Purdue University

BREAK 10:10 AM

TA7-5 Standard-Compliant Integer DCT and IDCT Based on the Lifting Scheme 10:30 AM
LIJIE LIU, Trac D. Tran, Johns Hopkins University

TA7-6 Nonlinear Dimensionality Reduction on 3-D Protein Image Analysis 10:55 AM
Guisong Wang, Jason Kinser, George Mason University

TA7-7 Shoreline Detection in Images for Autonomous Boat Navigation 11:20 AM
Anbumani Subramanian, Xiaojin Gong, Chris Wyatt, Virginia Polytechnic Institute and State University

TA7-8 New Block-Based Local-Texture-Dependent Correlation Model of Digitized Natural Video 11:45 AM
Jing Hu, UC Santa Barbara; Jerry D. Gibson, University of California, Santa Barbara

Session TA8a1 Adaptive Systems and Algorithms

Chair: *Dennis Morgan*

TA8a1-1 Metrics for Target Tracking
Dave Sworder, University of California, San Diego; John Boyd, Cubic Defense Systems; Gary Hutchins, Naval Postgraduate School; Robert Elliott, University of Calgary

TA8a1-2 An Adaptive RLS MIMO Equalizer Algorithm for HSDPA
Dennis R. Morgan, Bell Laboratories, Lucent Technologies

TA8a1-3 Variable Step Size Adaptive Sub-sample Delay Estimation Using a Quadrature Phase Detector
Yan Shi, Southwest Jiaotong University; Adam Zielinski, University of Victoria

TA8a1-4 Constrained MMSE for Improved Detection
Benjamin Friedlander, University of California, Santa Cruz

TA8a1-5 New Technique for Attenuation of Narrow-Band Interference With Applications in Control and Communications Systems
Michael Soderstrand, City College of Moore; Louis Johnson, Oklahoma State University; Steven Phillips, SPC Consulting

TA8a1-6 A kernel-based RLS algorithm for nonlinear adaptive filtering using sparse approximation theory
Cédric Richard, University of Tech. Troyes

TA8a1-7 Adaptive Arrays for Broadband Communications in the Presence of Co-Channel Interference
Xiayu Zheng, University of Florida; Petre Stoica, Uppsala University; Jian Li, University of Florida; Renbiao Wu, Civil Aviation University of China

TA8a1-8 An Adaptive Cellular Network for Subspace Extraction
Heinz Koeppl, University of California, Berkeley

TA8a1-9 Adaptive Carrier Tracking for Direct-to-Earth Mars Communications
Cassio Lopes, University of California, Los Angeles; Edgar Satorius, Jet Propulsion Laboratory - NASA; Ali H. Sayed, University of California, Los Angeles

Session TA8a2 Video Coding and Analysis

Chair: *Pamela Cosman*

TA8a2-1 Achieving Diagnostic Losslessness Within a Region-Of-Interest Based on a Group-of-Pictures Rate Control Algorithm with Encoding Parameter Updates
Sira Rao, Nikil Jayant, Georgia Institute of Technology

TA8a2-2 An H.264/AVC video coder based on Multiple Description Scalar Quantizer
Ottavio Campana, Roberto Contiero, University of Padova

TA8a2-3 High-Speed Error Resilient Stereoscopic Video Coder
Jian-Hung Lin, Keshab K. Parhi, University of Minnesota

TA8a2-4 Partial-Order Bit-Allocation Schemes for Low Rate Quantization
Sean Ramprashad, DoCoMo USA Labs

TA8a2-5 Estimating the complex index of refraction and view angle of an object using multiple polarization measurements
Vimal Thilak, Charles Creusere, David Voelz, New Mexico State University

TA8a2-6 Efficient Motion Accuracy Search for Global Motion Vector Coding
Gokce Dane, Thomson Corporate Research; Truong Nguyen, University of California, San Diego

TA8a2-7 Hiddenness control of hidden Markov models and application to objective speech quality and isolated-word speech recognition
Gaurav Talwar, Robert Kubichek, Hongkang Liang, University of Wyoming

TA8a2-8 A Video Analysis for Detecting Eye Blinking using a High-Speed Camera
Kazuo Ohzeki, Bunhin Ryo, Shibaura Institute of Technology

TA8a2-9 Low Complexity Scalable Video Coding
Cheolhong An, Truong Nguyen, University of California, San Diego

TA8a2-10 An Algorithm for Intra-Frame Video Coding Based on Continuous-Valued Syndromes
Lorenzo Cappellari, Gian Antonio Mian, University of Padova

TA8a2-11 Motion Vector Field Manipulation for Complexity Reduction in Scalable Video Coding
Meng-Ping Kao, Truong Nguyen, University of California, San Diego

TA8a2-12 Source and Channel coding trade-offs for a pulsed quality video encoder
Vijay Chellappa, Pamela Cosman, Geoffrey Voelker, University of California, San Diego

TA8a2-13 Region-based fusion of IR and night vision images
Khin C. Chow, Monique Fargues, Alfred Cooper, Naval Postgraduate School

Session TA8a3 Speech and Audio Processing

Chair: *Chris Kyriakakis*

TA8a3-1 Packet Loss Concealment for Multichannel Audio Using the Multiband Source/Filter Model
Kiki Karadimou, Athanasios Mouchtaris, Panagiotis Tsakalides, Foundation for Research and Technology-Hellas (FORTH)

TA8a3-2 Binaural Model Based Adaptive Binaural Noise Reduction
Chris Kyriakakis, Hesu Huang, University of Southern California

TA8a3-3 Multichannel matching pursuit and applications to spatial audio coding
Michael Goodwin, Creative Advanced Technology Center

TA8a3-4 Laguerre-Based Linear Prediction Using Perceptual Biasing
Arijit Biswas, Technische Universiteit Eindhoven; Albertus C. den Brinker, Philips Research Laboratories

TA8a3-5 Speech Unit Selection Based on Matching Pursuit
Mehdi Hosseinpour, Mohamad R. Nezami Ranjbar, Mahmoud Mousavinejad, ITRC

TA8a3-6 Variable Order Harmonic Sinusoidal Parameter Estimation for Speech and Audio Signals
Mads Græsbøll Christensen, Søren Holdt Jensen, Aalborg University

TA8a3-7 The Effect of DC Biasing on Nonlinear Compensation of Small Loudspeakers
Khosrow Lashkari, DoCoMo USA Labs

TA8a3-8 Room Acoustic Response Modeling and Equalization with Linear Predictive Coding and Parametric Filters for Speech and Audio Enhancement
Sunil Bharitkar, Audyssey Labs. / University of Southern California; Yun Zhang, Audyssey Labs.; Chris Kyriakakis, University of Southern California / Audyssey Labs.

TA8a3-9 Singer-Dependent Falsetto Detection for Live Vocal Processing Based on Support Vector Classification
Gautham Mysore, Ryan Cassidy, Julius Smith, Stanford University

TA8a3-10 Classification using Hermite Basis Functions
Christopher Lowrie, Florida Institute of Technology

Session TA8b1 DSP Applications and Systems

Chair: *Edgar Satorius*

TA8b1-1 A High Throughput Beamforming Architecture for MIMO Systems
Melissa Duarte, Ashutosh Sabharwal, Rice University; Chris Dick, Raghu Rao, Xilinx Inc.

TA8b1-2 Automated Hardware IP Generation for Digital Signal Processing Applications
Ramsey Hourani, Youngsoo Kim, Winser Alexander, North Carolina State University

TA8b1-3 Performance Evaluation of Two LMMSE Detectors in a MIMO-OFDM Hardware Testbed
Markus Myllylä, University of Oulu; Matti Limingoja, Aaron Byman, Elektrobit Ltd.; Joseph R. Cavallaro, Rice University; Markku Juntti, University of Oulu

TA8b1-4 Optimized Viterbi Decoder for Low Data Rate Systems
Domenico Bianchi, Gian Carlo Cardarilli, Andrea Del Re, Marco Re, University of Rome Tor Vergata

TA8b1-5 Implementation of Polyphase Channelizers for Multirate Signal Analysis
Edgar Satorius, Jet Propulsion Laboratory - NASA; Ying-Wah Wu, Brian LaRocca, U.S. Army I2WD

TA8b1-6 Soft Sphere Detection with Bounded Search for High-Throughput MIMO Receivers
Predrag Radosavljevic, Joseph R. Cavallaro, Rice University

TA8b1-7 Efficient Implementation of DFT over GF(q^m)
Huapeng Wu, University of Windsor

TA8b1-8 The area and latency tradeoffs of binary bit-parallel BCH decoders for prospective nanoelectronics memories
Dmitri Strukov, Stony Brook Univeristy

TA8b1-9 Zero-copy Queues for Native Signal Processing Using the Virtual Memory System
Gregory Allen, Brian L. Evans, University of Texas at Austin

TA8b1-10 Decoding of Array LDPC Codes using On-The-Fly Computation
Kiran Gunnam, Weihuang Wang, Euncheol Kim, Gwan Choi, Texas A&M University; Mark Yeary, University of Oklahoma

TA8b1-11 Real-Time QRD-Based Beamforming on an FPGA Platform
Chris Dick, Xilinx Inc.; fred harris, Dragan Vuletic, San Diego State University; Miroslav Pajic, Signum Concepts

TA8b1-12 A New Side Channel Resistant Scalar Point Multiplication Method for Binary Elliptic Curves
Aaron Cohen, Keshab K. Parhi, University of Minnesota

Session TA8b2 Statistical Signal Processing and Applications II

TA8b2-1 A Fast Generalized Likelihood Ratio Test For Single-Sinusoid Detection 10:30 AM
Jeffrey Klein, ATK Mission Research

TA8b2-2 Maximum Likelihood Estimation of Range of Polynomial Amplitude Modulated Complex Scatterers 10:55 AM
Theagenis Abatzoglou, Raytheon Space and Airborne Systems

TA8b2-3 Output-Energy Filters in Noncoherent Pulse-Event Detection 11:20 AM
Gerald Cain, DSP Creations Limited; Anush Yardim, University of Westminster; Bobby Mughal, DSP Creations Limited

TA8b2-4 Optimal Signal Selection for FIR Matched Filtering in Pole-Only Noise 11:45 AM
Gerald Cain, DSP Creations Limited; Anush Yardim, University of Westminster; Mehboob Mughal, DSP Creations Limited

BREAK 10:10 AM

TA8b2-5 Cramer Rao Lower Bound for Blind Timing Offset Estimation of a Two-channel Time-interleaved A/D Converter 12:10 PM
Steve Huang, Bernard Levy, University of California, Davis

TA8b2-6 Estimation of the Number of Sources Present in Instantaneous and Anechoic Mixtures 12:35 PM
Bing Hwa Cheng, HRL Laboratories; Shubha Kadambe, Office of Naval Research; Wesley Dwelly, Vinh Adams, Raytheon

TA8b2-7 Computational Efficient Transceiver Optimization for Multiuser MIMO Systems: Power Minimization with User-MMSE Requirements 1:00 PM
Shuying Shi, Martin Schubert, Holger Boche, Fraunhofer German-Sino Lab for Mobile Communications MCI

TA8b2-8 Throughput Analysis of Diversity and Multiplexing Schemes for MIMO-SIC OFDM systems 1:25 PM
Aydin Sezgin, Malte Schellmann, Volker Jungnickel, Fraunhofer Institute for Telecommunications - Heinrich-Hertz-Institut; Elena Costa, Siemens AG

TA8b2-9 Accounting for Number of Sources Uncertainty in Blind Source Separation. 1:50 PM
Hichem Snoussi, UTT; Mahieddine Ichir, Ali Mohammad-Djafari, L2S

TA8b2-10 Frequency Offset Effects on Maximin Algorithm with a Step-Length Estimation Technique 2:15 PM
Hyuck Kwon, Dong-Hyeuk Yang, Wichita State University

Session TA8b3 Space-Time Coding

TA8b3-1 Design of Distributed Randomized Space-Time Coding schemes for Cooperative Communication
Stefano Savazzi, Umberto Spagnolini, Politecnico di Milano

TA8b3-2 Direct Space-Time GF(q) LDPC Modulation
Adam Margetts, Keith Forsythe, Daniel Bliss, Massachusetts Institute of Technology Lincoln Laboratory

TA8b3-3 Analytical BER Analysis of Space Time Block Coded Systems over Frequency Selective Rician Fading Channels
Tung Lai, University of Calgary; Tuan Tran, McGill University; Abu Sesay, University of Calgary

TA8b3-4 An Alternative Filter Bank View for Real Orthogonal STBC in Frequency Selective Channel
Ka Shun Carson Pun, Truong Nguyen, University of California, San Diego

TA8b3-5 Hierarchical Diversity-Embedding Space-Time Block Coding
K.M. Zahidul Islam, Naofal Al-Dhahir, University of Texas at Dallas

TA8b3-6 Asymptotic Behavior of Extended Alamouti Schemes for large number of receive antennas
Markus Rupp, Vienna University of Technology; Christoph Mecklenbräuker, Forschungszentrum Telekommunikation Wien

TA8b3-7 On Improving 4x4 Space-Time Codes
Frederique Oggier, California Institute of Technology; Gregory Berhuy, University of Southampton

TA8b3-8 On Precoding for High Spatial Rate Space Time Codes
Erik Stauffer, Mohamad Charafeddine, Arogyaswami Paulraj, Stanford University

TA8b3-9 Differential Diversity-Embedding Space-Time Block Coding
Payam Rabiei, Naofal Al-Dhahir, University of Texas at Dallas

TA8b3-10 A Systematic Approach to the Design of Space-Time Block Coded MIMO Systems
Jo-Yen Nieh, Murali Tummala, Patrick Vincent, Naval Postgraduate School

Session TP1 Topics in Speech Processing for Next Generation Systems

Chair: *Sean Ramprashad*

TP1-1 MOSx and Voice Outage Rate in Wireless Communications 1:30 PM
Sayantan Choudhury, Niranjan Shetty, Jerry D. Gibson, University of California, Santa Barbara

TP1-2 Distortion tradeoffs of different Layered Speech and Media Transmission Techniques over Wireless MIMO Systems 1:55 PM
Sean Ramprashad, Christine Pepin, Ulas Kozat, DoCoMo USA Labs

TP1-3 BroadVoice®16: A PacketCable Speech Coding Standard for Cable Telephony 2:20 PM
Raymond (Juin-Hwey) Chen, Jes Thyssen, Broadcom Corporation

TP1-4 Microphone array for spatial sound analysis and reconstruction 2:45 PM
Jens Meyer, Gary W. Elko, mh acoustics

BREAK 3:10 PM

TP1-5 Multiple Description for Audio Packet Networks - A Comparative Study 3:30 PM
W. Bastiaan Kleijn, Royal Institute of Technology (KTH); Jan Skoglund, Global IP Sound

TP1-6 Voice Communications over Tandem Wireline IP and WLAN Connections 3:55 PM
Jerry D. Gibson, Bo Wei, Sayantan Choudhury, University of California, Santa Barbara

TP1-7 Enhanced Partitioned Stereo Residual Echo Estimation 4:20 PM
Stefan Goetze, University of Bremen; Markus Kallinger, Carl von Ossietzky-University Oldenburg; Karl-Dirk Kammeyer, University of Bremen; Alfred Mertins, Carl von Ossietzky-University Oldenburg

TP1-8 Model-based eigenspectrum estimation for speech enhancement 4:45 PM
Vinesh Bhunjun, Mike Brookes, Patrick A. Naylor, Imperial College London

Session TP2 Resource Allocation in Networks

Chair: *Mingyan Liu*

TP2-1	Optimal Sleep Scheduling of a Wireless Sensor Node *David Shuman, Mingyan Liu, University of Michigan*	1:30 PM
TP2-2	Power Allocation in Linear and Tree WSN Topologies *Gautam Thatte, Urbashi Mitra, University of Southern California*	1:55 PM
TP2-3	Optimal Scheduling for OFDMA Systems *Rajeev Agrawal, Motorola Inc.; Randall Berry, Northwestern University; Jianwei Huang, Princeton University; Vijay Subramanian, Motorola Inc.*	2:20 PM
TP2-4	Uplink Power Allocation in Multicarrier Wireless Networks with Interference Cancellation *Christopher Lott, Donna Ghosh, QUALCOMM Inc.*	2:45 PM
	BREAK	3:10 PM
TP2-5	Delay Optimal Transmission Scheduling under Energy and Deadline Constraints *Bahadir Sarikaya, Sennur Ulukus, University of Maryland*	3:30 PM
TP2-6	Stability analysis of the cognitive interference channel *Osvaldo Simeone, Yeheskel Bar-Ness, New Jersey Institute of Technology; Umberto Spagnolini, Politecnico di Milano*	3:55 PM
TP2-7	Game Theoretic Approach to Joint CDMA Codeword and Power Adaptation *Catalin Lacatus, Dimitrie C. Popecsu, University of Texas at San Antonio*	4:20 PM
TP2-8	A General Optimization Framework for Stochastic Routing in Wireless Multi-hop Networks *Alejandro Ribeiro, Zhi-Quan (Tom) Luo, University of Minnesota; Nikos Sidiropoulos, Technical University of Crete; Georgios B. Giannakis, University of Minnesota*	4:45 PM

Session TP3a Sparse Adaptive Systems

Chair: *Steven Grant*

TP3a-1	Attacking the Slow Final Convergence Rate of PNLMS *Ashrith Deshpande, Steven L. Grant, University of Missouri-Rolla*	1:30 PM
TP3a-2	Efficient use of sparse adaptive filters *Andy W. H. Khong, Patrick A. Naylor, Imperial College*	1:55 PM
TP3a-3	Proportionate Adaptation and Partial Updates in Constrained Adaptive Filters *Richard K. Martin, Air Force Institute of Technology*	2:20 PM
TP3a-4	Adaptive NLMS Partial Crosstalk Cancellation in Digital Subscriber Lines *John Homer, Mandar Gujrathi, University of Queensland; Raphael Cendrillon, Marvell Hong Kong Ltd; Vaughan Clarkson, University of Queensland; Marc Moonen, Katholieke Universiteit Leuven*	2:45 PM

Session TP3b Blind Source Separation

Chair: *Shoji Makino*

TP3b-1	Independent Vector Analysis *Taesu Kim, KAIST; Intae Lee, Te-Won Lee, University of California, San Diego*	3:30 PM
TP3b-2	Recognition of convolutive speech mixtures by missing feature techniques for ICA *Dorothea Kolossa, TU Berlin; Hiroshi Sawada, NTT Corporation; Ramon Fernandez Astudillo, Reinhold Orglmeister, TU Berlin; Shoji Makino, NTT Corporation*	3:55 PM
TP3b-3	Convolutive Demixing with Sparse Discrete Prior Models for Markov Sources *Justinian Rosca, Siemens Corporate Research*	4:20 PM
TP3b-4	Blind separation and localization of speeches in a meeting situation *Hiroshi Sawada, Shoko Araki, Ryo Mukai, Shoji Makino, NTT Corporation*	4:45 PM

Session TP4 Detection and Estimation

Chair: *Yonina Eldar*

TP4-1	Parameter estimation in linear models based on outage probability minimization *Sergiy Vorobyov, Darmstadt University of Technology; Yonina Eldar, Israel Institut of Technology - Technion; Alex Gershman, Darmstadt University of Technology*	1:30 PM
TP4-2	Investigation of Some Bias and MSE Issues in Block-Component-wise Conditionally Unbiased LMMSE *Mahdi Triki, Dirk T. M. Slock, Institut Eurecom*	1:55 PM
TP4-3	Causal cyclic Wiener filtering *Mark Spurbeck, deceased (2002); Peter Schreier, University of Newcastle; Louis Scharf, Colorado State University*	2:20 PM
TP4-4	A Chebyshev Center Estimator in Regularized Regression with Bounded Noise *Yonina Eldar, Amir Beck, Technion*	2:45 PM
	BREAK	3:10 PM
TP4-5	Compressive Sampling for Signal Classification *Jarvis Haupt, University of Wisconsin-Madison; Rui Castro, Rice University; Robert Nowak, University of Wisconsin-Madison*	3:30 PM
TP4-6	Channel Estimation in the Presence of Communications Impairments *Qiyue Zou, Alireza Tarighat, Ali H. Sayed, University of California, Los Angeles*	3:55 PM
TP4-7	Single Differential Modulation and Detection for MPSK in the Presence of Unknown Frequency Offset *Jianhua Liu, Embry-Riddle Aeronautical University; Petre Stoica, Uppsala University; Marvin Simon, Jet Propulsion Laboratory - NASA; Jian Li, University of Florida*	4:20 PM

TP4-8 Maximum Likelihood Covariance Estimation with a Condition Number Constraint 4:45 PM
Joong Ho Won, Seung-Jean Kim, Stanford Univeristy

Session TP5 Integrated Algorithms and Architectures

Chair: *John Lach*

TP5-1 Model-based Mapping of Image Registration Applications onto Configurable Hardware 1:30 PM
Yashwanth Hemaraj, Mainak Sen, University of Maryland, College Park; Raj Shekhar, Shuvra Bhattacharyya, University of Maryland, Baltimore County

TP5-2 Real-Time Processing of Ultrasound Images with Speckle Reducing Anisotropic Diffusion 1:55 PM
Wenqian Wu, Scott T. Acton, John Lach, University of Virginia

TP5-3 A multi-input multiplier unit suitable for adaptive DSP algorithm implementations 2:20 PM
Yunhua Wang, Linda DeBrunner, Victor DeBrunner, Dayong Zhou, University of Oklahoma

TP5-4 Constraints Assisted Modeling and Validation in Metropolis Framework 2:45 PM
Guang Yang, University of California, Berkeley; Harry Hsieh, University of California, Riverside; Xi Chen, Novas Software, Inc.; Felice Balarin, Cadence Berkeley Laboratories; Alberto Sangiovanni-Vincentelli, University of California, Berkeley

BREAK 3:10 PM

TP5-5 Data-driven techniques for energy-efficient video processing 3:30 PM
Vasily Moshnyaga, Fukuoka University

TP5-6 Power-performance optimal DSP architectures and ASIC implementation 3:55 PM
Farhana Sheikh, Melinda Ler, Radu Zlatanovici, University of California, Berkeley; Dejan Markovic, University of California, Los Angeles; Borivoje Nikolic, University of California, Berkeley

TP5-7 A General Hardware/Software Codesign Methodology for Embedded Signal Processing and Multimedia Workloads 4:20 PM
Michael Brogioli, Predrag Radosavljevic, Joseph R. Cavallaro, Rice University

TP5-8 Design and Implementation of an Energy Efficient Multimedia Playback System 4:45 PM
Zhijian Lu, John Lach, Kevin Skadron, Mircea Stan, University of Virginia

Session TP6 MIMO Systems with Limited Feedback

Chair: *Bhaskar Rao*

TP6-1	Space-Time Coding and Beamforming Using Noisy Rate-Limited Feedback *Siavash Ekbatani, Hamid Jafarkhani, University of California, Irvine*	1:30 PM
TP6-2	MIMO Broadcast Channels with Digital Channel Feedback *Nihar Jindal, University of Minnesota*	1:55 PM
TP6-3	Coordinated Precoding for Multi-user MIMO Communication with Limited Feedfoward *Chan-Byoung Chae, University of Texas at Austin; David Mazzarese, Samsung Electronics; Robert W. Heath Jr., University of Texas at Austin*	2:20 PM
TP6-4	Energy-Efficient MISO Systems Using Adaptive Modulation and Coding *Antonio G. Marques, Universidad Rey Juan Carlos; Xin Wang, Georgios B. Giannakis, University of Minnesota*	2:45 PM
	BREAK	3:10 PM
TP6-5	Analysis of MIMO Systems with Finite-Rate Channel State Information Feedback *Jun Zheng, Bhaskar Rao, University of California, San Diego*	3:30 PM
TP6-6	Optimum Power Allocation in Fading MIMO Multiple Access Channels with Partial CSI at the Transmitters *Alkan Soysal, Sennur Ulukus, University of Maryland*	3:55 PM
TP6-7	Limited Feedback Unitary Matrix applied to MIMO dmin-based Precoder *Jonathan Letessier, Baptiste Vrigneau, Philippe Rostaing, Gilles Burel, LEST - University of Brest*	4:20 PM
TP6-8	Zero-Forcing Beamforming with Semiorthogonal User Selection Modified for Reducing Feedback Information *Eun-Hee Shin, Dongwoo Kim, Hanyang University*	4:45 PM

Session TP7a Advanced Beamforming in Medical Imaging

Chair: *Francesco Viola*

TP7a-1	Near-Field, Broadband Adaptive Beamforming for Ultrasound Imaging *Francesco Viola, William Walker, University of Virginia*	1:30 PM
TP7a-2	Real-time synthetic aperture imaging: opportunities and challanges *Svetoslav Nikolov, Jørgen Jensen, Borislav Tomov, Technical University of Denmark*	1:55 PM
TP7a-3	Parametric Ultrasonic Imaging Using Linear Arrays for Breast Cancer Detection *Pai-Chi Li, Sheng-Wen Huang, Cheng-Han Chang, National Taiwan University*	2:20 PM

TP7a-4 MIMO Radar Medical Imaging 2:45 PM
Daniel Bliss, Keith Forsythe, Massachusetts Institute of Technology

Session TP7b Remote Sensing

Chair: *Randy Moses*

TP7b-1 Inferring Dynamic Dependency with Applications to Link Analysis 3:30 PM
Michael Siracusa, John Fisher III, Massachusetts Institute of Technology

TP7b-2 Optimal Geometry Designs for Unconstrained and Topologically-Constrained Multistatic Sensors 3:55 PM
Ryan Fogle, Brian Rigling, Wright State University

TP7b-3 Shape Estimation and Object Classification in Images Using Geometric Priors 4:20 PM
Shantanu Joshi, Anuj Srivastava, Florida State University

TP7b-4 Enhanced Imaging over Complete Circular Apertures 4:45 PM
E. Ertin, L. C. Potter, R. Moses, The Ohio State University

Session TP8a1 MIMO Systems

TP8a1-1 Analysis of a MISO Pre-BLAST-DFE Technique for Decentralized Receivers
Patrick Amihood, Elias Masry, Laurence Milstein, John Proakis, University of California, San Diego

TP8a1-2 Uplink Multiuser MIMO Transceiver Design with Transmitting Beamforming under Power Constraints
Songnan Xi, Michael Zoltowski, Purdue University

TP8a1-3 Precoding for Multiple Antenna Broadcast Channels with Channel Mismatch
Amir Dabbagh, David Love, Purdue University

TP8a1-4 Frame Error Rate Analysis of Coded MIMO Systems with Spatial Multiplexing
Mikko Vehkapera, Markku Juntti, University of Oulu

TP8a1-5 Statistical comparison between max-dmin, max-SNR and MMSE precoders
Baptiste Vrigneau, Jonathan Letessier, Philippe Rostaing, LEST-UMR CNRS 6165; Ludovic Collin, E3I2-EA3876; Gilles Burel, LEST-UMR CNRS 6165

TP8a1-6 Max-dmin precoder performances in a polarity diversity MIMO channel
Baptiste Vrigneau, Jonathan Letessier, Philippe Rostaing, LEST-UMR CNRS 6165; Ludovic Collin, E3I2-EA3876

TP8a1-7 Blind Equalization of Frequency Selective MIMO Systems via Statistical and Trellis-Based Methods
Ansgar Scherb, Karl-Dirk Kammeyer, University Bremen; Tianbin Wo, Peter Hoeher, University Kiel

TP8a1-8 Diversity-Multiplexing Tradeoff of GMD/UCD with Antenna Selection
Yi Jiang, Mahesh Varanasi, University of Colorado at Boulder

TP8a1-9 Estimation of Frequency-Selective Block-Fading MIMO Channels Using PARAFAC Modeling and Alternating Least Squares
André de Almeida, Gérard Favier, Laboratoire I3S/CNRS; João Cesar Mota, Wireless Telecom Research Group (GTEL)

TP8a1-10 Rate-Maximized Switching Between Spatial Transmission Modes
Malte Schellmann, Volker Jungnickel, Aydin Sezgin, Fraunhofer Institute for Telecommunications - Heinrich-Hertz-Institut; Elena Costa, Siemens AG

TP8a1-11 Modified V-BLAST Symbol Detection Under Channel Uncertainties for MIMO Systems
Hyun Jong Yang, Joohwan Chun, Korea Advanced Institute of Science and Technology

TP8a1-12 Diversity and Multiplexing Switching in 802.11n MIMO Systems
Huaning Niu, Chiu Ngo, Samsung Electronics

TP8a1-13 BER Approximation for Extended V-BLAST Codes with Selection Combining
In-Ho Lee, Dongwoo Kim, Hanyang University

TP8a1-14 End-to-End BER Performance of Cooperative MIMO Transmission with Antenna Selection in Rayleigh Fading
Jung-Bin Kim, Dongwoo Kim, Hanyang University

TP8a1-15 Robust ZF Receiver Design in V-BLAST for Imperfect MIMO Channels
Jiansong Chen, Xiaoli Yu, University of Southern California

TP8a1-16 An Efficient QRD-M Algorithm Using Partial Decision Feedback Detection
Kihwan Jeon, Hyounkuk Kim, Hyuncheol Park, Information and Communications University

TP8a1-17 Lattice Reduction Aided MIMO Detectors with Quantization Error Correction
Jaehong Kim, Namshik Kim, Hyuncheol Park, Information and Communications University

TP8a1-18 ARQ strategies for spatially multiplexed MIMO systems
Elisabeth de Carvalho, Petar Popovski, Aalborg University

TP8a1-19 Adaptive modulation using outdated feedback for MIMO systems over time varying channels
Elisabeth de Carvalho, Aalborg University

Session TP8a2 Numerical Processing

Chair: *David Harris*

TP8a2-1 Quotient Pipelined Very High Radix Scalable Montgomery Multipliers
Nan Jiang, David Harris, Harvey Mudd College

TP8a2-2 Multiplierless Piecewise Linear Approximation of Elementary Functions
Oscar Gustafsson, Kenny Johansson, Linkoping University

TP8a2-3 A 1.5 GFLOPS Reciprocal Unit for Computer Graphics
Alberto Nannarelli, Morten Sleth Rasmussen, Matthias Bo Stuart, Danish Technical University

TP8a2-4 Comparison of Montgomery and Barrett modular multipliers on FPGAs
Yinan Kong, The University of Adelaide

TP8a2-5 Design of Shifting and Permutation Units using LSDL Circuit Family
Ramyanshu Datta, University of Texas at Austin; Robert Montoye, Kevin Nowka, Jun Sawada, IBM; Jacob A. Abraham, University of Texas at Austin

TP8a2-6 Dual-Mode Quadruple Precision Floating-Point Divider
Aytunc Isseven, Ahmet Akkas, Koc University

TP8a2-7 A Serial-In Parallel-Out Multiplier Using Redundant Representation for A Class of Finite Fields
Ashkan Hosseinzadeh Namin, Huapeng Wu, Majid Ahmadi, University of Windsor

TP8a2-8 A hybrid RNS adaptive filter for channel equalization.
Gian Carlo Cardarilli, Andrea Del Re, University of Rome Tor Vergata; Alberto Nannarelli, Technical University of Denmark; Marco Re, University of Rome Tor Vergata

TP8a2-9 High-Throughput Radix-4 LogMAP Turbo Decoder Architecture
Yuping Zhang, Keshab K. Parhi, University of Minnesota

TP8a2-10 Experiments for Decimal Floating-Point Division by Recurrence
Ivan Castellanos, James E. Stine, Oklahoma State University

TP8a2-11 Power and Area Efficient Squarer Design
Kyung-Ju Cho, Chonbuk National University

TP8a2-12 Fault-Tolerant Reversible Circuits
Behrooz Parhami, University of California, Santa Barbara

TP8a2-13 Optimizing Parametric Generators for Formally Verified VLSI Circuits
Peter-Michael Seidel, Southern Methodist University; James E. Stine, Oklahoma State University

Session TP8b1 OFDM

TP8b1-1 Improved Active-Set Tone Reservation for Complex-baseband PAR Reduction in OFDM System
Sen Jiang, STMicroelectronics

TP8b1-2 A High-Performance Double Differential OFDM UWB Receiver
Samia Islam, Naofal Al-Dhahir, University of Texas at Dallas

TP8b1-3 OFDMA-based broadcasting and access hybrid network
Hui Liu, Bin Liu, University of Washington

TP8b1-4 Error Probability Analysis of Peaky Signaling over Fading Channels
Mustafa Gursoy, University of Nebraska-Lincoln

TP8b1-5 Experimental Evaluation and Demonstration of Acoustic OFDM
Yusuke Nakashima, Hosei Matsuoka, Takeshi Yoshimura, NTT DoCoMo Inc.

TP8b1-6 Iterative Joint Detection and Decoding for MIMO-OFDM Wireless Communications
Keun Chul Hwang, Sungwoo Park, Moon June, Soon Young Yoon, Samsung Electronics

TP8b1-7 On the Optimality of OFDMA MIMO Channels
Hongxiang Li, Hui Liu, University of Washington

TP8b1-8 Single-Sideband OFDM for Cellular Systems
Giridhar Mandyam, Nokia Inc.

TP8b1-9 Low-Complexity Time-Domain ICI Equalization for OFDM Communications over Rapidly Varying Channels
Tomasz Hrycak, University of Vienna; Gerald Matz, Vienna University of Technology

TP8b1-10 Iterative MAP Multi-User OFDM over Rapidly-Varying Frequency-Selective Channels
Thomas Ketseoglou, Andrew Tom, California State Polytechnic University, Pomona

TP8b1-11 Efficient OFDM Channel Estimation in Mobile Environments Based on Irregular Sampling
Peter Fertl, Gerald Matz, Vienna University of Technology

TP8b1-12 Blind Sampling Clock Offset Estimation in OFDM Systems Based on Second Order Statistics
Amine Laourine, INRS-EMT; Alex Stephenne, Ericsson; Sofiene Affes, INRS-EMT

TP8b1-13 Performance Analysis of a Channel Estimator using Linear Interpolation for OFDM Systems
Athanasios Doukas, Grigorios Kalivas, University of Patras

TP8b1-14 Using Cyclic Prefix to Mitigate Carrier Frequency and Timing Asynchronism in Cooperative OFDM Transmissions
Xiaohua Li, Fan Ng, State University of New York at Binghamton

TP8b1-15 Generalized Subspace-based Algorithms For Blind Channel Estimation In Cyclic Prefix Systems
Borching Su, P. P. Vaidyanathan, California Institute of Technology

TP8b1-16 A Performance Bound for Interpolation of MIMO-OFDM Channels
Michael Larsen, A. Lee Swindlehurst, Brigham Young University; Thomas Svantesson, ArrayComm, Inc.

TP8b1-17 Achievable Outage Rates with Improved Decoding of Multiband OFDM Under Channel Estimation Errors
Sajad Sadough, Ecole Nationale Supérieure de Techniques Avancées; Pablo Piantanida, Pierre Duhamel, Laboratoire des Signaux et Systèmes

TP8b1-18 MMSE Detector for OFDM-based UWB Systems
Prasad Yaddanapudi, Dimitrie C. Popecsu, University of Texas at San Antonio

TP8b1-19 Interference Mitigation Through Interference Avoidance
Suman Das, Harish Viswanathan, Bell Laboratories, Lucent Technologies

TP8b1-20 Multiuser Scheduling using Equal Power in Allocated Subcarriers for OFDM Uplink
Anastasios Giovanidis, Thomas Haustein, Yosia Hadisusanto, Aydin Sezgin, Fraunhofer Institute for Telecommunications - Heinrich-Hertz-Institut; Dongee Kim, Samsung Electronics

TP8b1-21 On the Performance of Spatial Modulation OFDM
Sudharsan Ganesan, Raed Mesleh, Harald Haas, International University Bremen; Chang Wook Ahn, Sangboh Yun, Samsung Advanced Institute of Technology

TP8b1-22 Error Vector Magnitude Analysis for OFDM Systems
Chunming Zhao, G. Tong Zhou, Georgia Institute of Technology

TP8b1-23 Vector transform-based OFDM
Todor Cooklev, San Francisco State University; Pierre Siohan, France Telecom

Session TP8b2 Biomedical Applications

Chair: *Marios Pattichis*

TP8b2-1 An Improved Minimum Description Length Learning Algorithm for Nucleotide Sequence Analysis
Scott Evans, Steve Markham, Andrew Torres, GE Research; Antonis Kourtidis, Douglas Conklin, University at Albany

TP8b2-2 FPGA-Based Full Parallel Implementation Particle Detection
Jianfei Yang, Kyushu Institute of Technology

TP8b2-3 Derivation of the distribution of scatter kernel in X-ray imaging
Heng Li, Radhe Mohan, X. Ronald Zhu, University of Texas M.D. Anderson Cancer Center

TP8b2-4 Estimating the Unmeasured Dynamics of Biological Systems using a Constrained Real-Coded Genetic Algorithm
Cranos Williams, Winser Alexander, William Edmonson, North Carolina State University

TP8b2-5 A Reconfigurable FPGA-based 16-Channel Front-end for MRI
Ishaan Dalal, Ashwin Kirpalani, The Cooper Union for the Advancement of Science and Art

TP8b2-6 Design of Multiple Bandpass Filters with Integer Coefficients for a Microcontroller Environment with an Emphasis on Applications in Wearable Tremor Analysis
Harry Powell, John Lach, University of Virginia

TP8b2-7 Assessing Joint Time-Frequency Methods in the Detection of Dysfunctional Movement
Mark A. Hanson, John Lach, University of Virginia

TP8b2-8 The Filtered Spectral Rotation Measure
Ahmad Rushdi, Jamal Tuqan, University of California, Davis

TP8b2-9 A study of parallel MRI reconstruction approaches for sub-sampled partial-Fourier parallel-coil acquisition schemes
Carlos Zacarias Almarcha, Technical University of Catalonia; W. Scott Hoge, Brigham and Women's Hospital; Dana H. Brooks, Northeastern University

Session WA1a Geospatial Image Processing

Chair: *Jim Fowler*

WA1a-1 Shape-Adaptive Embedded Coding of Ocean-Temperature Imagery 8:30 AM
Justin Rucker, James Fowler, Mississippi State University

WA1a-2 An efficient and highly parallel hyperspectral imagery compression scheme based on distributed source coding 8:55 AM
Ngai-Man Cheung, Antonio Ortega, University of Southern California

WA1a-3 Three-dimensional SPIHT Coding of Hyperspectral Images with Random Access and Resolution Scalability 9:20 AM
Emmanuel Christophe, CNES / Alcatel Alenia Space / Onera; William A. Pearlman, Rensselaer Polytechnic Institute

WA1a-4 Quality assessment for remote sensing imagery: comparison between lossy and near-lossless compression 9:45 AM
Barbara Penna, Tammam Tillo, Enrico Magli, Gabriella Olmo, Politecnico di Torino

Session WA1b Superresolution Image and Video Enhancement

Chair: *Peyman Milanfar & Sina Farsiu*

WA1b-1 Super-resolution Image Reconstruction Algorithms For Steerable Arrays of Sub-imagers 10:30 AM
Sally Wood, Hseuh-Ban Lan, Santa Clara University; Dinesh Rajan, Marc Christensen, Southern Methodist University

WA1b-2 Blind blur estimation using low rank approximation of Cepstrum 10:55 AM
H. Foroosh, University of Central Florida

WA1b-3 Image Registration, Blind Deblurring and Super-Resolution of an Aliased Video Sequence Using Adaptive Kernel Regression 11:20 AM
Hiroyuki Takeda, Sina Farsiu, Peyman Milanfar, University of California, Santa Cruz

WA1b-4 Filter-Bank Based Super-Resolution for Rotated and Blurry Undersampled Images 11:45 AM
Dung Vo Vo, Ryan Prendergast, Truong Nguyen, University of California, San Diego

Session WA2a Distributed Optimization in Wireless Communications

Chair: *Hesham El-Gamal*

WA2a-1 Coalitional Games in Cooperative Radio Networks — 8:30 AM
Suhas Mathur, Lalitha Sankaranarayanan, Narayan Mandayam, WINLAB, Rutgers University

WA2a-2 Leveraging Forward Link for Optimal Reverse Link Allocation: An Incentive Compatible Approach — 8:55 AM
Jennifer Price, Tara Javidi, University of California, San Diego

WA2a-3 Performance of Random Access Scheduling Schemes in Multi-hop Wireless Networks — 9:20 AM
Ness Shroff, Changhee Joo, Purdue University

WA2a-4 Distributed resource allocation and scheduling in OFDMA wireless networks. — 9:45 AM
Xiangping Qin, Boston University; Randall Berry, Northwestern University

Session WA2b Emerging Applications of Communication Theory

Chair: *Olgica Milenkovic*

WA2b-1 Nonlinear Exploration of High-Dimensional Biomedical Datasets — 10:30 AM
Francois Meyer, University of Colorado at Boulder

WA2b-2 Error-Correcting Mechanisms in DNA Self-Assembly — 10:55 AM
Manish Gupta, Navin Kashyap, Queen's University

WA2b-3 A Recursive Filter Algorithm for State Estimation from Simultaneously Recorded Continuous-Valued, Point Process and Binary Observations — 11:20 AM
Todd Coleman, University of Illinois at Urbana-Champaign; Emery Brown, MIT; Mass. General Hospital; Harvard Medical School

WA2b-4 Enumeration of RNA secondary structures: a constrained coding approach — 11:45 AM
Olgica Milenkovic, University of Colorado at Boulder; Emina Soljanin, Bell Laboratories, Lucent Technologies

Session WA3a Clinical and Pharmaceutical Imaging

Chair: *Jasjit Suri*

WA3a-1 A robust strategy for breast lesion classification in ultrasound image volumes — 8:30 AM
Paulo Sérgio Rodrigues, Gilson Antônio Giraldi, Ruey-Feng Chang, Jasjit Suri, National Laboratory for Scientific Computing

WA3a-2 Spatiotemporal independent component analysis for retinal images 8:55 AM
Eduardo Barriga, Marios S. Pattichis, University of New Mexico; Michael Abramoff, Randy Kardon, Young Kwon, University of Iowa; Daniel Ts'o, State University of New York; Peter Soliz, ORION International Technologies, Inc.

WA3a-3 3D ultrasound System for Analysis of Carotid Plaque Progression and Regression 9:20 AM
Aaron Fenster, Bernard Chiu, Anthony Landry, Grace Parraga, David Spence, Robarts Research Institute

WA3a-4 3-D Optimized Statistical Shape and Intensity Model for Prostate Segmentation in Transrectal Ultrasound (TRUS) Volumetric Data Sets 9:45 AM
Fuxing Yang, Diagnostic Ultrasound; Jasjit S. Suri, Biomedical Technologies Inc.; Aaron Fenster, Robarts Research Institute

Session WA3b Biomedical Signal and Image Processing

Chair: *Khan M. Iftekharuddin*

WA3b-1 4D and 5D Image Reconstruction for Tomographic Image Sequences 10:30 AM
Miles Wernick, Yongyi Yang, Jovan G. Brankov, Mingwu Jin, Erwan Gravier, Illinois Institute of Technology; Michael A. King, Bing Feng, University of Massachusetts Medical Center

WA3b-2 Robust Segmentation and Volumetric Registration in a Multi-view 3D Freehand Ultrasound Reconstruction System 10:55 AM
Honggang Yu, Marios S. Pattichis, M. Beth Goens, University of New Mexico

WA3b-3 Brain Tumor Detection in MRI: Methodology and Statistical Validation 11:20 AM
Khan Iftekharuddin, Jing Zheng, Atiqul Islam, University of Memphis; Robert Ogg, Fred Lanningham, St. Jude Children's Hospital

WA3b-4 Speckle Reducing Anisotropic Diffusion for Echocardiography 11:45 AM
Alla Aksel, Andrew D. Gilliam, John A. Hossack, Scott T. Acton, University of Virginia

Session WA4 Nonlinear Filtering and Target Tracking

Chair: *Keh-Ping Dunn*

WA4-1 Bearings-only tracking based on multiple sensor measurements and generalized particle filtering 8:30 AM
Petar M. Djuric, Mónica F. Bugallo, Stony Brook University

WA4-2 Distributed Target Tracking in a Wireless Sensor Network 8:55 AM
Clement Kam, William Hodgkiss, University of California, San Diego

WA4-3	The Jump Tracker: Nonlinear Bayesian Tracking with Adaptive Meshes and a Markov Jump Process Model *Steven Smith, Massachusetts Institute of Technology*	9:20 AM
WA4-4	Nonparametric Bayesian Methods for Large Scale Multi-Target Tracking *Emily Fox, David Choi, Alan Willsky, Massachusetts Institute of Technology*	9:45 AM
	BREAK	10:10 AM
WA4-5	Wave Filters *Fred Daum, Raytheon; Hendrick Lambert, John Weatherwax, Massachusetts Institute of Technology Lincoln Laboratory*	10:30 AM
WA4-6	Monte Carlo Methods for Multi-Modal Distributions *Daniel Rudoy, Patrick Wolfe, Harvard University*	10:55 AM
WA4-7	Tracking Separating Targets with Possibly Merged Measurements Using Generalized Janossy Measure Concept *Shozo Mori, Chee-Yee Chong, BAE Systems*	11:20 AM
WA4-8	Studies in Tracking and launch Point Determination for Ballistic Missile Defens *Robert Hutchins, Naval Postgraduate School*	11:45 AM

Session WA5a Reconfigurable Computing

Chair: *Chris Dick*

WA5a-1	PetaOp/second FPGA Signal Processing for SETI and Radio Astronomy *Dan Werthimer, University of California, Berkeley*	8:30 AM
WA5a-2	The Design of an FPGA-Based MIMO Receiver: Algorithmic and Architectural Interactions *Brent Nelson, Michael Rice, Joseph Palmer, Brigham Young University*	8:55 AM
WA5a-3	Cognitive Radio Experiments using Reconfigurable BEE2 Platform *Danijela Cabric, Artem Tkachenko, Robert Brodersen, Berkeley Wireless Research Center*	9:20 AM
WA5a-4	A Flexible Framework for Wireless Medium Access Protocols *Chris Hunter, Siddharth Gupta, Patrick Murphy, Ashutosh Sabharwal, Rice University; Chris Dick, Xilinx Inc.*	9:45 AM

Session WA5b Low Power Techniques

Chair: *Braden Phillips*

WA5b-1	Automatic Generation of Low-Power Circuits for the Evaluation of Polynomials *Arnaud Tisserand, LIRMM, CNRS-UM2*	10:30 AM
WA5b-2	Confronting Security and Privacy Threats in Modern RFID Systems *Damith Ranasinghe, Peter Cole, Braden Phillips, The University of Adelaide*	10:55 AM

WA5b-3 A new approach for glitch-free multipliers 11:20 AM
Nikolaos Mallios, Cardiff University of Wales; Neil Burgess, Icera Semiconductor

WA5b-4 A Multi-Mode Low-Energy Binary Adder 11:45 AM
Johannes Grad, Illinois Institute of Technology; James E. Stine, Oklahoma State University

Session WA6 MIMO Equalization

Chair: *Christoph Mecklenbrauker*

WA6-1 Soft-Output MIMO Detection Algorithms: Performance and Implementation Aspects 8:30 AM
Christoph Studer, Markus Wenk, Andreas Burg, Helmut Bölcskei, ETH-Zurich

WA6-2 On the Diversity-Complexity Tradeoff in MIMO Spatial Multiplexing Systems 8:55 AM
Johannes Maurer, Gerald Matz, Dominik Seethaler, Vienna University of Technology

WA6-3 High Diversity Detection Using Semidefinite Relaxation 9:20 AM
Joakim Jaldén, KTH, Royal Institute of Technology; Björn Ottersten, Royal Institute of Technology (KTH)

WA6-4 High Rate Golden Space-Time Trellis Coded Modulation 9:45 AM
Yi Hong, University of South Australia; Emanuele Viterbo, Politecnico di Torino; Jean-Claude Belfiore, ENST, Paris

BREAK 10:10 AM

WA6-5 Near Maximum Sum-Rate Non-Zero-Forcing Linear Precoding with Successive User Selection 10:30 AM
David Schmidt, Raphael Hunger, Michael Joham, Wolfgang Utschick, Munich University of Technology (TUM)

WA6-6 Diversity Aspects of Linear and Decision-Feedback Equalizers for Frequency-Selective Multi-Antenna Channels 10:55 AM
Dirk T. M. Slock, Institut Eurecom

WA6-7 Low Complexity Iterative Equalization For Severe Time Dispersive MIMO Channels 11:20 AM
Sajid Ahmed, Tharm Ratnarajah, Queen's University Belfast; Mathini Sellathurai, Cardiff University; Colin Cowan, Queen's University Belfast

WA6-8 Iterative Extended Soft-RLS Algorithm for Joint Channel and Frequency Offset Estimation for Coded MIMO-OFDM Systems 11:45 AM
Kyeong Jin Kim, Nokia Inc.; Tejas Bhatt, Nokia Networks; Ronald A. Iltis, University of California, Santa Barbara

Session WA7a Audio Coding and Processing

Chair: *Susanto Rahardja*

WA7a-1 A study on the best wavelet for audio compression 8:30 AM
R. Capabianco Guido, Universidade de Sao Paulo; Everthon Fonseca, Sankaran Panchapagesan, Jose Pereira, Lucimar Vieira, Sylvio Barbon, Fabricio Sanchez, Marcio Guilherme, Kim Sergio, Thais Scarpa, Mauricio Monteiro, Paulo Fantinato, Emerson Moura, USP

WA7a-2 Efficient bit-allocation for MPEG-4 advanced audio coding 8:55 AM
C-H Yang, H-M Hang, National Chiao Tung University

WA7a-3 Perceptually layered scalable codec 9:20 AM
J. Li, J. J. Johnston, Microsoft Research

WA7a-4 Performance-complexity tradeoffs of the MPEG-4 ALS lossless coding standard 9:45 AM
T. Moriya, N. Harado, Y. Kamamoto, NTT Corporation

Session WA7b Wireless Networks

Chair: *Kostas Psounis*

WA7b-1 On Functional Compression 10:30 AM
Deavavrat Shah, Massachusetts Institute of Technology

WA7b-2 Optimizing multi-copy routing schemes for resource-constrained intermittently connected mobile networks. 10:55 AM
Apoorva Jindal, Konstantinos Psounis, University of Southern California

WA7b-3 IPAC - IP Based Adaptive Packet Concatenation for Multihop Wireless Networks 11:20 AM
Ramya Raghavendra, Amit P. Jardosh, Elizabeth M. Belding-Royer, Haitao Zheng, University of California, Santa Barbara

WA7b-4 Resource Sharing and Delay Improvements in Networks 11:45 AM
Tara Javidi, University of California, San Diego

Session WA8a1 Coding, Decoding, and Receiver Design

WA8a1-1 Improvements To Ordered Statistics Decoding Algorithm
Hon Fah Chong, Hari Krishna Garg, National University of Singapore

WA8a1-2 Parallel Blind Multiuser Synchronization and Sequences Estimation in Multirate CDMA Transmissions
Crépin Nsiala Nzéza, Roland Gautier, Gilles Burel, Université de Bretagne Occidentale

WA8a1-3 Blind Multiuser Identification in Multirate CDMA Transmissions: A New Approach
Crépin Nsiala Nzéza, Roland Gautier, Gilles Burel, Université de Bretagne Occidentale

WA8a1-4 Receiver Architectures and Design Tradeoffs for CDMA Interference Cancellation
John Smee, Jilei Hou, Joseph Soriaga, QUALCOMM Inc.

WA8a1-5 Channel Capacity and Dirty Paper Coding for Gaussian Channels with Additive and Multiplicative Interferences
George Amariucai, Shuangqing Wei, Louisiana State University

WA8a1-6 Carrier and Timing Synchronization of BPSK via LDPC Code Feedback
Esteban Valles, University of California, Los Angeles; Christopher Jones, Jet Propulsion Laboratory - NASA; John Villasenor, Richard Wesel, University of California, Los Angeles

WA8a1-7 MAP Decoding Algorithm for Extended Turbo Product Codes over Flat Fading Channel
Changlong Xu, Ying-Chang Liang, Wing Seng Leon, Institute for Infocomm Research

WA8a1-8 A Unification of ML-Optimal Tree-Search Decoders
Christoph Studer, Andreas Burg, Wolfgang Fichtner, ETH-Zurich

WA8a1-9 An Improved K-Best Sphere Decoding Architecture for MIMO Systems
Qingwei Li, Zhongfeng Wang, Oregon State University

WA8a1-10 A Soft Stack Algorithm
Nisha Champaneria, Todd K. Moon, Jacob H. Gunther, Utah State University

WA8a1-11 Low Complexity Radius Reduction Method for List Sphere Decoders
Yuping Zhang, Jun Tang, Keshab K. Parhi, University of Minnesota

WA8a1-12 Hard Decision Error Correcting Schemes Based on LDPC Codes over Impulse Noise Channels
Milos Ivkovic, Shuguang Cui, University of Arizona

WA8a1-13 Efficient Minimum-Variance Receivers for MC-CDMA Systems Using Transmit Diversity
Shahrokh Nayeb Nazar, Ioannis Psaromiligkos, McGill University

WA8a1-14 Walsh-like Nonlinear Phase Orthogonal Transforms for CDMA Communications
Radha Poluri, Ali N. Akansu, New Jersey Institute of Technology

WA8a1-15 Iterative LDPC CDMA Receiver with EM
Don Torrieri, Army Research Laboratory; Avinash Mathur, Amitav Mukherjee, Hyuck Kwon, Wichita State University

WA8a1-16 Iterative Receiver with EM Channel Estimation and CDMA Turbo Coding
Don Torrieri, Army Research Laboratory; Eser Ustunel, Hyuck Kwon, Wichita State University; Seunghyun Min, Dong-Hee Kang, Samsung Electronics

Session WA8a2 Array Signal Processing

WA8a2-1 A Novel Beamformer Robust to Steering Vector Mismatch
Chun-yang Chen, P. P. Vaidyanathan, California Institute of Technology

WA8a2-2 Complex Amplitude Estimation and Adaptive Detection in Low-Rank Interference
Aleksandar Dogandzic, Benhong Zhang, Iowa State University

WA8a2-3 Adaptive Antenna Algorithms Using Successively Re-encoded Data for GSM
Myung-Hoon Yeon, John Shynk, University of California, Santa Barbara; Richard Gooch, Applied Signal Technology, Inc.

WA8a2-4 Calibrating an array with scan dependent errors using a sparse grid
Maria Lanne, Astrid Lundgren, Mats Viberg, Chalmers University of Technology

WA8a2-5 Optimal Taper Design for Overlapped Subarray Formation
Jacob Griesbach, NAVSYS Corp.

WA8a2-6 CFAR adaptive TVAR versus diagonally loaded AMF detectors
Yuri Abramovich, DSTO; Nicholas Spencer, CSSIP / DSTO; Ben Johnson, RLM Management Pty Ltd & University of South Australia

WA8a2-7 MUSIC and Model-Order Selection for Spherically Invariant Random Vectors
Sebastien Bausson, Philippe Forster, GEA, IUT de Ville d'Avray

WA8a2-8 Space-Time-Frequency Adaptive Processor Design for Ultra-Sparse Apertures
Gary Hatke, Keith Forsythe, Andrew McKellips, Tri Phuong, Massachusetts Institute of Technology Lincoln Laboratory

WA8a2-9 Robust Array Processing with Uncertain Data
Almir Mutapcic, Seung-Jean Kim, Stephen Boyd, Stanford University

WA8a2-10 Endfire Supergain with a One-half Wavelength Spaced Uniform Line array of Pressure and Velocity Sensors
Henry Cox, Hung Lai, Lockheed Martin IS&S

WA8a2-11 Robust MVDR Beamforming with Dual Constraints
Michael Robinson, Ioannis Psaromiligkos, McGill University

WA8a2-12 Optimizing the Size of an Antenna Array
Patrick Vincent, Murali Tummala, John McEachen, Naval Postgraduate School

WA8a2-13 Source Localization from a Moving Array of Sensors
David R. Keller, Todd K. Moon, Jacob H. Gunther, Utah State Universtity

WA8a2-14 "Eye Array" Sound Source Localization
Hedayat Alghassi, Shahram Tafazoli, Peter Lawrence, University of British Columbia

WA8a2-15 Wideband Adaptive Beamforming Using Linear Phase Filterbanks
Peter Vouras, Trac D. Tran, Johns Hopkins University

WA8a2-16 GPS Interference Cancellation Performance for Single and Multiple MVDR Beamformers
Jing Wang, Moeness Amin, Villanova University

Author List

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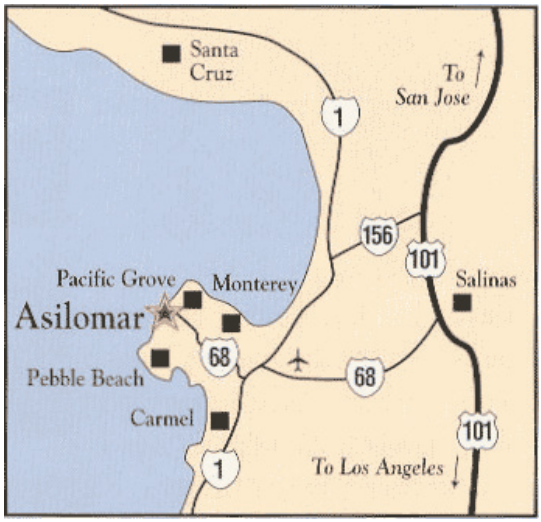
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