THIRTY-EIGHTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS AND COMPUTERS

November 7-10, 2004
Asilomar Hotel and
Conference Grounds

In Cooperation with

IEEE
Signal Processing Society ®

2004 Asilomar Conference
Code Ec/FA
Naval Postgraduate School
833 Dyer Road, Rm. 437
Monterey, CA 93943-5121

THIRTY-EIGHTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS

Organized in cooperation with

NAVAL POSTGRADUATE SCHOOL
Monterey, California

MISSION RESEARCH CORPORATION
Monterey, California

and

IEEE SIGNAL PROCESSING SOCIETY

CONFERENCE COMMITTEE

Welcome from the General Chairman

Prof. Keith A. Teague, Oklahoma State University

It is my distinct pleasure to welcome you to the Thirty-Eighth Asilomar Conference on Signals, Systems and Computers. For many of us who return year after year, this conference has a very special attraction. The technical program is consistently outstanding, providing an opportunity to interact with some of the top researchers in our field, yet the format is relaxed and casual encouraging a workshop-like atmosphere that is friendly and inviting for all. The conference grounds themselves are beautiful, and the Pacific coast is striking. If you are attending for the first time, I hope you will have an enjoyable experience that will bring you back again. If you are returning, I hope you'll have an opportunity to renew many friendships from past years.

This year for the opening Sydney Parker Memorial Lecture we are very fortunate to have Professor Edward J. Delp, The Silicon Valley Professor of Electrical and Computer Engineering and Professor of Biomedical Engineering at Purdue University in West Lafayette, Indiana. Ed's keynote address, Signal and Image Processing: What Went Wrong? will explore the impact that signal and image processing has had on society and whether we've really delivered on our promises. Ed's talk promises to be informative and provocative.

The finalists in this year's student paper contest, under the direction of Dr. Linda DeBrunner, will present their posters on Sunday evening during the welcome reception and social gathering. The top 10 papers, selected from 69 total student entries, will be presented and judged. A total of 629 papers were submitted this year, including 125 invited papers.

The success of this conference depends on the dedicated service of many people. Special thanks are extended to the Technical Program Chairman, Prof. Scott Acton, and his outstanding Technical Program Committee who have developed a marvelous technical program this year. Although the success of a technical conference depends on many people working together, the primary responsibility falls on the Technical Program Chairman. Scott Acton has done a remarkable job this year. Please be sure to thank him and the entire Technical Program Committee when you see them. Thanks are also extended to the conference steering and administrative committees, and the faculty and staff of the Naval Postgraduate School who work tirelessly every year to make this conference possible.

On behalf of the entire Conference Committee, I hope you enjoy the Thirty-Eighth Asilomar Conference on Signals, Systems and Computers.

Conference Steering Committee

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University of Virginia

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3. Array Processing and MIMO
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4. Biomedical Signal and Image Processing
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5. Signal Processing Algorithms and Applications
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7. Speech, Image, and Video Processing
Prof. Jim Schroeder
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2004 Asilomar Conference Session Schedule

Sunday Afternoon, November 7

2:00 - 7:00 PM	Registration – Main Lodge
7:00 - 9:00 PM	Welcoming Reception and Student Paper Contest Poster Session at Asilomar – Merrill Hall

Monday Morning, November 8

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	Radar and Remote Sensing	Randy Moses & Bin Yu
MA2b	Emerging Technologies	Graham Jullien
MA3b	Bioinformatics / Genomic Signal Processing	Gaurau Shaarma
MA4b	Power-Aware DSP Applications	Jeff Coleman
MA5b	Optical Communications and Networks	Leslie Rusch
MA6b	Application of Adaptive Filtering in Digital Communications	Rahul Singh
MA7b	Mathematical Models for Image Processing	Jonathan Manton

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

Monday Afternoon, November 8

1:30 - 5:10 PM AFTERNOON SESSIONS

MP1	Advanced Signal Processing in Biomedical Imaging	Mike Insana
MP2	Modulation and Detection	Tommy Guess
MP3	Adaptive Signal Processing	Louis Beex
MP4a	Radar Array Processing	Joe Guerci
MP4b	Space-time Coded/MIMO Radar	Frank Robey
MP5	OFDM	Ufuk Tureli
MP6	Image and Video Security, Retrieval, and Watermarking	Tom Lookabaugh
MP7	Speech and Audio Coding	Jerry Gibson
MP8a1	Digital System Implementation (Poster)	Neil Burgess
MP8a2	Image Processing for Biometrics (Poster)	Robert Ives
MP8b	Communications in Non-ideal Channels (Poster)	James Zeidler

Monday Evening, November 8

6:30 - 9:30 PM Conference Cocktail Social – Merrill Hall

2004 Asilomar Conference Session Schedule
(continued)

Tuesday Morning, November 9

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	Multi-scale Modeling of Biological Systems	Shayn Peirce
TA2a	Wireless Implementations	Joe Cavalloro
TA2b	High Performance Processing	Carlo Luschi
TA3a	Signal Processing for Agile Sensors	Darryl Morrell
TA3b	Applications of Multirate Systems and Filter Banks in Modern Communications	P. Vaidyanathan
TA4	MIMO/Space-time Coding	Robert Health
TA5	CDMA	Ubli Mitra
TA6	Adaptive Filter Theory	Scott Douglas
TA7	Mathematical Models for Signal Processing	Lang White
TA8a	Communications I (Poster)	Maite Brandt-Pearce
TA8b	Communications II (Poster)	Hui Liu

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

Tuesday Afternoon, November 9

1:30 - 5:10 PM AFTERNOON SESSIONS

TP1	Sensor Array and Relay Networks	Yingbo Hua
TP2	Computer Arithmetic	Milos Ercegovac
TP3	Sensor Networks	Rich Baraniuk & Mark Coat
TP4	Sonar and Acoustical Array Processing	Jim Pitton
TP5	Networks	J. M. Chung
TP6	UWB Communications	Dennis Goeckel
TP7	Image and Video Enhancement and Filtering	Tamal Bose
TP8a1	Biomedical Signal Processing (Poster)	Dana Brooks
TP8a2	Biomedical Image Processing (Poster)	Yibin Zheng
TP8a3	Signal Processing in Genomics and Proteonics (Poster)	Yibin Zheng
TP8a4	Radar Interpretation and Analysis (Poster)	Seth Silverstein
TP8b1	Image and Video Coding (Poster)	Sheila Hemami
TP8b2	Array Processing for Wireless Communications (Poster)	Murat Torlak
TP8b3	Speech Recognition (Poster)	Tina Kholer

Tuesday Evening, November 9

8:00 - 10:00 PM Bonfire next to Crocker Hall

2004 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 10

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

8:30 AM - 12:10 PM MORNING SESSIONS

WA1	Advances in Biomedical Microscopy	Brian Helmke
WA2	VLSI	David Harris
WA3	Wireless	Narayan Mandayam
WA4	Array Processing Functions	Uf Tureli
WA5	FEC	Matt Valenti
WA6	Applications of Adaptive Filtering in Communications	Jamal Tuqan
WA7	Statistical Signal and Image Processing	Vaughan Clarkson
WA8a	DSP Applications (Poster)	Ralph Hippenstiel
WA8b1	Speech Processing (Poster)	Neeraj Magotra
WA8b2	Adaptive Array Processing, STAP (Poster)	Stephen Kogon

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 evening in Merrill Hall, judging 6:00 - 7:00 PM, papers to remain posted during Welcome Reception.

Category A – Communications Systems and Networking
"Code Design for the Relay Channel and Factor Graph Coding"
Mohammad Ali Khojastepour, Nasir Ahmed, and Behnaam Aazhang, Rice University

Category C – Array Processing and MIMO
"Uniform Channel Decmposition for MIMO Communications"
Yi Jiang and Jian Li, University of Florida
"On the Capacity of the Broadband Relay Networks"
Guoqing Li and Hui Liu, University of Washington

Category D - Biomedical Signal and Image Processing
"Automated Detection and Classification of Vascular Abnormalities in Diabelic Retinopathy"
Deepika Vallabha, Kamesh Namuduri, Ramprasath Dorairaj, Wichita State University and Hilary Thompson, Louisiana State University

Category E – Signal Processing Algorithms and Applications
"Maximum Likelihood Diffusive Source Localization Based on Binary Observations"
Yoav Levinbook and Tan Wong, University of Florida
"Detection Performance Limits of Channel Impaired Distributed Sensor Networks"
Qi Cheng, Biao Chen, Pramod Varshney, Syracuse University

Category F – Architecture and Implementation
"Optimal Tower Fields for Hyperelliptic Curve Cryptosystems"
Selcuk Baktir and Berk Sunar, Worchester Polytechnic Institute; Jan Pelzl, Thomas Wollinger, and Christof Paar, Ruhu University Bochum
"An Efficient 21.56Gbps AES Implementation on FPGA"
Xinmiao Zhang and Keshab Parhi, University of Minnesota

Category G – Speech, Image, and Video Processing
"A Generalisation of the Delogne-Kasa Method for Fitting Hyperspheres"
Emanuel Zelniker and Vaughan Clarkson, The University of Queensland
"Blind Image Deconvolution using Constrained Variance Maximization"
Dalong Li and Russell Mersereau, Georgia Institute of Technology; Steven Simske, Hewlett Packard

2004 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, November 8

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

1. Welcome from the General Chairperson:

Prof. Keith A. Teague
Oklahoma State University

2. Session MA1a Distinguished Lecture for the 2004 Asilomar Conference

Prof. Edward J. Delp
Video and Image Processing Laboratory
School of Electrical and Computer Engineering
Purdue University
West Lafayette, Indiana

Signal and Image Processing: What Went Wrong?

Abstract
Many of us in the signal and image processing community believe that signal processing has had a powerful impact on technology and has contributed many new ideas and products. Is this really true? In this talk I argue that perhaps we feel too good about our community and ourselves and maybe we should look a little harder at what we promised and what we delivered.

Biography
Edward J. Delp was born in Cincinnati, Ohio. He received the B.S.E.E. (cum laude) and M.S. degrees from the University of Cincinnati, and the Ph.D. degree from Purdue University. In May 2002 he received an Honorary Doctor of Technology from the Tampere University of Technology in Tampere, Finland. From 1980-1984, Dr. Delp was with the Department of Electrical and Computer Engineering at the University of Michigan, Ann Arbor, Michigan. Since August 1984, he has been with the School of Electrical and Computer Engineering and the Department of Biomedical Engineering at Purdue University, West Lafayette, Indiana. In 2002 he received a chaired professorship and currently is The Silicon Valley Professor of Electrical and Computer Engineering and Professor of Biomedical Engineering. His research interests include image and video cosmpression, multimedia security, medical imaging, multimedia systems, communication and information theory. Dr. Delp is a Fellow of the IEEE, a Fellow of the SPIE, a Fellow of the Society for Imaging Science and Technology (IS&T), and a Fellow of the American Institute of Medical and Biological Engineering. In 2000 he was selected a Distinguished Lecturer of the IEEE Signal Processing Society. In 1990 he received the Honeywell Award and in 1992 the D. D. Ewing Award, both for excellence in teaching. In 2001 he received the Raymond C. Bowman Award for fostering education in imaging science from the Society for Imaging Science and Technology (IS&T). In 2004 he received the Wilfred Hesselberth Award for Teaching Excellence. In 2002 he was awarded a Nokia Fellowship.

Program of 2004
Asilomar Conference
on
Signals, Systems, and Computers

Technical Program Chairman
Prof. Scott T. Acton
University of Virginia

Session MA1b Radar and Remote Sensing

Chair: *Randy Moses & Bin Yu*

MA1b-1 Performance Prediction in Adaptive Noise Radar — 10:15 AM
Brian Rigling, Wright State University

MA1b-2 Nonparametric Spectral Analysis with Missing Data via the EM Algorithm — 10:40 AM
Jian Li, University of Florida; Petre Stoica, Uppsala University; Yanwei Wang, University of Florida; Thomas Marzetta, Bell Laboratories

MA1b-3 Synthetic Aperture Radar Visualization — 11:05 AM
Randolph Moses, Lee Potter, Emre Ertin, Christian Austin, The Ohio State University

MA1b-4 Gust Front Detection in weather radar images by Entropy Matched Functional Template: Summary — 11:30 AM
Osama Alkhouli, Victor DeBrunner, University of Oklahoma

Session MA2b Emerging Technologies

Chair: *Graham Jullien*

MA2b-1 Realizing Stochastically Assembled Nanoarrays — 10:15 AM
John E. Savage, Brown University

MA2b-2 Split Current Quantum-Dot Cellular Automata — 10:40 AM
Konrad Walus, University of Calgary; Rumi Zhang, Wei Wang, University of Western Ontario; Graham A. Jullien, University of Calgary

MA2b-3 How Computer Aided Design (and Computer Science) can help to Drive Physical Science at the Nano-scale. — 11:05 AM
Michael Niemier, Georgia Institute of Technology

MA2b-4 The Bridge: Electron Science driven technologies — 11:30 AM
Kamran Eshraghian, Edith Cowan University

MA2b-5 Robust Digital Control of Nonlinear Micro-Electro-Mechanical Actuators using Sliding-Mode Control — 11:55 AM
N. Yazdi, University of Michigan; H. S. Sane, United Technologies Research Lab; C. H. Mastrangelo, Corning Research Laboratory

Session MA3b Bioinformatics / Genomic Signal Processing

Chair: *Gaurau Shaarma*

MA3b-1 Classification M-FISH Images Using Fuzzy C-means Clustering Algorithm and Normalization Approaches — 10:15 AM
Yu-Ping Wang, Sunil Bharathi, University of Missouri, Kansas City; Kenneth Castleman, Advanced Digital Imaging Research

MA3b-2 DFT based DNA Splicing Algorithms for Prediction of Protein Coding Regions — 10:40 AM
Suprakash Datta, Amir Asif, York University

MA3b-3 Location Proteomics: Determining the Optimal Grouping of Proteins according to their Subcellular Location Patterns as determined from Fluorescence Microscope Images — 11:05 AM
Robert Murphy, Carnegie Mellon University

MA3b-4 Environment aware chem/bio detection and classification — 11:30 AM
Shubha Kadambe, William Barvosa-Cartet, Qin Jiang, HRL Laboratories, LLC

MA3b-5 A Communication Systems Framework for Microarray Data Acquisition — 11:55 AM
Gaurav Sharma, University of Rochester

Session MA4b Power-Aware DSP Applications

Chair: *Jeff Coleman*

MA4b-1 Improved multiple constant multiplication using a minimum spanning tree — 10:15 AM
Oscar Gustafsson, Henrik Ohlsson, Lars Wanhammar, Linkoping University

MA4b-2 Watermarking Multiple Constant Multiplications Solutions — 10:40 AM
Jennifer L. Wong, Miodrag Potkonjak, University of California, Los Angeles

MA4b-3 Comparison of Graphical and Sub-expression Elimination Methods for Design of Efficient Multipliers — 11:05 AM
Andrew G. Dempster, University of Westminster; Malcolm D. Macleod, QinetiQ Ltd.; Oscar Gustafsson, Linkping University

MA4b-4 Low-complexity hybrid form FIR filters using matrix multiple constant multiplication — 11:30 AM
Oscar Gustafsson, Linkoping University; Jeffrey O. Coleman, Naval Research Laboratory; Andrew G. Dempster, University of Westminster; Malcolm D. Macleod, QinetiQ Ltd.

Session MA5b Optical Communications and Networks

Chair: *Leslie Rusch*

MA5b-1 Effects of Crosstalk on the Performance and Design of All-Optical Networks with Fiber Nonlinearities — 10:15 AM
Maite Brandt-Pearce, Yvan Pointurier, University of Virginia

MA5b-2 Intensity noise reduction of incoherent sources using semiconductor optical amplifiers — 10:40 AM
David Richardson, A. D. Mc Coy, P. Horak, M. Ibsen, Ben Thomsen, University of Southampton

MA5b-3 Intensity Noise in Non-coherent to Coherent Wavelength Conversion in Optical Semiconductor Optical Amplifiers — 11:05 AM
Leslie Rusch, Pascal Lemieux, Walid Mathlouthi, Mathieu Roy, Université Laval

MA5b-4 Noise Suppression and Optical ASE Modulation in Saturated Semiconductor Optical Amplifiers — 11:30 AM
Fumio Koyama, Hiroyuki Uenohara, Tokyo Institute of Technology

MA5b-5 Impact of Beat Noise on an Incoherent OCDMA System with Temporal Spreading — 11:55 AM
Bin Ni, James Lehnert, Purdue University

Session MA6b Applications of Adaptive Filtering in Digital Communications

Chair: *Rahul Singh*

MA6b-1 On the Statistical Efficiency of LMS Algorithms — 10:15 AM
Bernard Widrow, Stanford University

MA6b-2 Adaptive Algorithms for OFDMA Wireless Ad Hoc Networks with Multiple Antennas — 10:40 AM
Vishwanath Venkataraman, John Shynk, University of California, Santa Barbara

MA6b-3 Mitigation of Unknown Narrowband Interference Using Instantaneous Error Updates — 11:05 AM
Arun Batra, University of California, San Diego; Takeshi Ikuma, Virginia Tech; James Zeidler, University of California, San Diego; A. A. (Louis) Beex, Virginia Tech; John Proakis, University of California, San Diego

MA6b-4 Assessment of the efficiency of the LMS algorithm based on spectra information — 11:30 AM
Aaron Flores, Bernard Widrow, Stanford University

MA6b-5 A Variable Leaky LMS Adaptive Algorithm — 11:55 AM
Max Kamenetsky, Bernard Widrow, Stanford University

Session MA7b Mathematical Models for Image Processing

Chair: *Jonathan Manton*

MA7b-1 Geometric Optimization for Pose Estimation of Quadratic Surfaces — 10:15 AM
Pei Yean Lee, John Moore, RSISE

MA7b-2 Newton-like Methods for Numerical Optimization on Manifolds — 10:40 AM
Knut Hueper, National ICT Australia Ltd.; Jochen Trumpf, Australian National University

MA7b-3 An Iterative Algorithm Converging to the Principal Subspace Projection Operator with Applications — 11:05 AM
Jonathan Manton, University of Melbourne; Yingbo Hua, University of California, Riverside; Jim Reilly, McMaster University

MA7b-4 Performance Analysis of Super-Resolution Imaging — 11:30 AM
Dirk Robinson, Peyman Milanfar, University of California, Santa Cruz

Session MP1 Advanced Signal Processing Biomedical Imaging

Chair: *Mike Insana*

MP1-1 Statistical Image Reconstruction for Lesion Detection — 1:30 PM
Jinyi Qi, University of California

MP1-2 Error bound for ultrasonic strain imaging with coded excitation — 1:55 PM
Jie Liu, Huini Du, Michael Insana, University of California, Davis

MP1-3 Synthetic Aperture Methods for Ultrasonic Angular Scatter Imaging — 2:20 PM
Drake Guenther, Karthik Ranganathan, M. J. McAllister, University of Virginia; K. W. Rigby, GE Global Research; William F. Walker, University of Virginia

MP1-4 Recursive identification of pulse echo impulse responses for multi-source transmission — 2:45 PM
Fredrik Gran, Jorgen Arendt Jensen, Technical University of Denmark

BREAK — 3:10 PM

MP1-5 Spline Based Time Delay Estimation — 3:30 PM
Francesco Viola, William F. Walker, University of Virginia

MP1-6 Frequency Domain Algebraic Image Reconstruction Technique — 3:55 PM
Yibin Zheng, University of Virginia

MP1-7 Observer efficiency in discrimination tasks simulating malignant and benign breast lesions with ultrasound — 4:20 PM
Craig Abbey, Roger Zemp, Jie Liu, Michael Insana, University of California, Davis

MP1-8 3D In-Vivo MR-Elastography of the Breast — 4:45 PM
Ralph Sinkus, Philips Research

Session MP2 Modulation and Detection

Chair: *Tommy Guess*

MP2-1 Channel Estimation in Overloaded CDMA Systems — 1:30 PM
Satya Ponnaluri, Tommy Guess, University of Virginia

MP2-2 Code and constellation optimization for efficient noncoherent communication — 1:55 PM
Noah Jacobsen, Upamanyu Madhow, University of California, Santa Barbara

MP2-3 Will ET Write or Radiate: inscribed mass vs. electromagnetic channels — 2:20 PM
Christopher Rose, Rutgers University; Gregory Wright, Antiope Associates

MP2-4 A Low Complexity Iterative Detector for MIMO Systems — 2:45 PM
Costas Georghiades, Yongzhe Xie, Texas A&M University

BREAK — 3:10 PM

MP2-5 Outage Capacities for Multi-Antenna, Multi-Access Channels — 3:30 PM
Mahesh Varanasi, Narayan Prasad, University of Colorado

MP2-6 Matched Filtering with Rate Back-off for Low Complexity Communications in Very Large Delay Spread Channels — 3:55 PM
Majid Emami, Mai Vu, Jan Hansen, Arogyaswami Paulraj, Stanford University

MP2-7 Analog Precoder and Equalizer Design for Random Broadband Fading Multichannel Communication — 4:20 PM
Zhifei Fan, Louis L. Scharf, Colorado State University

MP2-8 Near Maximum Likelihood Detection Using An Interior Point Method and Semidefinite Programming — 4:45 PM
Hedi Laamari, Jean Claude Belfiore, ENST-Paris; Nicolas Ibrahim, Wavecom S.A.

Session MP3 Adaptive Signal Processing

Chair: *Louis Beex*

MP3-1 Mean-Square Performance of Adaptive Filters Using Averaging Theory — 1:30 PM
H.-C. Chin, Pohang University of Science and Technology; Ali H. Sayed, University of California, Los Angeles; Woo-Jin Song, Pohang University of Science and Technology

MP3-2 A Sparse Reconfigurable Adaptive Filter Based on a Photonic Switch — 1:55 PM
John Shynk, John Bowers, University of California, Santa Barbara

MP3-3 A Particle Swarm Optimization-LMS Hybrid Algorithm for Adaptive Filtering — 2:20 PM
D. J. Krusienski, W. Kenneth Jenkins, Pennsylvania State University

MP3-4 Statistical Analysis of a Pseudo Affine Projection Algorithm in Non-Stationary Environments — 2:45 PM
Sergio J. M. de Almeida, Catholic University of Pelotas; Neil J. Bershad, University of California, Irvine; Jose Carlos M. Bermudez, Federal University of Santa Catarina

BREAK — 3:10 PM

MP3-5 On Affine Projection Direction Vector (Non-) Whiteness — 3:30 PM
A. A. (Louis) Beex, Virginia Tech; Sundar G. Sankaran, ArrayComm, Inc.

MP3-6 Real-Valued Delayless Subband Affine Projection Algorithm for Acoustic Echo Cancellation — 3:55 PM
Hesu Huang, Chris Kyriakakis, University of Southern California

MP3-7 Multirate Signal Processing for Multiple Listener Low Frequency Room Acoustic Equalization — 4:20 PM
Sunil Bharitkar, Audyssey Labs., Inc; Chris Kyriakakis, University of Southern California

MP3-8 An Alternative Design for Multichannel And Multiple Listener Room Acoustic Equalization — 4:45 PM
Sunil Bharitkar, Audyssey Labs., Inc

Session MP4a Radar Array Processing

Chair: *Joe Guerci*

MP4a-1 Computationally Efficient Beamforming on Real Experimental Data — 1:30 PM
Claudio Marino, Paul Chau, University of California, San Diego

MP4a-2 A Novel Space-Time Adaptive Processing Algorithm 1:55 PM
Harri Saarnisaari, Henri Puska, Centre for Wireless Communications

MP4a-3 Three-Phase Sample Timing on a Wideband Triangular Array of 4/3 the Usual Density Reduces the Nyquist Rate for Far-Field Signals by Two Thirds 2:20 PM
Jeffrey O. Coleman, Naval Research Laboratory

MP4a-4 Estimation of Space-Time Clutter Rank for Subarrayed Data 2:45 PM
Louis Fertig, MIT Lincoln Laboratory

Session MP4b Space-Time Coded/MIMO Radar

Chair: *Frank Robey*

MP4b-1 Transmit Beamforming for MIMO Radar Systems using Partial Signal Correlation 3:30 PM
Daniel R. Fuhrmann, Geoffrey San Antonio, Washington University in St. Louis

MP4b-2 MIMO Radar Theory and Experimental Results 3:55 PM
Frank Robey, Scott Coutts, Jeff McHarg, Dennis Weikle, Kevin Cuomo, MIT Lincoln Laboratory

MP4b-3 Performance of MIMO Radar Systems: Advantages of Angular Diversity 4:20 PM
Eran Fishler, New York University; Alex Haimovich, New Jersey Institute of Technology; Rick Blum, Lehigh University; Len Cimini, University of Delaware; Reinaldo Valenzuela, Bell Laboratories, Lucent Technologies

MP4b-4 MIMO Radar Imaging System Performance Issues 4:45 PM
Keith Forsythe, Dan Bliss, MIT Lincoln Laboratory

Session MP5 OFDM

Chair: *Ufuk Tureli*

MP5-1 A Multiuser OFDM System With User Cooperation 1:30 PM
Sarod Yatawatta, Athina Petropulu, Drexel University

MP5-2 On the Optimality of the OFDMA Network 1:55 PM
Guoqing Li, Hui Liu, University of Washington

MP5-3 Coded Block OFDM for the Frequency Selective Fading Channel 2:20 PM
Michael McCloud, University of Pittsburgh

MP5-4 Subcarrier Allocation in OFDMA Systems: Beyond water-filling? 2:45 PM
Somsak Kittipiyakul, Tara Javidi, University of Washington

BREAK 3:10 PM

MP5-5 Maximum Likelihood Symbol Synchronization for OFDM-based WLANs in Unknown Frequency-Selective Fading Channels 3:30 PM
Erchin Serpedin, Yik-Chung Wu, Texas A&M University

MP5-6 Improved Codes for Differential Space-Time-Frequency Coded OFDM 3:55 PM
Qian Ma, Cihan Tepedelenlioglu, Arizona State University

MP5-7 A Mixture Kalman Filter Approach for Blind OFDM Channel Estimation 4:20 PM
Ruifeng Zhang, Wei Chen, Drexel University

MP5-8 Experimental Studies on Optimal Speace Frequency Group Codes 4:45 PM
Yao Chen, Radhika Iyer, Uf Tureli, Stevens Institute of Technology

Session MP6 Image and Video Security, Retrieval, and Watermarking

Chair: *Tom Lookabaugh*

MP6-1 Watermarking to Track Motion Picture Theft 1:30 PM
Jeffrey Bloom, Christos Polyzois, Sarnoff Corporation

MP6-2 Lightweight Security Principles for Wireless Multimedia-Based Sensor Networks 1:55 PM
Deepa Kundur, Takis Zourntos, Texas A&M University

MP6-3 Selective Encryption, Information Theory, and Compression 2:20 PM
Tom Lookabaugh, University of Colorado

MP6-4 Exposing Digital Content Piracy: Approaches, Issues, and Experiences 2:45 PM
Patrick McDaniel, Simon Byers, Dave Kormann, AT&T; Lorrie Cranor, Computer Science Department, CMU; Eric Cronin, University of Pennsylvania

BREAK 3:10 PM

MP6-5 A Cryptographic Watermark Embedding Technique 3:30 PM
Jian Ren, Tongtong Li, Michigan State University; Mehrdad Nadooshan, Avaya, Inc.

MP6-6 Compact representation and combination of MPEG-7 color and texture descriptors for efficient image retrieval 3:55 PM
Ramprasath Dorairaj, Kamesh Namuduri, Wichita State University

MP6-7 A time-frequency inspired robust image watermarking 4:20 PM
Mahmood Al-khassaweneh, Selin Aviyente, Michigan State University

MP6-8 Sub-Gaussian Rotation-Invariant Features for Steerable Wavelet-Based Image Retrieval 4:45 PM
George Tzagkarakis, University of Crete; Baltasar Beferull-Lozano, Swiss Federal Institute of Technology (EPFL); Panagiotis Tsakalides, University of Crete

Session MP7 Speech and Audio Coding

Chair: *Jerry Gibson*

MP7-1 Improving Upon Toll Quality Speech for VoIP 1:30 PM
Richard Cox, AT&T Labs; David Malah, Technion - Israel Institute of Technology; David Kapilow, AT&T Labs

MP7-2 Voice Over IP: The Challenges Behind the Vision 1:55 PM
Fouad A. Tobagi, Stanford University

MP7-3 Packet Loss Concealment in a Secure Voice over IP Environment 2:20 PM
Christopher M. White, Keith A. Teague, Oklahoma State University; Edward J. Daniel, Northrop Grumman

MP7-4 Spectral Estimation Performance of Circular Linear Prediction Modeling for Real-Speech Signals 2:45 PM
Ali Erdem Ertan, Tom P. Barnwell III, Georgia Institute of Technology

BREAK 3:10 PM

MP7-5 A Fast Search Technique for Multistage Vector Quantization Based on the Introduction of Tree-Structure to each Stage 3:30 PM
Wai Chu, DoCoMo USA Labs

MP7-6 High Quality Sound from Small Loudspeakers Using the Exact Inverse 3:55 PM
Khosrow Lashkari, DoCoMo USA Labs

MP7-7 SNR Scalability, Multiple Descriptions, and Perceptual Distortion Measures 4:20 PM
Jerry Gibson, University of California, Santa Barbara

MP7-8 Improved Perceptually Inspired Speech Enhancement Using a Psychoacoustic Model 4:45 PM
Rongqiang Hu, David V. Anderson, Georgia institute of Technology

Session MP8a1 Digital System Implementations

Chair: *Neil Burgess*

MP8a1-1 Array based Architecture for EZW Image Encoding on FPGA using HandelC
Suchitra Sathyanarayana, Chai Soon Lim, Srikanthan Thambipillai, Nanyang Technological University

MP8a1-2 Achieving Hardware-Efficient Neural Network Based Pattern Recognition System Through Linear Approximation
Siew Kei Lam, Srikanthan Thambipillai, Nanyang Technological University; Christopher T. Clarke, University of Bath; Han Sim (Eugene) Low, Nanyang Technological University

MP8a1-3 Bat on an FPGA: A bio-mimetic implementation of a highly parallel signal processing system
Christopher T. Clarke, Lin Qiang, University of Bath

MP8a1-4 Efficient Implementation of Digital Filters Using Novel Reconfigurable Multiplier Blocks (ReMB)
Suleyman Sirri Demirsoy, Andrew G. Dempster, Izzet Kale, University of Westminster

MP8a1-5 An Efficient 21.56Gbps AES Implementation on FPGA
Xinmiao Zhang, Keshab K. Parhi, University of Minnesota

MP8a1-6 Implementation of Scalable Elliptic Curve Cryptosystem Crypto-Accelerators for GF(2^m)
Aaron Cohen, Keshab K. Parhi, University of Minnesota

MP8a1-7 On the Design of an On-line Complex FIR Filter
Robert McIlhenny, California State University, Northridge; Milos D. Ercegovac, University of California, Los Angeles

MP8a1-8 A Dual-field Modular Division Algorithm and Architecture for Application Specific Hardware
Alexandre Tenca, Lo'ai Tawalbeh, Song Park, Cetin Koc, Oregon State University

MP8a1-9 Interfacing a High Speed Crypto Accelerator to an Embedded CPU
Alireza Hodjat, Ingrid Verbauwhede, University of California, Los Angeles

MP8a1-10 Real Time STAP for UESA RADAR
R. David Dikeman, Carleton Moore, Lockheed Martin Corp.; Kristine Bell, Harry Van Trees, George Mason University

MP8a1-11 Balancing the Tradeoffs Between Coefficient Quantization and Internal Quantization in FIR Digital Filters
Minoda Magar, Linda DeBrunner, University of Oklahoma

MP8a1-12 On-Line IEEE Floating-Point Multiplication and Division for Reduced Power Dissipation
Peter-Michael Seidel, Southern Methodist University

MP8a1-13 An Efficient PIM (Processor-In-Memory) Architecture for BLAST
Jung-Yup Kang, University of Southern California; Jean-Luc Gaudiot, University of California, Irvine

MP8a1-14 Error Bound Reduction for Fixed-Width Modified Booth Multiplier
Kyung-Ju Cho, Seong-Min Lee, Seong-Hun Park, Jin-Gyun Chung, Chonbuk National University

MP8a1-15 A Reconfigurable Unsigned/Signed Binary Multiplier
Guoping Wang, Indiana University-Purdue University

MP8a1-16 Sub-Pico Joule Switching High-Speed Reliable CMOS Circuits Are Feasible
Jabulani Nyathi, Valeriu Beiu, Washington State University; Snorre Aunet, University of Oslo

MP8a1-17 3D Graphics Tile-Based Systolic Scan-Conversion
Dan Crisu, Stamatis Vassiliadis, Sorin Cotofana, Delft University of Technology; Petri Liuha, Nokia Research Center

MP8a1-18 Optimal Tower Fields for Hyperelliptic Curve Cryptosystems
Selcuk Baktir, Worcester Polytechnic Institute; Jan Pelzl, Thomas Wollinger, Ruhr University Bochum; Berk Sunar, Worcester Polytechnic Institute; Christof Paar, Ruhr University Bochum

MP8a1-19 Unified Decoder Architectures for Repeat-Accumulate and LDPC Codes
Mohammad Mansour, American University of Beirut

MP8a1-20 Sparse-coefficient polynomial approximations for hardware implementations
Nicolas Brisebarre, Jean-Michel Muller, Arnaud Tisserand, LIP ENS Lyon

MP8a1-21 Design and performance analysis of OFDMA Modulator based on IEEE 802.16a standard
Hyeong Sook Park, Electronics and Telecommunications Research Instit

MP8a1-22 Efficient High-Speed Quasi-Cyclic LDPC Decoder Architecture
Yuping Zhang, University of Minnesota; Zhongfeng Wang, Oregon State University; Keshab K. Parhi, University of Minnesota

MP8a1-23 Implementation and Evaluation of an OFDM-Based MIMO System
Zhipeng Liu, Jeremy Parks, Scott Morrison, Karl Gugel, University of Florida

MP8a1-24 Implementation of an LDPC Decoder on a Vector Signal Processor
Gottfried Lechner, Telecommunications Research Center Vienna (ftw.); Andreas Bolzer, On Demand Microelectronics; Jossy Sayir, Telecommunications Research Center Vienna (ftw.); Markus Rupp, Technical University of Vienna

Session MP8a2 Image Processing for Biometrics

Chair: *Robert Ives*

MP8a2-1 Investigations in Uncooled Infrared Imaging Face Recognition
Colin Lee, Monique Fargues, Gamani Karunasiri, Naval Postgraduate School

MP8a2-2 Iris Recognition using Histogram Analysis
Robert Ives, Anthony Guidry, Delores Etter, U.S. Naval Academy

MP8a2-3 Palmprint Recognition Using Correlation Filter Classifiers
Pablo Hennings, B.V.K. Vijayakumar, Carnegie Mellon University

MP8a2-4 A Pseudo-spectral Fusion Approach to Fingerprint Matching.
Sanjeev Malalur, Michael Manry, University of Texas, Arlington

MP8a2-5 Secure Fuzzy Vault Based Fingerprint Verification System
Shenglin Yang, Ingrid Verbauwhede, University of California, Los Angeles

MP8a2-6 Iris Pattern Extraction using Bit-Plane Analysis
Bradford Bonney, Robert Ives, Delores Etter, Yingzi Du, U.S. Naval Academy

MP8a2-7 Efficient Boosting for Synthesizing a Minimally Compact Reduced Complexity Correlation Filter Bank for Biometric Identification
Marios Savvides, B.V.K. Vijayakumar, Pradeep Khosla, Carnegie Mellon University

MP8a2-8 Face Authentication of Variable Illumination Low-Bitrate JPEG2000 Wavelet Face Images using Advanced Correlation Filters for mobile devices
Surya Wijaya, Marios Savvides, B.V.K. Vijayakumar, Carnegie Mellon University

Session MP8b Communications in Non-Ideal Channels

Chair: *Amy Bell*

MP8b-1 Precise Performance Analysis of MRC Diversity in Micro-Cellular system with cochannel interference
Kathiravetpillai Sivanesan, Norman C. Beaulieu, University of Alberta

MP8b-2 On the Performance of V-BLAST with Zero-Forcing Successive Interference Cancellation Detector
Cong Shen, Tsinghua University

MP8b-3 Blind Image Suppression and Carrier Tracking in Direct-Conversion Receivers Based on I/Q Signal Separation
Mikko Valkama, Markku Renfors, Tampere University of Technology; Visa Koivunen, Helsinki University of Technology

MP8b-4 Space-Time Coded CDMA: Blind Equalization and Multiuser Detection
Xiaodong Yue, Central Missouri State University; Weihua Zhu, Howard Fan, University of Cincinnati

MP8b-5 On the Effect of Power and Channel Estimation in Equalized Blind PIC for Downlink Multirate CDMA Communications
Belkacem Mouhouche, Wavecom S.A. and Telecom Paris; Karim Abed-Meraim, Telecom Paris; Nicolas Ibrahim, Wavecom S.A.

MP8b-6 Time-Hopping Code Characterization for Multi-User Interference Mitigation in Ultra Wide Band Impulse Radio
Anne-Laure Deleuze, Christophe Le Martret, THALES Land and Joint Systems; Philippe Ciblat, Ecole Nationale Superieure des Telecommunications

MP8b-7 Iterative Joint Channel Estimation and Interference Cancellation Using a SISO-SAGE Algorithm for Coded DS-CDMA
Bin Hu, Alexander Kocian, Bernard Fleury, Aalborg University; Lars Rasmussen, University of South Australia; Asger Hviid, Romain Piton, Aalborg University

MP8b-8 Ternary 2D Orthogonal Variable-Spreading-Factor Codes for Multichannel DS-UWB
Di Wu, Predrag Spasojevic, Ivan Seskar, Rutgers University

MP8b-9 Dynamic Resource Allocation for Frequency- Selective Orthogonal QS-CDMA Systems
Slawomir Stanczak, Fraunhofer German-Sino Lab for Mobile Comm.; Angela Feistel, Technical University of Berlin

MP8b-10 Blind Identification of Two Dimensional Volterra Models Using Minimax Type of Optimization and Higher Order Cumulants
Duangrat Gansawat, Tania Stathaki, Imperial College London

MP8b-11 Blind Timing and Channel Estimation for Ultra-Wideband Multi-User Ad Hoc Access
Xiliang Luo, Georgios B. Giannakis, University of Minnesota

MP8b-12 Optimal Integration Time Analysis for Ultra-wideband Cross-correlation Receiver
Yi-Ling Chao, University of Southern California

MP8b-13 Novel Ultra-wideband Transmitted Reference Systems
Yi-Ling Chao, Robert A Scholtz, University of Southern California

MP8b-14 A New Pulse Shaped Frequency Division Multiplexing Technique for Doubly Dispersive Channels
Sibasish Das, Philip Schniter, The Ohio State University

MP8b-15 A Multicarrier Receiver for Partial Retransmissions
Jeremy Roberson, Zhi Ding, University of California, Davis

MP8b-16 Iterative Frequency-Domain Equalization for Single-Carrier Systems in Doubly-Dispersive Channels
Philip Schniter, Hong Liu, The Ohio State University

MP8b-17 A Multi-Code Space-Frequeny RAKE Receiver
Haifeng Chen, Volker Jungnickel, Volker Pohl, Fraunhofer Institute for Telecommunications; Clemens von Helmolt, Fraunhofer Institute for Telecommunictaions

MP8b-18 A model averaging approach for equalizing sparse communication channels
Yngve Selen, Peter Stoica, Niclas Sandgren, Uppsala University

MP8b-19 A Low-Cost Scalable Matched Filter Bank Receiver for GFSK Signals with Carrier Frequency and Modulation Index Offset Compensation
Charles Tibenderana, Stephan Weiss, University of Southampton

MP8b-20 Multiple-Channel Optimized Quantizers for Rayleigh Fading Channels
Yugang Zhou, Wai-Yip Chan, Tiago Falk, Queen's University

MP8b-21 Semi-blind Multi-channel Identification in Asynchronous Multi-user OFDM Systems
Hyejung Jung, Michael Zoltowski, Purdue University

MP8b-22 Adaptive Wiener Interpolation Channel Estimation for Pilot Symbol Assisted MIMO OFDM in low mobility environment
Weijun Zhu, Michael Fitz, University of California, Los Angeles

MP8b-23 On The Diversity Order of Single-Carrier Zero-Forcing Frequency-Domain Linear Equalizers
Ahmadreza Hedayat, Aria Nosratinia, Naofal Al-dhahir, University of Texas, Dallas

MP8b-24 Performance of Space-Frequency Codes in MIMO Channels with Frequency Offset
Dung Ngoc Dao, Chintha Tellambura, University of Alberta

MP8b-25 Interference Suppression for MC-CDMA by Frequency Domain Oversampling
Brandon Hombs, James Lehnert, Purdue University

MP8b-26 Optimization of SNDR in the Presence of Amplitude Limited Nonlinearity and Multipath Fading
Hua Qian, Raviv Raich, Guotong Zhou, Georgia Institute of Technology

MP8b-27 Performance Analysis of Multiuser OFDM with Optimum Combining
Siamak Sorooshyari, David Daut, Rutgers University

MP8b-28 Estimating Parameters of Received UWB Monocycles
Chee-Cheon Chui, Robert A Scholtz, University of Southern California

MP8b-29 A Novel Decision Feedback Equalizer Design Based on Generalized Space Translation
Chiang-yu Chen, Stanford University; Conor Heneghan, University College Dublin; John Cioffi, Stanford University

MP8b-30 Long Range Channel Prediction for Adaptive OFDM Systems
Ian Wong, Antonio Forenza, Robert W. Heath, Jr., Brian L. Evans, University of Texas, Austin

Session TA1 Multi-Scale Modeling of Biological Systems

Chair: *Shayn Peirce*

TA1-1 Functionally and Structurally Integrated Computational Models of the Heart 8:30 AM
Andrew McCulloch, University of California, San Diego

TA1-2 Cellular Automata Models of Biological Patterning 8:55 AM
Shayn Peirce, University of Virginia

TA1-3 Building Blocks for Computational Models of Angiogenesis 9:20 AM
Aleksander S. Popel, Feilim Mac Gabhann, Emmanouil D. Karagiannis, Johns Hopkins University

TA1-4 Multivariate approaches for revealing biological signal-response relationships 9:45 AM
Kevin Janes, Douglas Lauffenburger, Massachusetts Institute of Technology

BREAK 10:10 AM

TA1-5 Identification of Extended Hammerstein Model for Renal Hemodynamics 10:30 AM
Mathieu Lorentz, Geoffrey A. Williamson, Illinois Institute of Technology; Karen A. Griffin, Anil K. Bidani, Loyola University Medical Center

TA1-6 On Nonlinear System Modeling Using Principal Dynamic Modes 10:55 AM
Geoffrey A. Williamson, Illinois Institute of Technology; Rifat Hacioglu, Zonguldak Karaelmas University

TA1-7 A Self Organizing Map Approach to Physiological Data Analysis For Enhanced Group Performance 11:20 AM
Adele Doser, Sandia National Laboratories

TA1-8 Measurement of Nonlinear 2nd-Order Kernels Using Gaussian and Natural Inputs 11:45 AM
Ulrich Nuding, Ludwig-Maximilians-University Munich; Christoph Zetzsche, Kerstin Schill, University of Bremen; Gert Hauske, Technical University Munich

Session TA2a Wireless Implementations

Chair: *Joe Cavalloro*

TA2a-1 Compact FPGA Hardware Accelerator for Functional Verification & Rapid Prototyping of 4G Wireless Systems 8:30 AM
Yuanbin Guo, Dennis McCain, Nokia Inc.

TA2a-2 Implementation Issues in Spectrum Sensing for Cognitive Radios 8:55 AM
Danijela Cabric, Shridhar Mubaraq Mishra, Robert W. Brodersen, BWRC

TA2a-3 Options for Arbitrary Resamplers in FPGA-Based Modulators 9:20 AM
Chris Dick, Xilinx; fred harris, San Diego State University

TA2a-4 Trained versus Noncoherent Space-Time Coding: Validation in Field Testing 9:45 AM
Weijun Zhu, Heechoon Lee, Daniel Liu, ShingWa Wong, David Browne, Sunder Venkateswaren, Michael Fitz, University of California, Los Angeles

Session TA2b High Performance Processing

Chair: *Carlo Luschi*

TA2b-1 Implementation Aspects of High-Speed Wireless Multicarrier LAN/PAN Systems 10:30 AM
Stephan ten Brink, Ravi Mahadevappa, Realtek Semiconductors

TA2b-2 Exact and Approximated Expressions of the Log-Likelihood Ratio for 16-QAM Signals 10:55 AM
Steve Allpress, Carlo Luschi, Steve Felix, Icera Semiconductor

TA2b-3 Performance and Implementation Aspects of a 3GPP HSDPA Mobile Receiver 11:20 AM
Rudolf Tanner, Moritz Harteneck, UbiNetics Ltd.

TA2b-4 Computing the feedback filter of the decision feedback equalizer at the FFT speed 11:45 AM
Arnaldo Spalvieri, Maurizio Magarini, Politecnico di Milano

Session TA3a Signal Processing for Agile Sensors

Chair: *Darryl Morrell*

TA3a-1 Sensor Scheduling Approaches for SWARMS and Ballistic Missile Defense 8:30 AM
C. O. Savage, W. Moran, D. E. Waagen, H. A. Schmitt, Raytheon Missile Systems

TA3a-2 Computational Origami for Sensor Configuration and Control 8:55 AM
H. A. Schmitt, D. E. Waagen, I. Streinu, G. Barbastathis, Raytheon Missile Systems

TA3a-3 Optimal Quantization Employing Programmable Flash Analog to Digital Converters 9:20 AM
Venkatesh Krishnan, Chris Duffy, David V. Anderson, Paul Hasler, Georgia Institute of Technology

TA3a-4 Waveform Design and Scheduling for Agile Sensors for Target Tracking 9:45 AM
Sandeep Sira, Darryl Morrell, Antonia Papandreou-Suppappola, Arizona State University

Session TA3b Applications of Multirate Systems and Filter Banks in Modern Communications

Chair: *P. Vaidyanathan*

TA3b-1 Optimum Resource Allocation in DMT Systems: A Separation Principle — 10:30 AM
Soura Dasgupta, University of Iowa; Ashish Pandharipande, Samsung

TA3b-2 A Guard Band Configuration Scheme for Single-Antenna Vector OFDM Systems — 10:55 AM
Hong Zhang, Xiang-Gen Xia, University of Delaware

TA3b-3 Analysis of certain new methods for blind identification of FIR channels — 11:20 AM
P. P. Vaidyanathan, Borching Su, California Institute of Technology

TA3b-4 Real-Orthogonal STBC Representation Using Filter Banks — 11:45 AM
Ka Shun Carson Pun, Truong Nguyen, University of California, San Diego

Session TA4 MIMO/Space-Time Coding

Chair: *Robert Health*

TA4-1 Opportunistic Multicasting — 8:30 AM
Hesham El Gamal, Praveen Kumar, Ohio State University

TA4-2 Asymptotics of downlink system capacity — 8:55 AM
Howard Huang, Sivarama Venkatesan, Bell Labs, Lucent Technologies

TA4-3 Uniform Channel Decomposition for MIMO Communications — 9:20 AM
Yi Jiang, Jian Li, University of Florida

TA4-4 Space Time Block Coding with Transmitter Interference Reduction — 9:45 AM
Oghenekome Oteri, Arogyaswami Paulraj, Stanford University

BREAK — 10:10 AM

TA4-5 Information Theoretic Comparison of MIMO Wireless Communication Receivers in the Presence of Interference — 10:30 AM
Dan Bliss, Keith Forsythe, MIT Lincoln Laboratory

TA4-6 Code Design for Optical MIMO Systems Over Fading Channels — 10:55 AM
Maite Brandt-Pearce, University of Virginia; Stephen Wilson, University of Virgninia; Qianling Cao, Michael Baedke, University of Virginia

TA4-7 A Lower Bound on Outage Probability of Limited Feedback MIMO Beamforming Systems — 11:20 AM
Bishwarup Mondal, Robert W. Heath, Jr., University of Texas, Austin

TA4-8 On Iterative Decoding Methods for Lattice Based Space-Time Coded Systems with EXIT Chart Analyses — 11:45 AM
Yabo Li, Xiang-Gen Xia, University of Delaware

Session TA5 CDMA

Chair: *Ubil Mitra*

TA5-1 Optimization Issues in Combined Chip and Symbol Level Equalization for Downlink WCDMA Receivers — 8:30 AM
Ahmet Bastug, Dirk Slock, Eurecom Institute

TA5-2 Robust Blind Channel Estimation and Detection for Multi-carrier CDMA — 8:55 AM
Hongbin Li, Rensheng Wang, Stevens Institute of Technology

TA5-3 On the Impact of Arrays of Heterogeneous Antennas on the Performance of CDMA Systems — 9:20 AM
Brian Hughes, Huaiyu Dai, North Carolina State University

TA5-4 SPREAD-SPECTRUM TECHNIQUES FOR DISTRIBUTED SPACE-TIME COMMUNICATION IN SENSOR NETWORKS — 9:45 AM
Gwen Barriac, Raghuraman Mudumbai, Upamanyu Madhow, University of California, Santa Barbara

BREAK — 10:10 AM

TA5-5 Iterative MAP Channel Estimation and Multiuser Detection for DS-CDMA in Frequency-Selective Fading Channels — 10:30 AM
Sau-Hsuan Wu, Urbashi Mitra, C.-C. Jay Kuo, University of Southern California

TA5-6 Reduced Rank Noncoherent Interference Suppression for CDMA Communications — 10:55 AM
Ali Taha Koc, Ozgur Ozdemir, Murat Torlak, University of Texas, Dallas

TA5-7 A Cyclostationary Receiver for Aperiodic CDMA Signals — 11:20 AM
Vishwanath Venkataraman, John Shynk, University of California, Santa Barbara; Richard Gooch, Applied Signal Technology, Inc.

TA5-8 Joint Channel Estimaiton and Signal Detection for Uplink MC-CDMA Systems over Time-Varying Multiple Channels — 11:45 AM
Huahui Wang, Michigan State Univerisity; Tongtong Li, Michigan State University

Session TA6 Adaptive Filtering Theory

Chair: *Scott Douglas*

TA6-1 Phase-Only Adaptive Filters: Theory and Algorithms — 8:30 AM
Scott Douglas, Southern Methodist University

TA6-2 Window Optimization Issues in Recursive Least-Squares Adaptive Filtering and Tracking 8:55 AM
Tayeb Sadiki, Mahdi Triki, Dirk Slock, Eurecom Institute

TA6-3 Multiple Principal Components Proportionate Normalized Least Mean Squares 9:20 AM
Steven Grant, Steven Gay, University of Missouri-Rolla

TA6-4 Affine Projection and Recursive Least Squares Adaptive Filters Employing Partial Updates 9:45 AM
Patrick Naylor, Andy Khong, Imperial College London

BREAK 10:10 AM

TA6-5 An improved variable tap-length algorithm for structure adaptation 10:30 AM
Yu Gong, Colin Cowan, Queen's University, Belfast

TA6-6 Equally constrained affine projection algorithm 10:55 AM
Sung Eun Jo, Sang-Woo Kim, Pohang University of Science and Technology

TA6-7 Adaptive Projected Subgradient Method and Set Theoretic Adaptive Filtering with Multiple Convex Constraints 11:20 AM
Konstantinos Slavakis, Isao Yamada, Nobuhiko Ogura, Tokyo Institute of Technology

TA6-8 A New Order Recursive Multiple Order Multichannel Fast QRD-RLS Algorithm 11:45 AM
Antonio Ramos, Jos Apolinrio Jr., Instituto Militar de Engenharia; Marcio Siqueira, Cisco Systems

Session TA7 Mathematical Models for Signal Processing

Chair: *Lang White*

TA7-1 Signal Design for MIMO Tracking Radar 8:30 AM
Langford White, Pinaki Ray, University of Adelaide

TA7-2 Joint Data Compression and Error Protection over Wireless Fading Channels using LDPC Codes 8:55 AM
Haitong Sun, Mihaela Vanderschaar, Zhi Ding, University of California, Davis

TA7-3 Convolutive Blind Signal Separation in Acoustics by Joint Approximate Diagonalization of Spatiotemporal Correlation Matrices 9:20 AM
Marcel Joho, Phonak

TA7-4 A Bayesian Approach to Blind Source Recovery 9:45 AM
Mike Daly, Jim Reilly, McMaster University; Jonathan Manton, University of Melbourne

BREAK 10:10 AM

TA7-5 Empirical Canonical Correlation Analysis in Subspaces 10:30 AM
Ali Pezeshki, Colorado State Uinversity; Louis L. Scharf, Mahmood R. Azimi-Sadjadi, Colorado State University

TA7-6 A Whitener for a Complex Signal Using a Complex Toeplitz + Hankel Solver 10:55 AM
Todd Moon, Utah State University; Fred Kochman, Maureen Quirk, Center for Communications Research

TA7-7 High SNR Performance Analysis of F-ESPRIT 11:20 AM
Joakim Gunnarsson, Tomas McKelvey, Chalmers University of Technology

TA7-8 Maximum Likelihood Diffusive Source Localization Based On Binary Observations 11:45 AM
Yoav Levinbook, Tan Wong, University of Florida

Session TA8a Communications I

Chair: *Maite Brandt-Pearce*

TA8a-1 Fast Timing Recovery for Linearly and Non-linearly Modulated Systems
Kai Shi, Erchin Serpedin, Texas A&M University

TA8a-2 A Low-Sensitivity On-Chip Impulse Radio Pulse Generation Method
Murat Demirkan, Richard Spencer, University of California, Davis

TA8a-3 Interspersed Sinusoidal Transforms for OFDM Systems
Giridhar Mandyam, Nokia Inc.

TA8a-4 Practical Bit Loading Schemes for Multi-Antenna Multi-User Wireless OFDM Systems
Diego Bartolome, Telecommunications Technological Center Catalonia; Ana I. Perez-Neira, Technical University of Catalonia (UPC)

TA8a-5 Evaluation of the Union bounds for Higher Order Coded Modulation Systems with Non-Ideal Bit Interleaving and Reception Diversity
Krishnakamal Sayana, Saul Gelfand, Purdue University

TA8a-6 COHERENCE: A Fundamental Overhaul of Its Definition
S. Lawrence Marple,, Jr., Oregon State University

TA8a-7 Optimal OFDM downlink scheduling for UMTS HSDPA evolution
Gerhard Wunder, Chan Zhou, Fraunhofer MCI

TA8a-8 Cross-Layer (MAC and Transport) Optimal Rate Assignment in CDMA-Based Wireless Broadband Networks
Jennifer Price, Tara Javidi, University of Washington

TA8a-9 A Capacity Comparison between Time-Multiplexed and Superimposed Pilots
Mikael Tapio, Patrik Bohlin, Chalmers University of Technology

TA8a-10 Approximate ML Detection for MIMO Systems with Multistage Sphere Decoding
Tao Cui, Chintha Tellambura, University of Alberta

TA8a-11 Performance Analysis of Full-Rate, Full-Diversity Space-Time Code in Asynchronous DS/CDMA
Jin Zhang, James Lehnert, Purdue University

TA8a-12 A Low Complexity Packet Detection Algorithm for a CPM Modem
Ryan Penrod, University of California, Los Angeles; Oscar Takeshita, The Ohio State University; Michael Fitz, Weijun Zhu, University of California, Los Angeles

TA8a-13 Channel Coding for Polarization-Mode Dispersion Limited Optical Fiber Transmission
Zhenyu Zhu, Matthew Puzio, Rick Blum, Peter Andrekson, Tiffany Li, Lehigh University; Hamid Sadjadpour, University of California, Santa Cruz

TA8a-14 Inter-cell Interference in CSMA-CA Wireless Networks for Different Bandwidth Divisions
Maryam Owrang, Benjamin Friedlander, University of California, Santa Cruz

TA8a-15 Bounds on Achievable Rates for Cooperative Channel Coding
Ameesh Pandya, Greg Pottie, University of California, Los Angeles

TA8a-16 Space-Time Block Coding for Correlated Fading
Benjamin Friedlander, University of California, Santa Cruz; Joseph Francos, Ben Gurion University

TA8a-17 Synchronization Probabilities for Matched Filter Code Acquisition Using DOA Estimation and Beamforming
Henri Puska, Harri Saarnisaari, Jari Iinatti, University of Oulu / CWC

TA8a-18 Accurate Simple Closed-Form Approximations to the Distributions and Densities of a Sum of Independent Rayleigh Random Variables
Jeremiah Hu, Norman C. Beaulieu, University of Alberta

TA8a-19 How Quickly Can We Approach Capacity for the Gaussian Channel?
Dror Baron, Mohammad Ali Khojastepour, Richard Baraniuk, Rice University

TA8a-20 An improved ARQ Scheme with Application to Multi-Level Modulation Techniques
Mikael Gidlund, Royal Institute of Technology

TA8a-21 Directional Time-based Location Management Method in PCS Networks
S. M. Saeed Masajedian, Ferdowsi University

TA8a-22 Iterative Multiuser Receiver for Multi-resolution Broadcasting
Christian Ibars, Centre Tecnologic de Telecom.de Catalunya

TA8a-23 Physical Layer Built-in Security Enhancement of DS-CDMA Systems Using Secure Block Interleaving
Qi Ling, Tongtong Li, Jian Ren, Michigan State University

TA8a-24 A Denoising Source Separation bassed approach to Interference Cancellation for DS-CDMA Array Systems
Karthikesh Raju, Jaakko Sarela, Helsinki University of Technology

TA8a-25 Simplified Trellis Decoding of Block Codes by Selective Pruning
Eric Bertrand, Fabrice Labeau, McGill University

TA8a-26 New Linear Binary Block Codes for the AWGN Channel
Panayiotis Papadimitriou, Texas A&M University / Nokia Research Center; Costas Georghiades, Texas A&M University

TA8a-27 Optimum Frame Synchronization for Preamble-less Packet Transmission of Turbo Codes
Jian Sun, Matthew Valenti, West Virginia University

TA8a-28 Design and Performance of Assymetric Turbo Coded Hybrid-ARQ
Kingsley Oteng-Amoako, University of New South Wales

TA8a-29 Quantum Convolutional Codes Design and Their Encoder Architectures
Jun Jin Kong, Keshab K. Parhi, University of Minnesota

TA8a-30 On Recursive Structure of Binary Hamming Codes
Pavel Loskot, Norman C. Beaulieu, University of Alberta

TA8a-31 Accelerating LDPC decoding using multiple-cycle eigenmessages
Todd Moon, Jacob Gunther, Ojas Chauhan, John Crockett, Utah State University

Session TA8b Communications II

Chair: *Hui Liu*

TA8b-1 Capacity of MIMO Systems in Rayleigh Fading and Shadowing
Laxminarayana Pillutla, Sudharman Jayaweera, Wichita State University

TA8b-2 Transceiver Design Using Generalized Triangular Decomposition for MIMO Communications with QoS Constraints
Yi Jiang, Jian Li, William Hager, University of Florida

TA8b-3 Near Maximum-Likelihood Detection with Reduced-Complexity for Multiple-Input Single-Output Antenna Systems
Kai-Kit Wong, The University of Hong Kong; Arogyaswami Paulraj, Stanford University

TA8b-4 Blind Identification of Laguerre Systems
Jacob Gunther, Utah State University

TA8b-5 Representation of Real STBC using Filter Banks and Properties of Integer Version of Non-Rate-One STBC
Ka Shun Carson Pun, Truong Nguyen, University of California, San Diego

TA8b-6 MIMO Frequency-Selective Channel Modeling based on Pathwise Dynamics
Maxime Guillaud, Dirk Slock, Eurecom Institute

TA8b-7 A Comparative Study of Coded MIMO-OFDM Systems
Yan Xin, National University of Singapore; Syed Aon Mujtaba, Agere Systems Inc.

TA8b-8 Capacity of the Isotropic Fading Vector Channel with Quantized Channel Direction Feedback
Syed Jafar, University of California, Irvine

TA8b-9 Space-Time Coded Turbo Equalization and Multiuser Detection - Asympotic Performance Analysis in the Presence of Unknown Interference
Nenad Veselinovic, Tadashi Matsumoto, CWC/University of Oulu

TA8b-10 Spatially Correlated MIMO Rician Channel Capacity
Tharmalingam Ratnarajah, Queen's University, Belfast

TA8b-11 Soft Data Detection Algorithms for an Iterative Turbo Coded MIMO OFDM Systems
Kyeong Jin Kim, Tony Reid, Nokia Research Center; Ronald A. Iltis, University of California, Santa Barbara

TA8b-12 Performance of a Differential Modulation Scheme with Wireless Relays in Rayleigh Fading Channels
Hongbin Li, Qiang Zhao, Stevens Institute of Technology

TA8b-13 Multiple Access Control for Broadband Relay Network
Guoqing Li, Hui Liu, University of Washington

TA8b-14 Performance Evaluation of Decoding Algorithms for Multi-Layered STBC-OFDM system
Samir Al-Ghadhban, Mohammad Maruf, Virginia Tech

TA8b-15 Multi User Communications in the Presence of Correlated Fading
Rui Li, Benjamin Friedlander, University of California, Santa Cruz

TA8b-16 Reduced Complexity Sphere Decoding Using Forcing Rules
Tao Cui, Chintha Tellambura, Wen Chen, University of Alberta

TA8b-17 CFAR adaptive detection of distributed signals
Yuan-Wei Jin, Benjamin Friedlander, University of California, Santa Cruz

TA8b-18 Beamforming and Scheduling Strategies for Time Slotted Multiuser MIMO Systems
Semih Serbetli, Aylin Yener, Pennsylvania State University

TA8b-19 Comparison of Adaptive Beamforming and Adaptive STBC with Outdated Channel Feedback
Youngwook Ko, Cihan Tepedelenlioglu, Arizona State University

TA8b-20 Ultra-Wideband Vector Antennas for Sensing and Positioning
Sandeep Krishnamurthy, Anand Konanur, Gianluca Lazzi, Brian Hughes, North Carolina State University

TA8b-21 Nonstationary Array Processing for Sources with Time-Varying Polarizations
Yimin Zhang, Baha Obeidat, Moeness Amin, Villanova University

TA8b-22 Detection and Tracking of Multiple Targets within a Three Dimensional Medium
Mark M. Brown, Mohsin M. Jamali, University of Toledo

TA8b-23 Object Tracking in a 2D UWB Sensor Network
Cheng Chang, EECS Department , UC Berkeley; Anant Sahai, EECS Department ,UC Berkeley

TA8b-24 On the Convergence Behavior of Weighted Space-Time Bit-Interleaved Coded Modulation
Thanh Tung Kim, George Jongren, Mikael Skoglund, Royal Institute of Technology

TA8b-25 On the Serial Concatenation of Soft RS Codes and Space-Time Block Codes over Quasi-Static Fading Channels
Cheng Zhong, Haitao Xia, J. R. Cruz, University of Oklahoma

TA8b-26 On Modal Subspaces of Extended Alamouti Space-Time Block Codes
Markus Rupp, Vienna University of Technology; Christoph Mecklenbruker, Forschungszentrum Telekommunikation Wien; Gerhard Gritsch, Vienna University of Technology

TA8b-27 Space-time Coding for Wireless Sensor Network with Cooperative Routing Diversity
Lichuan Liu, Hongya Ge, New Jersey Institute of Technology

TA8b-28 Cross-Layer Sensor Network Synchronization
Zhi Tian, Michigan Technological University; Georgios B. Giannakis, University of Minnesota

TA8b-29 Cooperative Transmissions in Wireless Sensor Networks with Imperfect Synchronization
Xiaohua Li, Mo Chen, State University of New York at Binghamton; Wenyu Liu, Motorola

TA8b-30 Spatial Fidelity And Estimation in Sensor Networks
Ameesh Pandya, Huiyu Luo, Greg Pottie, University of California, Los Angeles

TA8b-31 Efficient Distributed Algorithms for State Estimation and Positioning in Sensor Networks
Andrew Brown, Ronald A. Iltis, University of California, Santa Barbara

TA8b-32 Antenna Selection with Capacity-Approaching Space-Time Block Codes
Aydin Sezgin, Fraunhofer-Institute for Telecommunications, HHI; Tobias J. Oechtering, Faculty of EECS, Technical University of Berlin

Session TP1 Sensor Array and Relay Networks

Chair: *Yingbo Hua*

TP1-1 Group Testing in sensor networks: The value of asking the right questions 1:30 PM
Yao-Win Hong, Anna Scaglione, Cornell University

TP1-2 Diversity Analysis of Space-Time Modulations Using the Hurwitz-Radon Matrices 1:55 PM
Yu Chang, Yingbo Hua, University of California, Riverside

TP1-3 Cooperative Diversity for Wireless Fading Channels without Channel State Information 2:20 PM
J. Nicholas Laneman, University of Notre Dame

TP1-4 Exploiting Diversity in Ad Hoc Sensor Networks 2:45 PM
Jifeng Geng, Urbashi Mitra, University of Southern California

BREAK 3:10 PM

TP1-5 On the Capacity of the Broadband Relay Networks 3:30 PM
Guoqing Li, Hui Liu, University of Washington

TP1-6 Localization and Tracking of Multiple Near-Field Sources Using Randomly Distributed Sensors 3:55 PM
Deva Borah, Arun Balagopal, New Mexico State University

TP1-7 Acoustic Source Localization in Distributed Sensor Networks 4:20 PM
Thibaut Ajdler, Ecole Polytechnique Federale de Lausanne (EPFL); Igor Kozintsev, Rainer Lienhart, Intel Labs, Intel Corporation; Martin Vetterli, Ecole Polytechnique Federale de Lausanne (EPFL)

TP1-8 A throughput scaling law for a class of wireless relay networks 4:45 PM
Prashant Udupa Sripathi, James Lehnert, Purdue University

Session TP2 Computer Arithmetic

Chair: *Milos Ercegovac*

TP2-1 Functions approximable by E-fractions 1:30 PM
Jean-Michel Muller, CNRS/LIP, Ecole Normale Superieure de Lyon; Nicolas Brisebarre, INRIA-LIP/ Ecole Normale Superieure de Lyon

TP2-2 35+ Years of Computer Arithmetic: A View From the Trenchs 1:55 PM
Earl Swartzlander, University of Texas, Austin

TP2-3 High speed binary addition 2:20 PM
Robert Jackson, Sunil Talwar, Eric Mahurin, Arithmatica

TP2-4 Circuit Design Based on Majority Gates for Applications with Quantum-Dot Cellular Automata 2:45 PM
Konrad Walus, University of Calgary; Rumi Zhang, Wei Wang, University of Western Ontario; Graham A. Jullien, University of Calgary

BREAK 3:10 PM

TP2-5 Logical Effort of Higher Valency Adders 3:30 PM
David Harris, Harvey Mudd College

TP2-6 Fast Saturating Counters 3:55 PM
Israel Koren, University of Massachusetts

TP2-7 Generalized transfer signal functions for fast adder implementations 4:20 PM
T. J. H. Kluter, Vojin G. Oklobdzija, EPFL

TP2-8 A Hybrid Ling Carry-Select Adder 4:45 PM
Johannes Grad, James Stine, Illinois Institute of Technology

Session TP3 Sensor Networks

Chair: *Rich Baraniuk & Mark Coat*

TP3-1 Efficient Communication Strategies For Distributed Signal Field Estimation 1:30 PM
Waheed Bajwa, Akbar Sayeed, Robert Nowak, University of Wisconsin-Madison

TP3-2 Actuator Networks: Distributed Evaluation of Causal Effect 1:55 PM
Mark Coates, Garrick Ing, McGill University

TP3-3 Distributed Alternating Localization-Estimation of Camera Networks 2:20 PM
William Mantzel, Richard Baraniuk, Hyeokho Choi, Rice University

TP3-4 Distributed data storage in sensor networks using decentralized erasure codes 2:45 PM
Alexandros G. Dimakis, Kannan Ramchandran, Vinod Prabhakaran, University of California, Berkeley

BREAK 3:10 PM

TP3-5 Blind Localization and Counting of Multiple Acoustic Sources in Randomly Distributed Sensor System 3:30 PM
Yao Chen, Uf Tureli, Stevens Institute of Technology

TP3-6 Joint Source-Channel Coding for Distributed Sensor Networks 3:55 PM
Bin Liu, Biao Chen, Syracuse University

TP3-7 Multi-sensor tracking of a vehicle on a grid 4:20 PM
Dave Sworder, University of California, San Diego; John Boyd, Cubic Defense Systems; Gary Hutchins, Naval Postgraduate School; Robert Elliott, University of Calgary

TP3-8 Bandwidth-Constrained Distributed Estimation for Wireless Sensor Networks 4:45 PM
Alejandro Ribeiro, Georgios B. Giannakis, University of Minnesota

Session TP4 Sonar and Acoustical Array Processing

Chair: *Jim Pitton*

TP4-1 Improving ocean acoustic travel-time measurements with a rake correlator 1:30 PM
Matthew Dzieciuch, University of California, San Diego

TP4-2 Mode Filtering Approaches to Acoustic Source Depth Discrimination 1:55 PM
Vincent Premus, James Ward, MIT Lincoln Laboratory

TP4-3 Turbo Array Receiver for Underwater Telemetry 2:20 PM
John Flynn, James Ritcey, University of Washington

TP4-4 Towed Array Shape Self-Calibration via Multistage Constant Modulus Array 2:45 PM
Jie Zhuo, Chao Sun, Jie Feng, Northwestern Polytechnical University

BREAK 3:10 PM

TP4-5 Blind Separation of Interference for Synthetic Aperture Sonar and the Lessons Learned from Real Data 3:30 PM
Ivars Kirsteins, Naval Undersea Warfare Center

TP4-6 Model-Based Space-Time Adaptive Processing for Active Sonar 3:55 PM
Vijay Varadarajan, Jeffrey L. Krolik, Duke University

TP4-7 Approximate Mode Filtering 4:20 PM
Kathleen Wage, George Mason University

TP4-8 Minimum radar cross section bounds for passive radar responsive tags. 4:45 PM
Patrick Bidigare, Troy Stevens, Bill Correll, General Dynamics

Session TP5 Networks

Chair: *JM Chung*

TP5-1 Network Security: Mapping Intrusion & Anomaly Detection to Very-High-Degree Polynomials 1:30 PM
Raymond C. Garcia, Shadowband Systems Inc.

TP5-2 Interference-avoiding features of ultra-wideband communication and wideband ALOHA 1:55 PM
John Metzner, Pennsylvania State University

TP5-3 Enhanced Broadband Wireless Networking Through Macroscopic Diversity Combining Applications of MIMO Technology 2:20 PM
Wun-Cheol Jeong, Jong-Moon Chung, Oklahoma State University

TP5-4 Throughput Maximization for ARQ-like Systems in Fading Channels with Coding and Queuing Delay Constraints 2:45 PM
Nadeem Ahmed, Richard Baraniuk, Rice University

BREAK 3:10 PM

TP5-5 Impact of Physical Layer Tradeoffs on the MAC Throughput of IEEE 802.11 Wireless LANs 3:30 PM
Yan Li, Stanford University; Xiaowen Wang, Syed Aon Mujtaba, Agere Systems

TP5-6 SNR and Power Efficiency of Cooperative Transmission in Wireless Networks with Orthogonal Users 3:55 PM
Donald Brown, Worcester Polytechnic Institute

TP5-7 Reducing Delay while Maintaining Capacity in Mobile Ad-hoc Networks Using Multiple Random Routes 4:20 PM
Renato Moraes, Hamid Sadjadpour, J. J. Garcia-Luna-Aceves, University of California, Santa Cruz

TP5-8 Increased Outdoor FSO Communication Reliability: A Novel Design for an Ultra-short Pulsed FSO Communication System 4:45 PM
Mohsen Kavehrad, Belal Hamzeh, Pennsylvania State University

Session TP6 UWB Communications

TP6-1 Semi-Blind ML Synchronization for UWB Transmitted Reference Systems 1:30 PM
Cecilia Carbonelli, Umberto Mengali, University of Pisa; Stefan Franz, Urbashi Mitra, University of Southern California

TP6-2 Joint Scale-Lag Diversity in Mobile Ultra-Wideband Systems 1:55 PM
Adam Margetts, Philip Schniter, The Ohio State University

TP6-3 Performance Analysis of UWB Impulse Radio with Noisy Template 2:20 PM
Xianren Wu, Lin Wu, Zhi Tian, Michigan Technological University

TP6-4 Blind synchronization in asynchronous multiuser UWB networks based on the transmit-reference scheme 2:45 PM
Relja Djapic, Technical University Delft; Geert Leus, Alle-Jan van der Veen, Delft University of Technology

BREAK 3:10 PM

TP6-5 Cross-Band Flexible UWB Access for High-Rate Multi-Piconet WPANs 3:30 PM
Liuqing Yang, Georgios B. Giannakis, University of Minnesota

TP6-6 On MIMO capacity in the ultra-wideband regime 3:55 PM
Ray Siddharth, Medard Muriel, Zheng Lizhong, MIT

TP6-7 Optimal UWB Waveform Synthesis with Power Spectral Density Constraints 4:20 PM
Terry Lewis, Robert A Scholtz, University of Southern California

TP6-8 On Transmitted Reference UWB Communications 4:45 PM
Moe Win, Wesley Gifford, MIT

Session TP7 Image and Video Enhancement and Filtering

Chair: *Tamal Bose*

TP7-1 Real-Time Registration and Display of Confocal Microscope Imagery for Multiple-band Analysis — 1:30 PM
Scott Budge, Anoop Mayampurath, Utah State University; James Solinsky, Pacific Northwest National Laboratory

TP7-2 Adaptable Image Retrieval with Application to Underwater Target Identification — 1:55 PM
Mahmood R. Azimi-Sadjadi, SaravanaKumar Srinivasan, Jaime Salazar, Colorado State University

TP7-3 Multiple Non-Orthogonal Bases Representations for Images — 2:20 PM
Pradeep Ragothaman, Wasfy Mikhael, University of Central Florida

TP7-4 Logo Recognition Using Retinal Coding — 2:45 PM
Kathleen Zyga, Air Force Research Laboratory/SNRD; Richard Price, Defence Science and Technology Organisation; Jim Schroeder, University of Adelaide

BREAK — 3:10 PM

TP7-5 Transient Analysis of the Euclidean Direction Search (EDS) Algorithm — 3:30 PM
Zhongkai Zhang, Tamal Bose, Jacob Gunther, Utah State University

TP7-6 Optimal Order EDS and FEDS Algorithms — 3:55 PM
Zhongkai Zhang, Tamal Bose, Jacob Gunther, Utah State University

TP7-7 Enhancement for Face Video from Omni-directional Video Camera — 4:20 PM
Junwen Wu, Mohan Trivedi, University of California, San Diego

TP7-8 An Improved Method to Remove Impulse Noise in Corrupted Images — 4:45 PM
Javad Ahmadi-Shokouh, University of Waterloo

Session TP8a1 Biomedical Signal Processing

Chair: *Dana Brooks*

TP8a1-1 Detection of Cochlear Hearing Loss Applying Wavelet Packets and Support Vector Machines
Hubert Dietl, Stephan Weiss, University of Southampton

TP8a1-2 Novel Intelligent Wavelet Filtering of Embolic Signals from TCD Ultrasound
Salman Marvasti, Imperial College London; Duncan Gillies, Imperial College University of London

TP8a1-3 Genetic Algorithm Optimization of Fuzzy outputs for Classification of Epilepsy Risk Levels from EEG Signals
Harikumar Rajaguru, R. Sukanesh, Thiagarajar College of Engineering; Aravindan Bharathi, Amrita Institute of Technology

TP8a1-4 EEG Noise Cancellation Using Independent Component Analysis
Ravi Visvanathan, Anna University

TP8a1-5 A Level Set Algorithm for the Inverse Problem of Electrocardiography
Alireza Ghodrati, Felipe Calderero, Dana H. Brooks, Gilead Tadmor, Northeastern University; Rob MacLeod, University of Utah

TP8a1-6 Electrical Impedance Tomography Using a 3-D Boundary Element Inverse Solution
Saeed Babaeizadeh, Dana H. Brooks, Northeastern University; David Isaacson, Rensselaer Polytechnic Institute

TP8a1-7 Quadratic equalization: a method for producing extended uniform depth of focus in high frame rate medical ultrasound B scans
Yibin Zheng, Seth Silverstein, University of Virginia

TP8a1-8 Frequency-selective SVD-based magnetic resonance spectroscopy with prior knowledge
Niclas Sandgren, Petre Stoica, Yngve Selen, Uppsala University

Session TP8a2 Biomedical Image Processing

Chair: *Yibin Zheng*

TP8a2-1 Classification of Hyperspectral Colon Tissue Images Using Vocal Synthesis Models
Ryan J. Cassidy, Stanford University

TP8a2-2 Segmentation of the Myocardium from Myocardial Contrast Echocardiography
John Pickard, Rob Janiczek, Scott Acton, University of Virginia

TP8a2-3 Identification of disease in CT of the lung using texture-based image analysis
John Malone, Jonathan Rossiter, Bristol University; Sanjay Prabhu, Paul Goddard, Bristol Royal Infirmary

TP8a2-4 Automated Detection and Classification of Vascular Abnormalities in Diabetic Retinopathy
Deepika Vallabha, Kamesh Namuduri, Ramprasath Dorairaj, Wichita State University; Hilary Thompson, Louisiana State University

TP8a2-5 Decision Support for Automated Screening of Diabetic Retinopathy
Pallavi Kahai, Kamesh Namuduri, Wichita State University; Hilary Thompson, Louisiana State University

TP8a2-6 Comparison of three Gaussian mixture modeling and spatial encoding methods for segmenting human brain MRI
Mahmood Zeydabadi-Nejad, Reza A. Zoroofi, Tehran University; Hamid Soltanian-Zadeh, Henry Ford Health System

TP8a2-7 Iterative gridding for automated microarray image analysis
Dan Bozinov, Peter-Michael Seidel, Southern Methodist University

TP8a2-8 Automatic Determination of the Malignancy of the Pathological Images of the Prostate
Reza Farjam, Reza Aghaizadeh Zoroofi, University of Tehran; Hamid Soltanian-Zadeh, Henry Ford Health System

Session TP8a3 Signal Processing in Genomics and Proteomics

Chair: *Yibin Zheng*

TP8a3-1 Multirate DSP Models for Gene Detection
Raymond Guan, Jamal Tuqan, University of California, Davis

TP8a3-2 Computation of probability distributions of molecules in enzyme reactions
Xueying Zhang, Katrien De Cock, Monica Bugallo, Petar Djuric, Stony Brook University

TP8a3-3 HMM with Auxiliary Memory: A New Tool for Modeling RNA Secondary Structures
Byung-Jun Yoon, P. P. Vaidyanathan, California Institute of Technology

TP8a3-4 Identification and Location of Hot Spots in Proteins Using the Short-Time Fourier Transform
Parameswaran Ramachandran, Andreas Antoniou, University of Victoria; P. P. Vaidyanathan, California Institute of Technology

Session TP8a4 Radar Interpretation and Analysis

Chair: *Seth Silverstein*

TP8a4-1 Synthetic aperture radar image signatures of rotating objects
Seth Silverstein, University of Virginia; Coy Hawkins III., U.S. Army National Ground Intelligence Center

TP8a4-2 Techniques for detection and tracking airplanes using weather radar WSR-88D.
Svetlana Bachmann, National Severe Storms Laboratory; Victor DeBrunner, University of Oklahoma; Dusan Zrnic, National Severe Storms Laboratory; Mark Yeary, University of Oklahoma

TP8a4-3 Closed-form Location Estimator using Angular Spread Measurements
Qun Wan, Zhang-xin Chen, Xian-ning Chen, Wan-lin Yang, University of Electronic Science and Technology; Ying-ning Peng, Tsinghua University

TP8a4-4 High Range Resolution using a Wigner Distribution Deconvolution Algorithm
Steven R. Newton, Mervin C. Budge, Jr., Dynetics, Inc.; Reza R. Adhami, University of Alabama in Huntsville

TP8a4-5 Compression of complex SAR data for real-valued SAR imagery
Hanna E. Witzgall, J. Scott Goldstein, SAIC

TP8a4-6 Modeling of Earths Rotation for Space Based Radar
Braham Himed, Air Force Research Laboratory; Unnikrishna Pillai, Polytechnic University; Ke Yong Li, C & P Technologies Inc.

TP8a4-7 Covariance estimation with regularization by the averages of grouped eigenvalues and its application to image classification
Sangho Yoon, Stanford University

TP8a4-8 Two-Dimensional Autoregressive Modelling Technique Using a Constrained Optimisation Formulation and Minimum Hierarchical Clustering Scheme
Sarah Lee, Tania Stathaki, Imperial College London

TP8a4-9 Estimation of Cloud Phase from Satellite Imagery Data
Amanda Falcone, Mahmood R. Azimi-Sadjadi, Adam Kankiewicz, Donald Reinke, Colorado State University

TP8a4-10 Identifying and Tracking Turbulence Structures
Timothy Hoar, National Center for Atmospheric Research; Thomas Lee, Colorado State University; Douglas Nychka, National Center for Atmospheric Research; Curtis Storlie, Colorado State University; Jeffrey Weiss, University of Colorado at Boulder; Brandon Whitcher, GlaxoSmithKline

TP8a4-11 Data Compression for Data Analysis in Remote Sensing
Amy Braverman, Eric Fetzer, Jet Propulsion Laboratory

TP8a4-12 Fusing Information from MISR and MODIS for Polar Cloud Detection
Tao Shi, Bin Yu, University of California, Berkeley; Eugene Clothiaux, Pennsylvania State University; Amy Braverman, Jet Propulsion Laboratory

Session TP8b1 Image and Video Coding

Chair: *Sheila Hemami*

TP8b1-1 Convexity Results for a Predictive Video Coder
Yegnaswamy Sermadevi, Sheila Hemami, Cornell University

TP8b1-2 Motion Optimized Spatial-Temporal Coding Based on Wavelet Transform
Zhigang Gao, Yuan Zheng, The Ohio State University

TP8b1-3 Low-Bit Rate Motion JPEG Using Differential Encoding
Sanmati Kamath, Joel Jackson, Georgia Institute of Technology

TP8b1-4 Low Bit Rate 3D Video Coding : A Simplified Approach
Ravi Kishore Paruchuru, Sumana Gupta, IIT Kanpur

TP8b1-5 Efficient phase correlation motion estimation using approximate normalization
Sanjeev Kumar, Mainak Biswas, Truong Nguyen, University of California, San Diego

TP8b1-6 Smooth Motion Vector Resampling for Standard Compatible Video Post-processing
Gokce Dane, Truong Nguyen, University of California, San Diego

TP8b1-7 The Behavioral Simulation Results of the Optical Flow Estimation Algorithm for CADSP System Design
Teahyung Lee, David V. Anderson, Georgia Institute of Technology

TP8b1-8 A Fast Block-based Motion Compensation Video Frame Interpolation Approach
Jinsong Wang, Wayne State University; Nilesh Patel, William Grosky, University of Michigan, Dearborn

TP8b1-9 Model-based tracking of 3D object based on a Sequential Monte-Carlo method
Jean-Charles Noyer, Patrick Lanvin, Mohammed Benjelloun, Université du Littoral Côte d'Opale

TP8b1-11 Vector Quantization of Still Images Using Reflected Subcodevectors
Vishnu Makkapati, Honeywell Technology Solutions Lab

TP8b1-13 Visual Information Processing using Redundant Dictionaries
Pierre Vandergheynst, Pascal Frossard, Swiss Federal Institute of Technology (EPFL)

TP8b1-16 High-Order State Space Models in Dynamic Linear Inverse Problems
Yiheng Zhang, Dana H. Brooks, Northeastern University

TP8b1-17 Narrowing the Performance Gap between Orthogonal and Biorthogonal Wavelets
Satyabrata Rout, Amy Bell, Virginia Tech

TP8b1-18 Blind image deconvolution using constrained variance maximization
Dalong Li, Georgia Institute of Technology; Steven Simske, Hewlett Packard; Russell Mersereau, Georgia Institute of Technology

TP8b1-19 Optimization-based Design of 2-D Zero-phase IIR Filters
Dimitry Gorinevsky, Stephen Boyd, Stanford University

TP8b1-20 A Quasi-Linear Time Design for a Near Optimal Entropy-Constrained Scalar Quantizer
Kivanc Ozonat, Stanford University

Session TP8b2 Array Processing for Wireless Communications

Chair: *Murat Torlak*

TP8b2-1 Extensions to the capacity-maximizing antenna selection algorithms
Shahab Sanayei, Aria Nosratinia, University of Texas, Dallas

TP8b2-2 Robust Transmit Eigen-Beamforming Based on Imperfect Channel Correlations
Ayman Abdel-Samad, University of Duisburg-Essen; Alex Gershman, McMaster University

TP8b2-3 Fast Receive Antenna Selection for MIMO Systems
Jiansong Chen, Xiaoli Yu, University of Southern California

TP8b2-4 Fast Computation of Finite-Length MIMO MMSE Decision Feedback Equalizers
Nabil Yousef, Broadcom Corp.; Ricardo Merched, Federal University of Rio de Janeiro

TP8b2-5 Cramer-Rao Bound for Angular Propagation Parameter Estimation in MIMO Systems
Cassio Ribeiro, Esa Ollila, Visa Koivunen, Helsinki University of Technology

TP8b2-6 Maximum-Likelihood Ratio Bounds for Stochastic and Deterministic Maximum-Likelihood Array Processing
Yuri Abramovich, Defence Science and Technology Organisation; Alexandr Kuzminskiy, Bell Laboratories; Alexei Gorokhov, Qualcomm Inc.

Session TP8b3 Speech Recognition

Chair: *Tina Kohler*

TP8b3-1 Using GSM Speech Coder Parameters for Speaker Detection
Jaime Hernandez-Cordero, Walter Andrews, U.S. D.o.D.

TP8b3-2 Multi Level High Capacity Data Hiding Technique for Stereo Audio
Alexander Iliev, Michael Scordilis, University of Miami

TP8b3-3 Comparison and implementation of a 16-bit fixed point audio resampler
Wen Jin, University of Miami

TP8b3-4 Phoneme-less Hierarchical Accent Classification
Xiaofan Lin, Steven Simske, Hewlett Packard Laboratories

TP8b3-5 Multi-sensor Segmentation of the Voiced Speech Signal Using Hidden Markov Models
Cenk Demiroglu, Georgia Institute of Technology

TP8b3-6 Isolated Word, Speaker Dependent Recognition under the Presence of Noise, based on an Audio Retrieval Algorithm
Nikolaos Vasiloglou, Ronald Schafer, Georgia Institute of Technology; Mat Hans, Hewlett Packard Laboratories

TP8b3-7 Speech Recognition for Modular Robotics using Neural Network
Abhisek Ukil, Berthold Bitzer, University of Applied Sciences

TP8b3-8 Speaker Verification Using Time Ceptstral Principal Components Derived from a Pole-Zero Model
Anjali Sharma, John Gowdy, Clemson University

Session WA1 Advances in Biomedical Microscopy

Chair: *Brian Helmke*

WA1-1 Model-Convolution Approach to Modeling Green Fluorescent Protein Dynamics: Application to Yeast Cell Division — 8:30 AM
David Odde, University of Minnesota

WA1-2 Time-resolved fluorescence microscopy of intact membranes of living endothelial cells — 8:55 AM
Peter J. Butler, Pennsylvania State University

WA1-3 The Open Microscopy Environment (OME): Image informatics for functional genomics. — 9:20 AM
Ilya Goldberg, NIA / NIH - IRP; Jason Swedlow, University of Dundee; Peter Sorger, MIT

WA1-4 Extracting Subcellular Structural Dynamics from Multi-Wavelength 4-D Fluorescence Images — 9:45 AM
Brian P. Helmke, Rosalind E. Mott, University of Virginia

BREAK — 10:10 AM

WA1-5 Automated Leukocyte Detection In Vivo — 10:30 AM
Gang Dong, Nilanjan Ray, Scott Acton, University of Virginia

WA1-6 Incorporating Variance within Binary Flow for Leukocyte Tracking — 10:55 AM
Rob Janiczek, Jinshan Tang, Scott Acton, University of Virginia

WA1-7 Epi-fluorescent Image Modeling for Viral Infection Analysis — 11:20 AM
Satyabrata Rout, Virginia Tech; Vy Lam, University of Wisconsin-Madison; Amy Bell, Karen Duca, Virginia Tech

WA1-8 Fiber- and micro-optic imaging in the live mammalian brain at the cellular level — 11:45 AM
Mark J. Schnitzer, Stanford University

Session WA2 VLSI

Chair: *David Harris*

WA2-1 New Division Algorithms by Digit Recurrence — 8:30 AM
Jo Ebergen, Ivan Sutherland, Ajanta Chakraborty, Sun Microsystems

WA2-2 Comparing Fast Implementations of Bit Permutation Instructions — 8:55 AM
Yedidya Hilewitz, Zhijie Shi, Ruby Lee, Princeton University

WA2-3 Residue arithmetic techniques for hardware reduction in pseudo-random sequence correlators — 9:20 AM
Christopher T. Clarke, University of Bath; Thambipillai Srikanthan, NanynagnTechnological University

WA2-4 CT-Bus: A Heterogeneous CDMA/TDMA Bus for Future SOC — 9:45 AM
Bo-Cheng Charles Lai, Patrick Schaumont, Ingrid Verbauwhede, University of California, Los Angeles

BREAK — 10:10 AM

WA2-5 Exploration and Evaluation of PLX Floating-point Instructions and Implementations for 3D Graphics — 10:30 AM
Xiao Yang, Princeton University; Shamik Valia, Michael Schulte, University of Wisconsin-Madison; Ruby Lee, Princeton University

WA2-6 A New Floating-Point Architecture for Wireless 3D Graphics — 10:55 AM
David Lutz, Chris Hinds, ARM

WA2-7 Novel Schemes for High-Throughput Image Rotation — 11:20 AM
Suchitra Sathyanarayana, Siew Kei Lam, Srikanthan Thambipillai, Nanyang Technological University

WA2-8 A Composite Arithmetic Scheme for Evaluation of Multinomials — 11:45 AM
Milos D. Ercegovac, Pavan Adharapurapu, University of California, Los Angeles

Session WA3 Wireless

Chair: *Narayan Mandayam*

WA3-1 Unified Multi-Antenna Code Design for Fading Channels With Spatio-Temporal Correlations — 8:30 AM
Mahesh Varanasi, Pranav Dayal, University of Colorado

WA3-2 Resource Allocation for Wireless Relay Channels — 8:55 AM
Venugopal Veeravalli, Yingbin Liang, University of Illinois at Urbana-Champaign

WA3-3 Power and Bandwidth Allocation for Cooperative Strategies in Gaussian Relay Networks — 9:20 AM
Ivana Maric, Roy Yates, WINLAB, Rutgers University

WA3-4 Hierarchical Wireless Networks: Capacity Bounds and Cooperative Strategies using the Multiple-Access Relay Channel Model — 9:45 AM
Lalitha Sankaranarayanan, WINLAB, Rutgers University; Gerhard Kramer, Lucent Technologies; Narayan Mandayam, WINLAB, Rutgers University

BREAK — 10:10 AM

WA3-5 Performance and Cross-Layer Design of Persistent CSMA for Wireless Networks with Multipacket Reception — 10:30 AM
Douglas Chan, Toby Berger, Cornell University

WA3-6 A New Wireless Network Medium Access Protocol Based On Cooperation — 10:55 AM
Rui Lin, Athina Petropulu, Drexel University

WA3-7 The propagation of self-similarity via wireless gateway — 11:20 AM
Jie Yu, Athina Petropulu, Drexel University

WA3-8 Distributed Spatial Multiplexing in a Wireless Network 11:45 AM
Boris Rankov, Armin Wittneben, Swiss Federal Institute of Technology (ETH) Zurich

Session WA4 Array Processing Foundations

Chair: *Uf Tureli*

WA4-1 Semicoherent MIMO-OFDM communication 8:30 AM
Moritz Borgmann, Helmut Bolcskei, ETH Zurich

WA4-2 DOA and Polarization Estimation for Wideband Sources 8:55 AM
Baha Obeidat, Yimin Zhang, Moeness Amin, Villanova University

WA4-3 Model-Based Detection and Direction of Arrival Estimation in Radar Using Sparse Arrays 9:20 AM
Fredrik Athley, Christer Engdahl, Per Sunnergren, Ericsson Microwave Systems AB

WA4-4 Robust Direction Finding 9:45 AM
Richard Vaccaro, Norman Owsley, University of Rhode Island

BREAK 10:10 AM

WA4-5 Analysis of Beamspace Transform on Uniform Circular Array 10:30 AM
Fabio Belloni, Visa Koivunen, Helsinki University of Technology

WA4-6 Frequency Invariant Beamforming in Subbands 10:55 AM
Wei Liu, Imperial College London; Stephan Weiss, University of Southampton

WA4-7 Reduced Rank Beamforming Methods for SDMA/OFDM Communications 11:20 AM
Balkan Kecicioglu, Murat Torlak, University of Texas, Dallas

WA4-8 Vector Quantization for Multiple Antenna Systems with Finite Rate Feedback 11:45 AM
June Chul Roh, Bhaskar D. Rao, University of California, San Diego

Session WA5 FEC

Chair: *Matt Valenti*

WA5-1 A Family of Rate 1/2 Modified Binary Block Repetition Codes 8:30 AM
Pavel Loskot, Norman C. Beaulieu, University of Alberta

WA5-2 A Class of Good Quasi-Cyclic Low-Density Parity Check Codes Based On Progressive Edge Growth Graph 8:55 AM
Zongwang Li, B.V.K. Vijayakumar, Carnegie Mellon University

WA5-3 Performance analysis of the adaptive parity check matrix based soft-decision decoding algorithm 9:20 AM
Arshad Ahmed, Ralf Koetter, Naresh R. Shanbhag, University of Illinois at Urbana-Champaign

WA5-4 Code Design for the Relay Channel and Factor Graph Decoding 9:45 AM
Mohammad Ali Khojastepour, Nasir Ahmed, Behnaam Aazhang, Rice University

BREAK 10:10 AM

WA5-5 Simplified eIRA code design and performance analysis for Rayleigh fading channels 10:30 AM
William Ryan, University of Arizona

WA5-6 Rate-compatible Irregular LDPC Code of Short Block Length for AWGN and MIMO Applications 10:55 AM
Wen-Yen Weng, Richard D. Wesel, University of California, Los Angeles

WA5-7 Punctured Convolutional Codes Revisited: the Exact State Diagram and Its Implications 11:20 AM
Jing Li, Lehigh University; Erozan Kurtas, Seagate Technology

WA5-8 Coding for Noncoherent M-ary Orthogonal Modulation: BICM-ID or Nonbinary Codes? 11:45 AM
Matthew Valenti, Shi Cheng, West Virginia University

Session WA6 Applications of Adaptive Filtering in Communications

Chair: *Jamal Tuqan*

WA6-1 Exploiting Spatio-Temporal Correlation for Rate-Efficient Transmit Beamforming 8:30 AM
Mirette Sadek, Alireza Tarighat, Ali H. Sayed, University of California, Los Angeles

WA6-2 On The Diversity Order of Single-Carrier Zero-Forcing Frequency-Domain Linear Equalizers 8:55 AM
Ahmadreza Hedayat, Aria Nosratinia, Naofal Al-Dhahir, University of Texas, Dallas

WA6-3 Minimum Mean Square Error Non Uniformly Spaced Equalizers 9:20 AM
Jamal Tuqan, Yan Huang, University of California, Davis

WA6-4 A High Capacity MIMO System Based on Blind Deconvolution 9:45 AM
Hiroto Imamura, Hiroshi Ochi, Kyushu Institute of Technology

BREAK 10:10 AM

WA6-5 CMA equalization with decision-directed phase correction. 10:30 AM
Gabriel Velarde-Torres, Stanford University

WA6-6 Design and Performance of IEEE 802.15.4 Compliant MMSE Receivers 10:55 AM
Karen E. L. Scott, Robert W. Stewart, University of Strathclyde

WA6-7 Effect of Channel Estimation Error on Bit Rate Performance of Time Domain Equalizers 11:20 AM
Ming Ding, Zukang Shen, Brian L. Evans, University of Texas, Austin

WA6-8 Joint Blind Adaptive Synchronization and Channel Shortening 11:45 AM
Richard K. Martin, Air Force Institute of Technology; C. Richard Johnson, Jr., Cornell University

Session WA7 Statistical Signal and Image Processing

Chair: *Vaughan Clarkson*

WA7-1 A Generalisation of the Delogne-Kasa Method for Fitting Hyperspheres 8:30 AM
Emanuel Zelniker, Vaughan Clarkson, University of Queensland

WA7-2 Subspace estimators of direction of arrival 8:55 AM
Barry Quinn, Macquarie University

WA7-3 Capacity of the Kronecker MIMO Channel 9:20 AM
Alex Grant, University of South Australia; Leif Hanlen, National ICT Australia Ltd.

WA7-4 Estimation of receiver frequency error in a TDOA-based direction-finding system 9:45 AM
Johan Falk, Swedish Defence Research Agency; Peter Hndel, Magnus Jansson, Royal Institute of Technology

BREAK 10:10 AM

WA7-5 A Discrete Stochastic Algorithm for Optimizing the Trajectory of an Observer in Bearings-Only Target Tracking 10:30 AM
Farhad Ghassemi, Vikram Krishnamurhty, University of British Columbia

WA7-6 Wyner-Ziv Quantization and Transform Coding of Noisy Sources at High Rates 10:55 AM
David Rebollo-Monedero, Shantanu Rane, Bernd Girod, Stanford University

WA7-7 An Integral Projection Approach to 3D Rigid Body Transformations 11:20 AM
Stefan Lehmann, Vaughan Clarkson, Peter Kootsookos, University of Queensland

WA7-8 Combining Generalized Gaussian Density and Energy Distribution in Wavelet Packet Analysis for Texture Classification 11:45 AM
Ke Huang, Selin Aviyente, Michigan State University

Session WA8a DSP Applications

Chair: *Ralph Hippenstiel*

WA8a-1 Joint Target Recognition and Tracking Using Class Specific Features
Huimin Chen, University of New Orleans; Yanhua Ruan, Wright State University

WA8a-2 Efficient Search Strategies for Non-Myopic Sensor Scheduling in Target Tracking
Amit Chhetri, Darryl Morrell, Antonia Papandreou-Suppappola, Arizona State University

WA8a-3 Target Tracking Using an Image Sensor with a Configurable Active Area
Fengjun Xi, Darryl Morrell, Arizona State University

WA8a-4 MUSIC and notch filters
Kaushik Mahata, University of Newcastle

WA8a-5 Modulation Identifications Using a Neural Network Based Wavelet Domain Approach.
Ralph Hippenstiel, Hassan El-Kishky, Chad Frick, Sandeep Dattaprasad, University of Texas, Tyler

WA8a-6 On Time Series Analysis and Digital Signal Classification
Ralph Hippenstiel, Hassan El-Kishky, Penio (Pepe) Radev, University of Texas, Tyler

WA8a-7 An accurate FIR approximation of Ideal Fractional Delay with Complex Coecients in Hilbert Space
Nikzad Babaii Rizvandi, Abdolreza Nabavi, Tarbiat Modares University; Shaahein Hessabi, Sharif University of Technology

WA8a-8 Stability of a Time-Varying 2-D State-Space Digital Filter
Glen W. Mabey, Tamal Bose, Todd Moon, Utah State University

WA8a-9 Structured tensor based-algorithm for damped exponential fitting
Remy Boyer, Université Paris XI; Karim Abed-Meraim, GET-ENST

WA8a-10 A Recursive Filter-Based Algorithm for Maximum Likliehood Localization of Narrow Band Autoregressive Sources
William Malcolm, Robert Elliott, University of Calgary

WA8a-11 Optimal Reconstruction of Periodically Sampled Signals with Probabilistic Timing Delays
Ryan Prendergast, Truong Nguyen, University of California, San Diego

WA8a-12 Probabilistic Model Approximation Measure and Multiple Model Estimation
Z. L. Zhao, University of New Orleans; X. Rong Li, University of New Orleans

WA8a-13 Estimating Complex Covariance Matrices
Lennart Svensson, Chalmers University of Technology; Magnus Lundberg, Colorado State University

WA8a-14 Prior ICA Based Blind Multiuser Detection in DS-CDMA Systems
Malay Gupta, Balu Santhanam, University of New Mexico

WA8a-15 RSS Localization in Wireless Nakagami-m Fading Channels
Prihamdhani Amran, Aleksandar Dogandzic, Iowa State University

WA8a-16 A Scaled Signal plus Noise Model for Digital Watermarking. Application to time jitter.
Abdellatif Zaidi, L2S-SupElec CNRS and UPS; Remy Boyer, CNRS and UPS; Pierre Duhamel, CNRS

WA8a-17 Sharpening of Partially Non-recursive CIC Decimation Filters
Graham Stephen, Robert W. Stewart, University of Strathclyde

WA8a-18 Catalog of Tunable Heterodyne Filters
Michael Soderstrand, University of California, Davis; Louis Johnson, Oklahoma State University; Grace Yoona Cho, Verizon Wireless

WA8a-19 Detection of Frequency Hopping Signals With a Sweeping Channelized Radiometer
Janne Lehtomaki, Markku Juntti, Harri Saarnisaari, University of Oulu

WA8a-20 A Markov-Chain Model for Sensor Scheduling in Electronic Support
Vaughan Clarkson, University of Queensland; Edwin El-Mahassni, Stephen Howard, Defence Science and Technology Organisation

WA8a-21 Compromises in FIR Matched Filter Design
Gerald Cain, DSP Creations Limited; Anush Yardim, University of Westminster; Bobby Mughal, DSP Creations Limited

WA8a-22 Cramer-Rao Lower Bound for semiblind channel estimation with respect to coded and uncoded finite-alphabet signals
Ansgar Scherb, Volker Kuehn, Karl-Dirk Kammeyer, University Bremen

WA8a-23 Iterative Linearization Methods suited for Digital Predistortion of Power Amplifers
Ernst Aschbacher, Mathias Steinmair, Markus Rupp, Vienna University of Technology

WA8a-24 Least-Squares Performance of Analog Product Codes
Olivia Nemethova, Markus Rupp, TU Wien

WA8a-25 Taylor Series Approximation for Low Complexity Semi-Blind BLUE Channel Estimates for the General Linear Model with Applications to DTV
Christopher Pladdy, Zenith Electronics; Serdar Ozen, Izmir Institute of Technology; S. M. Nerayanuru, Zenith Electronics; Mark Fimoff, Zenith Electronics Corporation; Michael Zoltowski, Purdue University

WA8a-26 Detection Performance Limits of Channel Impaired Distributed Sensor Networks
Qi Cheng, Biao Chen, Pramod Varshney, Syracuse University

WA8a-27 Uniqueness of the Operating Point in MITE Circuits
Shyam Subramanian, Georgia Institute of Technology; Paul Hasler, Georgia Institute of Technology

WA8a-28 Low-Power Realization of FIR Filters Using Current-Mode Analog Design Techniques
Venkatesh Srinivasan, Gail Rosen, Paul Hasler, Georgia Institute of Technology

WA8a-29 Theory and Design of An Optimal Personalized Surround Audio System Through Orthonormal Decomposition
Zhiyun Li, University of Maryland

WA8a-30 An Oversampled, Non-Uniform Filter Bank for Multi-Band Audition and Level Modification of Audio Signals
Ryan J. Cassidy, Julius O. Smith III, Stanford University

WA8a-31 Regularized MRE method for blind multichannel image deconvolution
Wided Souidene, Karim Abed-Meraim, Telecom Paris; Azeddine Beghdadi, Galilee Institut, L2TI, Paris 13 University

WA8a-32 Digital Modulation Recognition Using Support Vector Machine Classifier
Hussam Mustafa, Milos Doroslovacki, George Washington University

Session WA8b1 Speech Processing

Chair: *Neeraj Magotra*

WA8b1-1 A Real-Time Network Simulation Application for Multimedia over IP
Christopher M. White, Josh Raymond, Keith A. Teague, Oklahoma State University

WA8b1-2 A Noise Robust Speech Activity Detection Algorithm for Voice Activated Hands-free Applications in Car
Harsha Bagur, Kyocera Wireless Corp

WA8b1-3 A hybrid parametric-waveform approach to bitstream scalable audio coding
Felip Riera-Palou, Philips Research Laboratories; Albertus den Brinker, Andy Gerrits, Philips Research

WA8b1-4 Probabilistic Principal Component Analysis Applied To Voice Conversion
Mark Wilde, Andrew Martinez, Tulane University

WA8b1-5 Binaural Noise Reduction Combining Binaural Analysis and Psychoacoustically Motivated Spectral Subtraction
Hesu Huang, Chris Kyriakakis, University of Southern California

WA8b1-6 An Adaptive UEP Transmission System for JPEG2000 Codestream Using RCPT Codes
Weiliang Liu, David Daut, Rutgers University / State University of New Jersey

WA8b1-7 Reduced-Delay Mixing of Compressed Speech Signals for VoIP and Cellular Telephony
James Gordy, Rafik Goubran, Carleton University

WA8b1-8 Property Vector based Distortion Estimation
Fredrik Norden, Soeren Holdt Jensen, Soeren Vang Andersen, Aalborg University; Bastiaan Kleijn, Royal Institute of Technology

WA8b1-9 Rate-Distortion Efficient Amplitude Modulated Sinusoidal Audio Coding
Mads Christensen, Aalborg University; Steven van de Par, Philips Research Laboratories

WA8b1-10 Analog Circuit Implementation for Speech Enhancement Purposes
Benny Sällberg, Blekinge Insitute of Technology; Henrik Åkesson, Nils Westerlund, Mattias Dahl, Ingvar Claesson, Blekinge Institute of Technology

WA8b1-11 Feature Mining for GMM-based Speech Quality Measurement
Tiago Falk, Wai-Yip Chan, Queen's University

WA8b1-12 Speech Codec Detection by Spectral Harmonic-Plus-Noise Decomposition
Kirstin Scholz, Lutz Leutelt, Ulrich Heute, University of Kiel

WA8b1-13 Integrating Kalman filtering and multi-pulse coding for speech enhancement with a non-stationary model of the speech signal
Chunjian Li, Soren Vang Andersen, Aalborg University

WA8b1-14 An high efficiency feature extraction based on wavelet transform for speaker recognition
Chia-Te Chu, Ching-Han Chen, I-Shou University

WA8b1-15 Non-Stationary Noise Estimation Utilizing Harmonic Structure for Spectral Subtraction
Tetsuya Shimamura, Saitama University

WA8b1-16 High Sampling Rate Audio Signal Modeling
Dong-Yan Huang, Institute for Infocomm Research; Xinrong Su, Arumugam Nallanathan, National University of Singapore

WA8b1-17 Wavelet-based Robust Sub-band Speech Recognition
Babak Nasersharif, Ahmad Akbari, Iran University of Science and Technology

WA8b1-18 Fused Models for Noise Reduction in Speech Processing
Mahmood R. Ayewah, Peter-Michael Seidel, Southern Methodist University

WA8b1-19 Segmentation based Speech Enhancement Using Auxillary Sensors
Cenk Demiroglu, Sunil Kamath, David V. Anderson, Mark Clements, Tom P. Barnwell III, Georgia Institute of Technology

WA8b1-20 FFT Quantization Analysis for Realtime Speech and Audio Applications
Neeraj Magotra, Texas Instruments Inc.

WA8b1-21 Fast estimation of uniformly-distributed random processes using extreme values
Ken Lever, University of Wales, Cardiff

WA8b1-22 A Blind Jammer Suppression System Based on a Modified Despreader for Multiple GPS Signals
Suk-seung Hwang, John Shynk, University of California, Santa Barbara

Session WA8b2 Adaptive Array Processing, STAP

Chair: *Stephen Kogon*

WA8b2-1 Multi-rank Capon Beamforming
Magnus Lundberg, Louis L. Scharf, Ali Pezeshki, Colorado State University

WA8b2-2 Self-Calibration of an Airborne Array
Hasan Mir, John Sahr, University of Washington; Gary Hatke, Catherine Keller, MIT Lincoln Laboratory

WA8b2-3 A new high-resolution-and-capacity DOA estimation technique based on subarray beamforming
Nanyan Wang, Panajotis Agathoklis, University of Victoria

WA8b2-4 The properties and distribution of the CAPE detector.
Todd McWhorter, Mission Research Corporation

WA8b2-5 Steering Invariant Robust Sidelobe Cancellation Implementation for Large Arrays
Norman Owsley, John Tague, Office of Naval Research

WA8b2-6 Sub-aperture beam-based adaptive beamforming for large dynamic arrays
Henry Cox, Hung Lai, Lockheed Martin Orincon Defense

WA8b2-7 Two-Parameter Power-Variable-Training STAP
Gerald Benitz, Jacob Griesbach, Charles Rader, MIT Lincoln Laboratory

WA8b2-8 NonGaussian Subspace Learning for Complex and Heterogeneous Data
Mukund Desai, Rami Mangoubi, C.S. Draper Laboratory

WA8b2-9 Joint Space-Time Clutter and Interference Covariance Estimation for Non-Chirped Radar
David Rieken, T. Patrick Bidigare, Michel Beauvais, General Dynamics - Advanced Information Systems

Author List

NAME	SESSION
Zemp, Roger	MP1.7
Zetzsche, Christoph	TA1.8
Zeydabadi-Nejad, Mahmood	TP8a2.6
Zhang, Hong	TA3b.2
Zhang, Jin	TA8a.11
Zhang, Ruifeng	MP5.7
Zhang, Rumi	MA2b.2
Zhang, Rumi	TP2.4
Zhang, Xinmiao	MP8a1.5
Zhang, Xueying	TP8a3.2
Zhang, Yiheng	TP8b1.16
Zhang, Yimin	WA4.2
Zhang, Yimin	TA8b.21
Zhang, Yuping	MP8a1.22
Zhang, Zhongkai	TP7.5
Zhang, Zhongkai	TP7.6
Zhao, Qiang	TA8b.12
Zhao, Z. L.	WA8a.12
Zheng, Yibin	TP8a1.7
Zheng, Yibin	MP1.6
Zheng, Yuan	TP8b1.2
Zhong, Cheng	TA8b.25
Zhou, Chan	TA8a.7
Zhou, Guotong	MP8b.26
Zhou, Yugang	MP8b.20
Zhu, Weihua	MP8b.4
Zhu, Weijun	TA2a.4
Zhu, Weijun	TA8a.12
Zhu, Weijun	MP8b.22
Zhu, Zhenyu	TA8a.13
Zhuo, Jie	TP4.4
Zoltowski, Michael	WA8a.25
Zoltowski, Michael	MP8b.21
Zourntos, Takis	MP6.2
Zrnic, Dusan	TP8a4.2
Zyga, Kathleen	TP7.4

NAME	SESSION

Notes

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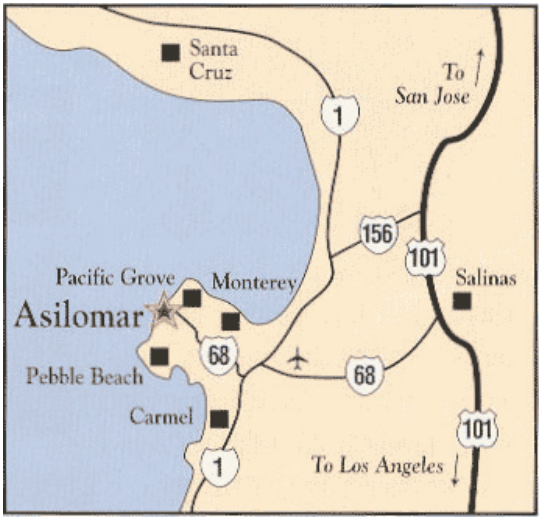
Santa Cruz
To San Jose
1
156
101
Salinas
Pacific Grove
Monterey
Asilomar
68
68
Pebble Beach
Carmel
101
1
To Los Angeles