

THIRTY-THIRD ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS, AND COMPUTERS



October 24 - 27, 1999

Asilomar Hotel
Conference Grounds

In cooperation with the
**Signal Processing Society of
the Institute of Electrical and
Electronics Engineering**



THIRTY-THIRD ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS, AND COMPUTERS

ORGANIZED IN COOPERATION WITH
NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA

SAN JOSE STATE UNIVERSITY
SAN JOSE, CALIFORNIA

AND
IEEE SIGNAL PROCESSING SOCIETY

CONFERENCE COMMITTEE

General Chairman

Prof. Fred Taylor
Dept. of Electrical and
Computer Engineering
University of Florida
Gainesville, FL 32611
Tel: 352 392-2692
Fax: 352 392-0044
E-mail: fjt@alpha.ee.ufl.edu

Publicity Chairman

Prof. Murali Tummala
Department of Electrical &
Computer Engineering
Naval Postgraduate School
Monterey, CA 93942-5121
Tel: 831 656-2645
Fax: 831 656-2760
E-mail: tummala@ece.nps.navy.mil

Technical Program Chairman

Prof. Graham A. Jullien
VLSI Research Group
University of Windsor
Ontario, Canada N9B 3P4
Tel: 519 253-4232 x2574
Fax: 519 971-3695
E-mail: jullien@uwindsor.ca

Finance Chairman

Prof. Ralph Hippenstiel
Department of Electrical &
Computer Engineering
Naval Postgraduate School
Monterey, CA 93943-5121
Tel: 831 656-2633
Fax: 831 656-2760
E-mail: hippenst@ece.nps.navy.mil

Conference Coordinator

Prof. Monique P. Fargues
Department of Electrical and
Computer Engineering
Naval Postgraduate School
Monterey, CA 93943
Tel: 831 656-2859
Fax: 831 656-2760
E-mail: fargues@ece.nps.navy.mil

Publication Chairman

Dr. Michael B. Matthews
MBARI
Moss Landing, CA 95039
Tel: 831 775-1768
Fax: 831 775-1646
E-Mail: matthews@mbari.org

Welcome from the General Chair

I am both honored and pleased to welcome you to the Thirty-Third Asilomar Conference on Signals, Systems, and Computers. Asilomar alumni already know that the Conference is unique. Asilomar is first a technical conference. It is, however, different from most other professional engineering conferences that showcase only polished and refined results, Asilomar has a history of also encouraging the early disclosure ideas and results. What you see at other national conferences, you may have seen here first. This year's program is no exception, consisting of a blend of unsolicited and invited papers covering a wide range of topics.

I am sure that you will also find the Asilomar conference grounds to be unique, visually breathtaking, and totally engaging. Whether you choose to spend your leisure time walking on the beach, conversing with associates in the lodge, or visiting the Monterey Peninsula, you will be completely enthralled. For those with a high credit card limit, there is also a wealth of commercial attractions in the area.

The Thirty-Third Asilomar Conference is also a celebration of tradition. For those taking advantage of low airfares, arriving in the Monterey area on the weekend, join us at the reception social Sunday night. A conference hallmark of Asilomar has always been the Monday morning keynote address, which for the second year is named the Sydney Parker Memorial Lecture. This year's Sydney Parker Memorial Lecture is being delivered by the world-renowned scholar and entrepreneur, Dr. David G. Messerschmitt (1999 IEEE Graham Bell Medal winner). We are indeed fortunate to have a man of his stature to share a vision of the next millennium. Come and enjoy another Asilomar tradition on Tuesday evening at the Navy Postgraduate School. You will have a completely enjoyable social evening at a great location with your fellow attendees. Asilomar alumni will tell you, however, that the most important Asilomar tradition is developing life-long friendships. Asilomar alumni will point to the fact that it was here that they formed many important interpersonal relationships with their peers that remain active today. For those joining us for the first time, I am confident that you will have the same experience.

Finally kudos to your Technical Conference Chairman, Graham Jullien, whose tireless effort fashioned an excellent program. Graham recruited a first-class group of technical track chairpersons, organized the sessions, and used his extensive experience to fashion the program that I know you will enjoy.

Fred Taylor
General Chairman

Conference Steering Committee

PROF. CHARLES W. THERRIEN
Chairman
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437
Code EC/Ti
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. SHERIFF MICHAEL
Secretary
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437
Code EC/Mi
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. RALPH D. HIPPENSTIEL
Treasurer
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437
Code EC/Hi
Naval Postgraduate School
Monterey, CA 93943-5121

DR. MICHAEL MATTHEWS
Publication Chair
MBARI
P.O. Box 628
Moss Landing, CA 95039

PROF. MURALI TUMMALA
Publicity Chair
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437
Code EC/Tu
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. VICTOR DEBRUNNER
Dept. of Electrical & Computer Eng.
University of Oklahoma
Norman, OK

DR. GEORGE M. DILLARD
Code 0141
NCCOSC, RD&TE Div.
San Diego, CA 92152-5000

PROF. MONIQUE P. FARGUES
Dept. of Electrical & Computer Eng.
833 Dyer Road, Room 437
Code EC/Fa
Naval Postgraduate School
Monterey, CA 93943-5121

PROF. BENJAMIN FRIEDLANDER
Dept. of Electrical & Computer Eng.
University of California-Davis
Davis, CA 95616

PROF. FREDERIC J. HARRIS
Dept. of Electrical Engineering
San Diego State University
San Diego, CA 92115

DR. NEIL K. JABLON
AirTouch Communications
2999 Oak Road, MS 500
Walnut Creek, CA 94596

PROF. W. KENNETH JENKINS
Director, Coordinated Science
Laboratory
1308 W. Main Street
University of Illinois
Urbana, IL 61801

DR. WASFY MIKHAEL
Dept. of Electrical Engineering
University of Central Florida
Orlando, FL

PROF. JAMES A. RITCEY
Dept. of Electrical Engineering, FT-10
University of Washington
Seattle, WA 98195

PROF. LOUIS L. SCHARF
Dept. of Electrical & Computer Eng.
Campus Box 425
University of Colorado
Boulder, CO 80309-0425

PROF. MICHAEL A. SODERSTRAND
Dept. of Electrical & Computer Eng.
University of California-Davis
Davis, CA 95616

DR. SAMUEL D. STEARNS
Sandia National Laboratories
Organization 9311
Albuquerque, NM 87185

PROF. EARL SWARTZLANDER
Department of Electrical & Computer
Engineering
Engineering Science Building 143
The University of Texas at Austin
Austin, TX 78712-1084
e.swartzlander@compmail.com

DR. STANLEY A. WHITE
SPACE Corp.
433 E. Avenida Cordoba
San Clemente, CA 92672

1999 Asilomar Technical Program Committee

Chairman
PROF. GRAHAM A. JULLIEN
Department of Electrical Engineering
University of Windsor
Ottawa, Canada
jullien@uwindsor.ca

1999 Asilomar Technical Program Committee Members

Prof. Monique P. Fargues

Dept. of Electrical &
Computer Engineering
Code EC/Fa
Naval Postgraduate School
833 Dyer Road, Room 437
Monterey, CA 93943-5121
fargues@ece.nps.navy.mil

Prof. Frederick J. Harris P.E.

Dept. of Electrical and Computer
Engineering
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-1309
fred.harris@sdsu.edu

Prof. W. Kenneth Jenkins

Dept. of Electrical Engineering
Director, Coordinated Science Lab
202A Computer & Sys. Research
Lab
1308 West Main Street, MC-228
Urbana, IL 61801
jenkins@uicsl.csl.uiuc.edu

Michael T. Orchard

Dept. of Electrical Engineering
B-301 Engineering Quadrangle
Princeton University
Princeton, NJ 08544-5263
orchard@ee.princeton.edu

Kannan Ramchandran

Dept. of Electrical Engineering
Univ. of Illinois at Urbana-
Champaign Urbana, IL 61801

Prof. Ali H. Sayed

Dept. of Electrical Engineering
Rm. 44-123A Eng. IV Bldg.
University of California,
Los Angeles
Los Angeles, CA 90095
sayed@ee.ucla.edu

Dr. Roger Woods

Dept. of Electrical & Electronic
Engineering
The Queen's University of Belfast
Ashby Building, Stranmillis Roads
Belfast, Northern Ireland
BT9 5AH
r.woods@qub.ac.uk

1999 Asilomar Conference SESSION SCHEDULE

Sunday Afternoon, October 24

1:00 - 6:00 Registration
7:30 - 9:00 Welcoming Reception at Asilomar

Monday Morning, October 25

8:00 - 6:00 Registration
7:30 - 9:00 Breakfast is available
8:15 - 9:45 Conference Opening and Plenary Session - in the Chapel
9:45 - 10:30 Coffee Social - in front of the Chapel
10:30 - 12:10

| | | |
|------------------|-----------------------------------------------------------------------------|------------------------------------|
| MA1b | The Bootstrap and its Applications in Signal Processing | Abdelhak M. Zoubir |
| MA2b | Communications Over Time-Variant Channels | Rick Wesel |
| MA3b | Image Segmentation | |
| MA4b | MIMO System Identification and Equalization | Athina Petropulu Michael Zatman |
| MA5b | Large Adaptive Arrays | |
| MA6b | Low-Power/High-Speed Algorithms and Architectures for Adaptive Filtering | Naresh Shanbhag |
| MA7b | Implementation of SDP on Programmable Processors | Ed Deprettre |
| MA8b | Wireless Systems (Interactive Lecture) | TBD |
| 12:00-1:00 Lunch | | |

Monday Afternoon, October 25

| | | |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1:30-5:10 | 1 Break - 3:10-3:30 | |
| MP1 | Signal Processing Techniques for Multi-User/Multi-Rate Communications Systems | Naofal Al-Dhahir |
| MP2 | Signal and Array Processing in Multiplicative Environments | Olivier Besson |
| MP3 | Channel and Signal Parameter Estimation | TBD |
| MP4 | Robust Multimedia Transmission | Kannan Ramchandran |
| MP5 | Design for Low Power | Luke Seed |
| MP6 | Multi-Sensor Data Fusion: The Pressing Need for the Application of Advanced Signal Processing Techniques and Approaches | Sean Midwood |
| MP7 | Fast Algorithms in Signal Processing | Shiv Chandrasekaran |
| MP8a | Transform Domain Signal Processing (Interactive Lecture) | Ralph Hippenstiel |
| MP8b | Adaptive Techniques in Equalization and Beamforming (Interactive Lecture) | I. Provdler |
| 6:00-7:00 Dinner | | |

Session SCHEDULE/continued...

Monday Evening, October 25

6:30 - 8:30 Cocktails and Hors D'oeuvres at the Naval
Postgraduate School Officers' Club - Ballroom

Tuesday Morning, October 26

| | | |
|------------|-------------------------------------------------------------------------------|--------------------------|
| 7:30-9:00 | Breakfast | |
| 8:00-4:00 | Registration | |
| 8:30-12:10 | 1 Break - 10:10 -10:25 | |
| TA1 | FPGAs for DSP | Chris Dick |
| TA2a | Blind Source and Signal Separation | B. Friedlander |
| TA2b | Space-Time Processing in Communications | B. L. Hughes |
| TA3 | Advanced Algorithms for High Performance Adaptive Filter Applications | Robert A. Sani |
| TA4 | Signal Structure, Classification and Detection | A. N. Wilson T. Parks |
| TA5 | Multimedia Signal Processing | Roger Woods |
| TA6 | Rapid Design Approaches for DSP | K. Jenkins |
| TA7 | Adaptive Algorithms | M. Farques |
| TA8a | Radar and Sonar (Interactive Lecture) | |
| TA8b | Adaptive Filtering Applications and Methods for CDMA (Interactive Lecture) | V. DeBrunner |

12:00-1:00 Lunch

Tuesday Afternoon, October 26

| | | |
|-----------|-----------------------------------------------------------------|-------------------|
| 1:30-5:10 | 1 Break - 3:10-3:30 | |
| TP1 | Information Filtering | Jose Principe |
| TP2 | Signal Processing for Communications | James A. Ritcey |
| TP3a | Signal Characterization and Representation | R. Kumaresan |
| TP3b | Equalization and Interference Cancellation in Communications | M. Moonen |
| TP4a | Techniques for Frequency Estimation and Spectral Analysis | P. Stoica |
| TP4b | Algorithms for Audio Coding and Speech Processing | K. C. Chung |
| TP5a | Channel Estimation in Fading | Ali Sayed |
| TP5b | Channel Estimation | L. Scharf |
| TP6 | Image Coding | M. T. Orchard |
| TP7a | High Performance Multiplier Design | E. Swartzlander |
| TP7b | Automatic Target Recognition Theory | Randolph L. Moses |
| TP8a | Image Enhancement and Classification (Interactive Lecture) | M. Matthews |
| TP8b | Special Arithmetic Techniques (Interactive Lecture) | N. Burgess |

Session SCHEDULE/continued...

Wednesday Morning, October 27

| | | |
|------------|-----------------------------------------------------------------------------------------|-----------------|
| 8:00-12:00 | Registration — Papers must be turned in before the registration closes at 12:00 noon | |
| 7:30-9:00 | Breakfast | |
| 8:30-12:10 | 1 Break — 10:10 -10:25 | |
| WA1 | Implementation of Adaptive Filters | Richard Walke |
| WA2 | Video Signal Processing | Zixiang Xiong |
| WA3 | Computer Arithmetic | Michael Schulte |
| WA4 | Multimedia Security and Watermarking | B. Liu |
| WA5 | Antenna Arrays for Communication Systems | R. S. Blum |
| WA6 | CDMA Interference Cancellation | B. L. Hughes |
| WA7 | Sub-Band and Wavelet Filters | F. Harris |
| WA8a | Turbo Codes and Channel Simulation (Interactive Lecture) | J. Cavallaro |

12:00-1:00 Lunch

1999 ASILOMAR CONFERENCE SESSION SCHEDULE

Coffee breaks will be at 10:10 am and 3:10 pm.
(Except Monday morning when refreshments will be served
outside the Chapel from 9:45-10:30.)

Monday, October 25

8:15- 9:45 Conference Opening and Plenary Session

1. Welcome from the General Chairperson:

Fred Taylor
University of Florida

2. Session MA1a : Distinguished Lecture for the 1999 Asilomar Conference

DR. DAVID G. MESSERSCHMITT

Roger A. Strauch Professor of Electrical Engineering
and Computer Sciences
University of California at Berkeley

Reconstructing Electrical Engineering for the 21st Century

The gateway to a new millennium is a good opportunity to reflect on the past and future of electrical engineering. Advances in technology and methodology have rapidly transformed electrical engineering, its allied fields (such as computer science and engineering), and many other engineering fields (such as mechanical, transportation, and aerospace engineering). These trends will continue and accelerate in the 21st century, dramatically affecting what it means to be a practicing engineer, researcher, or educator. In this talk we attempt to anticipate these changes, particularly from the perspective of identifying shortcomings in today's profession and how it could be reconstructed to better address future needs. The dramatically rising importance of systems and applications, the changing societal context and impact of the technology, and how students can be better prepared to meet the challenges of the future are emphasized.

Professional Biography

David G. Messerschmitt is the Roger A. Strauch Chaired Professor of Electrical Engineering and Computer Sciences at the University of California at Berkeley. From 1993-96 he served as Chair of EECS, and prior to 1977 he was with AT&T Bell Laboratories in Holmdel, N.J. Current research interests include wireless access to broadband networks, network management, the role of mobile code in network infrastructure, and the economics of networks. Active in developing new courses on information technology in business and information science programs, and introducing relevant economics and business concepts into the computer science and engineering curriculum, he is a co-founder and Director of TCSI Corporation. He is on the Advisory Board of the Fisher Center for Management & Information Technology in the Haas School of Business, the Kawasaki Berkeley Concepts Research Center, the Directorate for Computer and Information Sciences and Engineering at the National Science Foundation, and currently co-chairs a National Research Council study on the future of information technology research. He received a B.S. degree from the University of Colorado, and an M.S. and Ph.D. from the University of Michigan. He is a Fellow of the IEEE, a Member of the National Academy of Engineering, and a recipient of the IEEE Alexander Graham Bell Medal.

Program of 1999 Asilomar Conference on Signals, Systems, and Computers

PROF. GRAHAM JULLIEN
Technical Program Chairman

MA1b - The Bootstrap and its Applications in Signal Processing

Chair : Abdelhak M. Zoubir

MA1b-1 Bootstrap and MCMC Sampling in Signal Processing: A Comparison 10:30 am
Petar Djuric, State University of New York

MA1b-2 Multipath Track Association for Over-the-Horizon Radar Using a Bootstrapped Statistical Ionospheric Model 10:55 am
Jeffrey Krolik and Richard Anderson, Duke University

MA1b-3 Bootstrapping Tolerance Intervals 11:20 am
Abdelhak M. Zoubir, Curtin University of Technology and Donald W. Tufts, University of Rhode Island

MA1b-4 Using the Bootstrap for Robust Detection in Array Signal Processing 11:45 am
Mats Viberg, Chalmers University of Technology and Istvan Bogdan, University of Sheffield

MA2b- Communications Over Time-Variant Channels

Chair: Rick Wesel

MA2b-1 Adaptive Coding for Statistically Uncertain Operating Environment 10:30 am
Dennis Goeckel, University of Massachusetts

MA2b-2 Rotationally-Invariant Concatenated (Turbo) TCM Codes 10:55 am
Weixiao Liu and Stephen G. Wilson, University of Virginia

MA2b-3 Quantization-Based Estimation 11:20 am
Keith M. Chugg, Kriang Lerdsuwanakij, and Andreas Polydoros, University of Southern California

MA2b-4 Space-time Designs for Narrowband Communications 11:45 am
Mike Fitz and Defne Kucukyavuz, The Ohio State University

MA3b- Image Segmentation

Chair:

MA3b-1 The Analysis of Underwater Acoustic Data via 3-D Segmentation 10:30 am
Todd R. Reed, Linkoping University and R.E. Loke and J.M.H. du Buf, University of Algarve

MA3b-2 Morphological Image Segmentation by Local Monotonicity 10:55 am
Scott T. Acton and Joseph H. Bosworth, Oklahoma State University

MA3b-3 An Unsupervised Method of Rough Color Image Segmentation 11:20 am
Taneli Haverinen, Pauli Kuosmanen, and Marius Tico, Tampere University of Technology

MA3b-4 General Unsupervised Multiscale Segmentation of Images 11:45 am
Alvin H. Kam and William J. Fitzgerald, University of Cambridge

MA4b- MIMO System Identification and Equalization

Chair: Athina Petropulu

MA4b-1 Blind Identification of MIMO Channels A Closed Form Solution Based on Second Order Statistics 10:30 am
Joao Xavier and Victor Barroso, Instituto Superior Tecnico

MA4b-2 Blind Channel Identification on CDMA Forward Link Based on Dual Antenna Receiver at Hand-set and Cross-Relation 10:55 am
Mike Zoltowski and Tom Krauss, Purdue University

MA4b-3 Channel Equalization for DS-CDMA Downlink over Multipath Channels 11:20 am
Kemin Li and Hui Liu, University of Washington

MA4b-4 On the Estimation of MIMO System Excited by Inputs with Known Statistics 11:45 am
Athina P. Petropulu and Binning Chen, Drexel University and Konstantinos Diamantaras, Technological Education Institute

MA5b- Large Adaptive Arrays

Chair: Michael Zatman

MA5b-1 Adaptive Clutter and Jammer Cancellation for Element-Digitised Airborne Radar 10:30 am

J.L. Mather, I.D. Skidmore, and H.D. Rees, DERA

MA5b-2 Multirate Adaptive Beamforming 10:55 am

Daniel J. Rabideau, MIT Lincoln Laboratory

MA5b-3 Passive Sonar Limits Upon Nulling Multiple Moving Ships with Large Aperture Arrays 11:20 am

Henry Cox, Orincon Corporation and Arthur B. Baggeroer, MIT

MA5b-4 Degree of Freedom Architectures for Large Radar Arrays 11:45 am

Michael Zatman, MIT Lincoln Laboratory

MA6b- Low-Power/High-Speed Algorithms and Architectures for Adaptive Filtering

Chair: Naresh Shanbhag

MA6b-1 Variable Delay LMS with Applications in HDTV and Cable Modems 10:30 am

K.J. Raghunath, Lucent Digital Radio

MA6b-2 Rapid Design of a Single Chip Adaptive Beamformer with a Novel Linear QR Architecture 10:55 am

John McCanny, The Queen's University of Belfast; Richard Walke, Defence Evaluation & Research Agency (DERA); Roger Woods, The Queen's University of Belfast and Alan S. Willsky, MIT

MA6b-3 Design of a Low Power Matched Filter For Code Acquisition in CDMA Systems 11:20 am

Sundararajan Sriram, Texas Instruments Inc.

MA6b-4 A 100 uW 20 Mcps Versatile Correlator Chip for Third Generation WCDMA Systems 11:45 am

Babak Daneshmand and Suk Won Kim, University of California-Los Angeles

MA7b- Implementation of SDP on Programmable Processors

Chair: Ed Depretre

MA7b-1 Parallel Viterbi Algorithm for a VLIW DSP 10:30 am

Shoab Ahmad Khan and Maliq Muhammad Saqib, National University of Sciences & Technology and Sherjil Ahmed, Communication Enabling Technology

MA7b-2 Real-Time High-Throughput Sonar Beamforming Kernels Using Native Signal Processing and Memory Latency Hiding Techniques 10:55 am

Brian L. Evans, Gregory E. Allen, and Lizy K. John
The University of Texas at Austin

MA7b-3 Optimal Scheduling and Mapping of Digital Signal Processing Algorithms on TMS320C6x SDP 11:20 am

Raheel Khan and Muhammad Sohail Sadiq, National University of Sciences & Technology

MA7b-4 An Enhanced Floating-Point Coprocessor for Embedded Signal Processing and Graphics Applications 11:45 am

Chris N., Hinds, ARM, Inc.

MA8b- Wireless Systems (Interactive Lecture) 10:30 am - 12:00 am

MA8b-1 Dynamic Scheduling in Antenna Array Packet Radio

Hujun Yin and Hui Liu, University of Washington

MA8b-2 A Novel Fast Joint Detector in Smart Antenna CDMA Systems

Weidong Yang, Sang-Youb Kim, and Guanghan Xu, The University of Texas at Austin and Hui Liu, University of Washington

MA8b-3 Array Processing Application: Angular Superresolution for Scanning Antenna

Andrzej Z. Manitius, George Mason University; Herbert Dropkin and Canh Ly, Army Research Laboratory

- MA8b-4 Implementation of a Tunable Heterodyne Notch Filter**
Louis Johnson, Oklahoma State University; Karl E. Nelson, University of California-Davis; Michael, A., Soderstrand, Seong-Jhin Choi, and Asad Azam, Oklahoma State University; Gary E. Ford, University of California-Davis, and Dhinesh Sasidaran, Oklahoma State University
- MA8b-5 Least-Squares Channel Equalization Performance Versus Equalization Delay in the SIMO Channel Context**
Athanasios P. Liavas, University of Ioannina
- MA8b-6 Optimal Quantization for Third-Generation CDMA Transmitters**
Giridhar D. Mandyam, Nokia Research Center
- MA8b-7 Performance of MC-CDMA Systems Using Antenna Arrays**
Guanghan Xu and Murat Torlak, The University of Texas at Austin
- MA8b-8 Wideband Wireless Peer to Peer Propagation Measurements in Urban and Suburban Environments**
Clark Hendrickson, SPAWAR/SYSCEN, Gerald Gerace, Science Applications International Corporation, and Chris Yerkes, SPAWAR/SYSCEN
- MP1- Signal Processing Techniques for Multi-User/Multi-Rate Communications Systems**
Chair: Naofal Al-Dhahir
- MP1-1 Outage Probability of Cellular Mobile Radio Systems with Partial Interference Cancellation** 1:30 pm
Emad Ebbini, Alireza Bastami, and Mohamed-Slim Alouini, University of Minnesota
- MP1-2 Throughput Maximization in Dual-Rate DS/CDMA Packet-Based Networks** 1:55 pm
U. Mitra, The Ohio State University and K. Wassenaar, University of Michigan
- MP1-3 Global Optimization of Orthogonal FIR Transmitter and Receiver Filters for Data Transmission Over Noisy Channels** 2:20 pm
Jamal Tuqan, IBM Thomas J. Watson Research Center

- MP1-4 A Computationally-Efficient FIR MMSE-DFE for Multi-User Communications** 2:45 pm
Naofal Al-Dhahir, GE Corporate R&D Center and Ali H. Sayed, University of California-Los Angeles
- BREAK** 3:10 pm
- MP1-5 Transmission Optimization Over Flat Rayleigh Fading Channel with Multiple Antennas** 3:30 pm
Guanghan Xu, Hang Li, and Weidong Yang, The University of Texas at Austin
- MP1-6 Joint Transmit and Receive Optimization for High Data Rate Wireless Communications Using Multiple Antennas** 3:55 pm
Hemanth Sampath and Arogyaswami J. Paulraj, Stanford University
- MP1-7 alpha-Repetition/Modulation and Blind Second-Order Identification** 4:20 pm
Antoine Chevreuil, Philippe Loubaton, and Philippe Ciblat, Universite de Mame-La-Vallee
- MP1-8 Iterative MMSE Multiuser Interference Suppression for Coded Dispersive CDMA Wireless Channels with Multisensor Receivers** 4:45 pm
Evangelos Geraniotis and Joseph Thomas, University of Maryland
- MP2- Signal and Array Processing in Multiplicative Environments**
Chair: Olivier Besson
- MP2-1 Array Performance in the Presence of Distributed Fading** 1:30 pm
Benjamin Friedlander, Signal Processing Technology, Ltd.
- MP2-2 Linear Chirp Parameter Estimation from Multi Channel Data** 1:55 pm
Bjorn Volcker, Royal Institute of Technology and Madhavi Kadiyala, University of Oklahoma
- MP2-3 On Non-Data-Aided Carrier Recovery in Time-Selective Rician-Fading Channels** 2:20 pm
Ananthram Swami, Army Research Lab and Tariq Durrani and Mounir Ghogho, University of Strathclyde

- MP2-4 Estimation and Equalization of Time-Selective Channels Using Precoding** 2:45 pm
G Tong Zhou, Georgia Institute of Technology; Georgios, B., Giannakis, University of Minnesota; and Yongsub Kim, Georgia Institute of Technology
- BREAK** 3:10 pm
- MP2-5 Decoupled Estimation of DOA and Angular Spread for Spatially Distributed Sources** 3:30 pm
Petre Stoica, Uppsala University and Olivier Besson, ENSICA
- MP2-6 Array Self Calibration with Large Sensor Position Errors** 3:55 pm
Brian P. Flanagan, The MITRE Corporation and Kristine L. Bell, George Mason University
- MP2-7 Adaptive Non Coherent Integration Algorithms for Array Detection** 4:20 pm
Ram Raghavan, MIT
- MP2-8 An Analysis of the Effect of Motion and Phase Errors on the Implementation of Interferometric Processing by Synthetic Aperture Sonar** 4:45 pm
William W. Bonifant, Jr., James H. McClellan, and Mark A. Richards, GeorgiaTech Research Institute
- MP3- Channel and Signal Parameter Estimation**
Chair: J. Drake
- MP3-1 Generalized Channel Impulse Response Shortening for Discrete Multitone Transceivers** 1:30 pm
Bo Wang and Tulay Adali, University of Maryland
- MP3-2 On the Use of Orthogonal Transforms for Fractionally-Spaced Blind Equalisation** 1:55 pm
P. Srisuk and Anthony G. Constantinides, Imperial College of Science, Technology & Medicine
- MP3-3 Delay Estimation for CDMA Communications with the RSRQ Algorithm** 2:20 pm
Louis L. Scharf and Michael L. McCloud, University of Colorado-Boulder
- MP3-4 Lower Bounds for Phase Estimation of M-PSK Packets with Random Phase** 2:45 pm
Jeffrey Drake, New Mexico State University
- BREAK** 3:10 pm
- MP3-5 EM Algorithms for Sequence Estimation over Random ISI Channels** 3:30 pm
Kevin Buckley, Villanova University; W. Andrew Berger, University of Scranton; and Richard Perry, Villanova University
- MP3-6 Estimation of Mobile Speed and Average Received Power in Wireless Systems Using Best-Basis Methods** 3:55 pm
Donald C. Cox and Ravi Narasimhan, Stanford University
- MP3-7 Performance of Equalized I-Q QPSK Over 2-Ray Rayleigh Fading** 4:20 pm
Azzedine Zerguine, S.A. Al-Semari, and A.B. Adinoyi, KFUPM
- MP3-8 A Training Based Projection Receiver for the UMTS WCDMA** 4:45 pm
Irfan Ghauri and Dirk T.M. Stock, Institut Eurecom
- MP4- Robust Multimedia Transmission**
Chair: Kannan Ramchandran
- MP4-1 Progressive Video Compression for a Power Constrained Channel** 1:30 pm
Samuel S. Cheng, Zixiang Xiong, and Marc Fossonier
- MP4-2 A Factor Graph Framework for Joint Source-Channel Decoding of Images** 1:55 pm
Ralf Koetter, Igor Kozintsev, and Kannan Ramchandran, University of California-Berkeley
- MP4-3 Joint Source-Channel Coding Using Soft Output Quantizers** 2:20 pm
Keith M. Chugg, Antonio Ortega, and Kemal Demirciler, University of Southern California
- MP4-4 Optimal Intra/Inter Mode Switching for Robust Video Communication Over the Internet** 2:45 pm
Kenneth Rose, Shankar L. Regunathan, and Rui Zhang, University of California-Santa Barbara

BREAK 3:10 pm

MP4-5 Broadcast System Source Codes: A New Paradigm for Data Compression 3:30 pm
Qian Zhao and Michelle Effros

MP4-6 Efficient Internet Video Streaming via the Coordination of Multiple Description Codes with Novel Congestion Control 3:55 pm
Tae-eun Kim and Rohit Puri, University of Illinois; Kannan Ramchandran, University of California-Berkeley; Kang-Won Lee and Vaduvur Bharghavan, University of Illinois

MP4-7 High-Quality Internet Audio Over ATM Networks 4:20 pm
Chris Kyriakakis and Sherali Zeadally, University of Southern California

MP4-8 Robust Stack-Run Image Coding for Noisy Channels 4:45 pm
Philippe Raffy, Robert M. Gray, and Christine Pepin, Stanford University

MP5- Design for Low Power
Chair: Luke Seed, University of Sheffield

MP5-1 Segmentation Strategies for Low Power Implementation of Digital Filters 1:30 pm
Tughrul Arslan, University of Edinburgh and A.T. Erdogan, Stanford University

MP5-2 Single-Ended Pass Transistor Logic for Low-Power Design 1:55 pm
Marios Psilogeogopolis, Mihai Munteanu, Istvan Bogdan, Peter Ivey, Tzung-Shiun Chuang, Neil Powell, and Luke Seed, University of Sheffield

MP5-3 Advanced Clock-Powered Logic 2:20 pm
William Athas, University of Southern California

MP5-4 Information-Theoretic Bounds for Switching Activity Analysis in Finite-State Machines Under Temporally Correlated Inputs 2:45 pm
Diana Marculescu and Radu Marculescu, University of Maryland

BREAK 3:10 pm

MP5-5 Optimal Supply Voltage Selection Through a Multiobjective Design Strategy 3:30 pm
M. S. Bright, Cardiff University and Tughrul Arslan, University of Edinburgh

MP5-6 Power and Performance Comparison Between Crossbars and Buses as On-Chip Interconnect Structures 3:55 pm
Yan Zhang and Mary Jane Irwin, Penn State University

MP5-7 Exploring the Impact of Logic Synthesis on Area, Delay and Power Dissipation of CMOS Circuits 4:20 pm
Alberto Macii and Enrico Macii, Politecnico di Torino

MP5-8 Algorithm and Circuit Co-Design for a Low-Power Sequential Decoder 4:45 pm
Peter Beerel, Sunan Tugsinavisut, Keith M. Chugg, Ramesh Chokkalingam, Sushil Singh, Recep Ozdag, and Phunsak Thiennviboon, University of Southern California

MP6- Multi-Sensor Data Fusion: The Pressing Need for the Application of Advanced Signal Processing Techniques and Approaches
Chair: Sean Midwood

MP6-1 Extraction of 3-D Coordinates from Fusion of OMNI-Camera Images 1:30 pm
Rick S. Blum, Lehigh University

MP6-2 An Introduction to Multi-sensor Data Fusion 1:55 pm
James Llinas, State University of NY at Buffalo

MP6-3 Perspectives on the Progress of Data Fusion for Soldiers 2:20 pm
David L. Hall, Penn State University

MP6-4 Multi-Source Data Fusion in a NATO Coalition - A Canadian Army Perspective 2:45 pm
Ian Glenn, NDHQ

BREAK 3:10 pm

MP6-5 Managing the Development of MSDF Systems for use in Joint and Coalition Warfare **3:30 pm**
 Frank White, SPAWAR SYSTEMS CENTER

MP6-6 Multi-Sensor Data Fusion System Architectures **3:55 pm**
 Pramed Varshney, Syracuse University

MP6-7 Data Fusion Applications for Military and Civilian Purposes Developed on DND/L-M Canada Decision Support Test Bed **4:20 pm**
 Elisa Shahbazian, Lockheed Martin

MP6-8 A COTS Sonar Informatino Management Concept Demonstrator for Naval Multi-Platform Operations **4:45 pm**
 Anthony Ashley, Defence Research Establishment Atlantic

MP7- Fast Algorithms in Signal Processing
 Chair: Shiv Chandrasekaran

MP7-1 The Unitary Hessenberg Eigenproblem **1:30 pm**
 Bill Gragg, Naval Postgraduate School

MP7-2 Balanced Model Reduction **1:55 pm**
 Ming Gu, University of California-Los Angeles

MP7-3 Superfast Algorithms for Toeplitz and Toeplitz-plus-Hankel Systems **2:20 pm**
 Georg Heinig, Kuwait University

MP7-4 Fast Updating of Structured Linear Systems of Equations with Applications in Adaptive Filtering **2:45 pm**
 Ali H. Sayed, University of California-Los Angeles;
 Shivkumar Chandrasekaran University of California-Santa Barbara; and
 Ming Gu, University of California-Los Angeles

BREAK **3:10 pm**

MP7-5 Eigenvector Computations for Almost-Unitary-Hessenberg Matrices via Discrete Transmission Lines **3:30 pm**
 Vadim Olshevsky, Georgia State University

MP7-6 Efficient Implementation of the 2-D Capon Spectral Estimator **3:55 pm**
 S. Lawrence Marple, Jr., Orincon Corporation; Petre Stoica and Andreas Jakobsson, Uppsala University

MP7-7 The Schur Algorithm for Ill-Conditioned Hankel Matrices **4:20 pm**
 M. Sharma, Joochwan Chun, and T. Kailath, Stanford University

MP7-8 Reduced-Order Filters with Order-Reduction Constraints **4:45 pm**
 Celestino A. Corral, Motorola and Claude S. Lindquist, University of Miami

MP8a-Transform Domain Signal Processing (Interactive Lecture)

1:30 - 3:00 PM

Chair: Ralph Hippenstiel

MP8a-1 Orthogonal Polyphase Image Resampling Structures and Implementations
 Fred Harris, San Diego State University and Scott Andrews, Logic Devices

MP8a-2 Time/Frequency Techniques for Signal Feature Detection
 Adele B. Doser, The University of Texas at Dallas

MP8a-3 Localization of GSM Signals Using Wavelet Denoising Using the 4-th Order Moment
 Ralph Hippenstiel and Unal Aktas, Naval Postgraduate School

MP8a-4 Hyperspectral Biomedical Image Formation
 P. Soliz, Kestrel Corporation; E. Wu, University of New Mexico;
 P. Gelabert, Texas Instruments; Magotra Neeraj, University of New Mexico;
 and J. Otten, Kestrel Corporation

MP8a-5 Observations on Centralized Linear Prediction
 Charles W. Therrien, Naval Postgraduate School

MP8a-6 Two-Dimensional Fast Computational Lattice Algorithm
 S. Lawrence Marple, Jr., Orincon Corporation

MP8a-7 Withdrawn

MP8a-8 Combing Clustering Technique and Information Theoretic Criteria Based Approach for Emitter Number Detection in ESM Applications

Jim P.Y. Lee and Yifeng Zhou, Defence Research Establishment Ottawa (DREO)

MP8a-9 Withdrawn

MP8a-10 The Linear Estimation of a Non-Uniformly Sampled Multi-Resolution Random Process in Noise

Michael B. Matthews, Monterey Bay Aquarium Research Institute (MBARI)

MP8b-Adaptive Techniques in Equalization and Beamforming

(Interactive Lecture)

3:30 - 5:00 PM

Chair: I. Proudler

MP8b-1 Implementation of Adaptive Beamforming Algorithms Using a URV-like Factorization

Joochwan Chun and T. Kailath, Stanford University

MP8b-2 Adaptive and Non-Adaptive Beampattern Control Using Quadratic Beampattern Constraints

Kristine L. Bell and Harry L. Van Trees, George Mason University

MP8b-3 A New Adaptive Estimation Algorithm for Wireless Location Finding Systems

Ali H. Sayed and Nabil R. Yousef, University of California-Los Angeles

MP8b-4 An Efficient Scheme for Broadband Adaptive Beamforming

Robert W. Stewart, University of Strathclyde; Ian K. Proudler, Defense Evaluation and Research Agency; Marion Schabert, University of Strathclyde; Stephan Weiss, University of Southampton

MP8b-5 Two Dimensional Beam Forming for Spatially Correlated Users in Mobile Systems

Chris Gao and Elvino Sousa, University of Toronto

MP8b-6 Multichannel Adaptive Beamforming for Interference Mitigation and Spatial Diversity in Multiuser CDMA Systems

Catherine M. Keller, Daniel W. Bliss, and Keith W. Forsythe, MIT Lincoln Laboratory

MP8b-7 Structured Gradient Method Applied to Circular Arrays

James H. Morse, Jr., Iowa State University

MP8b-8 A Reduced Complexity Least Squares Algorithm for Look Direction Constrained Broadband Arrays with Maximally Flat Response Zeros

Chi Chung Ko and Fei Ye, National University of Singapore

MP8b-9 On the Learning Behavior of Decision Feedback Equalizers

Markus Rupp, Bell-Labs-Lucent Technologies

MP8b-10 Decision Feedback Equalization Using an Euclidean Direction Based Adaptive Algorithm

Tanawat Mathurasai, Tamal Bose, and Delores M. Etter, University of Colorado-Boulder

MP8b-11 Optimum Design for Adaptive Equalizers Based on Fractional Lower-Order Statistics in Non-Gaussian Environment

E. Del Re and Marilli Rupi, Universita di Firenze

MP8b-12 Zero Forcing Equalization of Multiuser Time-Varying Nonlinear Systems

G. Tong Zhou and Arthur J. Redfern, Georgia Institute of Technology

MP8b-13 Subband Adaptive Equalization of Time-Varying Channels

Daniel Garcia-Alis, University of Strathclyde; Stephan Weiss, University of Southampton; and Robert W. Stewart, University of Strathclyde

MP8b-14 Adaptive Equalization: The Gaussian Kernel-Based Contrast Functions

Antoine Chevreuil and Christophe Vignat, Universite de Mame-La-Vallee

MP8b-15 New Insights for the Filtered-X Algorithm and Robust Adaptive Equalization

J. Hu and H.R. Wu, Monash University

MP8b-16 Adaptive Equalization of Multiple-Input Multiple-Output Frequency Selective Channels

Babak Hassibi, Bell Labs - Lucent Technologies and Ardavan M. Tehrani, Stanford University

TA1- FPGAs for DSP

Chair: Chris Dick

TA1-1 A Configurable Soft Radio: Design, Implementation, and Evaluation 8:30 am

John Davies, Prinya Atinirarnit, Kathyayani Srikanthaswara, and Peter Athanas, Virginia Tech

TA1-2 Developing and Debugging FPGA Applications in Hardware with JHDL 8:55 am

Brad Hutchings, Brigham Young University

TA1-3 FPGAs Make Radar Signal Processing on a Chip a Reality 9:20 am

Raymond J. Andracka, Andracka Consulting Group, Inc.

TA1-4 Configurable Logic for Digital Communications: It's About Time 9:45 am

Chris Dick, Xilinx Inc., and Fred Harris, San Diego State University

BREAK 10:10 am

TA1-5 Efficient Implementation of a Filter Bank Architecture for Demultiplexing in Satellites Applications 10:25 am

G. Rovigatti, Alenia Divisione Spazio; A. Del Re, Marco Re, R. Lojaco, Gian-Carlo Cardarilli, University of Rome Tor Vergata, and V. Piloni, Alenia Divisione Spazio

TA1-6 FPGA Implementation of An Antenna Array MC-CDMA Demodulator 10:50 am

Hui Liu, Richard Shi, and Guanbin Xing, University of Washington

TA1-7 Performance Trade-off of DCT Architectures in Xilinx FPGAs 11:15 am

Keshab K. Parhi, University of Minnesota and Dhiraj Kumar, Lucent Technologies

TA1-8 FPGA Implementation of Two-Dimensional Wavelet Transform 11:40 am

Ali M. Reza, University of Wisconsin-Milwaukee and Robert D. Turney, Lilinx Inc.

TA2a- Blind Source and Signal Separation

Chair: B. Friedlander

TA2a-1 Comparison of Approximate Maximum Likelihood and Cumulant Based Techniques for Blind Source Separation 8:30 am

Benjamin Friedlander, Signal Processing Technology, Ltd. and Daniel Yellin, University of California - Davis

TA2a-2 A Non-Iterative Blind Signal Separation Algorithm Based on Transmit Diversity and Coding 8:55 am

Geert Leus, Marc Moonen, and Piet Vandaele, Katholieke Universiteit Leuven-ESAT

TA2a-3 Polyhedral Concepts for Deterministic Blind Separation of Binary Sources 9:20 am

Joao Xavier and Victor Barroso, Instituto Superior Tecnico

TA2a-4 BER Improvement in a TDMA/FDMA Cellular System Using Antenna Array 9:45 am

S. Valaee, Sharif University of Technology; M. Biguesh, B. Champagne, and A. Stephenne, INRS-Telecommunications

BREAK 10:10 am

TA2b- Space-Time Processing in Communications

Chair: B. L. Hughes

TA2b-1 Joint Detection and Estimation in Space-Time Coding and Modulation 10:25 am

Carmela Cozzo and Brian L. Hughes, North Carolina State University

TA2b-2 Blind Space-Time Minimum Variance Receiver for CDMA Systems 10:50 am

SooHong Kim and JooHwan Chun, Korea Advanced Institute of Science and Technology

TA2b-3 Space-Time Equalization for DVB-T in Single Frequency Networks 11:15 am

Alexei Gorokhov, CNRS-L2S and Pierre Magniez, TSI/ENST

TA2b-4 A General Approach to Differential Transmit Diversity 11:40 am

Brian L. Hughes, North Carolina State University

- TA3- Advanced Algorithms for High Performance Adaptive Filter Applications**
Chair: Robert A. Soni
- TA3-1 On the Convergence of Non-Linear Iterative Interference Cancellation** 8:30 am
R. Michael Buehrer, Bell Laboratories - Lucent Technologies
- TA3-2 On the Spectral Efficiency of Space-Time Spreading Schemes for Multiple Antenna CDMA Systems** 8:55 am
Constantinos Papadias, Bell Laboratories - Lucent Technologies
- TA3-3 An Adaptive Linear Prediction Algorithm for Joint Blind Equalization and Blind Multiuser Detection in CDMA** 9:20 am
Howard Fan and Xiaohua Li, University of Cincinnati
- TA3-4 Set-Membership Filtering and Adaptive Space-Time Processing for Multiple-Access Wireless Communications** 9:45 am
Sridhar Gollamudi and Yih-Fang Huang, University of Notre Dame
- BREAK 10:10 AM**
- TA3-5 Adaptive Antenna Schemes for Transmission in IS-2000 and WCDMA Systems** 10:25 am
Robert A. Soni, Bell Laboratories - Lucent Technologies
- TA3-6 Adaptive Fault Tolerant Digital Filters with Coefficient Bit Errors in Fixed-Point and Floating-Point Binary Representations** 10:50 am
G. Leon and W. Kenneth Jenkins, University of Illinois
- TA3-7 Global Stability of Adaptive IIR Filters Based on the Output** 11:15 am
Miloje Radenkovic and Tamal Bose, University of Colorado-Denver
- TA3-8 Fixed-Point Analysis of an Adaptive Eigenvector Algorithm for Use in Sensor Networks** 11:40 am
Fan Xu and Alan N. Willson, Jr., University of California-Los Angeles

- TA4- Signal Structure, Classification and Detection**
Chair: A. N. Willson
- TA4-1 Optimal Binary Thresholds for Distributed Detection in Gaussian Noise** 8:30 am
Wei Shi, Richard D. Wesel, and Thomas W. Sun, University of California-Los Angeles
- TA4-2 Support Vector Machine for Multiuser Detection in CDMA Communications** 8:55 am
Xiaohong Gong and Anthony Kuh, University of Hawaii at Manoa
- TA4-3 A DMT Transceiver Loading Algorithm for Data Transmission with Unequal Priority Over Band-Limited Channels** 9:20 am
Fengqi Yu and Alan N. Willson, Jr., University of California-Los Angeles
- TA4-4 A Novel Bit Allocation Algorithm for Duplex Operation of DMT Based DSL Modems** 9:45 am
Ranjan Sonalkar, James Basso, and Hamid Sadjadpour, AT&T Shannon Lab
- BREAK 10:10 am**
- TA4-5 Detection of Nonlinearity in a Time-Series by Synthesis of Surrogate Data Using a Kolmogorov-Smirnoff Tested Hidden Markov Model** 10:25 am
Stephen McLaughlin, Charles Peter Unsworth, and Bernie Mulgrew, The University of Edinburgh
- TA4-6 Detection of a Random Amplitude Modulation in Chirp Signals** 10:50 am
Mark R. Morelande and Abdelhak M. Zoubir, Curtin University of Technology
- TA4-7 Aperiodic Auto-Correlation of Polyphase Sequences with a Small Peak-Factor** 11:15am
Holger Boche and Slawomir Stanczak, Heinrich-Hertz-Institut
- TA4-8 Enhanced Signal Classification Scheme Using a Selected Information in the Ambiguity Domain** 11:40 am
Christian Doncarli, University of Nantes and Dean Korosec, University of Maribor

| | | | | | |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| TA5- | Multimedia Signal Processing Chair: T. Parks | | TA6-2 | FILU-200 DSP Coprocessor IP Core Brian Murray, Paul Costigan, Jose Rodriguez, Chris Bleakley, and Vincent Berg, Massana Ltd. | 8:55 am |
| TA5-1 | Efficient Region-Selective Subdivision for 3-D Meshes Wenlong Dong, Jiankun Li, and C.-C. Jay Kuo, University of Southern California | 8:30 am | TA6-3 | JPEG Encoder System-on-a-chip Demonstrator Jill Hunter, Albert Simpson, and Yi Hu, Integrated Silicon Systems Ltd., and John McCanny, The Queen's University of Belfast | 9:20 am |
| TA5-2 | Knowledge Based Inference Engine for On-Line Video Classification Asha Vellaikal and Wensheng Zhou, HRL Laboratories, LLC | 8:55 am | TA6-4 | Low Power Design of Signal Processing Systems Using Characterization of Silicon IP Cores J.R. Spanier, Roger Woods, and Gareth Keane, The Queen's University of Belfast | 9:45 am |
| TA5-3 | Modeling of Head-Related Transfer Functions for Immersive Audio Using a State-Space Approach Chris Kyriakakis and Panayiotis G. Georgiou, University of Southern California | 9:20 am | BREAK | | 10:10 am |
| TA5-4 | A Subset Approach to Contour Tracking in Clutter Michael S. Brandstein and Daniel Freedman, Harvard University | 9:45 am | TA6-5 | A Table-Based Macromodel for Behavioral Delay Estimation Enrico Macii and Giuseppe Odasso, Politecnico di Torino | 10:25 am |
| BREAK | | 10:10 am | TA6-6 | Power Characterization of Functional Units Wu Ye, Kanning Li, Ming Cheng, and Mary Jane Irwin, The Pennsylvania State University | 10:50 am |
| TA5-5 | Classification and Retrieval of Sound Effects in Audiovisual Data Management Tong Zhang and C.-C. Jay Kuo, University of Southern California | 10:25 am | TA6-7 | A Low-Power System-on-Chip for Telecommunications: Single Chip Digital FM Receiver/Demodulator IP Tolga Yalcin and Neslin Ismailoglu, Tubitak-Bilten VLSI Design Group | 11:15 AM |
| TA5-6 | A Modified Chroma-Keyed Technique for Simple Shape Coding Krit Panusopone and Xuemin Chen, General Instrument Corporation | 10:50 am | TA6-8 | High Data Rates Digital Communication System Design Compilers for VLIW DSPs Shoab Ahmad Khan and Durdana Habib, National University of Sciences & Technology, and Sherjil Ahmed, Communication Enabling Technology | 11:40 am |
| TA5-7 | Nose Detection for Consumer Images Thomas W. Parks and Michael S. Richman, Cornell University and Hsien-Che Lee, Eastman Kodak Company | 11:15 am | TA7- | Adaptive Algorithms Chair: K. Jenkins | |
| TA5-8 | Frontal Face Localization Using Linear Discriminant Truong Q. Nguyen and Meng Meng, Boston University | 11:40 am | TA7-1 | Tracking Analysis of the LMF and LMMN Adaptive Algorithms Nabil R. Yousef and Ali H. Sayed, University of California-Los Angeles | 8:30 am |
| TA6- | Rapid Design Approaches for DSP Chair: Roger Woods | | TA7-2 | Variable Weight Mixed-Norm LMS-LMF Adaptive Algorithm Azzedine Zerguine, KFUPM and Tyseer Aboulnasr, University of Ottawa | 8:55 am |
| TA6-1 | XXC - A Tool for Designing Parameterizable IP Cores in VHDL Sujoy Mitra, Xilinx Inc. | 8:30 am | | | |

TA7-3 A Super-Linear Converging Two-Point Gradient Algorithm for Adaptive Filters 9:20 am
George Keratiotis and Larry Lind, University of Essex

TA7-4 Adaptive Line Enhancement via Subspace Tracking 9:45 am
S.D. Hayward and C. Spriggs, DRA Malvern

BREAK 10:10 am

TA7-5 Fast Block LMS Adaptive Volterra Filters 10:25 am
Jungshi Lee, Yuan-Ze University; Ginkou Ma, ERSOTTRI; and Shih-Tse Hsu, Yuan-Ze University

TA7-6 Direct Line Spectral Frequency Adaptation in Second Order Cascade Sections 10:50 am
Gaguk Zakaria, Hughes Network Systems & Virginia Tech and A.A. (Louis) Beex, Virginia Tech

TA7-7 Relative Convergence of the Cascade Recursive Least Squares with Subsection Adaptation Algorithm 11:15 am
A.A. (Louis) Beex, Virginia Tech and Gaguk Zakaria, Hughes Network Systems & Virginia Tech

TA7-8 Two Dimensional Adaptive Filter Based on a t-Distribution Assumption and Full-Plane Support 11:40 am
Junibakti Sanubari, Satya Wacana University and Keiichi Tokuda, Nagoya Institute of Technology

TA8a- Radar and Sonar (Interactive Lecture)
8:30- 10:00 AM
Chair: M. Farques

TA8a-1 Signal Processing of Elastic Surface Waves for Localizing Buried Land Mines
James H. McClellan, Ali Behboodian, and W.R. Scott, Georgia Tech

TA8a-2 Multiple Test Procedures for Radar-based Detection of Buried Landmines
Abdelhak M. Zoubir, Curtin University of Technology and Hakan Brunzell, The Ohio State University

TA8a-3 Element Position Considerations for Robust Direction Finding Using Sparse Arrays
Mats Viberg, Chalmers University of Technology and Christer Engdahl, Ericsson Microwave Systems AB

TA8a-4 A HMM-based Approach to Detect Mine-Like Objects from Seismo-Acoustic Data
Monique P. Fargues and Michael Zambartas, Naval Postgraduate School

TA8a-5 On the Use of a Rejection Class to Enhance Airborne Collected Imagery
H.H. Bennett and R.L. Campbell Jr., U.S. Army Corps of Engineers

TA8a-6 Maximum-Likelihood Estimation and Detection for Wide-Band Moving Sources in Waveguides
Stuart Golden, Orincon Corp.

TA8a-7 Bootstrap-Based Detection of Targets with Unknown Parameters in Unspecified Correlated Interference
Abdelhak M. Zoubir and Hwa-Tung Ong, Curtin University of Technology

TA8a-8 Multiscale Modelling of Manmade Object Discrimination in Synthetic Aperture Radar Imagery
Jim Schroeder, University of South Australia

TA8a-9 Comb Waveforms for Sonar
James Alsup and Harper Whitehouse, SPAWAR Systems Center

TA8a-10 Nonlinear preprocessing of heavy tailed reverberations
D. W. Rickers, A. J. Cutezo, Penn State University

TA8a-11 Optimum Transmit-Receiver Design in the Presence of Signal-Dependent Interference
S.U. Pillai, D.C. Youla, and H.S. Oh, Polytechnic University, and J.R. Guerci, SAIC

TA8a-12 Evaluation of Reduced-Rank, Adaptive Matched Field Processing Algorithms for Passive Sonar Detection in a Shallow-Water Environment
James Ward, Lisa M. Zurk, and Nigel Lee, MIT Lincoln Laboratory

TA8a-13 Space-Time Adaptive Processing for the Detection of Ground Moving Targets: Performance Analysis and Experimental Results
Stephen M. Kogon, MIT Lincoln Laboratory

TA8b- Adaptive Filtering Applications and Methods for CDMA (Interactive Lecture)
10:30 - 12:00 AM
Chair: V. DeBrunner

TA8b-1 Adaptive Baseband Predistortion Techniques for Amplifier Linearization
Mohsen Kavehrad and Kathleen J. Muhonen, The Pennsylvania State University and Rajeev Krishnamoorthy, Lucent Technologies

TA8b-2 An Adaptive Notch Filter Used for Sinusoidal and Transient Modeling of Speech Signals
Victor DeBrunner, University of Oklahoma

TA8b-3 Adaptive Time Delay Estimation With Allpass Constraints
Scott C. Douglas and Michael X. Sun, Southern Methodist University

TA8b-4 Polyphase Analysis of Subbands Adaptive Filters
Robert W. Stewart, University of Strathclyde and Stephan Weiss, University of Southampton

TA8b-5 Rationally Decimated Constituent-Based Filterbanks for Subband Adaptive Filters
Michael Lightner and Jacob D. Griesbach, University of Colorado-Boulder

TA8b-6 Spatio-Temporal Array Processing for Aperiodic DS-CDMA Downlink Transmission
Giuseppe Montalbano, Dirk T.M. Slock, and Irfan Ghauri, Institut Eurecom

TA8b-7 Adaptive Equalizers for Lapped Multitone Systems
Juergen Vollmer, GMD-German National Research Center for Information Theory

TA8b-8 GPS Jamming Effects on CRPA-Equipped F-15 and F-16 Aircraft
Tri Phuong and Gary F. Hatke, MIT Lincoln Laboratory

TA8b-9 A Multidimensional Adaptive Linear Receiver for the Excision of NBI in CDMA Transmission
James P. LeBlanc and Julio E. Castro, New Mexico State University and Predrag Rapajic, The Australian National University

TA8b-10 On the Performance Analysis of Synchronous Code Division Multiple Access with Adaptive Smart Antenna Systems
Weidong Yang, Sang-Youb Kim, and Guanghan Xu, The University of Texas at Austin

TA8b-11 Realization and Performance Analysis of an Adaptive MMSE CDMA Receiver Based on the Truncated Multistage Wiener Filter
Dongjun Lee and Irving S. Reed, University of Southern California

TA8b-12 Adaptive IIR Filtering for Asynchronous Multuser CDMA Detection
Siew Ying Wong, National University of Singapore and Teng Joon Lim, Centre for Wireless Communications

TA8b-13 Adaptive Low-Rank MMSE Detector for DS-CDMA
Hongya Ge, Xiaodong Cai, and Ali N. Akansu, New Jersey Institute of Technology

TA8b-14 A Statistical Approach to Signal Detection in Non-Gaussian Interference and Noise
Mohammad Shikh-Bahaai and A.H. Aghvami, King's College London

TA8b-15 Adaptive Linear-Quadratic Receivers for Time-Varying, Frequency-Selective Code-Division-Multiple-Access Channels
Jian-Jun Ni and Richard J. Barton, Iowa State University

TA8b-16 Performance Analysis of a Convolutionally-Encoded Synchronous CDMA System with Adaptive Beamforming and Linear Multiuser Detection
Zartash Afzal Uzmi, Stanford University and Syed Aon Mujtaba, Bell Laboratories - Lucent Technologies

TP1- Information Filtering

Chair: Jose Principe

TP1-1 Adaptive Multichannel Semi-Blind Deconvolution Using Neural Networks and State-Space Models 1:30 pm

Thomas Huang and You Zhang,
University of Illinois at Urbana-Champaign

TP1-2 The Geometry of Inference, Rate, and Capacity for Least Squares Problems 1:55 pm

Louis L. Scharf, University of Colorado-Boulder

TP1-3 A Nonlinear Adaptive Beamforming Technique for Wireless Communications 2:20 pm

Simon Haykin and Mathini Sellathurai, McMaster University Hamilton

TP1-4 Maximum Partial Likelihood Methods for Nonlinear Signal Processing 2:45 pm

Tulay Adali, University of Maryland

BREAK 3:10 PM

TP1-5 An Introduction to Information Theoretic Learning 3:30 pm

Dongxin Xu and Jose C. Principe, University of Florida

TP1-6 Novel Algorithms for Learning Overcomplete Dictionaries 3:55 pm

R. Jacobs, Katholieke Universiteit Leuven; K. Kreutz-Delgado,
University of California-San Diego, and
Kjersti Engan, Hogskolen i Stavanger

TP1-7 PCA Neural Network for JPEG Image Enhancement 4:20 pm

Paul Bao and Horace Hung, The Hong Kong Polytechnic University

TP1-8 Edge-Preserving Neural Network Based Image Restoration 4:45 pm

Dianhui Wang and Paul Bao, The Hong Kong Polytechnic University

TP1-9 Blind Equalization of DCMA Systems with Nonlinear Channels 5:10 pm

Arthur J. Redfern and G. Tong Zhou, Georgia Institute of Technology

TP2- Signal Processing for Communications

Chair: James A. Ritcey

TP2-1 Rapid Prototyping for a High Data Rate Wireless Local Loop 1:30 pm

Rajeev Krishnamoorthy, Lucent Technologies; Markus Rupp, Bell Labs - Lucent Technologies, and Eric Beck, Bell-Labs

TP2-2 A Tracking Mode Receiver for Joint Channel Estimation and Detection of Asynchronous CDMA Signals 1:55 pm

Ronald A. Iltis, University of California-Santa Barbara

TP2-3 Bit-interleaved Coded Modulation with Rotated QAM Constellations in Rayleigh Fading 2:20 pm

James A. Ritcey and Aik Chindapol, University of Washington

TP2-4 Cyclic Correlation Based Symbol Rate Estimation 2:45 pm

L. Mazet and Philippe Loubaton, Universite de Marn-la-vallee

BREAK 3:10 pm

TP2-5 Content Analysis of Random Cell Injection in ATM Networks 3:30 pm

O.K. Fuller, J.C. McEachen, and C.W. Therrien, Naval Postgraduate School

TP2-6 A Semi-Blind Equalizer Based on CMA and Decision-Direction 3:55 pm

Xiangyang Zhuang and A. Lee Swindlehurst, Brigham Young University

TP2-7 Blind Zero-Forcing Equalization Without Channel Estimation 4:20 pm

Xiaohua Li and Howard Fan, University of Cincinnati

TP2-8 Prewhitened Blind Source Separation With Orthogonality Constraints 4:45 pm

Scott C. Douglas, Southern Methodist University

TP2-9 Noise Robust Blind System Identification Using Second Order Statistics 5:10 pm

Mirai Oshiro and Hiroshi Ochi, Kyushu Institute of Technology

TP3a- Signal Characterization and Representation

Chair: R. Kumaresan

TP3a-1 A Magnitude-Only Detector for Complex-Valued Gaussian Processes 1:30 pm
Michael Clark and Todd McWhorter, Mission Research Corporation

TP3a-2 On Using Zero-Crossings to Represent Band-Pass Signals 1:55 pm
Ramdas Kumaresan, University of Rhode Island

TP3a-3 Parameter Estimation for Harmonic Sinusoidal Signals 2:20 pm
Hongbin Li, Stevens Institute of Technology; Petre Stoica, Uppsala University; Jian Li, University of Florida

TP3a-4 Characterization of Non-Uniformly Spaced Discrete-Time Signals from Their Fourier Magnitude 2:45 pm
Andrew Siefker, Murray State University

BREAK 3:10 PM

TP3b- Equalization and Interference Cancellation in Communications

Chair: M. Moonen

TP3b-1 A Frequency-domain Eigenfilter Approach for Equalization in Discrete Multitone Systems 3:30 pm
Bo Wang and Tulay Adah, University of Maryland

TP3b-2 Suppression of FM Interference in DSSS Communication Systems Using Projection Techniques 3:55 pm
Moeness G. Amin and Raja S. Ramineni, Villanova University and Alan R. Lindsey, USAF Research Laboratory, IFGC

TP3b-3 Frequency Domain Equalization with Tone Grouping in DMT/ADSL-Receivers 4:20 pm
Katleen Van Acker and Marc Moonen, Katholieke Universiteit Leuven - ESAT; Thierry Pollet, ALCATEL Telecom; and Geert Leus, Katholieke Universiteit Leuven - ESAT

TP3b-4 A Frequency Offset Estimation Architecture of OFDM System in Multipath Doppler Spread Channel 4:45 pm
Woonpyo Hong, Korea Telecomm

TP3b-5 Peak Power Reduction in OFDM and DMT via Active Channel Modification 5:10 pm
Douglas L. Jones, University of Illinois

TP4a- Techniques for Frequency Estimation and Spectral Analysis

Chair: P. Stoica

TP4a-1 Optimally Smoothed Periodogram 1:30 pm
Petre Stoica and Tomas Sundin, Uppsala University

TP4a-2 Orthogonal Subspace Decomposition of Periodic Signals 1:55 pm
Thomas W. Parks and D. Darian Mureasn, Cornell University

TP4a-3 Characterization of Windowing Effects in Adaptive Extrapolation of Sinusoids 2:20 pm
Sergio D. Cabrera, Alejandro E. Brito, and Shiu H. Chan, The University of Texas at El Paso

TP4a-4 Asymptotically Decoupled Angle-Frequency Estimation with Sensor Arrays 2:45 pm
Fredrik Athley, Chalmers University of Technology

BREAK 3:10 pm

TP4b- Algorithms for Audio Coding and Speech Processing

Chair: K. C. Chung

TP4b-1 High Quality Studio Coding Using a Novel Hybrid WLP-Subband Coding Algorithm 3:30 pm
Yu Rongshan and Ko Chi Chung, National University of Singapore

TP4b-2 A Progressive Algorithm for Perceptual Coding of Digital Audio Signals 3:55 pm
C.-C. Jay Kuo and Ye Shen, University of Southern California

TP4b-3 Using Kautz Filter for Adaptive Acoustic Echo Cancellation 4:20 pm
Lester S.H. Ngia, Chalmers University of Technology and
Fredrik Gustafsson, Linköping University

TP4b-4 Beamformer Based Blind Signal Separation Preprocessing in Practical Environments 4:45 pm
Mark Girolami, Colin Fyfe, and Robert Geary, University of Paisley

TP4b-5 The Estimation of Fundamental Frequency of Speech Using Microphone Array 5:10 pm
Tateo Yamaoka, Takafumi Kikuchi, Nozomu Hamada, and
Shinichi Tanigawa, Keio University

TP5a- Channel Estimation in Fading

Chair: Ali Sayed

TP5a-1 Iterative Decoding for Joint Data Recovery and Channel Estimation in Fading 1:30 pm
Richard D. Wesel and Christos Kominakis,
University of California-Los Angeles

TP5a-2 Blind Channel Estimation in Transmit-Receive Antenna Diversity Schemes Using Antenna Precoding 1:55 pm
Robert W. Heath, Jr., Helmut Bolcskei, and
Arogyaswami J. Paulraj, Stanford University

TP5a-3 Joint Estimation of Fading Channel and Data with Antenna Arrays 2:20 pm
Ming Yan and Bhaskar D. Rao, University of California-San Diego

TP5a-4 Semi-Blind Suppression of MAI in Multipath CDMA Channels 2:45 pm
Ryan A. Pacheco and Dimitrios Hatzinakos, University of Toronto

BREAK 3:10 pm

TP5b- Channel Estimation

Chair: L. Scharf

TP5b-1 Adaptive Estimators of Output SNR in Communication Channels: Distributions and Performance 3:30 pm
Louis L. Scharf and Shawn Kraut, University of Colorado-Boulder

TP5b-2 Adaptive Detection in Fading Channels via Monte Carlo Filtering 3:55 pm
Rong Chen and Xiaodong Wang, Texas A&M University

TP5b-3 Decision-Directed Tracking of Fading Channels Using Linear Prediction of the Fading Envelope 4:20 pm
Raphael J. Lyman and William Edmonson, University of Florida

TP5b-4 Channel Estimation and Equalization in Fading 4:45 pm
Richard D. Wesel, Christos Kominakis, Christina Fragouli, and
Ali H. Sayed, University of California-Los Angeles

TP5b-5 Blind System Identification for Impulse-Radio Channels Using Higher-Order Cumulants 5:10 pm
Richard J. Barton and Prashanth V. Rao, Iowa State University

TP6- Image Coding

Chair: M. T. Orchard

TP6-1 Memory Efficient Quadtree Wavelet Coding for Compound Images 1:30 pm
Ken Zeger and Pamela Cosman, University of California-San Diego

TP6-2 Wavelet-Based Image Coding: Comparison of MPEG-4 and JPEG-2000 1:55 pm
Homer Chen and Iole Moccagatta, Rockwell Science Center

TP6-3 Rate-Distortion Optimized Image Coding via Least Square Estimation Quantization (LS-EQ) 2:20 pm
Michael T. Orchard and Xin Li, Princeton University

TP6-4 Optimal Quantization in Non-Orthogonal Subband Coders 2:45 pm
Sanjit K. Mitra and Rajeev Gandhi, University of California-Santa Barbara

BREAK 3:10 pm

TP6-5 Low-Memory Packetized SPIHT Image Compression 3:30 pm
Frederick W. Wheeler and William A. Pearlman,
Rensselaer Polytechnic Institute

TP6-6 Oversampling in Steerable Transforms with Consistent Reconstruction 3:55 pm

Antonio Ortega and Baltasar Beferull-Lozano,
University of Southern California

TP6-7 On Successively Refinable Trellis-Coded Quantization 4:20 pm

Michael T. Orchard and Xin Wang, Princeton University

TP6-8 Scalable Low Bit-Rate Image Coding Using an HC-Riot Coder 4:45 pm

Yasser F. Syed and K. R. Rao, University of Texas at Arlington

TP6-9 The Effect of Spectral Compression of Hyperspectral Imagery on the Performance of Linear and Quadratic Detection Algorithms 5:10 pm

Scott Beaven and David Stein, SPAWARSYSCEN

TP7a- High Performance Multiplier Design

Chair: E. Swartzlander

TP7a-1 Combined Unsigned and Two's Complement Squarers 1:30 pm

Louis P. Marquette, Kent E. Wires, and Michael J. Schulte,
Lehigh University

TP7a-2 VLSI Design Improvements in a Binary Multiplier Based on Analog Digits 1:55 pm

Majid Ahmadi, University of Windsor; Aryan Saed, Nortel Networks
Microelectronics Group; and Graham A. Jullien, University of Windsor

TP7a-3 Interconnection Effects in Fast Multipliers 2:20 pm

Earl E. Swartzlander, Jr. and Gwangwoo Choe,
The University of Texas at Austin

TP7a-4 A Computational Redundancy Reduction Approach for High Performance Multiplication in DSP Algorithm Implementation 2:45 pm

K. Muhammed and K. Roy

BREAK 3:10 pm

TP7b- Automatic Target Recognition Theory

Chair: Randolph L. Moses

TP7b-1 Hierarchical Ship Classifier for Airborne Synthetic Aperture Radar (SAR) Images 3:30 pm

Pierre Valin, Yves Tessier, and Alexandre Jouan,
Lockheed Martin Canada

TP7b-2 Neural Network ATR for High Range Resolution Radar Signatures of Moving Ground Vehicles 3:55 pm

David Gross, Veridian Engineering and Robert Williams,
Air Force Research Laboratories

TP7b-3 Performance Analysis for Ground-Based Target Orientation Estimation: FLIR/LADAR Sensor Fusion 4:20 pm

Asuman Koksas, MIT; Michael I. Miller, The Johns Hopkins
University; and Jeffrey H. Shapiro, MIT

TP7b-4 Information Theoretic Feature Extraction for ATR 4:45 pm

Alan S. Willsky and John W. Fisher, III, MIT

TP7b-5 Scatterer Identification via a Subaperture Filtering Approach 5:10 pm

Rajesh Sharma, ERIM International, Inc.

TP8a- Image Enhancement and Classification (Interactive Lecture) 1:30 - 3:10 PM

Chair: M. Matthews

TP8a-1 Blind Superresolution with Generalized Cross-Validation Using Gauss-Type Quadrature Rules

Gene Golub, Nhat Nguyen, and Payman Milanfar, Stanford University

TP8a-2 Sensor Optimal Image Interpolation
Jeffery R. Price and Monson H. Hayes, Georgia Institute of Technology

TP8a-3 Blind Multiframe Point Source Image Restoration Using MAP Estimation
Brent A. Chipman and Brian D. Jeffs, Brigham Young University

TP8a-4 A New Look at Maximum Entropy Image Restoration
Matthew Willis, David Long, and Brian D. Jeffs, Brigham Young University

TP8a-5 Shift-Invariant Denoising Using Wavelet-domain Hidden Markov Trees
Hyeokho Choi, Justin K. Romberg, and Richard D. Baraniuk, Rice University

TP8a-6 Blind Denoising Using a Wavelet Coder
Amir Najmi, Philippe Raffy, and Robert M. Gray, Stanford University

TP8a-7 Regularized Denoising by Wavelet Thresholding
Hamid Krim, Yun He, and Gozde B. Unal, North Carolina State University

TP8a-8 Analysis of Wavelet-Domain Multiscale Classification Using Kullback-Leibler Distances
Hyeokho Choi, Richard D. Baraniuk, and Brent M. Hendricks, Rice University

TP8a-9 Effect of Wavelet Bases in Texture Classification Using a Tree-Structured Wavelet Transform
Victor DeBrunner and Madhavi Kadiyala, University of Oklahoma

TP8a-10 Zero Sheet Separation of Blurred Images with Symmetrical Point Spread Functions
P. Premaratne and C.C. Ko, National University of Singapore

TP8b- Special Arithmetic Techniques (Interactive Lecture)
3:30- 5:00 PM
Chair: N. Burgess

TP8b-1 A New Implementation of the Discrete Cosine Transform in the Residue Number System
Pedro G. Fernandez, University of Jaen; Luis Parrilla, Antonio Lloris, and Antonio Garcia, Universidad de Granada

TP8b-2 A Novel RNS-Based SIMD RISC Processor for Digital Signal Processing
Luis Parrilla, Antonio Lloris, and Antonio Garcia, Universidad de Granada and Steven J. Skretkowitz, Naval Postgraduate School

TP8b-3 Montgomery Modular Multiplication and Exponentiation in the Residue Number System
William L. Freking and Keshab K. Parhi, University of Minnesota

TP8b-4 Optimal Digital Design and Implementation of CSD FIR Filter
Muhammad Sohail Sadiq, Shoab Ahmad Khan, and Charm Tanner, National University of Sciences & Technology

TP8b-5 Round-off Error Free Fixed-Point Design of Polynomial FIR Predictors
Vassil S. Dimitrov and Jarmo M.S. Tanskanen, Helsinki University of Technology

TP8b-6 A Multiplier with Redundant Operands
Milos D. Ercegovic and M.I. Ferguson, University of California-Los Angeles

TP8b-7 Analysis of the Lookup Table Size for Square-Rooting
Behrooz Parhami, University of California

TP8b-8 Optimal-Depth threshold Circuits for Multiplication and Related Problems
Emmanuel A. Varvarigos, Chi-Hsiang Yeh, Hua Lee, and Behrooz Parhami, University of California

TP8b-9 Efficient Digit Serial Rational Function Evaluations and Digital Filtering Applications
Oskar Mencer, Michael J. Flynn, and Martin Morf, Stanford University

TP8b-10 Efficient Designs for Multi-Input Counters
Behrooz Parhami and Chi-Hsiang Yeh, University of California

TP8b-11 New Efficient RNS-to-Weighted Decoders for Conjugate-Pain-Moduli Residue Number Systems
Yuke Wang, Concordia University and Alexander Skavantzios, Louisiana State University

TP8b-12 Computing Discrete Hartley Transform Using Algebraic Integers
Ramin Baghaie and Vassil Dimitrov, Helsinki University of Technology

TP8b-13 A Floating Point Vectoring Algorithm Based on Fast Rotations
Kees-Jan van der Kolk and Ed F. Deprettere, Delft University of Technology and Jeong-A. Lee, Chosun

TP8b-14 A New CORDIC Rotation Method for Generalized Coordinate Systems
Keshab K. Parhi and Martin Kuhlmann, University of Minnesota

TP8b-15 Sum-of-Products Computation Based on A Weight-Sorting Algorithm
 Jae hun Choi and Earl E. Swartzlander, Jr., University of Texas at Austin

WA1- Implementation of Adaptive Filters

Chair: Richard Walke

WA1-1 Architectures for Adaptive Weight Calculation on ASIC and FPGA **8:30 am**

Richard Walke, Defence Evaluation & Research Agency (DERA) and
 Gayle Lightbody, The Queen's University of Belfast

WA1-2 Real-time Array Signal Processors for Embedded Applications **8:55 am**

Edward J. Baranoski, MIT Lincoln Laboratory

WA1-3 Application and Architecture Modeling for Parallel Execution of Jacobi **9:20 am**

Ed F. Deprettere, Delft University of Technology

WA1-4 A Low-Power, Reconfigurable Adaptive Equalizer Architecture **9:45 am**

Naresh Shanbhag, University of Illinois at Urbana-Champaign

BREAK **10:10 am**

WA1-5 FPGA Implementation of an Adaptive Noise Canceller with Low Signal Distortion **10:25 am**

Vijay K. Subramaniam, Visshwanth M. Reddy, and
 Sathyanarayan S. Rao, Villanova University

WA1-6 An Algorithm Transformation Approach to CORDIC Based Paralled Singular Value Decompositions Architectures **10:50 am**

Keshab K. Parhi and Jun Ma, University of Minnesota and
 Ed F. Deprettere, Delft University of Technology

WA1-7 Reduced Complexity Variable Precision Signal Processing for Digital Communications **11:15 am**

Paul M. Chau and Claudio S. Marino, University of California-San Diego

WA1-8 A Programmable Interpolation and Decimation Structure for Constant-Rate High-Speed Sigma-Delta Converters **11:40 am**

Lajos Gazsi, Ruhr University Bochum and Thomas Magesacher,
 Infineon Technologies

WA2- Video Signal Processing

Chair: Zixiang Xiong

WA2-1 A Fast Algorithm for Semi-Automatic Segmentation of Semantic Video Object **8:30 am**

Ju Guo, Jongwon Kim, and C.-C. Jay Kuo,
 University of Southern California

WA2-2 3-D Wavelet Coding of Video with Arbitrary Regions of Support **8:55 am**

Albert Wang, Gavin Minami, and Zixiang Xiong, University of Hawaii;
 Sanjeev Mehrotra, Microsoft Corporation; and Philip A. Chou,
 University of Hawaii

WA2-3 Low-Complexity, Adaptive Layered Video Coder for Video Teleconferencing **9:20 am**

Robert E. Parker, Jr., Steven J. Skretkovic, and Murali Tummala,
 Naval Postgraduate School

WA2-4 Image Sequence Segmentation Using Compensated Frame Differencing and Curve Evolution **9:45 am**

Jun Zhang and J. Gao, University of Wisconsin-Milwaukee

BREAK **10:10 am**

WA2-5 3-D Structure and Motion Estimation Using Range and Intensity Images **10:25 am**

Mohammed Benjelloun, C. Boucher, and J.-C. Noyer,
 Universite du Littoral Cote d'Opale

WA2-6 Feature Detection in Analog VLSI **10:50 am**

Christof Koch and Alberto Pesavento, California Institute of Technology

WA2-7 Greedy Quantization of Control Points for 2-D and 3-D Data Using Blending Surfaces Representation **11:15 am**

Joceli Mayer, Universidade Federal de Santa Catarina & UCSC

WA2-8 Subpixel Registration of Images **11:40 am**

Herold S. Stone, NEC Research Institute

WA3- Computer Arithmetic

Chair: Michael Schulte

- WA3-1 High Performance Universal Multiplier for Media Applications** 8:30 am
Aamir A. Farooqui, Farzad Chehrizi, and Vojin G. Oklobdzija,
SONY US Research Laboratories
- WA3-2 On-Line Scheme for Normalizing a 3-D Vector** 8:55 am
Milos D. Ercegovic, University of California-Los Angeles and
Tomas Lang, University of California-Irvine
- WA3-3 Fast Division Algorithm with a Small Lookup Table** 9:20 am
Michael J. Flynn and Patrick J. Hung, Stanford University
- WA3-4 Arithmetic Acceleration Techniques for Wireless Communication Receivers** 9:45 am
Suman Das, Chaitali Sengupta, Joseph Cavallaro, and
Sridhar Rajagopal, Rice University
- BREAK** 10:10 am
- WA3-5 Redundancy Management in Arithmetic Processing via the HSD Representation and its Applications** 10:25 am
Il Koren, University of Massachusetts and Dhananjay S. Phatak,
State University of New York
- WA3-6 Truncated Multiplication with Approximate Rounding** 10:50 am
Earl Swartzlander, University of Texas at Austin
- WA3-7 On the Design of an On-line FFT Network for FPGA's** 11:15 am
Milos D. Ercegovic and Robert McIlhenny,
University of California-Los Angeles
- WA3-8 Efficient Implementation of Rounding Units** 11:40 am
Neil Burgess, ChiPTec and Simon Knowles, Element-14

WA4- Multimedia Security and Watermarking

Chair: B. Liu

- WA4-1 Watermarking in the Real World: An Application to DVD** 8:30 am
Ingemar J. Cox, NEC Research Institute
- WA4-2 Duality Between Data-Hiding and Distributed Source Coding** 8:55 am
Jim Chou, University of Illinois; Kannan Ramchandran,
University of California-Berkeley; and Sandeep Pradhan, University of Illinois
- WA4-3 Attacks on Digital Watermarks** 9:20 am
Min Wu and Bede Liu, Princeton University
- WA4-4 Image Watermarking with Zero-Mean Patches** 9:45 am
Viresh Ratnakar, Epson Palo Alto Laboratory
- BREAK** 10:10 am
- WA4-5 Protocols for Digital Watermarking** 10:25 am
Nasir Memon, Polytechnic University
- WA4-6 Digital Watermarking in a Perceptually Normalized Domain** 10:50 am
Wenjun Zeng and Shawmin Lei, Sharp Laboratories of America
- WA4-7 Secure Digital Communications by Means of Stochastic Process Shift Keying** 11:15 am
Alfred Hanssen and Arnt-Borre Salberg, University of Tromso
- WA4-8 Some Design Issues for Robust Data Hiding Systems** 11:40 am
Ali N. Adansu and Mahalingam Ramkumar, New Jersey Institute of Technology
- WA5- Antenna Arrays for Communication Systems**
Chair: R. S. Blum
- WA5-1 Space-Time Coding for the Parametric Wireless Channel - Further Results** 8:30 am
Arogyaswami J. Paulraj and S. Sandhu, Stanford University

- WA5-2 Two-Channel Zero Forcing Equalization on CDMA Forward Link: Trade-Offs Between Multi-User Access Interference and Noise** 8:55 am
Samina Chowdhury, Mike Zoltowski, and Tom Krauss, Purdue University
- WA5-3 On Space-Frequency Rates That Exploit the Structure of the Space-Frequency Covariance Matrices in WCDMA** 9:20 am
Josef A. Nossek, Martin Haardt, and Christopher Brunner, Siemens Communications on Air
- WA5-4 An Analysis of Vector CMA for Multichannel Receiver Design. 1** 9:45am
Lang Tong and Azzedine Touzni, Cornell University
- BREAK** 10:10 am
- WA5-5 Decoding and Equalization of Unknown Multipath Channels based on Block Precoding and Transmit-Antenna Diversity** 10:25 am
A. Scaglione, Z. Liu, S. Barbarossa, and Georgios B. Giannakis, University of Minnesota
- WA5-6 Exploiting Spatial Diversity by Joint Design of Transmit and Receive Schemes** 10:50 am
Bjorn Ottersten and George Jongren, Royal Institute of Technology
- WA5-7 Distributed Multiuser Detection** 11:15 am
Rick S. Blum and Jun Hu, Lehigh University
- WA5-8 Adaptive Array Thinning for STAP Beamforming** 11:40 am
Amir Sarajedini, Science Applications International Corp.
- WA6- CDMA Interference Cancellation**
Chair: B. L. Hughes
- WA6-1 A Nonlinear Programming Approach to CDMA Multiuser Detection** 8:30 am
Aylin Yener, Rutgers University; Sennur Ulukus, AT&T Labs-Research; and Roy D. Yates, Rutgers University
- WA6-2 On Impulsive Models of Multiuser Interference** 8:55 am
Brian L. Hughes, North Carolina State University
- WA6-3 Fast Delay Estimation for Asynchronous CDMA Communication Systems** 9:20 am
Hongya Ge, Kun Wang, and Keun Hong, New Jersey Institute of Technology
- WA6-4 On the Performance of the Successive Interference Canceller for DS/CDMA Signals** 9:45 am
Kuei-Chiang Lai and John J. Shynk, University of California-Santa Barbara
- BREAK** 10:10 am
- WA6-5 Block Spreading for Discrete Multi-Tone CDMA Systems in the Presence of Frequency Selective Fading** 10:25 am
Geert Leus and Marc Moonen, Katholieke Universiteit Leuven-ESAT
- WA6-6 Network Diversity Multiple Access for Wireless CDMA Networks** 10:50 am
Yi Sun and Tarek Saadawi, City College of New York
- WA6-7 A Novel Downlink W-CDMA Blind Interference Cancellation Using the Subspace Approach** 11:15 am
Someshwar C. Gupta and Mohamed F. Madkour, Southern Methodist University and Y.E. Wang, Ericsson Inc.
- WA6-8 A Cross-Uncorrelator-Initiliser for the Super-Exponential Algorithms in Multi-User Environment** 11:40 am
S. Lambotharan and J.A. Chambers, Brunel University
- WA7- Sub-Band and Wavelet Filters**
Chair: F. Harris
- WA7-1 Optimal Subband Coder with Crossband Prediction** 8:30 am
C.W. Kok, Hong Kong University of Science and Technology
- WA7-2 On the Relation Between Pseudo-QMF Designs and Perfect Reconstruction Solutions for Modulated Filter Banks** 8:55 am
Jorg Kliewer, University of Kiel

WA7-3 An Efficient Top-Down Approach for the Design of Tree-Structured Orthonormal Filter Banks 9:20 am
Rajeev Gandhi and Sanjit K. Mitra, University of California-Santa Barbara

WA7-4 Wavelet-based Orthogonal Modulation Code 9:45 am
E.-J. Yi and Edward J. Powers, University of Texas at Austin

BREAK 10:10 am

WA7-5 New Optimization Algorithms for Designing Wavelet Scaling Filters 10:25 am
James L. Sullivan, Allied Signal Technical Services and John W. Adams, California State University-Northridge

WA7-6 Channel Estimation in Noisy Conditions Using Time-Frequency Domain Filtering 10:50 am
Richard A. Haddad and Aykut Bultan, New Jersey Center for Wireless Research

WA7-7 Lifting Integer Wavelets Towards Linearity 11:15 am
Enrico Magli, Marco Grangetto, and Gabriella Olmo, Politecnico di Torino

WA7-8 A New Multi-Window Time-Frequency Approach Yielding Accurate Low-Order Conditional Moments 11:40 am
Patrick J. Loughlin and Ferhat Cakrak, University of Pittsburgh

WA8a-Turbo Codes and Channel Simulation (Interactive Lecture)
8:30 - 10:00 AM

Chair: J. Cavallaro

WA8a-1 On the Performance of Turbo Coding for the Land Mobile Channel with Delay Constraints
Kai Tang, Paul H. Siegel, and Laurence B. Milstein, University of California-San Diego

WA8a-2 Performance of High Rate Turbo Codes Employing the Soft-Output Viterbi Algorithm (SOVA)
William E. Ryan and Ali Ghayeb, University of Arizona

WA8a-3 Iterative Turbo-Equalization (ITE) for Dual Channels
Jill Nelson, Ralf Koetter, and Andrew Singer, University of Illinois at Urbana-Champaign

WA8a-4 Simulation of Time-Varying, Frequency-Selective Multipath Fading Channels for Spread-Spectrum Waveforms
Lei-Lei Lock and Richard J. Barton, Iowa State University

WA8a-5 A Software Simulation Testbed for Third Generation CDMA Wireless Systems
Vishwas Sundaramurthy and Joseph Cavallaro, Rice University

WA8a-6 A Broadband Simulator for Multipath Received on Multiple Coherent Antenna Channels
Catherine M. Keller and Keith W. Forsythe, MIT Lincoln Laboratory

| NAME | SESSION | NAME | SESSION | NAME | SESSION | NAME | SESSION |
|-----------------------|---------|---------------------------|---------|----------------------------|---------|------------------------|---------|
| Aboulnasr, Tyseer | TA7-2 | Beex, A.A. (Louis) | TA7-6 | Chen, Xuemin | TA5-6 | Doser, Adele B. | MP8a-2 |
| Acton, Scott T. | MA3b-2 | Beferull-Lozano, Baltasar | TP6-6 | Cheng, Samuel S. | MP4-1 | Douglas, Scott C. | TP2-8 |
| Adali, Tulay | MP3-1 | Behoodian, Ali | TA8a-1 | Cheng, Ming | TA6-6 | Douglas, Scott C. | TA8b-3 |
| Adali, Tulay | TP1-4 | Bell, Kristine L. | MP8b2 | Chevreuil, Antoine | MP8b-14 | Drake, Jeffrey | MP3-4 |
| Adali, Tulay | TP2-5 | Bell, Kristine L. | MP26 | Chevreuil, Antoine | MP1-7 | Dropkin, Herbert | MA8b-3 |
| Adams, John W. | WA7-5 | Benjelloun, Mohammed | WA2-5 | Chindapol, Aik | TP2-3 | du Buf, J.M.H. | MA3b-1 |
| Adinoyi, A.B. | MP3-7 | Bennett, H.H. | TA8a-5 | Chipman, Brent A. | TP8a-3 | Durrani, Tariq | MP2-3 |
| Aghvami, A.H. | TA8b-14 | Berg, Vincent | TA6-2 | Choe, Gwangwoo | TP7a-3 | Ebbini, Emad | MP1-1 |
| Ahmadi, Majid | TP7a-2 | Berger, W. Andrew | MP3-5 | Choi, Jae hun | TP8b-15 | Edmonson, William | TP5b-3 |
| Ahmed, Sherjil | MA7b-1 | Besson, Olivier | MP2-5 | Choi, Seong-Jhin | MA8b-4 | Effros, Michelle | MP4-5 |
| Ahmed, Sherjil | TA6-8 | Bharghavan, Vaduvur | MP4-6 | Choi, Hyeokho | TP8a-5 | Engan, Kjersti | TP1-6 |
| Ainsleigh, Phillip L. | MP8a-7 | Biguesh, M. | TA2a-4 | Choi, Hyeokho | TP8a-8 | Engdahl, Christer | TA8a-3 |
| Akansu, Ali N. | TA8b-13 | Bleakley, Chris | TA6-2 | Chokkalingam, Ramesh | MP5-8 | Ercegovac, Milos, D. | WA3-2 |
| Akansu, Ali N. | WA4-8 | Bliss, Daniel W. | MP8b-6 | Chou, Jim | WA4-2 | Ercegovac, Milos, D. | WA3-7 |
| Aktas, Unal | MP8a-3 | Blum, Rick S. | MP6-1 | Chou, Philip A. | WA2-2 | Ercegovac, Milos, D. | TP8b-6 |
| Al-Dhahir, Naofal | MP1-4 | Blum, Rick S. | WA5-7 | Chowdhury, Samina | WA5-2 | Erdogan, A.T. | MP5-1 |
| Allen, Gregory E. | MA7b-2 | Boche, Holger | TA4-7 | Chuang, Tzung Shiun | MP5-2 | Etter, Delores M. | MP8b-10 |
| Alouini, Mohamed-Slim | MP1-1 | Bogdan, Istvan | MA1b-4 | Chugg, Keith M. | MA2b-3 | Evans, Brian L. | MA7b-2 |
| Al-Semari, S.A. | MP3-7 | Bogdan, Istvan | MP5-2 | Chugg, Keith M. | MP4-3 | Fan, Howard | TA3-3 |
| Alsup, James | TA8a-9 | Bolcskei, Helmut | TP5a-2 | Chugg, Keith M. | MP5-8 | Fan, Howard | TP2-7 |
| Amin, Moeness G. | TP3b-2 | Bonifant, Jr., William W. | MP2-8 | Chun, Joochwan | MP7-7 | Fargues, Monique P. | TA8a-4 |
| Anderson, Richard | MA1b-2 | Bose, Tamal | TA3-7 | Chun, Joochwan | MP8b-1 | Farooqui, Aamir A. | WA3-1 |
| Andraka, Raymond, J. | TA1-3 | Bose, Tamal | MP8b-10 | Chun, Joochwan | TA2b-2 | Ferguson, M.I. | TP8b-6 |
| Andrews, Scott | MP8a-1 | Bosworth, Joseph H. | MA3b-2 | Chung, Ko Chi | TP4b-1 | Fernandez, Pedro G. | TP8b-1 |
| Arslan, Tughrul | MP5-1 | Boucher, C. | WA2-5 | Ciblat, Philippe | MP1-7 | Fisher, III, John W. | TP7b-4 |
| Arslan, Tughrul | MP5-5 | Brandstein, Michael S. | TA5-4 | Clark, Michael | TP3a-1 | Fitz, Mike | MA2b-4 |
| Ashley, Anthony | MP6-8 | Bright, M.S. | MP5-5 | Constantinides, Anthony G. | MP3-2 | Fitzgerald, William J. | MA3b-4 |
| Athanas, Peter | TA1-1 | Brito, Alejandro E. | TP4a-3 | Corral, Celestino A. | MP7-8 | Flanagan, Brian P. | MP2-6 |
| Athas, William | MP5-3 | Brunner, Christopher | WA5-3 | Cosman, Pamela | TP6-1 | Flynn, Michael J. | TP8b-9 |
| Athley, Fredrik | TP4a-4 | Brunzell, Hakan | TA8a-2 | Costigan, Paul | TA6-2 | Flynn, Michael J. | WA3-3 |
| Atinirami, Prinya | TA1-1 | Buckley, Kevin | MP3-5 | Cox, Ingemar J. | WA4-1 | Ford, Gary E. | MA8b-4 |
| Azam, Asad | MA8b-4 | Buehrer, R. Michael | TA3-1 | Cox, Henry | MA5b-3 | Forsythe, Keith W. | MP8b-6 |
| Baggeroer, Arthur B. | MA5b-3 | Bultan, Aykut | WA7-6 | Cox, Donald C. | MP3-6 | Forsythe, Keith W. | WA8a-6 |
| Baghaie, Ramin | TP8b-12 | Burgess, Neil | WA3-8 | Cozzo, Carmela | TA2b-1 | Fossorier, Marc | MP4-1 |
| Bao, Paul | TP1-7 | Cabrera, Sergio D. | TP4a-3 | Daneshrad, Babak | MA6b-4 | Fragouli, Christina | TP5b-4 |
| Bao, Paul | TP1-8 | Cai, Xiaodong | TA8b-13 | Das, Suman | WA3-4 | Freedman, Daniel | TA5-4 |
| Baraniuk, Richard D. | TP8a-8 | Cakrak, Ferhat | WA7-8 | Davies, John | TA1-1 | Freking, William, L. | TP8b-3 |
| Baraniuk, Richard D. | TP8a-5 | Campbell, Jr., R.L. | TA8a-5 | DeBrunner, Victor | TP8a-9 | Friedlander, Benjamin | MP2-1 |
| Baranoski, Edward J. | WA1-2 | Cardarilli, Gian-Carlo | TA1-5 | DeBrunner, Victor | TA8b-2 | Friedlander, Benjamin | TA2a-1 |
| Barbarossa, S. | WA5-5 | Castro, Julio E. | TA8b-9 | Del Re, E. | MP8b-11 | Fuller, O.K. | TP2-5 |
| Barroso, Victor | MA4b-1 | Cavallaro, Joseph | WA3-4 | Demirciler, Kemal | MP4-3 | Fyfe, Colin | TP4b-4 |
| Barroso, Victor | TA2a-3 | Cavallaro, Joseph | WA8a-5 | Deprettere, Ed F. | WA1-3 | Gandhi, Rajeev | WA7-3 |
| Barton, Richard J. | TA8b-15 | Chambers J.A. | WA6-8 | Deprettere, Ed F. | WA1-6 | Gandhi, Rajeev | TP6-4 |
| Barton, Richard J. | WA8a-4 | Champagne B. | TA2a-4 | Deprettere, Ed F. | TP8b-13 | Gao, Chris | MP8b-5 |
| Barton, Richard J. | TP5b-5 | Chan, Shiu H. | TP4a-3 | Diamantaras, Konstantinos | MA4b-4 | Gao, J. | WA2-4 |
| Basso, James | TA4-4 | Chandrasekaran, Shivkumar | MP7-4 | Dick, Chris | TA1-4 | Garcia, Antonio | TP8b-2 |
| Bastami, Alireza | MP1-1 | Chau, Paul M. | WA1-7 | Dimitrov, Vassil S. | TP8b-5 | Garcia, Antonio | TP8b-1 |
| Beaven, Scott | TP6-9 | Chehrazi, Farzad | WA3-1 | Dimitrov, Vassil S. | TP8b-12 | Garcia-Alis, Daniel | MP8b-13 |
| Beck, Eric | TP2-1 | Chen, Binning | MA4b-4 | Djuric, Petar | MA1b-1 | Gazsi, Lajos | WA1-8 |
| Beerel, Peter | MP5-8 | Chen, Homer | TP6-2 | Doncarli, Christian | TA4-8 | Ge, Hongya | WA6-3 |
| Beex, A.A. (Louis) | TA7-7 | Chen, Rong | TP5b-2 | Dong, Wenlong | TA5-1 | Ge, Hongya | TA8b-13 |

| NAME | SESSION | NAME | SESSION | NAME | SESSION | NAME | SESSION |
|-------------------------|---------|----------------------|---------|------------------------|---------|-----------------------|---------|
| Geary, Robert | TP4b-4 | Hinds, Chris N. | MA7b-4 | Kim, Sang-Youb | TA8b-10 | Lee, Jim P.Y. | MP8a-8 |
| Gelabert, P. | MP8a-4 | Hippenstiel, Ralph | MP8a-3 | Kim, Sang-Youb | MA8b-2 | Lei, Shawmin | WA4-6 |
| Georgiou, Panayiotis G. | TA5-3 | Hong, Woonpyo | TP3b-4 | Kim, Tae-eun | MP4-6 | Leon, G. | TA3-6 |
| Gerace, Gerald | MA8b-8 | Hong, Keun | WA6-3 | Kim, Yongsub | MP2-4 | Lerdsuwanakij, Kriang | MA2b-3 |
| Geraniotis, Evaggelos | MP1-8 | Hsu, Shih-Tse | TA7-5 | Kim, Jongwon | WA2-1 | Leus, Geert | WA6-5 |
| Ghuri, Irfan | MP3-8 | Hu, J. | MP8b-15 | Kliewer, Jorg | WA7-2 | Leus, Geert | TA2a-2 |
| Ghuri, Irfan | TA8b-6 | Hu, Jun | WA5-7 | Knowles, Simon | WA3-8 | Leus, Geert | TP3b-3 |
| Ghogho, Mounir | MP2-3 | Hu, Yi | TA6-3 | Ko, Chi, Chung | MP8b-8 | Li, Hang | MP1-5 |
| Ghrayeb, Ali | WA8a-2 | Huang, Yih-Fang | TA3-4 | Ko, C.C. | TP8a-10 | Li, Hongbin | TP3a-3 |
| Giannakis, Georgios B. | WA5-5 | Huang, Thomas | TP1-1 | Koch, Christof | WA2-6 | Li, Jian | TP3a-3 |
| Giannakis, Georgios B. | MP2-4 | Hughes, Brian L. | TA2b-4 | Koetter, Ralf | WA-8a-3 | Li, Jiankun | TA5-1 |
| Girolami, Mark | TP4b-4 | Hughes, Brian L. | WA6-2 | Koetter, Ralf | MP4-2 | Li, Kanning | TA6-6 |
| Glenn, Ian | MP6-4 | Hughes, Brian L. | TA2b-1 | Kogon, Stephen M. | TA8a-13 | Li, Kemin | MA4b-3 |
| Goeckel, Dennis | MA2b-1 | Hung, Patrick, J. | WA3-3 | Kok, C.W. | WA7-1 | Li, Xiaohua | TP2-7 |
| Golden, Stuart | TA8a-6 | Hung, Horace | TP1-7 | Koksal, Asuman | TP7b-3 | Li, Xiaohua | TA3-3 |
| Gollamudi, Sridhar | TA3-4 | Hunter, Jill | TA6-3 | Komninakis, Christos | TP5a-1 | Li, Xin | TP6-3 |
| Golub, Gene | TP8a-1 | Hutchings, Brad | TA1-2 | Komninakis, Christos | TP5b-4 | Liavas, Athanasios P. | MA8b-5 |
| Gong, Xiaohong | TA4-2 | Iltis, Ronald A. | TP2-2 | Koren, Il | WA3-5 | Lightbody, Gayle | WA1-1 |
| Gorokhov, Alexei | TA2b-3 | Irwin, Mary Jane | TA6-6 | Korosec, Dean | TA4-8 | Lightner, Michael | TA8b-5 |
| Gragg, Bill | MP7-1 | Irwin, Mary Jane | MP5-6 | Kozintsev, Igor | MP4-2 | Lim, Teng, Joon | TA8b-12 |
| Grangetto, Marco | WA7-7 | Ismailoglu, Neslin | TA6-7 | Krauss, Tom | MA4b-2 | Lind, Larry | TA7-3 |
| Gray, Robert M. | TP8a-6 | Ivey, Peter | MP5-2 | Krauss, Tom | WA5-2 | Lindquist, Claude S. | MP7-8 |
| Gray, Robert M. | MP4-8 | Jacobs, R. | TP1-6 | Kraut, Shawn | TP5b-1 | Lindsey, Alan R. | TP3b-2 |
| Griesbach, Jacob D. | TA8b-5 | Jakobsson, Andreas | MP7-6 | Kreutz-Delgado K. | TP1-6 | Liu, Z. | WA5-5 |
| Gross, David | TP7b-2 | Jeffs, Brian D. | TP8a-4 | Krim, Hamid | TP8a-7 | Liu, Hui | TA1-6 |
| Gu, Ming | MP7-2 | Jeffs, Brian D. | TP8a-3 | Krishnamoorthy, Rajeev | TA8b-1 | Liu, Hui | MA8b-2 |
| Gu, Ming | MP7-4 | Jenkins, W. Kenneth | TA3-6 | Krishnamoorthy, Rajeev | TP2-1 | Liu, Hui | MA8b-1 |
| Guerci, J.R. | TA8a-11 | Johnson, Louis | MA8b-4 | Krolik, Jeffrey | MA1b-2 | Liu, Bede | WA4-3 |
| Guo, Ju | WA2-1 | Jones, Douglas L. | TP3b-5 | Kucukyavuz, Defne | MA2b-4 | Liu, Weixiao | MA2b-2 |
| Gupta Someswar C. | WA6-7 | Jongren, George | WA5-6 | Kuh, Anthony | TA4-2 | Liu, Hui | MA4b-3 |
| Gustafsson, Fredrik | TP4b-3 | Jouan, Alexandre | TP7b-1 | Kuhlmann, Martin | TP8b-14 | Llinas, James | MP6-2 |
| Haardt, Martin | WA5-3 | Jullien, Graham A. | TP7a-2 | Kumar, Dhiraj | TA1-7 | Lloris, Antonio | TP8b-1 |
| Habib, Durdana | TA6-8 | Kadiyala, Madhavi | TP8a-9 | Kumaresan, Ramdas | TP3a-2 | Lloris, Antonio | TP8b-2 |
| Haddad, Richard A. | WA7-6 | Kadiyala, Madhavi | MP2-2 | Kuo, C.-C. Jay | TP4b-2 | Lock, Lei-Lei | WA8a-4 |
| Hall, David L. | MP6-3 | Kailath, T. | MP8b-1 | Kuo, C.-C. Jay | TA5-1 | Lojacono, R. | TA1-5 |
| Hamada, Nozomu | TP4b-5 | Kailath, T. | MP7-7 | Kuo, C.-C. Jay | WA2-1 | Loke, R.E. | MA3b-1 |
| Hanssen, Alfred | WA4-7 | Kam, Alvin H. | MA3b-4 | Kuo, C.-C. Jay | TA5-5 | Long, David | TP8a-4 |
| harris, fred | TA1-4 | Karl, William C. | MP8a-7 | Kuosmanen, Pauli | MA3b-3 | Loubaton, Philippe | MP1-7 |
| harris, fred | MP8a-1 | Karl, William C. | TA8a-10 | Kyriakakis, Chris | MP4-7 | Loubaton, Philippe | TP2-4 |
| Hassibi, Babak | MP8b-16 | Kavehrad, Mohsen | TA8b-1 | Kyriakakis, Chris | TA5-3 | Loughlin, Patrick J. | WA7-8 |
| Hatke, Gary F. | TA8b-8 | Keane, Gareth | TA6-4 | Lai, Kuei-Chiang | WA6-4 | Ly, Canh | MA8b-3 |
| Hatzinakos, Dimitrios | TP5a-4 | Keller, Catherine M. | WA8a-6 | Lambotharan, S. | WA6-8 | Lyman, Raphael J. | TP5b-3 |
| Haverinen, Taneli | MA3b-3 | Keller, Catherine M. | MP-8b-6 | Lang, Tomas | WA3-2 | MA Jun | WA1-6 |
| Hayes, Ill, Monson H. | TP8a-2 | Keratiotis, George | TA7-3 | LeBlanc, James P. | TA8b-9 | MA Ginkou | TA7-5 |
| Haykin, Simon | TP1-3 | Khan, Shoab Ahmad | TA6-8 | Lee, Nigel | TA8a-12 | Macii, Alberto | MP5-7 |
| Hayward, S.D. | TA7-4 | Khan, Shoab Ahmad | MA7b-1 | Lee, Jungshi | TA7-5 | Macii, Enrico | MP5-7 |
| He, Yun | TP8a-7 | Khan, Shoab Ahmad | TP8b-4 | Lee, Dongjun | TA8b-11 | Macii, Enrico | TA6-5 |
| Heath, Jr., Robert W. | TP5a-2 | Khan, Raheel | MA7b-3 | Lee, Kang-Won | MP4-6 | Madkour, Mohamed F. | WA6-7 |
| Heinig, Georg | MP7-3 | Kikuchi, Takafumi | TP4b-5 | Lee, Jeong-A | TP8b-13 | Magesacher, Thomas | WA1-8 |
| Hendricks, Brent M. | TP8a-8 | Kim, Soohong | TA2b-2 | Lee, Hua | TP8b-8 | Magli, Enrico | WA7-7 |
| Hendrickson, Clark | MA8b-8 | Kim, Suk Won | MA6b-4 | Lee, Hsien-Che | TA5-7 | Magniez, Pierre | TA2b-3 |

| NAME | SESSION | NAME | SESSION | NAME | SESSION | NAME | SESSION |
|--------------------------|---------|-------------------------|---------|-------------------------|---------|------------------------|---------|
| Mandyam, Giridhar D. | MA8b-6 | Neeraj, Magotra | MP8a-4 | Pillai, S.U. | TA8a-11 | Rupp, Markus | TP2-1 |
| Manitius, Andrzej Z. | MA8b-3 | Nelson, Jill | WA8a-3 | Piloni, V. | TA1-5 | Rupp, Markus | MP8b-9 |
| Marculescu, Diana | MP5-4 | Nelson, Karl E. | MA8b-4 | Pollet, Thierry | TP3b-3 | Ryan, William E. | WA8a-2 |
| Marculescu, Radu | MP5-4 | Ngia, Lester S.H. | TP4b-3 | Polydoros, Andreas | MA2b-3 | Saadawi, Tarek | WA6-6 |
| Marino, Claudio S. | WA1-7 | Nguyen, Nhat | TP8a-1 | Powell, Neil | MP5-2 | Sadiq, Muhammad Sohail | MA7b-3 |
| Marple, Jr., S. Lawrence | MP7-6 | Nguyen, Truong Q. | TA5-8 | Powers, Edward J. | WA7-4 | Sadiq, Muhammad Sohail | TP8b-4 |
| Marple, Jr., S. Lawrence | MP8a-6 | Ni, Jian-Jun | TA8b-15 | Pradhan, Sandeep | WA4-2 | Sadjadpour, Hamid | TA4-4 |
| Marquette, Louis P. | TP7a-1 | Nossek, Josef A. | WA5-3 | Premaratne, P. | TP8a-10 | Saed, Aryan | TP7a-2 |
| Mather, J.L. | MA5b-1 | Noyer, J.-C. | WA2-5 | Price, Jeffery R. | TP8a-2 | Salberg, Arnt-Borre | WA4-7 |
| Mathurasai, Tanawat | MP8b-10 | Ochi, Hiroshi | TP2-9 | Principe, Jose C. | TP1-5 | Sampath, Hemanth | MP1-6 |
| Matthews, Michael B. | MP8a-10 | Odasso, Giuseppe | TA6-5 | Proudlar, Ian K. | MP8b-4 | Sandhu, S. | WA5-1 |
| Mayer, Joceli | WA2-7 | Oh, H. S. | TA8a-11 | Psilogeogopolis, Marios | MP5-2 | Sanubari, Junibakti | TA7-8 |
| Mazet, L. | TP2-4 | Oklobdzija, Vojin G. | WA3-1 | Puri, Rohit | MP4-6 | Saqib, Maliq Muhammad | MA7b-1 |
| McCanny, John | MA6b-2 | Olmo, Gabriella | WA7-7 | Rabideau, Daniel J. | MA5b-2 | Sarajedini, Amir | WA5-8 |
| McCanny, John | TA6-3 | Olshesky, Vadim | MP7-5 | Radenkovic, Miloje | TA3-7 | Sasidaran, Dhinesh | MA8b-4 |
| McClellan, James H. | MP2-8 | O'Neill, Jeffrey C. | MP8a-7 | Raffy, Philippe | MP4-8 | Sayed, Ali H. | TP5b-4 |
| McClellan, James H. | TA8a-1 | O'Neill, Jeffrey C. | TA8a-10 | Raffy, Philippe | TP8a-6 | Sayed, Ali H. | MP1-4 |
| McCloud, Michael L. | MP3-3 | Ong, Hwa-Tung | TA8a-7 | Raghavan, Ram | MP2-7 | Sayed, Ali H. | MP7-4 |
| McEachen, John | TP2-5 | Orchard, Michael T. | TP6-3 | Raghunath, K.J. | MA6b-1 | Sayed, Ali H. | TA7-1 |
| McIlhenny, Robert | WA3-7 | Orchard, Michael T. | TP6-7 | Rajagopal, Sridhar | WA3-4 | Sayed, Ali H. | MP8b-3 |
| McLaughlin, Stephen | TA4-5 | Ortega, Antonio | TP6-6 | Ramchandran, Kannan | MP4-6 | Scaglione, A. | WA5-5 |
| McWhorter, Todd | TP3a-1 | Ortega, Antonio | MP4-3 | Ramchandran, Kannan | WA4-2 | Schabert, Marion | MP8b-4 |
| Mehrotra, Sanjeev | WA2-2 | Oshiro, Mirai | TP2-9 | Ramchandran, Kannan | MP4-2 | Scharf, Louis L. | TP1-2 |
| Memon, Nasir | WA4-5 | Otten, J. | MP8a-4 | Ramineni, Raja S. | TP3b-2 | Scharf, Louis L. | TP5b-1 |
| Mencer, Oskar | TP8b-9 | Ottersten, Bjorn | WA5-6 | Ramkumar, Mahalingam | WA4-8 | Scharf, Louis L. | MP3-3 |
| Meng, Meng | TA5-8 | Ozdag, Recep | MP5-8 | Rao, Prashanth V. | TP5b-5 | Schroeder, Jim | TA8a-8 |
| Milanfar, Payman | TP8a-1 | Pacheco, Ryan A. | TP5a-4 | Rao, Sathyannarayan S. | WA1-5 | Schulte, Michael J. | TP7a-1 |
| Miller, Michael I. | TP7b-3 | Panusopone, Krit | TA5-6 | Rao, Bhaskar D. | TP5a-3 | Scott, W.R. | TA8a-1 |
| Milstein, Laurence B. | WA8a-1 | Papadias, Constantinos | TA3-2 | Rao, K.R. | TP6-8 | Seed, Luke | MP5-2 |
| Minami, Gavin | WA2-2 | Parhami, Behrooz | TP8b-7 | Rapajic, Predrag | TA8b-9 | Sellathurai, Mathini | TP1-3 |
| Mitra, Sujoy | TA6-1 | Parhami, Behrooz | TP8b-10 | Ratnakar, Viresh | WA4-4 | Sengupta Chaitali | WA3-4 |
| Mitra, U. | MP1-2 | Parhami, Behrooz | TP8b-8 | Re, A. Del | TA1-5 | Shahbazian, Elisa | MP6-7 |
| Mitra, Sanjit K. | TP6-4 | Parhi, Keshab K. | TP8b-3 | Re, Marco | TA1-5 | Shanbhag, Naresh | WA1-4 |
| Mitra, Sanjit K. | WA7-3 | Parhi, Keshab K. | TA1-7 | Reddy, Visshwanth M. | WA1-5 | Shapiro, Jeffrey H. | TP7b-3 |
| Moccagatta Iole | TP6-2 | Parhi, Keshab K. | TP8b-14 | Redfern, Arthur J. | TP1-9 | Sharma Rajesh | TP7b-5 |
| Montalbano, Giuseppe | TA8b-6 | Parhi, Keshab K. | WA1-6 | Redfern, Arthur J. | MP8b-12 | Sharma M. | MP7-7 |
| Moonen, Marc | TP3b-3 | Parker, Jr., Robert E. | WA2-3 | Reed, Todd R. | MA3b-1 | Shen, Ye | TP4b-2 |
| Moonen, Marc | TA2a-2 | Parks, Thomas W. | TP4a-2 | Reed, Irving S. | TA8b-11 | Shi, Wei | TA4-1 |
| Moonen, Marc | WA6-5 | Parks, Thomas W. | TA5-7 | Rees, H.D | MA5b-1 | Shi, Richard | TA1-6 |
| Morelande, Mark R. | TA4-6 | Parrilla, Luis | TP8b-1 | Regunathan, Shankar L. | MP4-4 | Shikh-Bahaei, Mohammad | TA8b-14 |
| Morf, Martin | TP8b-9 | Parrilla, Luis | TP8b-2 | Reza, Ali M. | TA1-8 | Shynk, John J. | WA6-4 |
| Morse, Jr., James H. | MP8b-7 | Paulraj, Arogyaswami J. | TP5a-2 | Richards, Mark A. | MP2-8 | Siefker, Andrew | TP3a-4 |
| Muhammed, K. | TP7a-4 | Paulraj, Arogyaswami J. | WA5-1 | Richman, Michael S. | TA5-7 | Siegel, Paul H. | WA8a-1 |
| Muhonen, Kathleen J. | TA8b-1 | Paulraj, Arogyaswami J. | MP1-6 | Ritcey, James A. | TP2-3 | Simpson, Albert | TA6-3 |
| Mujtaba, Syed Aon | TA8b-16 | Pearlman, William A. | TP6-5 | Rodriguez, Jose | TA6-2 | Singer, Andrew | WA8a-3 |
| Mulgrew, Bernie | TA4-5 | Pepin, Christine | MP4-8 | Romberg, Justin K. | TP8a-5 | Singh, Sushil | MP5-8 |
| Munteanu, Mihai | MP5-2 | Perry, Richard | MP3-5 | Rongshan, Yu | TP4b-1 | Sirisuk, P. | MP3-2 |
| Mureasn, D. Darian | TP4a-2 | Pesavento, Alberto | WA2-6 | Rose, Kenneth | MP4-4 | Skavantzios, Alexander | TP8b-11 |
| Murray, Brian | TA6-2 | Petropulu, Athina P. | MA4b-4 | Rovigatti, G. | TA1-5 | Skidmore, I.D. | MA5b-1 |
| Najmi, Amir | TP8a-6 | Phatak, Dhananjay S. | WA3-5 | Roy, K. | TP7a-4 | Skretkowicz, Steven J. | TP8b-2 |
| Narasimhan, Ravi | MP3-6 | Phoung, Tri | TA8b-8 | Rupi, Marilli | MP8b-11 | Skretkowicz, Steven J. | WA2-3 |

| NAME | SESSION | NAME | SESSION | NAME | SESSION | NAME | SESSION |
|----------------------------|----------------|--------------------------|----------------|--------------------|----------------|---------------------|----------------|
| Slock, Dirk T.M. | TA8b-6 | Tufts, Donald W. | MA1b-3 | Wilson, Stephen G. | MA2b-2 | Yin, Hujun | MA8b-1 |
| Slock, Dirk T.M. | MP3-8 | Tugsinavisut, Sunan | MP5-8 | Wires, Kent E. | TP7a-1 | Youla, D. C. | TA8a-11 |
| Soderstrand, Michael A. | MA8b-4 | Tummala, Murali | WA2-3 | Wong, Siew Ying | TA8b-12 | Yousef, Nabil R. | TA7-1 |
| Soliz, P. | MP8a-4 | Tuqan, Jamal | MP1-3 | Woods, Roger | TA6-4 | Yousef, Nabil R. | MP8b-3 |
| Sonalkar, Ranjan | TA4-4 | Turney, Robert D. | TA1-8 | Woods, Roger | MA6b-2 | Yu, Fengqi | TA4-3 |
| Soni, Robert A. | TA3-5 | Ulukus, Sennur | WA6-1 | Wu, Min | WA4-3 | Zakaria, Gaguk | TA7-6 |
| Sousa, Elvino | MP8b-5 | Unal, Gozde B. | TP8a-7 | Wu, H.R. | MP8b-15 | Zakaria, Gaguk | TA7-7 |
| Spanier, J.R. | TA6-4 | Unsworth, Charles Peter | TA4-5 | Wu, E. | MP8a-4 | Zambartas, Michael | TA8a-4 |
| Sparr, Trygve | MP8a-9 | Uzmi, Zartash Afzal | TA8b-16 | Xavier, Joao | TA2a-3 | Zatman, Michael | MA5b-4 |
| Springs, C. | TA7-4 | Valaee, S. | TA2a-4 | Xavier, Joao | MA4b-1 | Zeadally, Sherali | MP4-7 |
| Srikanteswara, Kathyayani | TA1-1 | Valin, Pierre | TP7b-1 | Xing, Guanbin | TA1-6 | Zeger, Ken | TP6-1 |
| Sriram, Sundararajan | MA6b-3 | Van Acker, Katleen | TP3b-3 | Xiong, Zixiang | MP4-1 | Zeng, Wenjun | WA4-6 |
| Stanczak, Slawomir | TA4-7 | van der Kolk, Kees-Jan | TP8b-13 | Xiong, Zixiang | WA2-2 | Zerguine, Azzedine | MP3-7 |
| Stein, David | TP6-9 | Van Trees, Harry L. | MP8b-2 | Xu, Guanghan | MA8b-7 | Zerguine, Azzedine | TA7-2 |
| Stephene, A. | TA2a-4 | Vandaele, Piet | TA2a-2 | Xu, Fan | TA3-8 | Zhang, You | TP1-1 |
| Stewart, Robert W. | TA8b-4 | Varshney, Pramed | MP6-6 | Xu, Guanghan | MP1-5 | Zhang, Yan | MP5-6 |
| Stewart, Robert W. | MP8b-4 | Varvarigos, Emmanouel A. | TP8b-8 | Xu, Guanghan | TA8b-10 | Zhang, Rui | MP4-4 |
| Stewart, Robert W. | MP8b-13 | Vellaikal, Asha | TA5-2 | Xu, Guanghan | MA8b-2 | Zhang, Jun | WA2-4 |
| Stoica, Petre | TP4a-1 | Viberg, Mats | TA8a-3 | Xu, Dongxin | TP1-5 | Zhang, Tong | TA5-5 |
| Stoica, Petre | MP7-6 | Viberg, Mats | MA1b-4 | Yalcin, Tolga | TA6-7 | Zhao, Qian | MP4-5 |
| Stoica, Petre | MP2-5 | Vignat, Christophe | MP8b-14 | Yamaoka, Tateo | TP4b-5 | Zhou, G. Tong | MP2-4 |
| Stone, Herold S. | WA2-8 | Volcker, Bjorn | MP2-2 | Yan, Ming | TP5a-3 | Zhou, Yifeng | MP8a-8 |
| Subramaniam, Vijay K. | WA1-5 | Vollmer, Juergen | TA8b-7 | Yang, Weidong | MA8b-2 | Zhou, Wensheng | TA5-2 |
| Sullivan, James L. | WA7-5 | Walke, Richard | WA1-1 | Yang, Weidong | TA8b-10 | Zhou, G. Tong | TP1-9 |
| Sun, Yi | WA6-6 | Walke, Richard | MA6b-2 | Yang, Weidong | MP1-5 | Zhou, G. Tong | MP8b-12 |
| Sun, Michael X. | TA8b-3 | Wang, Xin | TP6-7 | Yates, Roy D. | WA6-1 | Zhuang, Xiangyang | TP2-6 |
| Sun, Thomas W. | TA4-1 | Wang, Kun | WA6-3 | Ye, Wu | TA6-6 | Zoltowski, Mike | WA5-2 |
| Sundaramurthy, Vishwas | WA8a-5 | Wang, Xiaodong | TP5b-2 | Ye, Fei | MP8b-8 | Zoltowski, Mike | MA4b-2 |
| Sundin, Tomas | TP4a-1 | Wang, Bo | MP3-1 | Yeh, Chi-Hsiang | TP8b-10 | Zoubir, Abdelhak M. | TA8a-2 |
| Swami, Ananthram | MP2-3 | Wang, Bo | TP3b-1 | Yeh, Chi-Hsiang | TP8b-8 | Zoubir, Abdelhak M. | TA8a-7 |
| Swartzlander, Jr., Earl E. | WA3-6 | Wang, Y.E. | WA6-7 | Yellin, Daniel | TA2a-1 | Zoubir, Abdelhak M. | MA1b-3 |
| Swartzlander, Jr., Earl E. | TP7a-3 | Wang, Albert | WA2-2 | Yener, Aylin | WA6-1 | Zoubir, Abdelhak M. | TA4-6 |
| Swartzlander, Jr., Earl E. | TP8b-15 | Wang, Yuke | TP8b-11 | Yerkes, Chris | MA8b-8 | Zurk, Lisa M. | TA8a-12 |
| Swindlehurst, A. Lee | TP2-6 | Wang, Dianhui | TP1-8 | Yi, E.-J. | WA7-4 | | |
| Syed, Yasser F. | TP6-8 | Ward, James | TA8a-12 | | | | |
| Tang, Kai | WA8a-1 | Wassernab, K. | MP1-2 | | | | |
| Taniga Shinichi | TP4b-5 | Weiss, Stephan | MP8b-13 | | | | |
| Tanner, Charm | TP8b-4 | Weiss, Stephan | TA8b-4 | | | | |
| Tanskanen, Jarmo M.S. | TP8b-5 | Weiss, Stephan | MP8b-4 | | | | |
| Tehrani, Ardavan M. | MP8b-16 | Wesel, Richard D. | TP5b-4 | | | | |
| Tessier, Yves | TP7b-1 | Wesel, Richard D. | TA4-1 | | | | |
| Therrien, Charles W. | MP8a-5 | Wesel, Richard D. | TP5a-1 | | | | |
| Therrien, Charles W. | TP2-5 | Wheeler, Frederick W. | TP6-5 | | | | |
| Thiennviboon, Phunsak | MP5-8 | White, Frank | MP6-5 | | | | |
| Thomas, Joseph | MP1-8 | Whitehouse, Harper | TA8a-9 | | | | |
| Tico, Marius | MA3b-3 | Williams, Robert | TP7b-2 | | | | |
| Tokuda, Keiichi | TA7-8 | Willis, Matthew | TP8a-4 | | | | |
| Tong, Lang | WA5-4 | Willsky, Alan S. | MA6b-2 | | | | |
| Torlak, Murat | MA8b-7 | Willsky, Alan S. | TP7b-4 | | | | |
| Touzni, Azzedine | WA5-4 | Willson, Jr., Alan N. | TA4-3 | | | | |
| | | Willson, Jr., Alan N. | TA3-8 | | | | |

Notes:

Notes:

SS&C Conference, Asilomar '99

Code Ec/FA

Naval Postgraduate School

833 Dryer Road, Rm. 437

Monterey, CA 93943-5121

