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ASILOMAR CONFERENCE ON
SIGNALS, SYSTEMS AND
COMPUTERS



November 7–10, 2010 Asilomar Hotel and Conference Grounds

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IEEE
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FORTY-FOURTH ASILOMAR CONFERENCE ON SIGNALS, SYSTEMS & COMPUTERS

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Welcome from the General Chairperson

Prof. Linda S. DeBrunner, Florida State University

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

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

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

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

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

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

Linda S. DeBrunner, Florida State University, June 2010

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C. Networks

Dr. Ananthram Swami U.S. Army Research Laboratory Email: aswami@arl.army.mil

D. Adaptive Systems and Processing

Prof. Petar M. Djurić Stony Brook University Email: djuric@ece.sunysb.edu

E. Array Processing and Statistical Signal Processing Prof. Antonia Papandreou-

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Vice Track Chair

Prof. James Ritcey University of Washington Email: ritcey@ee.washington.edu

2010 Asilomar Conference Session Schedule

Sunday Afternoon, November 7, 2010

2:00 - 7:00 PMRegistration — Main Lodge4:30 - 6:30 PMStudent Paper Contest — Merrill Hall7:00 - 9:00 PMWelcoming Dessert Reception — Merrill Hall

Monday Morning, November 8, 2010

7:30 - 9:00 AM Breakfast – Crocker Dining Hall

8:00 AM - 6:00 PM Registration

8:15 - 9:45 AM MA1a — Conference Welcome and Plenary Session

9:45 - 10:15 AM Coffee Social

10:15 AM - 12:00 PM MORNING SESSIONS

MA1b Tensors Methods in Signal Processing

MA2b MIMO Interference Networks MA3b Security in Wireless Networks

MA4b New Trends in Sequential System Identification

MA5b Biomotivated Recognition and Detection

MA6b Computer Arithmetic I

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

MA8b1 Communication Systems I (Poster)

MA8b2 Selected Topics in Image Processing (Poster)

MA8b3 Applications of Compressive Sensing (Poster)

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

Monday Afternoon, November 8, 2010

1:30 - 5:10 PM AFTERNOON SESSIONS

MP1a Interference Channels

MP1b Trends for Future Wireless Systems

MP2a MIMO Secrecy

MP2b MIMO Relays

MP3a New Trends in Information Theory and Networks

MP3b Learning and Optimization in Dynamic Networks

MP4a Biomedical Image Analysis

MP4b Advances in Adaptive Algorithms

MP5 Statistical Signal Processing for Complex Systems

MP6 Communication Processors and Accelerators

MP7a Video Compression

MP7b Advances in Keyword Spotting

MP8a1 Communication Systems II (Poster)

MP8a2 Speech Enhancement (Poster)

MP8a3 Selected Topics in Speech and Audio (Poster)

MP8a4 Adaptive Signal Processing in Communications (Poster)

MP8a5 Array-based Estimation (Poster)

Monday Evening, November 8, 2010

6:00 - 9:30 PM Conference Cocktail/Social — Merrill Hall
The Cocktail/Social takes the place of Monday's
dinner. No charge for conference attendees or their
guests.

2010 Asilomar Conference Session Schedule (continued)

Tuesday Morning, November 9, 2010

7:30 - 9:00 AM Breakfast — Crocker Dining Hall

8:00 AM - 5:00 PM Registration

8:15 - 12:00 PM MORNING SESSIONS

TA1a Network Error Correction and Physical Layer Security

TA1b Coding

TA2a Signal Processing for Communications Receivers

TA2b Communications Under Doppler Spread

TA3a Recursive Reconstruction of Sparse Sequences

TA3b Self-Organizing Networks: Architectures, Protocols and Algorithms

TA4a Shape and Time in Biomedical Images

TA4b Mathematical Methods for Biomedical Signals and Images

TA5 Compressive Sensing

TA6a Reconfigurable Architectures, Algorithms and Applications

TA6b Array Processing and Beamforming

TA7 Image and Video Enhancement

TA8a1 Cooperative and Cognitive Transmission in Multi-Antenna Networks I (Poster)

TA8a2 Cognitive Networking (Poster)

TA8a3 Adaptive Signal Processing: Theory and Applications (Poster)

TA8b1 Cooperative and Cognitive Transmission in Multi-Antenna Networks II (Poster)

TA8b2 Architectures, Implementations, and Tools I (Poster)

TA8b3 Architectures, Implementations, and Tools II (Poster)

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

Tuesday Afternoon, November 9, 2010

1:30 - 5:10 PM AFTERNOON SESSIONS

TP1a Advances in Multihop and Distributed Wireless Transmission

TP1b Wireless Communications

TP2a MIMO Underwater Acoustic Communications

TP2b MIMO for Ad Hoc Networks

TP3a Non-Stationary Processing of Environments

TP3b Network Information Theory

TP4a Modeling for Biomedical Imaging

TP4b Adaptive Filters - Theory and Applications

TP5a Statistical Signal Processing for Neural Signals

TP5b Integrated Multimodal Sensing

TP6a Computer Arithmetic II

TP6b Computer Arithmetic III

TP7a Microphone Array Processing for Speech Applications I

TP7b Microphone Array Processing for Speech Applications II

TP8a1 Low Complexity Implementation and Receiver Issues (Poster)

TP8a2 Detection & Estimation in Networks (Poster)

TP8a3 Techniques in Networking and Communications (Poster)

TP8b1 Scheduling, Relaying and Routing (Poster)

TP8b2 Statistical and Adaptive Signal Processing (Poster)

TP8b3 Biomedical Signals and Images (Poster)

Tuesday Evening, November 9, 2010

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

2010 Asilomar Conference Session Schedule (continued)

Wednesday Morning, November 10, 2010

7:30 - 9:00 AM Breakfast — Crocker Dining Hall

8:00 AM - 12:00 PM Registration — Copyright Forms must be turned in

before the registration closes at 12:00 noon.

8:15 AM - 12:00 PM MORNING SESSIONS

WA1a Cooperative Communications

WA1b Communication Theory

WA2a Interference Management I

WA2b Interference Management II

WA3a Sensor Networks

WA3b Multiuser Beamforming and Interference Channels

WA4 Advances on Adaptive Filtering and Applications

WA5 Statistical Signal Processing

WA6a Estimation and Detection

WA6b SOC Architectures and Applications

WA7a Sparse Representations in Image Processing

WA7b MIMO Radar

12:00 - 1:00 PM Lunch — Meal tickets may be purchased at registration

desk. This meal is not included in the registration.

Student Paper Contest

Merrill Hall - Sunday, November 7, 2010, 4:30 - 6:30 PM

"Outage Probability of MISO Broadcast Systems with Noisy Channel Side Information"

Alon Shalev Housfater, Teng Joon Lim, University of Toronto

"Distributed Learning under Imperfect Sensing in Cognitive Radio Networks"

Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar

Krishnamachari, USC

"Biologically Inspired Coupled Antenna Array for Direction of Arrival Estimation"

Murat Akcakaya, Washington University in St. Louis; Carlos H. Muravchik, Universidad Nacional de La Plata; Arye Nehorai, Washington University in St. Louis

"Weighted Sum-Rate Maximization for a Set of Interfering Links via Branch and Bound"

Chathuranga Weeraddana, Marian Codreanu, Matti Latva-aho, University of Oulu; Anthony Ephremides, University of Maryland

"A Low Energy High Speed Reed-Solomon Decoder Using Decomposed Inversionless Berlekamp-Massey Algorithm"

Hazem A.Ahmed, Hamed Salah, Tallal ElShabrawy, German University in Cairo; Hossam A. H. Fahmy, Cairo University

"p-Domain Rate Control for JPEG XR"

Duncan Chan, Jie Liang, Simon Fraser University; Chengjie Tu, Microsoft Corp.

"Achievable Rates in Two-user Interference Channels with Finite Inputs and (Very) Strong Interference"

Frederic Knabe, Aydin Sezgin, Ulm University

"Distributed Signature Learning and Calibration for Large-Scale Sensor Networks"

Naveen Ramakrishnan, Emre Ertin, Randolph Moses, The Ohio State University

"The Role of Channel Distribution Information in the Cross-Layer Design of Opportunistic Scheduler for MIMO Networks"

Sheu-Sheu Tan, University of California, San Diego; Adam Anderson, University of South Florida; James Zeidler, University of California, San Diego

2010 Asilomar Conference Session Schedule

Coffee breaks will be at 9:55 AM and 3:10 PM. (Except Monday morning when refreshments will be served outside Merrill Hall from 9:45–10:15 AM)

Monday, November 8, 2010

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

1. Welcome from the General Chairperson

Prof. Linda DeBrunner

Florida State University

2. Session MA1a Distinguished Lecture for the 2010

Asilomar Conference

A Celebration of DSP Technology

Dr. Ronald W. Schafer

Multimedia Communication and Networking Lab Hewlett-Packard Laboratories Palo Alto, CA 94304

Abstract

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

Biography

Ronald W. Schafer received BSEE (1961) and MSEE (1962) degrees from the University of Nebraska and a Ph.D. (1968)

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

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

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

Program of the 2010 Asilomar Conference on Signals, Systems, and Computers

Technical Program Chairman Prof. Miloš Doroslovački The George Washington University

Session MA1b Tensors Methods in Signal Processing

Chair: Martin Haardt, Technical University Ilmenau

- MA1b-1 Overview of Recent Advances in Numerical 10:15 AM Tensor Algebra Göran Bergqvist, Erik G. Larsson, Linköping University
- MA1b-2 Blind Estimation of SIMO Channels Using A 10:40 AM Tensor-Based Subspace Method
 Bin Song, Florian Roemer, Martin Haardt, Ilmenau
 University of Technology
- MA1b-3 New Simultaneous (Generalized) Schur 11:05 AM
 Decomposition Methods for the Computation of the
 Canonical Polyadic Decomposition
 Mikael Sorensen, University of Nice; Lieven De
 Lathauwer, K.U. Leuven
- MA1b-4 A k-dimensional Subspace-based Tensor 11:30 AM
 Factorization Approach for Underdetermined Blind
 Identification
 Bahador Makki Abadi, Saeid Sanei, Dave Marshall,
 Cardiff University

Session MA2b MIMO Interference Networks

Chair: Syed Jafar, University of California, Irvine

- MA2b-1 On Relay-Interference Networks with Quantized Feedback

 Erdem Koyuncu, Hamid Jafarkhani, University of California, Irvine
- MA2b-2 Connecting Interference Alignment and 10:40 AM Distributed Storage Through Rank Minimization Dimitris Papailiopoulos, Alexandros Dimakis, University of Southern California
- MA2b-3 Real Interference Alignment 11:05 AM

 Abolfazl Motahari, Shahab Oveisgharan, Mohammad Ali

 Maddah-Ali, Amir Khandani, University of Waterloo
- MA2b-4 On the Capacity of a Class of Degraded 11:30 AM MIMO Z Interference Channels with Degraded Message Sets

 Fabio Fernandes, Sriram Vishwanath, University of Texas at Austin

Session MA3b Security in Wireless Networks

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

- MA3b-1 From Uncertainty to Secrecy: A Dynamic 10:15 AM
 Approach
 Sheng Xiao, Weibo Gong, Donald Towsley, University of
 Massachusetts
- MA3b-2 Secrecy Coverage 10:40 AM

 Amites Sarkar, Western Washington University; Martin

 Haenggi, University of Notre Dame

- MA3b-3 Control of Wireless Networks with Secrecy 11:05 AM

 C. Emre Koksal, Ohio State University; Ozgur Ercetin,

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

Session MA4b New Trends in Sequential System Identification

Chair: Cédric Richard, Université de Nice Sophia-Antipolis

- MA4b-1 Adaptive Systems of Particle Filters 10:15 AM

 Petar Djuric, Mónica Bugallo, Stony Brook University
- MA4b-2 Exact Particle Flow for Nonlinear Filters 10:40 AM Fred Daum, Jim Huang, Raytheon Company
- MA4b-3 Non-linear Adaptive Filtering with Kernel
 Functions: An Overview
 Weifeng Liu, University of Florida; Cédric Richard,
 Université de Nice Sophia-Antipolis; José Principe,
 University of Florida; Simon Haykin, McMaster
 University
- MA4b-4 On Attributes of the CKF and its Relationship 11:30 AM to the UKF

 Simon Haykin, McMaster University

Session MA5b Biomotivated Recognition and Detection

Chair: Visar Berisha, Raytheon Missile Systems

- MA5b-1 Evaluating Brain Software Simulations using 10:15 AM
 Common Test Suite
 Richard Hammet, David V. Anderson, Georgia Institute of
- MA5b-2 Making Decisions About Unseen Data: 10:40 AM
 Semi-Supervised Learning at Different Levels of
 Specificity
 Visar Berisha, Raytheon Company; Ailar Javadi,
 Alexander Gray, David V. Anderson, Richard Hammet,
 Georgia Institute of Technology
- MA5b-3 High Resolution Radar Analysis of Human 11:05 AM Gait

 Gerald Benitz, Shourov Chatterji, Daniel Gilbert, Paul Monticciolo, Rowland O'Flaherty, Mikael Yamaguchi, Aimee D'Onofrio, MIT Lincoln Laboratory
- MA5b-4 Using Machines to Improve Human Saliency 11:30 AM Detection
 Nikhil Rao, Tyler Karrels, Robert Nowak, Tim Rogers,
 University of Wisconsin-Madison

Session MA6b Computer Arithmetic I

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

- MA6b-1 Arithmetic Techniques Employed in the Next-Generation AMD FPU Core
 Debjit Das Sarma, Advanced Micro Devices; David
 Oliver, Veloce Technologies; Alexandru Fit-Florea,
 NVidia; Scott Hilker, Kevin Hurd, Kelvin Goveas, Jay
 Fleischman, Mark Gibson, Michael Estlick, Advanced
 Micro Devices
- MA6b-2 Design and FPGA Implementation of Radix-10 Combined Division/Square Root Algorithm with Limited Precision Primitives

 Miloš D. Ercegovac, University of California, Los
 Angeles; Robert McIlhenny, California State University
 Northridge
- MA6b-3 Assessment of Butterfly Network VLSI Shifter Circuit
 Neil Burgess, University of Bristol
- MA6b-4 An Optimized Recursive High Radix Divide 11:30 AM Unit with Multipartite Memory Lookup James Stine, Amey Phadke, Surpriya Tike, Justin Remington, Oklahoma State University

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

Chair: Nima Mesgarani, Johns Hopkins University

- MA7b-1 Frequency Domain Perceptual Linear 10:15 AM Prediction (FDPLP)

 Hynek Hermansky, Sriram Ganapathy, Samuel Thomas,
 The Johns Hopkins University
- MA7b-2 Perceptual Artifacts in Speech Noise 10:40 AM Suppression

 Devangi N. Parikh, David V. Anderson, Georgia Institute of Technology
- MA7b-3 Point Process Models of Spectro-Temporal 11:05 AM Modulation Events for Speech Recognition

 Aren Jansen, Nima Mesgarani, Johns Hopkins University;

 Partha Niyogi, University of Chicago
- MA7b-4 Noise Robust Encoding of Speech in the Primary Auditory Cortex Nima Mesgarani, Johns Hopkins University

Session MA8b1 Communication Systems I

Chair: Joerg Kliewer, New Mexico State University

10:15 AM - 12:00 PM

MA8b1-1 Dual Domain Echo Cancellers for Multirate Discrete Multitone Systems

Neda Ehtiati, Benoit Champagne, McGill University

- MA8b1-2 Finite Random Matrices for Blind Spectrum Sensing Giuseppe Abreu, University of Oulu; Wensheng Zhang, Yukitoshi Sanada, Keio University
- MA8b1-3 MAP Detection with Soft Information in an Estimate and Forward Relay Network

 Corina I. Serediuc, Rice University; Jorma Lilleberg,
 University of Oulu / Nokia; Behnaam Aazhang, Rice
 University
- MA8b1-4 Assisted Radio Field Prediction with Application to Cognitive Radio

 Michele Scagliola, Carlos Mosquera, Veronica Santalla del Rio. University of Vigo
- MA8b1-5 Robust AF Relay Transmission with Multiple Source-Destination Pairs under Channel Uncertainty Yupeng Liu, Athina Petropulu, Drexel University
- MA8b1-6 A Mutual Information based Iteration Stop Rule for Turbo Decoding

 Jinhong Wu, Atheros Communications, Inc.; Branimir
 Vojcic, Jia Sheng, George Washington University
- MA8b1-7 Cooperation Diversity for OFDM with Iterative Reception and Independent CFO per Node Thomas Ketseoglou, California State University
- MA8b1-8 Joint Transmitter Adaptation and Power Control in Multi-User Wireless Systems with Target SIR Requirements

 Dimitrie C. Popescu, Shiny Abraham, Old Dominion University
- MA8b1-9 Complexity Reduction for Vehicular Channel Estimation
 Using the Filter-Divergence Measure
 Laura Bernadó, Thomas Zemen, FTW Forschungszentrum
 Telekommunikation Wien; Alexander Paier, Vienna
 University of Technology; Johan Karedal, Lund University
- MA8b1-10 Feasibility and Limitations in Relaying Broadcast Signals Eun-Hee Shin, Dongwoo Kim, Hanyang University
- MA8b1-11 An Improved Synchronization Scheme for OFDMA Systems with Initial Ranging Transmissions Sungeun Lee, Xiaoli Ma, Georgia Institute of Technology
- MA8b1-12 Syndrome Based Adaptive Complexity Channel Decoding and Turbo Equalization for ATSC DTV Klaus Hueske, Jan Geldmacher, Jürgen Götze, TU Dortmund University
- MA8b1-13 Joint Signal Detection and Classification of Mobile WiMAX and LTE OFDM Signals for Cognitive Radio Alaa Al-Habashna, Octavia A. Dobre, Ramachandran Venkatesan, Memorial University of Newfoundland; Dimitrie C. Popescu, Old Dominion University
- MA8b1-14 Cooperative Game-Theoretic Solutions to Spectrum Sharing in Cognitive Radios Jayaprakash Rajasekharan, Jan Eriksson, Visa Koivunen, Aalto University
- MA8b1-15 Calibration of Random Phase Rotation for Multi-Band OFDM UWB Signals Huilin Xu, Liuqing Yang, University of Florida

- MA8b1-16 Wideband Spectrum Sensing for Cognitive Radios in Unknown Noise via Power Spectrum Analysis Jitendra Tugnait, Auburn University
- MA8b1-17 Fair Resource Allocation for Hybrid FSO/RF Networks Yi Tang, Maite Brandt-Pearce, University of Virginia
- MA8b1-18 MCM OFDM Using Sparse Signals

 Victor DeBrunner, Florida State University; Jim
 Schroeder, Harris Corporation

Session MA8b2 Selected Topics in Image Processing

Chair: Christopher Rozell, Georgia Institute of Technology

10:15 AM - 12:00 PM

- MA8b2-1 Sparse Coding for Spectral Signatures in Hyperspectral Images

 Adam Charles, Georgia Institute of Technology;

 Bruno Olshausen, University of California, Berkeley;

 Christopher Rozell, Georgia Institute of Technology
- MA8b2-2 Distributed Compressed Sensing of Hyperspectral Images via Blind Source Separation
 Mohammad Golbabaee, Simon Arberet, Pierre
 Vandergheynst, Ecole Polytechnique Fédérale de
 Lausanne
- MA8b2-3 Automatic Feature Extraction in Laser Rangefinder Data Using Geometric Invariance

 Jean-Charles Noyer, Régis Lherbier, Univ. Lille Nord-deFrance
- MA8b2-4 A Novel Facial Expression Recognition Method Using Fast BEMD Based Edge Detection James Zhang, Zijing Qin, Peter Tay, Robert Adams, Western Carolina University
- MA8b2-5 Plenoptic Rendering on GPUs

 Todor Georgiev, Andrew Lumsdaine, Georgi Chunev,

 Adobe
- MA8b2-6 Complexity and Quality Evaluation of Structure Extrapolation Methods Within a Fully Automatic Inpainting Framework

 Patrick Ndjiki-Nya, Dimitar Doshkov, Martin

 Koeppel, Thomas Wiegand, Fraunhofer Institute for Telecommunications Heinrich-Hertz-Institut
- MA8b2-7 Multi-modal Image Fusion using Window-based ICA and Fractal Dimension

 Lu Han, North Carolina State University; Shubha

 Kadambe, Rockwell Collins Company; Hamid Krim,

 North Carolina State University
- MA8b2-8 A Regularized Optimization Approach for AM-FM Reconstructions
 Paul Rodriguez, Pontificia Universidad Catolica del Peru;
 Victor Murray, Marios S. Pattichis, University of New Mexico
- MA8b2-9 Block Based Completion for Video Stabilization
 Stephen Mangiat, University of California, Santa
 Barbara; Yi-Jen Chiu, Intel Corporation

MA8b2-10 ρ-Domain Rate Control for JPEG XR

Duncan Chan, Jie Liang, Simon Fraser University;

Chengjie Tu, Microsoft Corp.

Session MA8b3 Applications of Compressive Sensing

Chair: Sergiy Vorobyov, University of Alberta Edmonton, Canada

10:15 AM - 12:00 PM

- MA8b3-1 Empirical Risk Minimization-Based Analysis of Segmented Compressed Sampling Omid Taheri, Sergiy Vorobyov, University of Alberta
- MA8b3-2 Localization in Wireless Networks via Spatial Sparsity Sofia Nikitaki, Panagiotis Tsakalides, University of Crete & FORTH-ICS
- MA8b3-3 Joint Typical Analysis for Compressive Sensing Based Multi Sensor Systems Sangjun Park, Junho Lee, Heungno Lee, Gwangju Institute of Science and Technology (GIST)
- MA8b3-4 Compressive Imaging using Approximate Message Passing and a Markov-Tree Prior Subhojit Som, Lee C Potter, Philip Schniter, Ohio State University
- MA8b3-5 Computable Quantification of the Stability of Sparse Signal Reconstruction

 Gongguo Tang, Arye Nehorai, Washington University in St. Louis
- MA8b3-6 Signal Recovery from Low Frequency Components Yonina C. Eldar, Technion - Israel Institute of Technology; Volker Pohl, Technical University Berlin

Session MP1a Interference Channels

Chair: Eduard Jorswieck, Technische Universität Dresden

- MP1a-1 Learning to Precode in Outage Minimization
 Games over MIMO Interference Channels
 Elena Veronica Belmega, Hamidou Tembine, Samson
 Lasaulce, Laboratoire des signaux et systèmes
- MP1a-2 Achievable Rates and Upper Bounds for the Interference Relay Channel

 Anas Chaaban, Aydin Sezgin, Ulm University
- MP1a-3 Bargaining and Beamforming in Interference 2:20 PM Channels

 Rami Mochaourab, Eduard A. Jorswieck, Dresden
 University of Technology; Zuleita Ka Ming Ho, David
 Gesbert, Eurecom
- MP1a-4 Optimal Distributed Beamforming for MISO 2:45 PM Interference Channels

 Jiaming Qiu, Texas A&M University; Rui Zhang, National
 University of Singapore; Zhi-Quan Luo, University of
 Minnesota; Shuguang Cui, Texas A&M University

Session I	MP1b Trends for Future Wireless S	Systems	MP2b-3	Self-Interference Suppression in Full-Duplex 4:20 PM
Chair: Tom	a Marzetta, Bell Labs			MIMO Relays Panagiota Lioliou, Mats Viberg, Chalmers University of Tacked Law Miked Coldinar Foods to the Address of AP
MP1b-1	Fading Models and Metrics for Contemporary Wireless Systems Nihar Jindal, University of Minnesota; Angel Lozano UPF		MP2b-4	Technology; Mikael Coldrey, Fredrik Athley, Ericsson AB Optimal Channel Estimation and Training 4:45 PM Design for MIMO Relays Ting Kong, Yingbo Hua, University of California, Riverside
MP1b-2	Doubling Throughput in Cellular Networks with Higher-order Sectorization Howard Huang, Reinaldo Valenzuela, Cuong Tran, St Walker, Dragan Samardzija, Bell Laboratories, Alcate		Session	
	Lucent		Co-Chairs	: Sanjay Shakkottai, University of Texas at Austin and Jeff
MP1b-3	Performance of TDD-based MU-MIMO	4:20 PM		University of Texas at Austin
	Systems: Multiuser Diversity Interference Mitigation and CSI Costs Haralabos Papadopoulos, DOCOMO USA Labs; Giuseppe Caire, University of Southern California; S.	ean	MP3a-1	On Information Theoretic Games for 1:30 PM Interference Networks Suvarup Saha, Randall Berry, Northwestern University
MP1b-4	Ramprashad, DOCOMO USA Labs Making MIMO Really Work: The 400-Antenna Base Station Thomas Marzetta, Alexei Ashikhmin, Bell Laboratorio	4:45 PM	MP3a-2	Correlation of Link Outages in Low-mobility 1:55 PM Wireless Networks Radha Krishna Ganti, Jeffrey Andrews, University of Texas at Austin
	Alcatel-Lucent	<i>z</i> 3,	MP3a-3	On Information Utility and Generalization of 2:20 PM
Session I	MP2a MIMO Secrecy			Data Processing Inequality Tara Javidi, University of California, San Diego
Chair: A. L	ee Swindlehurst, University of California, Irvine		MP3a-4	On the Significance of Linear Codes in 2:45 PM
MP2a-1	Secrecy in Gaussian MIMO Bidirectional Broadcast Wiretap Channels: Transmit Strategic Sara Al-Sayed, Aydin Sezgin, Ulm University	1:30 PM es		Networks Jiening Zhan, Michael Gastpar, University of California, Berkeley
MP2a-2	Maximization of Worst-Case Secrecy Rates	1:55 PM	Session	MP3b Learning and Optimization in
	in MIMO Wiretap Channels			Dynamic Networks
	Anne Wolf, Eduard A. Jorswieck, Dresden University	of	Co-Chairs	·
MP2a-3	Technology			: Qing Zhao, University of California, Davis and Keqin ersity of California, Davis
MP2a-3	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex.	2:20 PM		: Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks
MP2a-3 MP2a-4	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex. University Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy	2:20 PM	Liu, Unive	: Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM
	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex. University Robust Beamforming for MISO Wiretap	2:20 PM	Liu, Unive	: Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California The Asymptotics of Duplication-Deletion 3:55 PM Random Graphs
	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex. University Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy Capacity Wei Shi, James Ritcey, University of Washington	2:20 PM	Liu, Unive	: Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California The Asymptotics of Duplication-Deletion 3:55 PM Random Graphs Maziyar Hamdi, Vikram Krishnamurthy, University of
MP2a-4 Session I	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex. University Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy Capacity Wei Shi, James Ritcey, University of Washington	2:20 PM	Liu, Unive	c. Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California The Asymptotics of Duplication-Deletion 3:55 PM Random Graphs Maziyar Hamdi, Vikram Krishnamurthy, University of British Columbia
MP2a-4 Session I Chair: Ozg	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex. University Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy Capacity Wei Shi, James Ritcey, University of Washington MP2b MIMO Relays	2:20 PM el 2:45 PM 3:30 PM	Liu, Unive MP3b-1 MP3b-2 MP3b-3	c. Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California The Asymptotics of Duplication-Deletion 3:55 PM Random Graphs Maziyar Hamdi, Vikram Krishnamurthy, University of British Columbia No-Regret Routing for Ad-hoc Wireless 4:20 PM Networks Abhijeet Bhorkar, Tara Javidi, University of California, San Diego
MP2a-4 Session I Chair: Ozg	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex University Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy Capacity Wei Shi, James Ritcey, University of Washington MP2b MIMO Relays ur Oyman, Intel Beamforming for Network-coded MIMO Two-way Relaying	2:20 PM el 2:45 PM 3:30 PM	Liu, Unive MP3b-1 MP3b-2	e. Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California The Asymptotics of Duplication-Deletion 3:55 PM Random Graphs Maziyar Hamdi, Vikram Krishnamurthy, University of British Columbia No-Regret Routing for Ad-hoc Wireless 4:20 PM Networks Abhijeet Bhorkar, Tara Javidi, University of California, San Diego Dynamic Optimization and Learning for 4:45 PM
MP2a-4 Session I Chair: Ozg	Technology Ergodic Secrecy Rate for Gaussian MISO Wiretap Channels with Rician Fading Jiangyuan Li, Shuangyu Luo, Athina Petropulu, Drex. University Robust Beamforming for MISO Wiretap Channel by Optimizing the Worst-case Secrecy Capacity Wei Shi, James Ritcey, University of Washington MP2b MIMO Relays ur Oyman, Intel Beamforming for Network-coded MIMO Two-way Relaying Taemin Kim, Bernd Bandemer, Arogyaswami Paulraj,	2:20 PM el 2:45 PM 3:30 PM	Liu, Unive MP3b-1 MP3b-2 MP3b-3	e. Qing Zhao, University of California, Davis and Keqin ersity of California, Davis Distributed Learning Under Imperfect 3:30 PM Sensing in Cognitive Radio Networks Keqin Liu, Qing Zhao, University of California, Davis; Bhaskar Krishnamachari, University of Southern California The Asymptotics of Duplication-Deletion 3:55 PM Random Graphs Maziyar Hamdi, Vikram Krishnamurthy, University of British Columbia No-Regret Routing for Ad-hoc Wireless 4:20 PM Networks Abhijeet Bhorkar, Tara Javidi, University of California, San Diego

University

Session I	MP4a Biomedical Image Analysis		MP5-2	Particle Filtered Modified Compressive 1:55 PM
Chair: Ron	ald Summers, National Institutes of Health			Sensing (PF-mod-CS) for Tracking Signal Sequences
MP4a-1	Haustral Fold Detection for CT Colonography Images Using Gabor Filter Zhuoshi Wei, Jianhua Yao, Shijun Wang, Ronald Sum National Institutes of Health		MP5-3	Samarjit Das, Namrata Vaswani, Iowa State University Compressed Sensing using Generalized 2:20 PM Polygon Samplers Kanke Gao, Stella Batalama, Dimitris Pados, State
MP4a-2	Human Activity Recognition Via Motion and Vision Data Fusion Chun Zhu, Qi Cheng, Weihua Sheng, Oklahoma State	1:55 PM	MP5-4	University of New York at Buffalo; Bruce Suter, Air Force Research Laboratory Particle Filtering with Mode Tracking: 2:45 PM
MP4a-3	University Segmentation and Pseudo-coloring of High-Speed Bright-Field Microscopy Images o Beating Embryonic Heart			Potential for Application to Numerical Weather Prediction Sarah Dance, Joanne Pocock, Amos Lawless, University of Reading
	Sandeep Bhat, Michael Liebling, University of Califo Santa Barbara	rnia,		BREAK 3:10 PM
MP4a-4	A Scheme of Bandwidth Allocation for the Transmission of Medical Data Di Lin, Fabrice Labeau, McGill University	2:45 PM	MP5-5	Compressible Priors for Natural Image 3:30 PM Statistics Volkan Cevher, EPFL STI IEL LIONS
Session I		ithms	MP5-6	Unsupervised Bayesian Analysis for Gene Style Expression Analysis 3:55 PM
	Sergios Theodoridis, University of Athens and Isology Okyo Institute of Technology	sao		Cécile Bazot, Nicolas Dobigeon, Jean-Yves Tourneret, University of Toulouse; Alfred O. Hero, University of Michigan
MP4b-1	Adaptive Estimation of Sparse Signals using the Method of Multipliers Daniele Angelosante, Georgios B. Giannakis, Univer of Minnesota	•	MP5-7	Multiple Sensor Sequential Tracking of 4:20 PM Neural Activity: Algorithm and FPGA Implementation Lifeng Miao, Jun Zhang, Chaitali Chakrabarti, Antonia
MP4b-2	Time- and Coefficient-Selective Diffusion Strategies for Distributed Parameter Estimation Stefan Werner, Aulto University School of Science and Technology; Yih-Fang Huang, University of Notre Da	d	MP5-8	Papandreou-Suppappola, Arizona State University Adaptive Parameter Estimation of 4:45 PM Cardiovascular Signals Using Sequential Bayesian Techniques
MP4b-3	Tracking Behavior of Mobile Adaptive Networks Sheng-Yuan Tu, Ali H. Sayed, University of California	4:20 PM a, Los		Shwetha Edla, Jun Jason Zhang, John Spanias, Antonia Papandreou-Suppappola, Chaitali Chakrabarti, Arizona State University
MP4b-4	Angeles Low Complexity Projection-based Adaptive	4:45 PM	Session 1	
1111 10 1	Algorithm for Sparse System Identification and			Accelerators
	Signal Reconstruction Konstantinos Slavakis, University of Peloponnese; Se			Cavallaro, Rice University
	Theodoridis, University of Athens; Isao Yamada, Tok Institute of Technology		MP6-1	Reconfigurable MIMO Transceiver Design 1:30 PM using the Tunable Channel Decomposition Jing Wang, Gerald Sobelman, University of Minnesota
Session I	8	for	MP6-2	A WiMAX/LTE Compliant FPGA 1:55 PM
	Complex Systems			Implementation of a High-Throughput Low-
Chair: Mon	Likelihood Consensus: Principles and Application to Distributed Particle Filtering	1:30 PM		Complexity 4x4 64-QAM Soft MIMO Receiver Vadim Smolyakov, Dimpesh Patel, University of Toronto; Mahdi Shabany, University of Toronto / Sharif University; Glenn Gulak, University of Toronto
	Ondrej Hlinka, Ondrej Sluciak, Franz Hlawatsch, Institute of Communications and Radio-Frequency Engineering, Vienna University of Technology; Petar Djuric, Stony Brook University; Markus Rupp, Institt of Communications and Radio-Frequency Engineerin Vienna University of Technology	ıte	MP6-3	An Ultra Low Power SIMD Processor for Wireless Communications Mark Woh, Sangwon Seo, Scott Mahlke, Trevor Mudge, University of Michigan; Chaitali Chakrabarti, Arizona State University

MP6-4	Combined Channel and Hardware Noise	2:45 PM	Session 1	MP7b	Advances in Keyword Spott	ing
	Resilient Viterbi Decoder Amr Hussien, Muhammed Khairy, Amin Khajeh, Ahm	ed	Chair: Man	k A. Clem	nents, Georgia Institute of Technology	
	Eltawil, Fadi Kurdahi, University of California, Irvin BREAK	e 3:10 PM	MP7b-1	Improvi	Audio Indexing and Retrieval: ng Precision Gavaldà, Nexidia Inc; Mark Clements, Georg	3:30 PM
MP6-5	Implementation of Greedy Algorithms for LTE Sparse Channel Estimation	3:30 PM		Institute	of Technology; Robert Morris, Maria Kouli rdillo, Jon Arrowood, Nexidia Inc	
MP6-6	Patrick Maechler, Pierre Greisen, Benjamin Sporrer, Sebastian Steiner, Norbert Felber, Andreas Burg, ETF Zurich A Low Energy High Speed Reed-Solomon	3:55 PM	MP7b-2	Keywor Abhijeet	gical Feature Based Analysis for d Recognition Sangwan, John H.L. Hansen, CRSS: Center peech Systems	3:55 PM <i>for</i>
	Decoder Using Decomposed Inversionless Berlekamp-Massey Algorithm Hazem A. Ahmed, Hamed Salah, Tallal ElShabrawy, German University in Cairo; Hossam A. H. Fahmy, C university		MP7b-3	Word-St Implicat Jan Cern	ubword Based Keyword Spotting with tions in OOV Detection tocky, Igor Szoke, Mirko Hannemann, Stefan k, Brno University of Technology	
MP6-7	Design of Large Polyphase Filters in the Quadratic Residue Number System Gian Carlo Cardarilli, Università degli Studi di Roma "Tor Vergata"; Alberto Nannarelli, Technical Università	4:20 PM	MP7b-4	Detection	ed Open Vocabulary Spoken Term on Ramabhadran, IBM T. J. Watson Research	4:45 PM
	of Denmark; Yann Oster, Thales Alenia Space; Massin	mo	Session 1	MP8a1	Communication Systems II	
	Petricca, Marco Re, Università degli Studi di Roma " Vergata"	Tor	Chair: Man	tin Haara	lt, Technical University Ilmenau	
MP6-8	FPGA Implementation Analysis of Polyphase Channelizer Performing Sample Rate Change	4:45 PM		1:30 PM - 3:10 PM		
	Required for both Matched Filtering and Chann Frequency Spacing Mehmod Awan, Aalborg University; fred harris, San I State University; Chris Dick, Xilinx, Inc.; Peter Koch	Diego	MP8a1-1	Zĥenning Ming Zho	Interference Scenarios in Two-Tier Net g Shi, Alcatel Lucent - Shanghai Bell; Mark ao, National ICT Australia (NICTA); He Wa un National University	Reed,
Coggion	Aalborg University		MP8a1-2		ing Capacity Per Unit Cost Nokleby, Behnaam Aazhang, Rice Universi	ty
Session Ch	•		MP8a1-3		cy of Rate-maximization Game Under	Bounded
MP7a-1	eolhong Ang, Qualcomm, Inc. Spectral Entropy-Based Quantization Matrices for H.264/AVC Video Coding Malavika Bhaskaranand, Jerry Gibson, University of California, Santa Barbara			Amod J.C Group; A Informati	l Uncertainty G. Anandkumar, Advanced Signal Processin, Inimashree Anandkumar, Laboratory for ion and Decision Systems; Sangarapillai aran, Jonathon Chambers, Advanced Signa ng Group	
MP7a-2	Motion Blur Adaptive Rate Control Cheolhong An, Qualcomm Inc.	1:55 PM	MP8a1-4		definite Programming Approach to Cocation in Wireless Sensor Networks	perative
MP7a-3	Compressive Sensing based Multiview Video coding Parmida Beigi, Xiaoyu Xiu, Jie Liang, Simon Fraser University	2:20 PM	MP8a1-5	A Self-(ng, Liuqing Yang, University of Florida Organizing Solution for Interference Av nderlay Femtocells to Pantisano, Centre for Wireless Communi	
MP7a-4	Frame Corruption Estimation from Route Messages for Video Coding over Mobile Ad Ho Networks Yiting Liao, Jerry Gibson, University of California, Sa Barbara			(CWC) + Sistemist Centre fo Verdone,	Dipartimento di Elettronica Informatica e ica (DEIS); Kaveh Ghaboosi, Mehdi Bennis or Wireless Communication (CWC); Roberto Dipartimento di Elettronica Informatica e ica (DEIS)	ʻ,
			MP8a1-6	Location	Based Cooperative Spectrum Sensing wan Information in, Hongbin Li, Jun Fang, Stevens Institute of gy	

- Iterative Decoding on Divided Trellis for Turbo Codes MP8a1-7 Jinhong Wu, Atheros Communications, Inc.; Branimir Vojcic, Jia Sheng, George Washington University Detection of CPM Based on Second-Order MP8a1-8 Cyclostationarity Amy Malady, A. A. (Louis) Beex, Virginia Tech MP8a1-9 Determination of Cyclic Delay for CDD Utilizing RMS Delay Spread in OFDMA Multiuser Scheduling Systems Seong-Ho Hur, University of California, San Diego; Min-Joong Rim, Dong-Kook University; Bhaskar D. Rao, James R. Zeidler, University of California, San Diego MP8a1-10 Effective SINR Distribution in MIMO OFDM Systems Alexandra Oborina, Visa Koivunen, Helsinki University of Technology; Tero Henttonen, Nokia Oyi MP8a1-11 Pilot Design for OFDM-Based Non-Regenerative Relay Networks in the Presence of Phase Noise Payam Rabiei, Won Namgoong, Naofal Al-Dhahir, University of Texas at Dallas Sum-Rate Maximization by Bandwidth Re-allocation for MP8a1-12 Two Users in Partial Frequency Reuse Cellular Networks Bujar Krasniqi, Technische Universität Wien; Martin Wolkerstorfer, FTW Forschungszentrum Telekommunikation Wien; Christian Mehlfuehrer, Christoph Mecklenbrauker, Technische Universität Wien MP8a1-13 Performance of UWB MIMO Relay Systems in Real **UWB** Channels Kiattisak Maichalernnukul, Trung Kien Nguyen, Feng Zheng, Thomas Kaiser, University of Hannover **Session MP8a2** Speech Enhancement Chair: David Anderson, Georgia Institute of Technology 1:30 PM - 3:10 PM
- MP8a2-1 Combined Reduction of Time Varying Harmonic and Stationary Noise Using Frequency Warping Thomas Esch, Matthias Rüngeler, Florian Heese, Peter Vary, RWTH Aachen University

 MP8a2-2 Comparison of Various Adaptive Kalman Filtering Algorithms Applied to Single Microphone Blind Audio Source Separation

 Siouar Bensaid, Dirk Slock, Eurecom
- MP8a2-3 A MAP Criterion for Detecting the Number of Speakers at Frame Level in Model-based Single-Channel Speech Separation

 Pejman Mowlaee, Mads Græsbøll Christensen, Zheng-Hua Tan, Søren Holdt Jensen, Aalborg University
- MP8a2-4 Toward Overcoming Fundamental Limitation in Frequency-Domain Blind Source Separation for Reverberant Speech Mixtures

 Lae-Hoon Kim, Mark Hasegawa-Johnson, University of Illinois at Urbana-Champaign
- MP8a2-5 Auditory Motivated Analysis Based Speech enhancement Novlene Zoghlami, Zied Lachiri, ENIT

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

Session MP8a3 Selected Topics in Speech and Audio

Chair: Jerry Gibson, University of California, Santa Barbara

1:30 PM - 3:10 PM

- MP8a3-1 Improved Design Method for Nearly Linear-Phase
 Recursive Digital Filters Using Unconstrained Least-pth
 Minimax Optimization
 Sunil B. Nagaraj, Rajeev Nongpiur, Andreas Antoniou,
 University of Victoria
- MP8a3-2 Frequency Dependent GTD Coders

 Ching-Chih Weng, P. P. Vaidyanathan, California Institute
 of Technology
- MP8a3-3 Time-Scale Modification of Audio Signals Using
 Multi-Relative Onset Time Estimations in Sinusoidal
 Transform Coding
 Jonathan Kim, Mark Clements, Georgia Institute of
 Technology
- MP8a3-4 Tandeming Analysis of Perceptual Pre-weighting and Post-weighting Multimode Tree Coder Ying-Yi Li, Pravin Ramadas, Jerry Gibson, University of California, Santa Barbara
- MP8a3-5 Improved Approach for Calculating Model Parameters in Speaker Recognition Using Gaussian Mixture Models Prashant Metkar, Aaron Cohen, Keshab Parhi, University of Minnesota-Twin Cities
- MP8a3-6 An Efficient Constant-Q Spectrum Analyzer Architecture
 Using Polyphase Filter Bank
 Xiaofei Chen, San Diego State University; Elettra Venosa,
 Seconda Università degli Studi di Napoli; fred harris, San
 Diego State University
- MP8a3-7 Online Meeting Recognizer with Multichannel Speaker Diarization
 Shoko Araki, Takaaki Hori, Masakiyo Fujimoto, Shinji
 Watanabe, Takuya Yoshioka, Tomihiro Nakatani, NTT
 Communication Science Laboratories
- MP8a3-8 Low Complexity 3D Source Localization Using Pseudointensity Vectors

 Daniel P. Jarrett, Emanuël A.P. Habets, Patrick A. Naylor, Imperial College London
- MP8a3-9 Cyclic Matching Pursuits with Multiscale Time-Frequency Dictionaries Bob Sturm, Mads Græsbøll Christensen, Aalborg University

Session MP8a4 Adaptive Signal Processing in Communications

Chair: Martin Haardt, Technical University Ilmenau

1:30 PM - 3:10 PM

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

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

MP8a4-3 Non-negative Distributed Regression for Data Inference in Wireless Sensor Networks

Jie Chen, Université de Technologie de Troyes; Cédric Richard, Université de Nice Sophia-Antipolis; Paul Honeine, Université de Technologie de Troyes; Jose Carlos M. Bermudez, Federal University of Santa Catarina

MP8a4-4 Blind Adaptive Equalizer Based on PDF Matching for Rayleigh Time-Varying Channels

Adel Daas, Stephan Weiss, University of Strathclyde

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

Session MP8a5 Array-based Estimation

Chair: John Shynk, University of California, Santa Barbara

1:30 PM - 3:10 PM

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

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

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

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

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

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

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

Session TA1a Network Error Correction and Physical Layer Security

Chair: Joerg Kliewer, New Mexico State University

TA1a-1 Interactive Protocols for Secure Network 8:15 AM Coding

Mahdi Jafari, Christina Fragouli, Ecole Polytechnique Fédérale de Lausanne; Suhas Diggavi, University of California, Los Angeles

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

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

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

Session TA1b Coding

Chair: Lang Tong, Cornell University

TA1b-1 Complex Number RS Coded OFDM with Systematic Noise in the Guard Interval

Mario Huemer, Christian Hofbauer, Klagenfurt
University; Johannes B. Huber, University of ErlangenNuremberg

TA1b-2 Extrinsic Compensation for Cycles in 10:40 AM Message Passing Decoders

Todd Moon, Jacob Gunther, Utah State University

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

TA1b-4 On Secure Communication over a Class of 11:30 AM Degraded Relay Networks

Amir Salimi, Joerg Kliewer, New Mexico State University

Session 7	ГА2а	Signal Processing for Communications Receivers		TA3a-2	High M	oncealment via Matrix Completion at issing Rates n, Johns Hopkins University	8:40 AM
Chair: Mat	s Viberg, C	Chalmers University of Technology		TA3a-3		econstruction Conditions and Error	9:05 AM
TA2a-1	Sparsity Jovana Ili	Feedback Equalization With Driven Thresholding c, Thomas Strohmer, University of Californi ymond Guan, Intel Corporation	8:15 AM a,	TA3a-4	(Reg-Mei Lu, N	for Regularized Modified Basis Pursuit odified-BP) Namrata Vaswani, Iowa State University Weighted 1 1 Optimization for	9:30 AM
TA2a-2	The Effective Performa	ct of Unreliable LLR Storage on the nce of MIMO-BICM Novak, Vienna University of Technology;	8:40 AM		Compre Amin Kha	ssed Sensing and Coding ajehnejad, Alex Dimakis, Babak Hassibi, a Institute of Technology	
		Studer, Andreas Burg, ETH Zurich; Gerald na University of Technology		Session 7	ΓA3b	Self-Organizing Networks:	
TA2a-3	On Perfo	rmance Prediction of an Iterative tenna Receiver	9:05 AM			Architectures, Protocols and Algorithms	
	Jarkko Hu University	usko, Juha Karjalainen, Markku Juntti,		Chair: Vasi	leios Pap	pas, IBM	
TA2a-4	Doppler	Estimation and Correction for Underwater Acoustic Communications	9:30 AM	TA3b-1		nization of Coupled Oscillators Tang, Cornell University	10:15 AM
	Kenneth A	. Perrine, Karl F. Nieman, Terry L. Henders ent, Terry J. Brudner, Brian L. Evans, Univ		TA3b-2	A Spatia Algorith Jacob Be		10:40 AM
Session 7	ΓA2b	Communications Under Dop	pler	TA3b-3		ologically-inspired Synchronization of	11:05 AM
		Spread	•		Periodic Prithwish	E Events h Basu, BBN	
Chair: Gee	rt Leus, De	elft University of Technology		TA3b-4			11:30 AM
TA2b-1	Acoustic Paul van	iled Doppler Spectra in Underwater Communication Channels Walree, Roald Otnes, Trond Jenserud, In Defence Research Establishment	0:15 AM		Kaveh Gr Centre for Allen B.	ice in Self-Organized Femtocells haboosi, Carlos H. M. Lima, Mehdi Bennis, or Wireless Communications, University of C MacKenzie, Virginia Polytechnic Institute an iversity; Matti Latva-aho, Centre for Wireles	nd
TA2b-2		1	0:40 AM			ications, University of Oulu	
	Geert Leu.	le Multi-Lag Wireless Channels s, Delft University of Technology; Urbashi iversity of Southern California		Session 7	Γ A4 a	Shape and Time in Biomedic Images	al
TA2b-3		nate Message-Passing-Based g for Unknown Sparse Doubly Selectiv	11:05 AM	Chair: Dav	id Shattuc	ck, UCLA Geffen School of Medicine	
	Channels Philip Sch	niter, Ohio State University		TA4a-1	Longitu	Temporal Image Analysis for dinal and Time-Series Image Data	8:15 AM
TA2b-4	Fractiona Srinivas Y Milica Sto	l FFT Demodulation erramalli, University of Southern Californic janovic, Northeastern University; Urbashi	11:30 AM u;	TA4a-2	Imaging Human	erig, University of Utah gand Shape Analysis of the Moving Fetal Brain In-Utero udholme, University of California, San Franc	8:40 AM
C		versity of Southern California	Ω	TA4a-3		on of Functional Subnetworks in Using Multimodal MRI	9:05 AM
Session 7	1 A 3a	Recursive Reconstruction of Sequences	Sparse		James Di	uncan, Michael An, Lawrence Staib, Kevin	
Chair: Nan	arata Vasu	ani, Iowa State University		TA4a-4	1 .	Yale University riate Statistical Analysis of	9:30 AM
TA3a-1	On the R Entries of	ole of the Properties of the Non-zero n Sparse Signal Recovery skar D. Rao University of California San	8:15 AM	17448-4	Deforma	ation Momenta Relating Anatomical oshi, University of Utah	7.30 AIVI

Diego

Session	TA4b Mathematical Methods for Biomedical Signals and Images	S	TA5-7	Analog Sparse Approximation for 11:05 AM Compressed Sensing Recovery Christopher Rozell, Georgia Institute of Technology;
Chair: Mı	urray Loew, George Washington University			Pierre Garrigues, IQ Engines, Inc.
TA4b-1	Statistically Optimal Modular Partitioning of 10: Directed Graphs Yu-Teng Chang, Dimitrios Pantazis, Richard Leahy,	:15 AM	TA5-8	High Resolution Radar via Compressive 11:30 AM Illumination Emre Ertin, Ohio State University
	University of Southern California		Session '	TA6a Reconfigurable Architectures,
TA4b-2	A Hierarchical Morphological Match Metric 10:	:40 AM		Algorithms and Applications
	for Neuron Image Data Saurav Basu, Barry Condron, Scott T. Acton, University of Virginia			le Dinechin, Ecole Normale Supérieure de Lyon
TA4b-3	Fisher Information for EMCCD Imaging with 11: Application to Single Molecule Microscopy Jerry Chao, University of Texas at Dallas; Elizabeth Ward, University of Texas Southwestern Medical Center		TA6a-1	A Generic and Versatile Architecture for 8:15 AM Inference of Evolutionary Trees under Maximum Likelihood Nikolaos Alachiotis, Alexandros Stamatakis, Technische Universität München
TA4b-4	Dallas; Raimund Ober, University of Texas at Dallas On Parameter Estimation for Diffusion 11: Processes in Real-time Biosensors Manohar Shamaiah, Xiaohu Shen, Haris Vikalo, University of Texas at Austin	30 AM	TA6a-2	Is there a Tradeoff Between Programmability 8:40 AM and Performance Walid Najjar, University of California, Riverside; Jason Villarreal, Jacquard Computing Inc.
C	, ,		TA6a-3	FPGA-Optimised Random Number 9:05 AM
Session	. 8			Generators David Thomas, Wayne Luk, Imperial College
Chair: Ali	Pezeshki, Colorado State University		TA6a-4	A 128-tap Complex FIR Filter Processing 20 9:30 AM
TA5-1	Target Estimation Using Compressive 8: Sensing for Distributed MIMO Radar Sandeep Gogineni, Arye Nehorai, Washington University in St. Louis	:15 AM		Gigasamples/s in a Single FPGA Florent de Dinechin, Honoré Takeugming, École Normale Supérieure de Lyon; Jean-Marc Tanguy, Bell Laboratories, Alcatel-Lucent
TA5-2		:40 AM	Session '	TA6b Array Processing and Beamforming
	Update of Overcomplete Dictionary M. Salman Asif, Justin Romberg, Georgia Institute of Technology		Chair: Ivai	rs Kirsteins, Naval Undersea Warfare Center
TA5-3		:05 AM	TA6b-1	Efficient Frequency Invariant Beamforming using Virtual Arrays Piya Pal, P. P. Vaidyanathan, California Institute Of Technology
TA5-4		:30 AM n	TA6b-2	Robust Adaptive Beamforming via 10:40 AM Estimating Steering Vector Based on Semidefinite Relaxation Arash Khabbazibasmenj, Sergiy Vorobyov, Aboulnasr Hassanien, University of Alberta
	BREAK 9:	:55 AM	TA6b-3	Adaptive Beamforming using Distributed 11:05 AM
TA5-5	Performance Analysis of Stochastic Signal 10: Detection with Compressive Measurements Thakshila Wimalajeewa, Hao Chen, Pramod K. Varshne Syracuse University	:15 AM	22.2	Antenna Arrays: Joint versus Distributed Processing Hongya Ge, New Jersey Institute of Technology; Ivars P. Kirsteins, Naval Undersea Warfare Center; Xiaoli Wang, New Jersey Institute of Technology
TA5-6		:40 AM	TA6b-4	Remodulation of DVB–T Signals for Use in 11:30 AM Bistatic Passive Radar Stephen Searle, University of Melbourne; Stephen Howard, James Palmer, Defence Science & Technology Organisation

Chair: Manu Parmar, Oualcomm, Inc.

TA7-1	Camera Technology at the Dawn of Digital Renascence Era Sergio Goma, Mickey Aleksic, Qualcomm Inc.; Todo Georgiev, Adobe Systems	8:15 AM r
TA7-2	Rethinking the Sampling Topologies for Image Quality Estimation in Computational Imaging System Design Kathrin Berkner, Ricoh Innovations, Inc	8:40 AM
TA7-3	Novel YUV 8bpp Subsampling Pattern Sergio Goma, Mickey Aleksic, Qualcomm Inc.	9:05 AM
TA7-4	Robust Image Registration for Multi-frame Mobile Applications Marius Tico, Kari Pulli, Nokia Research Center	9:30 AM
	BREAK	9:55 AM
TA7-5	Quality-controlled Motion-compensated Interpolation Mina Makar, Derek Pang, Yao-Chung Lin, Bernd Gir Stanford University	10:15 AM rod,
TA7-6	A Constrained Optimization Perspective on Joint Spatial Resolution and Dynamic Range Enhancement Vishal Monga, Umamahesh Srinivas, Pennsylvania S University	10:40 AM State
TA7-7	Enhancing Video by Combining IR and Visible Light Ramin Samadani, Tom Malzbender, Hewlett Packara Prabath Gunawardane, University of California, San Cruz	*
TA7-8	Bleed-Through Removal Using Multispectral Image Data Trace Griffiths, Gene A. Ware, Todd Moon, Jacob Gr Utah State University	11:30 AM unther;

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

Chair: Kaibin Huang, Yonsei University

8:15 AM - 9:55 AM

TA8a1-1	Randomized Two-Way Relay Cooperation Saeed Bagheri, University of California, Davis; Francesco Verde, University Federico II; Donatella Darsena, University of Napoli Parthenope; Anna Scaglione, University of California, Davis
TA8a1-2	Distributed Beamforming for Two-way Relay Networks with Reciprocal Channels Meng Zeng, Texas A&M University; Rui Zhang, National University of Singapore; Shuguang Cui, Texas A&M University

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

- TA8a1-4 Superposition Coding Based Cooperative
 Communication with Relay Selection
 Hobin Kim, Pamela C. Cosman, Laurence B. Milstein,
 University of California, San Diego
- TA8a1-5 Optimal Power Allocation in Linearly Coded OFDMA Relay Networks Honghai Yu, Sumei Sun, Institute for Infocomm Research
- TA8a1-6 Distributed Gain Allocation in Non-Regenerative Multiuser Multihop MIMO Networks Raphael Rolny, Jörg Wagner, Armin Wittneben, Swiss Federal Institute of Technology Zurich
- TA8a1-7 Optimal Spectrum Sharing in MIMO Cognitive Radio Networks via Semidefinite Programming Ying Jun Zhang, Anthony Man-Cho So, Chinese University of Hong Kong
- TA8a1-8 Two-way Communications for Cooperative Multiple Source Pairs Through a Multi-antenna Relay Chin Choy Chai, Chau Yuen, Institute for Infocomm Research
- TA8a1-9 Maximum Achievable Diversity of Coded MIMO-OFDM Amplify-and-Forward Relaying Systems Changick Song, Inkyu Lee, Korea University
- TA8a1-10 Max-Min Weighted SIR in Coordinated Multicell MIMO Downlink System

 Desmond W.H. Cai, Tony Q.S. Quek, Institute for Infocomm Research, A*STAR
- TA8a1-11 On the Optimization of Two-way AF MIMO Relay Channel with Beamforming
 Namjeong Lee, Korea Advanced Institute of Science and Technology; Chan-Byoung Chae, Bell Laboratories,
 Alcatel-Lucent; Osvaldo Simeone, New Jersey Institute of Technology; Joonhyuk Kang, Korea Advanced Institute of Science and Technology
- TA8a1-12 Is Conflict Always Bad? From the Interference Management Perspective Chan-Byoung Chae, Kai Yang, Simon Yiu, Doru Calin, Bell Laboratories, Alcatel-Lucent
- TA8a1-13 Feasible Rate Improvement Using Common Message Decoding for Multicell Networks Hayssam Dahrouj, Wei Yu, University of Toronto
- TA8a1-14 Switched Diversity Strategies for Dual-Hop Relaying Networks

 Fakhreddine Gaaloul, Redha Radaydeh, Mohamed-Slim Alouini, Korea Advanced Institute of Science and Technology

- TA8a1-15 Stochastic Feedback Control for Multi-Antenna Interference Channel
 Rong Ran, Hong Kong University of Science and Technology; Kaibin Huang, Yonsei University; Vincent K.
 N. Lau, Hong Kong University of Science and Technology; Dongku Kim, Yonsei University
- TA8a1-16 Asymptotic Performance of Linear Receivers in Network MIMO

 Jakob Hoydis, Mari Kobayashi, Mérouane Debbah,

 Supélec

Session TA8a2 Cognitive Networking

Chair: Georgios Giannakis, University of Minnesota

8:15 AM - 9:55 AM

- TA8a2-1 Cooperative Wideband Spectrum Sensing Using Radio Frequency Sensor Networks Volkan Sonmezer, Turkish Air Force; Murali Tummala, John McEachen, Naval Postgraduate School
- TA8a2-2 Spectrum Leasing via Cooperative Opportunistic Routing

 Davide Chiarotto, University of Padova; Osvaldo

 Simeone, New Jersey Institute of Technology; Michele Zorzi, University of Padova
- TA8a2-3 Effect of Jamming on Distributed Spectrum Sensing in a Cognitive Radio Network

 V Sriram Siddhardh (Sid) Nadendla, Hao Chen, Pramod K
 Varshney, Syracuse University
- TA8a2-4 Performance Analysis of Weighted Centroid Algorithm for Primary User Localization in Cognitive Radio Networks

 Jun Wang, Paulo Urriza, Yuxing Han, Danijela Čabrić,
 University of California, Los Angeles
- TA8a2-5 Optimizing User Densities for Spectrum Allocation with Applications in Femtocell Networks

 Brett Kaufman, Rice University; Jorma Lilleberg, Nokia;

 Behnaam Aazhang, Rice University

Session TA8a3 Adaptive Signal Processing: Theory and Applications

Chair: Todd Moon, Utah State University

8:15 AM - 9:55 AM

- TA8a3-1 Spacecraft Adaptive Control Evaluation
 Timothy Sands, Naval Postgraduate School (USAF); Jae
 Jun Kim, Brij Agrawal, Naval Postgraduate School
- TA8a3-2 A Novel Block Fast Array RLS Algorithm Applied to Linear Flight Strip-Map SAR Imaging Roger West, Todd Moon, Jacob Gunther, Utah State University
- TA8a3-3 An Adaptive IIR Filter with Constraints on the Output Power Level Walter Kozacky, Tokunbo Ogunfunmi, Santa Clara University

- TA8a3-4 On the Robust and Efficient Computation of the Kalman Gain for Multichannel Adaptive Filtering with Application to Acoustic Echo Cancellation

 Karim Helwani, Herbert Buchner, Sascha Spors, Deutsche Telekom Laboratories, Berlin University of Technology
- TA8a3-5 An Interval Method for State Estimation in Biological Systems

 Maria Angels de Luis Balaguer, Cranos Williams, North
 Carolina State University
- TA8a3-6 A 0.18um CMOS Narrow-band LNA Linearization Using Digital Base-band Post-Distortion Ifiok Umoh, Talal Al-attar, Tokunbo Ogunfunmi, Santa Clara University
- TA8a3-7 Tracking the Time-varying Sparsity of Channel
 Coefficients in Shallow Water Acoustic Communications
 Ananya Sen Gupta, James Preisig, Woods Hole
 Oceanographic Institution
- TA8a3-8 A Normalized Least Mean Fourth Algorithm with Improved Stability

 Eweda Eweda, Ajman University of Science & Technology; Azzedine Zerguine, King Fahd University of Petroleum & Minerals
- TA8a3-9 An Approach to Stabilizing the Fast Array RLS Adaptive Filter Using Homogeneous Coordinates in Projective Geometry

 Todd Moon, Utah State University; Kevin Hencke,
 University of Maryland; Jacob Gunther, Utah State
 University
- TA8a3-10 Two Product-Space Formulations for Unifying Multiple Metrics in Set-Theoretic Adaptive Filtering

 Masahiro Yukawa, Niigata University; Isao Yamada,
 Tokvo Institute of Technology
- TA8a3-11 On the Relation Between Blind System Identification and Subspace Tracking and Associated Generalizations

 Herbert Buchner, Karim Helwani, Berlin University of Technology

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

Chair: Kaibin Huang, Yonsei University

10:15 AM - 12:00 PM

- TA8b1-1 Enhanced Limited-Coordination Strategies for Multi-User MIMO Systems

 Obadamilola Aluko, Purdue University; Bruno Clerckx,
 Samsung Advanced Institute of Technology; David J. Love,
 James V. Krogmeier, Purdue University
- TA8b1-2 Relay Channel with Non-causal Interference Information at the Source

 Kagan Bakanoglu, Elza Erkip, Polytechnic Institute of

 NYU

TA8b1-3	Distortion-Aware Link Adaptation in Cooperative MIMO Relay Networks Ozgur Oyman, Jeffrey Foerster, Intel Labs
TA8b1-4	Beamforming on the Interference MISO Interference Channel with Multi-user Decoding Capability Zuleita Ka Ming Ho, David Gesbert, Eurecom; Eduard A. Jorswieck, Dresden University of Technology; Rami Mochaourab, Eurecom
TA8b1-5	Multiuser MIMO in Distributed Antenna Systems Robert W. Heath Jr., University of Texas at Austin; Tao Wu, Young Hoon Kwon, Huawei Technologies, Co. Ltd.
TA8b1-6	DMT Analysis of Opportunistic Multi-relay Networks with Different Relaying Capabilities Mohamed Abouelseoud, Aria Nosratinia, University of Texas at Dallas
TA8b1-7	Throughput of Low-Power Network MIMO Cellular Systems Shi Jin, Southeast University; Matthew McKay, Hong Kong University of Science and Technology; Kai-Kit Wong, University College London; Xiqi Gao, Southeast University
TA8b1-8	Coordinated Single-Cell vs Multi-Cell Transmission with Limited-Capacity Backhaul Nima Seifi, Mats Viberg, Chalmers University of Technology; Robert W. Heath Jr., Jun Zhang, University of Texas at Austin; Mikael Coldrey, Ericsson AB
TA8b1-9	Decentralized Coordinated Multi-cell Beamforming for Sum Rate Maximization Harri Pennanen, Antti Tölli, Centre for Wireless Communications, University of Oulu
TA8b1-10	Statistical Beamforming in Wyner Cellular Network Rusdha Muharar, Vasanthan Raghavan, Jamie Evans, Stephen Hanly, University of Melbourne
TA8b1-11	MMSE Transceiver Design for Coordinated Base Station Systems: Distributive Algorithm Tadilo Endeshaw, Luc Vandendorpe, Batu Chalise, University Catholique de louvain
TA8b1-12	CSI Signaling for Decentralized Coordinated Beamforming in TDD Multi-cell MIMO Systems Petri Komulainen, Antti Tölli, Markku Juntti, University of Oulu
TA8b1-13	Outage Probability of MISO Broadcast Systems with Noisy Channel Side Information Alon Shalev Housfater, Teng Joon Lim, University of Toronto
TA8b1-14	Multi-femtocells MIMO Processing via Amplify and Forward over the Cable (AFc) Jonathan Gambini. Umberto Spagnolini. Politecnico di

Predictive Limited Feedback for Cooperative

Ramya Bhagavatula, Robert W. Heath Jr., University of

Milano

Transmission

Texas at Austin

TA8b1-15

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

Session TA8b2 Architectures, Implementations, and Tools I

Chair: B. Phillips, University of Adelaide

10:15 AM - 12:00 PM

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

- TA8b2-2 A Scalable and Programmable Modular Queue Manager Architecture *Qi Zhang, Roger Woods, Alan Marshall, Queen's University Belfast*
- TA8b2-3 Hardware Implementation of DBNS Recoding for ECC Processor

 Thomas Chabrier, IRISA, University of Rennes; Danuta Pamula, IRISA, University of Rennes, Silesian University of Technology; Arnaud Tisserand, IRISA, CNRS
- TA8b2-4 Temperature Aware Power Optimization for Multicore Floating-Point Units Wei Liu, Alberto Nannarelli, Technical University of Denmark
- TA8b2-5 Fast, Bit-Accurate Simulation of Truncated-Matrix Multipliers and Squarers

 George Walters, Pennsylvania State University Erie;

 Michael Schulte, AMD Research and Advanced

 Development Labs
- TA8b2-6 A Redundant Decimal Floating-Point Adder Karim Yehia, Hossam A. H. Fahmy, Cairo University
- TA8b2-7 Arithmetic Operators Based on the Binary Stored-Carryor-Borrow Representation

 Daniel Torno, Exorand Technology; Behrooz Parhami,
 University of California, Santa Barbara
- TA8b2-8 Three Engines to Solve Verification Constraints of Decimal Floating-Point Operations

 Amr Sayed-Ahmed, Hossam A. H. Fahmy, Cairo

 University
- TA8b2-9 Algorithm and Architecture for On-Line Decimal Powering Computation Mahmoud Hassan, Tarek ElDeeb, SilMinds; Hossam A. H. Fahmy, Cairo University
- TA8b2-10 Degrading Precision Arithmetic for Low Power Signal Processing

 Massimo Petricca, Gian Carlo Cardarilli, Università degli Studi di Roma "Tor Vergata"; Alberto Nannarelli, Technical University of Denmark; Marco Re, Pietro Albicocco, Università degli Studi di Roma "Tor Vergata"

- TA8b2-11 Low-Complexity Parallel Evaluation of Powers Exploiting Bit-Level Redundancy Muhammad Abbas, Oscar Gustafsson, Anton Blad, Linköping University
- Memristor-based Arithmetic TA8b2-12 K'Andrea Bickerstaff, Researcher; Earl Swartzlander, Jr.,

	University of Texas at Austin
Session '	TA8b3 Architectures, Implementations, and Tools II
Chair: B. F	Phillips, University of Adelaide
	10:15 AM - 12:00 PM
TA8b3-1	A New Approach for TCP/IP Offload Engine Implementation in Embedded Systems Koji Hashimoto, Vasily Moshnyaga, Fukuoka University
TA8b3-2	Scalable Multi-core Sonar Beamforming with Computational Process Networks John Bridgman, Gregory Allen, Brian L. Evans, University of Texas at Austin
TA8b3-3	ASIP Data Plane Processor for Multi-Standard Interleaving and De-Interleaving Mohit Wani, Zoran Miljanić, Predrag Spasojević, Rutgers University; Jerry Redington, Tensilica Inc.
TA8b3-4	Architecture of a Programmable SoC for Flexible Radio Processing Onkar Sarode, Zoran Miljanic, Predrag Spasojevic, Rutgers University
TA8b3-5	On Prediction to Dynamically Assign Heterogeneous Microprocessors to the Minimum Joint Power State to Achieve Ultra Low Power Cloud Computing Kranthimanoj Nagothu, Brian Kelley, Jeff Prevost, University of Texas at San Antonio
TA8b3-6	Parallel - Pipelined Radix-2^2 FFT Architecture for Real Valued Signals Manohar Ayinala, Keshab Parhi, University of Minnesota
TA8b3-7	Butterfly and Inverse Butterfly nets integration on Altera NIOS-II embedded processor Gian Carlo Cardarilli, Luca Di Nunzio, Rocco Fazzolari, Marco Re, University of Rome "Tor Vergata"; Ruby Lee, Princeton University

TA8b3-8 Multiple Constant Multiplications Guifeng (Rick) Liu. Linda DeBrunner. Victor DeBrunner. Florida State University; Kenny Johansson, Airborne Hydrography AB Effect of Order on MCM Implementations of FIR Filters TA8b3-9 Abhijit Patil, Linda DeBrunner, Florida State University TA8b3-10 Selectable Bandwidth Filter Formed from Perfect Reconstruction Polyphase Filter Bank fred harris, San Diego State University

Internal Quantization in FIR Filters Implemented Using

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

Session TP1a Advances in Multihop and **Distributed Wireless Transmission**

Chair: Raymond Knopp, EURECOM

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

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

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

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

Session TP1b Wireless Communications

Chair: Aydin Sezgin, University of Ulm

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

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

TP1b-3 Low Complexity Approximate Maximum 4.20 PM Throughput Scheduling for LTE Stefan Schwarz, Christian Mehlführer, Markus Rupp, Vienna University of Technology

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

Session TP2a MIMO Underwater Acoustic Communications

Session	Communications		Session	Environments
Chair: Mi	lica Stojanovic, Northeastern University		Chair: Co	rnel Ioana, Grenoble Institute of Technology, GIPSA-lab
TP2a-1	Precoding in MIMO Underwater Acoustic Communications Andrew C. Singer, Erica Daly, Jun Won Choi, Univers of Illinois; James Preisig, Woods Hole Oceanographic	•	TP3a-1	Stable Scatterers Detection and Tracking in Heterogeneous Clutter by Repeat-Pass SAR Interferometry Gabriel Vasile, CNRS
TP2a-2	Institution Progressive MIMO-OFDM Reception over Time-varying Underwater Acoustic Channels Jianzhong Huang, Jie Huang, Shengli Zhou, Peter Wii	1:55 PM	TP3a-2	Non-stationary Signal Analysis in Water Pipes Monitoring Cornel Ioana, Grenoble INP
TP2a-3	University of Connecticut Rate Bounds for Underwater Relay Channels using MIMO methods Chiranjib Choudhuri, Urbashi Mitra, University of	2:20 PM	TP3a-3	Non-stationary Damage State Estimation in 2:20 PM Complex Structures Using Time Delay Embedding Clyde Coelho, Subhasish Mohanty, Antonia Papandreou-Suppappola, Aditi Chattopadhyay, Arizona State University
TP2a-4	Southern California MIMO-OFDM Receiver Design for Channels with Path-Specific Doppler Distortion Kai Tu, Tolga M. Duman, Arizona State University; Jo		TP3a-4	Estimation of Thermo-hydrodynamic 2:45 PM Parameters in Energy Production Systems Using Non-stationary Signal Processing Florin Birleanu, GIPSA-lab
	Proakis, University of California; Milica Stojanovic, Northeastern University		Session	TP3b Network Information Theory
Session	TP2b MIMO for Ad Hoc Networks		Chair: Ha	mid Sadjadpour, University of California, Santa Cruz
Chair: <i>Nii</i> TP2b-1	har Jindal, University of Minnesota Transmission Capacity of Multi-antenna Ad Hoc Networks with CSMA Jeffrey Andrews, Radha Krishna Ganti, Andrew Hunte	3:30 PM	TP3b-1	Opportunistic Interference Alignment effects 3:30 PM in Cooperative Broadcast of Multiple-Source Saeed Bagheri, University of California, Davis; Shrut Kirti, Cornell University; Anna Scaglione, University of California, Davis
TP2b-2	University of Texas at Austin MIMO Beamforming with Quantized Feedback in Ad Hoc Networks: Transmission Capacity Analysis Matthew McKay, Hong Kong University of Science an Technology	3:55 PM	TP3b-2	Study of Throughput and Latency in Finite-buffer Coded Networks Nima Torabkhani, Georgia Institute of Technology; Badri Vellambi Ravisankar, University of South Australia; Faramarz Fekri, Georgia Institute of Technology
TP2b-3	Optimal SISO and MIMO Spectral Efficiency to Minimize Hidden-Node Network Interference Daniel Bliss, Lincoln Labs		TP3b-3	Asymptotic Interference Alignment for 4:20 PM Network Coding Applications Viveck Cadambe, Syed Jafar, Hamed Maleki, University of California, Irvine
TP2b-4	Optimized Multi-Antenna Communication in Ad Hoc Networks with Opportunistic Routing Nihar Jindal, Niranjay Ravindran, Peng Wu, Joseph Blomer, University of Minnesota	4:45 PM	TP3b-4	Outage Analysis and Optimization for Block 4:45 PM Asynchronous Users Amir Khandani, University of Waterloo
TP2b-5	The Role of Channel Distribution Information	5:10 PM	Session	TP4a Modeling for Biomedical Imaging
	in the Cross-Layer Design of Opportunistic		Chair: Sco	ott Acton, University of Virginia
	Scheduler for MIMO Networks Sheu-Sheu Tan, University of California, San Diego; Anderson, University of South Florida; James R. Zeid. University of California, San Diego	1dam ler;	TP4a-1	Image-based Dynamical Modeling in 1:30 PM Developmental Plant Biology Amit Roy-Chowdhury, University of California, Riverside
	V V V V T T T T T T T T T T T T T T T T		TP4a-2	A 3D Cellular Resolution Gene Expression Atlas for Drosophila Embryogenesis David Knowles J RNI

Session TP3a

David Knowles, LBNL

Non-Stationary Processing of

TP4a-3	Analysis of the Cytoskeleton Gerlind Herberich, Thomas Wuerflinger, Antonio Sechi RWTH Aachen University; Reinhard Windoffer, Rudolf Leube, University Hospital Aachen; Til Aach, RWTH Aachen University		chi, olf	TP5a-2	to Iden Models Neural Christop Univers	ation-Theoretic Approaches tifying Parsimonious Causal Network to of Functional Connectivity in Ensemb Recordings other Quinn, Todd Coleman, Negar Kiyavash tity of Illinois at Urbana-Champaign; Nicho tulos, University of Chicago		
11744-4	Fluorescence Praveen Pank Weizmann Ins INRIA; Gilber	i Function Moder for e Macroscopy Imaging ajakshan, Institut Pasteur; Zvi Kam, titute; Josiane Zérubia, Laure Blanc-F et Engler, INRA; Alain Dieterlen, Univ ce; Jean-Christophe Olivo-Marin, Ins	eraud, ersité	TP5a-3	Multi-la Cortico Disease Joyce C Columb	olock PLS Model for Group omuscular Activity Analysis in Parkinso	2:20 PM n	
Session		daptive Filters - Theory ar	ıd	TP5a-4		ation Theoretic Approach to	2:45 PM	
	•	pplications			Ying Liu	fying Causal Neural Interactions from E , Michigan State University; Edward Bernat	,	
Chair: Jos Catarina	é Carlos M. Be	rmudez, Federal University of Sa	nta		Florida Univers	State University; Selin Aviyente, Michigan S ity	tate	
TP4b-1	A Stochastic	Analysis of the NLMS	3:30 PM	Session '	TP5b	Integrated Multimodal Sens	ing	
	Algorithm In	mplemented in Finite Precision University of California, Irvine; Jose	Carlos	Chair: Mui	ralidhar l	Rangaswamy, Air Force Research Labo	ratory	
		Federal University of Santa Catarina		TP5b-1		Multi-modal Tracking with Dependent	3:30 PM	
TP4b-2	Filters with a Eweda Eweda	of LMS and NLMS Adaptive a Non-stationary Input , Ajman University of Science & Techn	3:55 PM nology		Kay, Un	rements ng, Arizona State University; Quan Ding, St iversity of Rhode Island; Antonia Papandreo pola, Arizona State University; Muralidhar	dreou-	
TP4b-3	P4b-3 Steady State Analysis of the Conventional 4 CLMS and Augmented CLMS Algorithms for Noncircular Complex Signals Danilo Mandic, Yili Xia, Imperial College; Scott Dougle Southern Methodist University		4:20 PM	M		wamy, Air Force Research Laboratory		
			uglas,	TP5b-2	Steven F	Integration for Classification Kay, Quan Ding, University of Rhode Island; thar Rangaswamy, Air Force Research Labor	3:55 PM ratory	
TP4b-4	An Alternate Filters	View of Nonlinear Adaptive	4:45 PM	TP5b-3	RF/EO Sean O	-Loop Tracking Using Multimodal Sensors Rourke, A. Lee Swindlehurst, Center for Per nications and Computing	4:20 PM vasive	
TP4b-5	Constraints Øyvind Lunde	MS with Communications Rørtveit, John Håkon Husøy, Univers Ali H. Sayed, University of California,		TP5b-4	Design Radar T Enhanc	and Performance of a Multimodal Test-Bed for Progressive Resolution tement	4:45 PM	
	Angeles				Surendr Univers	a S. Bhat, Ram M. Narayanan, Pennsylvanio ity	State	
Session		atistical Signal Processing	for	Session '	TP6a	Computer Arithmetic II		
Chair G 1		eural Signals		Chair: N. I	Burgess, I	Bristol University		
	-	chigan State University	1:30 PM	TP6a-1		tion Set Extensions and Hardware	1:30 PM	
TP5a-1	Steady State EEG Saumitra Das Michael Willa	Brain Controlled Robotic Platform Using Steady State Visual Evoked Potentials Acquired EEG Saumitra Dasgupta, Michael Fanton, Jonathan Pham Michael Willard, Bahram Shafai, Deniz Erdogmus,			Multith Chris Je Schulte,	s for Triple DES Processing on a treaded Software Defined Radio Platfor enkins, University of Wisconsin-Madison; Mi AMD Research and Advanced Development ossner, Sandbridge Technologies	chael	
	Northeastern	∪ntversity		TP6a-2	Decima Chao Li Linköpii	unities for Estimating Arithmetic in ation Filters u, University of Adelaide; Oscar Gustafsson ng University; Brian Ng, Braden Phillips, ity of Adelaide	1:55 PM	

TP6a-3	Computer Arithmetic Implemented with QCA: A Progress Report Earl Swartzlander, Jr., University of Texas at Austin; Heumpil Cho, Qualcomm Inc.; Inwook Kong, Samsun Seong-Wan Kim, University of Texas at Austin	2:20 PM g;	TP7a-4	Maximum Negentropy Beamforming using 2:45 Complex Generalized Gaussian Distribution Model Kenichi Kumatani, Barbara Rauch, Saarland University; John McDonough, Disney Research Pittsburgh; Dietrich Klakow, Saarland University		sity;
TP6a-4	Overcoming Double-rounding Errors Under IEEE 754-2008 Using Software David Lutz, ARM; Neil Burgess, University of Bristol	2:45 PM	Session 7	ГР7b	Microphone Array Processin Speech Applications II	ng for
Session	TP6b Computer Arithmetic III				Raj, Carnegie Mellon University and Jo	ohn
Chair: A. 7	Tenca, Synopsis		McDonoug	,		
TP6b-1	Complex Division with an FMA Claude-Pierre Jeannerod, INRIA, Universite de Lyon;	3:30 PM	TP7b-1	Petros Bo	ation Based on Source Sparsity oufounos, Mitsubishi Electric Research Labs Raj, Carnegie Mellon University	3:30 PM
	Nicolas Louvet, Universite Claude Bernard Lyon 1, Universite de Lyon; Jean-Michel Muller Muller, CNR, Universite de Lyon	S,	TP7b-2	of Dista	Delay Based Methods for Recognition nt Talking Speech Jandala, Mrityunjaya Shukla, Rajesh Hegde,	3:55 PM
TP6b-2	Shaping Probability Density Function of	3:55 PM		Kanpur	anaaia, mriiyunjaya Snakia, Kajesh Hegae,	111
	Quantization Noise in Fixed Point Systems Karthick Parashar, Daniel Menard, Romuald Rocher, Olivier Sentieys, University of Rennes-1, IRISA/INRIA	1	TP7b-3	Speech	none Array Processing for Distance Capture: A Probe Study Chi Zhang, John H.L. Hansen, CRSS: Center	4:20 PM
TP6b-3	Towards a Highly Efficient Implementation	4:20 PM			peech Systems	<i>J01</i>
	of Sequential Montgomery Multiplication Joao Carlos Neto, University of Sao Paulo; Alexandra Tenca, Synopsys, Inc.; Wilson Ruggiero, University of Paulo		TP7b-4	Control	type of Distant-talking Interface for of Interactive TV of Omologo, Fondazione Bruno Kessler	4:45 PM
TP6b-4	Multi-Operand Decimal Addition by Efficient Reuse of a Binary Carry-Save Adder Tree Alvaro Vazquez, INRIA; Elisardo Antelo, University of Santiago de Compostela	f	TP7b-5	9 -		5:10 PM
TP6b-5	On Equivalences and Fair Comparisons Among Residue Number Systems with Special Moduli	5:10 PM Session T		Erlangen	n-Nuremberg Low Complexity Implementa	ation
	Behrooz Parhami, University of California, Santa Bar	bara	Session	II oui	and Receiver Issues	
Session		g for	Chair: Ragi	hu Rao, X	<i>Xilinx</i>	
	Speech Applications I	_			1:30 PM	- 3:10 PM
McDonoug	: Bhiksha Raj, Carnegie Mellon University and Jo gh, Disney Research		TP8a1-1	Raghu Ra	Complexity Square Root MMSE MIMC ao, Helen Tarn, Raied Mazahreh, Chris Dick	
TP7a-1	Sparse Sensing with Coprime Arrays P. P. Vaidyanathan, Piya Pal, California Institute of Technology	1:30 PM	TP8a1-2	Reduction-Aided MIMO Detection for Hardware Implementations Lukas Bruderer, Christian Senning, Andreas Burg, ETH Zurich		
TP7a-2	A Second-Order-Statistics-based Solution for Online Multichannel Noise Tracking and Reduc Mehrez Souden, INRS; Jingdong Chen, Wevoice Inc.; Jacob Benesty, Sofiene Affes, INRS		TD0.1.2			ТН
TP7a-3	Blind Speech Extraction Combining ICA-based Noise Estimation and Less-Musical- Noise Nonlinear Post Processing	2:20 PM	TP8a1-3	OFDM/ Interfere	omplexity PARAFAC Ceceiver for MIMA System in the Presence of Multi-Acceence tra, Hari K.V.S., Indian Institute of Science	
	Hiroshi Saruwatari, Yu Takahashi, Kiyohiro Shikano, Institute of Science and Technology; Kazunobu Kondo Yamaha Corp.		TP8a1-4	Adaptiv Low Co	re Stream Mapping Multi Antenna System of System Person of Chen, Alister Burr, University of York	ems with

TP8a1-5	A Unified Receiver for MIMO Communication With
	Imperfect Channel Knowledge
	Meriam Rezk, Benjamin Friedlander, University of
	California, Santa Cruz
TDQa1 6	Parformance of a MIMO Pagaiyar Using Joint Chan

- TP8a1-6 Performance of a MIMO Receiver Using Joint Channel-Symbol Estimation in the Presence of Channel Errors Meriam Rezk, Benjamin Friedlander, University of California, Santa Cruz
- TP8a1-7 Design of High Performance MIMO Receivers for LTE/LTE-A Uplink

 Meilong Jiang, Narayan Prasad, NEC Labs America, Inc.;

 Xiaodong Wang, Columbia University
- TP8a1-8 Generalized Spatial Modulation

 Abdelhamid Younis, University of Edinburgh; Raed

 Mesleh, Jacobs University Bremen; Harald Haas,

 University of Edinburgh
- TP8a1-9 Decision Directed Channel Estimation for Reducing Pilot Overhead in LTE-A Johanna Ketonen, Markku Juntti, University of Oulu; Jari Ylioinas, Nokia Siemens Networks
- TP8a1-10 A Novel Structure for MMSE Transceivers over Slowly Time-varying Channels

 Chih-Hao Liu, P. P. Vaidyanathan, California Institute of Technology
- TP8a1-11 Transmission Techniques and User Selection Schemes for Maximizing Throughput in Multiuser MIMO Systems

 Anh Nguyen, Bhaskar D. Rao, University of California, San Diego
- TP8a1-12 Multi-User Beamforming and User Pairing For WiMAX Thomas Svantesson, Pengcheng Zhan, Gokhan Korkmaz, ArrayComm, LLC

Session TP8a2 Detection & Estimation in Networks

Chair: John Walsh, Drexel University

1:30 PM - 3:10 PM

- TP8a2-1 Delay Constrained Detection in Wireless Sensor Networks Srikanth Hariharan, Ohio State University; Leonardo Bachega, Purdue University; Ness Shroff, Ohio State University; Charles Bouman, Purdue University
- TP8a2-2 Malicious Node Detection via Physical Layer Data Tyler Hardy, Richard Martin, Ryan Thomas, Air Force Institute of Technology
- TP8a2-3 Secure Distributed Detection in the Presence of
 Eavesdroppers

 V Sriram Siddhardh (Sid) Nadendla, Hao Chen, Pramod K
 Varshnev, Syracuse University
- TP8a2-4 Coding Perspectives for Collaborative Estimation Over Networks
 Sivagnanasundaram Ramanan, John Walsh, Drexel
 University

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

- TP8a2-6 Detection and Tracking with a Wireless Magnetic Sensor Network

 Mehmet Akif Antepli, Middle East Technical University;

 Sevgi Zubeyde Gurbuz, TUBITAK Space Technologies

 Research Institute; Elif Uysal-Biyikoglu, Middle East

 Technical University
- TP8a2-7 Distributed Gauss-Newton Method for Localization in Ad-hoc Networks

 Benjamín Béjar Haro, Pavle Belanovic, Santiago Zazo

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

Session TP8a3 Techniques in Networking and Communications

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

1:30 PM - 3:10 PM

- TP8a3-1 Optimal MISO Pre-Equalization for Filter Bank Based Multicarrier Systems

 Marius Caus, Ana Isabel Pérez-Neira, Technical University of Catalonia (UPC)
- TP8a3-2 Mean Shift Based Segmentation for Time Frequency Analysis of Packet Based Radio Signals Goran Ivković, Predrag Spasojević, Ivan Šeškar, Rutgers University
- TP8a3-3 An AOA Estimator for Multiple GPS Signals Using a Modified Despreader
 Suk-seung Hwang, Chosun University; John Shynk,
 University of California, Santa Barbara
- TP8a3-4 Distributed Source Coding in Large Wireless Sensor Networks

 Joan Enric Barcelo Llado, Antoni Morell Pérez, Gonzalo Seco Granados, Universitat Autonoma de Barcelona
- TP8a3-5 An Active Distributed Approach for Cyber Attack Detection Hoa Nguyen, Sandeep Gutta, Qi Cheng, Oklahoma State University
- TP8a3-6 Distributed Signature Learning and Calibration for Large-Scale Sensor Networks
 Naveen Ramakrishnan, Emre Ertin, Randolph Moses,
 Ohio State University

Session TP8b1 Scheduling, Relaying and Routing

Chair: Phil Schniter, Ohio State University

3:30 PM - 5:10 PM

- TP8b1-1 Admission Control Based Joint Bandwidth and Power Allocation in Multi-User DF Relay Networks

 Xiaowen Gong, Sergiy Vorobyov, Chintha Tellambura,
 University of Alberta
- TP8b1-2 Broadcast-Relay-Broadcast Channels Liang Chen, University of Maryland
- TP8b1-3 Opportunistic Scheduling Using ARQ feedback in Multi-Cell Downlink
 Sugumar Murugesan, Philip Schniter, Ness Shroff, Ohio
 State University
- TP8b1-4 Routing Policy-dependent Hop Count Distribution in Wireless Ad Hoc Networks

 Golaleh Rahmatollahi, Leibniz University of Hannover;

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

Session TP8b2 Statistical and Adaptive Signal Processing

Chair: Victor DeBrunner, Florida State University

3:30 PM - 5:10 PM

- TP8b2-1 CDF Resampling for Dataset Expansion in Gaussian Mixture Models Density Estimation

 Alessio Medda, The Henry M. Jackson Foundation for the Advancement of Military Medicine, USAARL; Victor DeBrunner, Florida State University
- TP8b2-2 Time Reversal Beamforming of Guided Waves in Pipes with a Single Defect
 Nicholas O'Donoughue, Joel Harley, Jose' M.F. Moura,
 Carnegie Mellon University
- TP8b2-3 On the Predictability of Phase Noise Modeled as Flicker FM Plus White FM
 Siamak Yousefi, Joakim Jalden, Royal Institute of Technology
- TP8b2-4 Detection of Circular and Noncircular Signals in the Presence of Circular White Gaussian Noise Xi-Lin Li, Tulay Adali, Matthew Anderson, University of Maryland, Baltimore County
- TP8b2-5 Statistical Spectral Analysis of Random Gramian Matrices

 Davide Macagnano, Giuseppe Thadeu Freitas de Abreu,
 Centre for Wireless Communications, University of Oulu

- TP8b2-6 High-speed Nano-imaging Using Dynamic Mode AFM:
 A MAP Detection Approach
 Naveen Kumar, Iowa State University; Govind Saraswat,
 Pranav Agarwal, University of Minnesota; Aditya
 Ramamoorthy, Iowa State University; Murti Salapaka,
 University of Minnesota
- TP8b2-7 A Modified Total Variation Approach for Single Frequency Inverse Scattering
 Hatim Alqadah, University of Cincinnati; Matthew
 Ferrara, Air Force Research Laboratory; Howard Fan,
 University of Cincinnati
- TP8b2-8 A New Method for Moving-Average Parameter Estimation
 Petre Stoica, Uppsala University; Lin Du, Jian Li,
 University of Florida; Tryphon Georgiou, University of
 Minnesota
- TP8b2-9 Clutter Covariance Matrices for GMTI MIMO Radar Joshua Kantor, Dan Bliss, MIT Lincoln Laboratory
- TP8b2-10 Asymptotic Efficiency of Distributed Estimation from Constant Modulus Sensor Transmissions

 Cihan Tepedelenlioglu, Mahesh Banavar, Andreas

 Spanias, Arizona State University
- TP8b2-11 Superfast Algorithm for Minimum Variance (Capon) Spectral Estimation Larry Marple, Georgia Tech Research Institute; Majid Adeli, Huaping Liu, Oregon State University
- TP8b2-12 Equidistributed Sampling Sequences for Spectral Analysis

 Mustafa Al-Ani, Andrzej Tarczynski, University of Westminster
- TP8b2-13 An Online Method for Time-varying Spatial Spectrum Estimation Using a Towed Acoustic Array Jeffrey Rogers, Jeffrey Krolik, Duke University
- TP8b2-14 Sample Covariance Based Estimation of Capon Algorithm Error Probabilities Christ Richmond, MIT Lincoln Laboratory; Ramis Movassagh, Alan Edelman, Massachusetts Institute of Technology; Robert Geddes, MIT Lincoln Laboratory
- TP8b2-15 An Optimal Spatio-Temporal Filter for Extraction and Enhancement of Multi-Channel Periodic Signals Jesper Rindom Jensen, Mads Græsbøll Christensen, Søren Holdt Jensen, Aalborg University
- TP8b2-16 A Closed Form for False Location Injection under Time Difference of Arrival Lauren Huie, Air Force Research Laboratory; Mark Fowler, State University of New York at Binghamton

Session TP8b3 Biomedical Signals and Images

Chair: Murray Loew, The George Washington University

3:30 PM - 5:10 PM

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

ΓP8b3-2 Combination of a FIR Filter with a Genetic Algorithm for the Extraction of a Fetal ECG Mohamed Amine Guettouche, Malika Kedir, Assya Bousbia-Salah, University of Sciences and Technology Houari Boumediene (USTHB)			WA1b-3	Diversit Yuan Zha Universit	ing, Cihan Tepedelenlioglu, Arizona State ty		
TP8b3-3	Modeling of the Beat of a Cardiac Signal by C Malika Kedir, Hafid Hariz, Saliha Ould-Slimane, University of Sciences and Technology Houari	aussians	WA1b-4	Parallel Samanth	Analysis for Hybrid Relaying in the Relay Network a Summerson, Behnaam Aazhang, Rice Un.		
TP8b3-4	Boumediene (USTHB) Optimal Estimation in DNA Microarrays via O	Hobal			Interference Management I		
11 803-4	Optimization Sang Hyun Lee, Manohar Shamaiah, Haris Vikalo, University of Texas at Austin	novai	WA2a-1	Random Asynchi	vieck, Technische Universität Dresden nized On-Off Signaling for ronous Interference Channels	8:15 AM	
TP8b3-5 TP8b3-6	Design and Implementation of a Long Range I Recognition System Justin De Villar, Robert Ives, James Matey, US Nava Academy Ling on EDGA to Accelerate the Hough Trans	ıl	WA2a-2	Learning Mitigati Mohsin N	Moshksar, Amir Khandani, University of Wo g Based Mechanisms for Interference ion in Self-Organized Femtocell Netwo Nazir, Mehdi Bennis, Kaveh Ghaboosi, Cen. Jess Communications, University of Oulu;	8:40 AM orks	
11 803-0	3-6 Using an FPGA to Accelerate the Hough Transform in Iris Recognition Jennifer Shafer, Hau Ngo, Robert Ives, United States Naval Academy			Allen B. MacKenzie, Virginia Polytechnic Institute and State University; Matti Latva-aho, Centre for Wireless Communications, University of Oulu			
Session	WA1a Cooperative Communication	ns	WA2a-3	OFDM-	m Allocation and Power Control in Based Cognitive Radios with Target S	9:05 AM INR	
Chair: <i>Xia</i> WA1a-1	oli Ma, Georgia Institute of Technology Robust Collaborative Spectrum Sensing in	8:15 AM			C. Popescu, Deepak R. Joshi, Old Dominic ty; Octavia A. Dobre, Memorial University		
WA1a-2	Cognitive Radio Huaiyu Dai, Chengzhi Li, North Carolina State Unit Hybrid Relay Selection in Heterogenous Relay Networks Mohamed Abouelseoud, Aria Nosratinia, University Texas at Dallas	8:40 AM	WA2a-4	Weighte of Interf Chathura Latva-ah	each Sum-Rate Maximization for a Set fering Links via Branch and Bound anga Weeraddana, Marian Codreanu, Matt. to, University of Oulu; Anthony Ephremides ty of Maryland		
WA1a-3	Achieving Joint Diversity in MIMO Relay	9:05 AM	Session '	WA2b	Interference Management I	I	
	Networks with Low-Complexity Equalizers Giwan Choi, Georgia Institute of Technology; Wei		Chair: Ann	a Scaglio	ne, University of California at Davis		
WA1a-4	Zhang, Qualcomm Inc.; Xiaoli Ma, Georgia Institute Technology Performance Analysis of AF/DF	9:30 AM	WA2b-1	of Cellu mitigation			
	Beamforming Relay Networks with Multiple I Antennas Hyunjun Kim, Cihan Tepedelenlioglu, Arizona State University	•		Dohyung Shin, Hai	ul Jung, Gyeongsang National University; Park, Samsung Electronics Co., Ltd.; Won rvard University	_	
Session	· ·		WA2b-2		ort Capacity for Networks of ing Multiple-Access Channels	10:40 AM	
	a Koivunen, Aalto University			Christian	n Peel, Pengcheng Zhan, ArrayComm, LLC		
	Equivocation of Eve Using Two Edge Type LDPC Codes for the Erasure Wiretap Channel Vishwambhar Rathi, Mattias Andersson, Ragnar		WA2b-3	Relays i Rohit Na	ence Management through Mobile in Ad Hoc Networks in Pierre Moulin, University of Illinois at Champaign	11:05 AM	
	Thobaben, Royal Institute of Technology (KTH); Jos Kliewer, New Mexico State University; Mikael Skog Royal Institute of Technology (KTH)		WA2b-4	Interference Alignment Through Stagger Antenna Switching for MIMO BC With Chenwei Wang, Tiangao Gou, Syed Jafar, Un.		lo CSIT	
WA1b-2	Achievable Rates in Two-user Interference Channels with Finite Inputs and (Very) Strong Interference Frederic Knabe, Aydin Sezgin, Ulm University	10:40 AM		Californi	a, Irvine		

Session WA3a Sensor Networks

Chair: Milica Stojanovic, Massachusetts Institute of Technology

WA3a-1	Sensor Scheduling for Energy-Efficient Target Tracking in Sensor Networks George Atia, Jason Fuemmeler, Venugopal Veeravalli University of Illinois at Urbana-Champaign	8:15 AM
WA3a-2	Clustered Ad-Hoc Networks in the Presence of Interference Andrej Stefanov, Milica Stojanovic, Northeastern University	8:40 AM
WA3a-3	Maximizing Lifetime in Wireless Sensor Networks Under Opportunistic Routing Michal Kaliszan, Slawomir Stanczak, Fraunhofer German-Sino Lab for Mobile Communications	9:05 AM
WA3a-4	Distributed Averaging in Wireless Sensor Networks Under an ALOHA-like Communicati Protocol Valentin Schwarz, Gerald Matz, Vienna University of Technology	

Session WA3b Multiuser Beamforming and Interference Channels

Chair: Dan	a Bliss, MIT Lincoln Labs	
WA3b-1	A Robust and Efficient Transmission Technique for the LTE Downlink Gerhard Wunder, Jan Schreck, Fraunhofer MCI, He Hertz-Institut	10:15 AM
WA3b-2	Robust Transceiver Design for K-Pairs Quasi-Static MIMO Interference Channels via Semi-Definite Relaxation Eddy Chiu, Vincent K. N. Lau, Hong Kong Universi of Science and Technology; Tao Wu, Sheng Liu, Hud Technologies, Co. Ltd.	ity
WA3b-3	MIMO Interference Channel with Confidential Messages: Game Theoretic Beamforming Designs Ali Fakoorian, A. Lee Swindlehurst, University of California, Irvine	11:05 AM

On Duality in the MISO Interference Channel 11:30 AM

Francesco Negro, Eurecom; Irfan Ghauri, Infineon

France; Dirk Slock, Eurecom

WA3b-4

Session WA4 Advances on Adaptive Filtering and Applications

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

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

WA4-2 Sparsity-Cognizant Subspace Tracking for 8:40 AM Dimensionality Reduction

Ioannis Schizas, Georgios B. Giannakis, University of Minnesota

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

WA4-4 Adaptive Reduced-Rank Beamforming 9:30 AM
Constrained Least Squares Algorithm Based on the
Set-Membership Framework
Lei Wang, Rodrigo C. de Lamare, The University of York
BREAK 9:55 AM

WA4-5 Advances in Identification and Compensation 10:15 AM of Nonlinear Systems by Adaptive Volterra Models

Marcus Zeller, Walter Kellermann, University of ErlangenNuremberg

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

WA4-7 PtNLMS Algorithm Obtained by 11:05 AM Minimization of Mean Square Error Modeled by Exponential Functions

Kevin Wagner, Naval Research Laboratory; Miloš

Doroslovački, The George Washington University

WA4-8 Iterative State Estimation 11:30 AM

Thomas J. Riedl, Andrew C. Singer, University of Illinois
at Urbana-Champaign

Session WA5 Statistical Signal Processing

Chair: Daniel Fuhrmann, Michigan Technological University

WA5-1 Biologically Inspired Coupled Antenna Array 8:15 AM for Direction of Arrival Estimation

Murat Akcakaya, Washington University in St. Louis;

Carlos H. Muravchik, Universidad Nacional de La Plata;

Arye Nehorai, Washington University in St. Louis

WA5-2	Exploiting a Constellation of Narrowband RI Sensors to Detect and Track Moving Targets Chris Kreucher, Integrity Applications Incorporate Webster Stayman, Johns Hopkins University; Ben Integrity Applications Incorporated; Mark Stuff, M. Tech Research Institute	ed; J. Shapo,	WA6a-3	Results to Seconda Signal M	Rick) Liu, Victor DeBrunner, Florida State	
WA5-3 On the Use of Mismatched Wiener Filtering for the Characterization of Non-stationary Characterization and Ispas, RWTH Aachen University; Laura Ber Telecommunications Research Center Vienna; Meik Dörpinghaus, Gerd Ascheid, RWTH Aachen University Thomas Zemen, Telecommunications Research Cent		ernadó, ik ersity;	WA6a-4	Adaptive Simple I Selection	e Sensing and Target Tracking of a Point Target with Online Measurement	9:30 AM
	Vienna		Session '	WA6b	SOC Architectures and	
WA5-4	A Lower Bound on the Estimator Variance	9:30 AM		Applications		
	for the Sparse Linear Model Sebastian Schmutzhard, University of Vienna; Alex		Chair: E. L	Deprettere,	Leiden University	
	Jung, Franz Hlawatsch, Vienna University of Tech Zvika Ben-Haim, Yonina C. Eldar, Technion - Israe Institute of Technology	el	WA6b-1		on Timed (PRET) Machine , Edward A. Lee, University of California,	10:15 AM
XXIA 5 5	BREAK	9:55 AM	WA6b-2	Time-pro	edictable Chip-Multiprocessor Design choebrl, Technical University of Denmark	10:40 AM
WA5-5	Local Oscillator Phases in a MIMO Radar Systems with Distributed Assets		WA6b-3	B Design and Implementation of Real-time Signal Processing Applications on Heterogen Multiprocessor Arrays		
WA5-6				Marylana Developn	luang Wu, Chung-Ching Shen, University o l; Michael Schulte, AMD Research and Adv nent Labs; Tong Zhang, Rensselaer Polytec Shuvra Bhattacharyya, University of Mary	vanced hnical
WA5-7	Changyu Sun, Daniel Fuhrmann, Michigan Technological University WA5-7 Comparison of Nonparametric and Parametric 11:05 AM		WA6b-4 Buildings as Cyber-physical Energy Systems 11:30 AM Yuvraj Agarwal, Thomas Weng, Rajesh Gupta, University			
VV115 /	Time-Varying Methods for Quantifying Phas		of California, San Diego			
	Synchrony Ali Mutlu, Selin Aviyente, Michigan State Universi		Session '	WA7a	Sparse Representations in In Processing	mage
WA5-8	Maximum-Likelihood and Best Invariant Orientation Estimation	11:30 AM	Chair: Shubha Kadambe, Rockwell Collins			
	Ian Clarkson, University of Queensland; Stephen I Defence Science & Technology Organisation; Will Moran, University of Melbourne; Douglas Cochra Arizona State University; Megan Dawson, Univers	iam n,	WA7a-1	Quantiza	ssive Sensing and Vector ation Based Image Compression adambe, Rockwell Collins Inc.	8:15 AM
	Queensland	sity of	WA7a-2		equence Change Detection via Sparse	8:40 AM
Session '					ntations .ingg, Wright State University; Edmund Zel r Research Laboratory; Frederick Garber, I	
Chair: <i>Jun</i>	Zhang, Arizona State University				Vright State University	or ian
WA6a-1	Joint Map Estimation and Localization using Distance Measurements to Landmarks with Unknown Location Andreas Richter, Aalto University	8:15 AM	WA7a-3	Parameterized Deformation Sparse Coding 9:05 A via Tree-Structured Parameter Search Brandon Burdge, Kenneth Kreutz-Delgado, Joseph Murray, University of California, San Diego		9:05 AM
WA6a-2	Distributed Detection over Gaussian Multiple Access Channels with Constant Modulus Sig Cihan Tepedelenlioglu, Sivaraman Dasarathan, An State University	naling	WA7a-4	Sparse I Brandon	d FOCUSS Framework for Learning Dictionaries and Non-squared Error Burdge, Kenneth Kreutz-Delgado, Joseph University of California, San Diego	9:30 AM

Session WA7b MIMO Radar

 ${\it Chair: Benjamin Friedlander, University of California, Santa\ Cruz}$

WA7b-1	High Resolution Parameter Estimation for Ultra-Wideband MIMO Radar	10:15 AM
	Jussi Salmi, Aalto University; Seun Sangodoyin, And Molisch, University of Southern California	dreas
WA7b-2	Quadrature Slow-Time MIMO Radar with Experimental Results Jason Yu, Jeffrey Krolik, Duke University	10:40 AM
WA7b-3	The Applicability of GMTI MIMO Radar Michael Zatman, QinetiQ North America	11:05 AM
WA7b-4	MIMO-VSAR: A High Resolution Radar System for Imaging Moving Scenes Benjamin Friedlander, University of California, San	11:30 AM Diego

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O'Donoughue, Nicholas		Pham, Jonathan	
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Pal, Piya		Pulli, Kari	
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)	Sayed, Ali H	
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Simeone, Osvaldo		Swartzlander, Jr., Earl	
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Singer, Andrew C		Swindlehurst, A. Lee	
Singer, Andrew C		Szoke, Igor	
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Skoglund, Mikael		Takahashi, Yu	
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Thomas, David		Villarreal,
Thomas, Ryan		Vishwana
•		Voelz, Da
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Tisserand, Arnaud		Vorobyov
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