2012 Asilomar Conference Session Schedule

Sunday Afternoon, November 4, 2012

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

Monday Morning, November 5, 2012

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 Graphical Models in Signal Processing (invited)
MA2b Threshold Limits in Array Processing: Performance Analysis and Methods (invited)
MA3b Full-Duplex MIMO Communications (special session)
MA4b Green Radio (invited)
MA5b Voice Coding (invited)
MA6b DSP Architecture for Wireless Communications (invited)
MA7b Brain Dynamics: Improving Spatial and Temporal Resolution
MA8b1 Communication Systems I (Poster)
MA8b2 Array Signal Processing I (Poster)

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

Monday Afternoon, November 5, 2012

1:30 - 5:10 PM AFTERNOON SESSIONS
MP1a Compressive Sensing (invited)
MP1b Signal Processing and Learning in Complex Systems (invited)
MP2a Source Localization in Distributed Sensor Arrays (invited)
MP2b Network Beamforming (invited)
MP3a Large-Scale MIMO Systems (special session)
MP3b Coordinated Multipoint (invited)
MP4a Cognitive Radio Networks (invited)
MP4b Machine-to-Machine Communications and Networks (invited)
MP5a Image and Video Coding (invited)
MP5b Convex Optimization in Image and Video Analysis (invited)
MP6a Computer Arithmetic (invited)
MP6b Reconfigurable Architectures, Many-Core, Multi-Core, and SoC (invited)
MP7a Medical Image Analysis
MP7b Biological Modeling and Signal Analysis (partly invited)
MP8a1 MIMO Communications and Signal Processing I (Poster)
MP8a2 Signal Processing and Adaptive Systems I (Poster)

Monday Evening, November 5, 2012

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.

2012 Asilomar Conference Session Schedule
(continued)

Tuesday Morning, November 6, 2012

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

8:15 - 12:00 PM MORNING SESSIONS
TA1a MIMO in Optical Communications (invited)
TA1b Wireless Video Transmission Systems (invited)
TA2a Game Theory in Communications (invited)
TA2b Coding Theory for the Next-Generation Storage Systems (invited)
TA3a Multiuser and Massive MIMO (invited)
TA3b Compressive Estimation
TA4a Social Networks (invited)
TA4b Signal Processing for Cyber-Security and Privacy in Networks (invited)
TA5a 3D Video Processing (invited)
TA5b Computer Arithmetic Accelerators for Signal Processing
TA6a Low Power I (invited)
TA6b Low Power II (invited)
TA7a Biological Networks and Machine Learning (partly invited)
TA7b Sequence and Genome Analysis (partly invited)
TA8a1 Array Signal Processing II (Poster)
TA8a2 Signal Processing and Adaptive Systems II (Poster)
TA8b1 Communication Systems II (Poster)
TA8b2 MIMO Communications and Signal Processing II (Poster)
TA8b3 Architecture and Implementation of Signal Processing Systems (Poster)

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

Tuesday Afternoon, November 6, 2012

1:30 - 5:35 PM AFTERNOON SESSIONS
TP1a Network Optimization (invited)
TP1b Distributed Signal Processing (invited)
TP2a Consensus Based Algorithms
TP2b Cooperative Adaptation and Learning (invited)
TP3a Information Theoretic Signal Processing
TP3b Underwater Communications (invited)
TP4a Decoding and Detection
TP4b Smart Grid Communications and Networks (invited)
TP5a Design Methodologies and Architectures for Communications
TP5b Interference Alignment (invited)
TP6a Wireless Full Duplex
TP6b Biological Image Analysis
TP7a MIMO Radar and Waveform Design
TP7b Speech Processing and Speech Recognition (invited)
TP8a1 Relay Networks (Poster)
TP8a2 Sensor and Interference Networks (Poster)
TP8a3 Design Methodology and Computer Arithmetic (Poster)
TP8b1 Speech, Image, and Video Processing (Poster)
TP8b2 Biomedical Signal and Image Processing (Poster)

Tuesday Evening Open Evening — Enjoy the Monterey Peninsula

2012 Asilomar Conference Session Schedule
(continued)

Wednesday Morning, November 7, 2012

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 Feedback and Cooperation (invited)
WA1b Security
WA2a Distributed Algorithms for Wireless Networks
WA2b Topics in Wireless Networking
WA3a Adaptive Signal Processing
WA3b Compressive Signal Processing
WA4a Interference and Cognition
WA4b OFDM(A)
WA5a Applications of Video Processing
WA5b Image and Video Classification
WA6a CSI Feedback
WA6b Beamforming and Relaying (invited)
WA7a Applications of Sensor Array Processing
WA7b DOA Estimation
WA8 Tutorial – Coding Methods for Emerging Storage Systems

12:00 - 1:00 PM Lunch — Meal tickets may be purchased at registration desk. This meal is not included in the registration.

WA8 - TUTORIAL

Coding Methods for Emerging Storage Systems – Prof. Lara Dolecek and Prof. Anxiao (Andrew) Jiang

Abstract - Recent surge in large-scale data storage systems has created an immediate need to develop new coding methodologies attuned to the physical properties of the emerging non-volatile memory technologies. In this tutorial, we will first discuss new channel models for these technologies and demonstrate why the existing coding methods are increasingly inadequate. We will then survey recently proposed error correcting codes, modulation schemes and rewriting codes, all designed to meet the physical characteristics of the non-volatile memories while ensuring maximum lifetime and reliability. The tutorial will conclude with a discussion of several open problems in this area.

Bio: Prof. Lara Dolecek is an assistant professor in the Electrical Engineering Department at UCLA where she heads the Laboratory for Robust Information Systems. She received NSF CAREER Award in 2012, Hellman Fellow award in 2011, and David J. Sakrison Award from the EECS Department at UC Berkeley in 2007. Prof. Anxiao (Andrew) Jiang is an associate professor in Computer Science and Engineering Department of TAMU. He received NSF CAREER Award in 2008 and the 2009 IEEE Communications Society Best Paper Award in Signal Processing and Coding for Data Storage.

Student Paper Contest

Merrill Hall - Sunday, November 4, 2012, 4:00 - 6:30 PM
(Listed in category/track order)

Track A
"Unicasting on the S-Graph"
Satyanaranaya Vuppala and Giuseppe Abreu

Track B
"Volume of Ball and Hamming-type Bounds for Stiefel Manifold with Euclidean Distance"
Renaud-Alexandre Pitaval and Olav Tirkkonen

Track C
"Distributed Gram-Schmidt Orthogonalization Based on Dynamic Consensus"
Ondrej Slučiak, Hana Straková, Markus Rupp, and Wilfried N. Gansterer

Track D
"Identifying Multiple Infection Sources in a Network"
Wuqiong Luo and Wee Peng Tay

"The Gaussian CEO Problem for a Scalar Source with Memory: A Necessary Condition"
Jie Chen, Feng Jiang and A. Lee Swindlehurst

Track E
"Transmit Beamspace Design for Direction Finding in Colocated MIMO Radar with Arbitrary Receive Array and Even Number of Waveforms"
Arash Khabbazibasmenj, Sergiy A. Vorobyov, Aboulnasr Hassanien, and Matthew W. Morency

Track F
"Screening Fundus Images for Diabetic Retinopathy"
Sohini Roychowdhury, Dara Koozekanani, and Keshab K. Parhi

Track G
"A Low-Power Dual-Path Floating-Point Fused Add-Subtract Unit"
Jae Hong Min, Jongwook Sohn, and Earl E. Swartzlander, Jr.

Track H
"Joint Tracking of Clean Speech and Noise Using HMMs and Particle Filters for Robust Speech Recognition"
Aleem Mushtaq and Chin-Hui Lee

2012 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 5, 2012

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

1. Welcome from the General Chairperson

Prof. Miloš Doroslovački
The George Washington University

2. Session MA1a Distinguished Lecture for the 2012 Asilomar Conference

Compressive Sensing: 8 Years After

Prof. Richard G. Baraniuk
Victor E. Cameron Professor
Rice University

Abstract
Sensing and imaging systems are under increasing pressure to accommodate ever larger and higher-dimensional data sets; ever faster capture, sampling, and processing rates; ever lower power consumption; communication over ever more difficult channels; and radically new sensing modalities. Since its discovery in 2004, compressive sensing (CS) has stimulated a re-thinking of sensor and signal processing system design. In CS, analog signals are digitized and processed not via uniform sampling but via measurements using more general, even random, test functions. In contrast with conventional wisdom, the new theory asserts that one can combine "sub-Nyquist-rate sampling" with large-scale optimization for efficient and accurate signal acquisition when the signal has a sparse structure. In this talk, we will review the progress in field over the last eight years, with a special emphasis on the pros and cons of the technique.

Biography
Richard G. Baraniuk is the Victor E. Cameron Professor of Electrical and Computer Engineering at Rice University. His research interests lie in new theory, algorithms, and hardware for sensing, signal processing, and machine learning. He is a Fellow of the IEEE and AAAS and has received national young investigator awards from the US NSF and ONR, the Rosenbaum Fellowship from the Isaac Newton Institute of Cambridge University, the ECE Young Alumni Achievement Award from the University of Illinois, and the Wavelet Pioneer and Compressive Sampling Pioneer Awards from SPIE. His work on the Rice single-pixel compressive camera has been widely reported in the popular press and was selected by MIT Technology Review as a TR10 Top 10 Emerging Technology for 2007. For his teaching and education projects, including Connexions (cnx.org), he has received the C. Holmes MacDonald National Outstanding Teaching Award from Eta Kappa Nu, Tech Museum of Innovation Laureate Award, the Internet Pioneer Award from the Berkman Center for Internet Society at Harvard Law School, the World Technology Award for Education, the IEEE-SPS Education Award, and the WISE Education Award.