

MING HSIEH DEPARTMENT OF
ELECTRICAL ENGINEERING

RESEARCH FESTIVAL

FRIDAY, APRIL 29, 2011

9:15AM - 10:00AM

WELCOME CEREMONY & KEYNOTE TALK BY:
JOHN BROOKS SLAUGHTER - "CELEBRATING RESEARCH"

10:00AM - 12:00PM

POSTER SESSION #1 & GRADUATING PH.D. PRESENTATIONS

12:00PM - 1:00PM

LUNCH

1:00PM - 3:00PM

POSTER SESSION #2 & GRADUATING PH.D. PRESENTATIONS

3:00PM - 4:00PM
RECEPTION

4:00PM - 4:30PM
AWARDS CEREMONY

4:30PM - 5:30PM

PANEL SESSION: THE BIRTH OF AEROSPACE IN SOUTHERN
CALIFORNIA: A CONVERSATION ABOUT ENGINEERING, HISTORY & ART



hosted by the Ming Hsieh Institute

Welcome Ceremony & Keynote Talk by John Brooks Slaughter - Celebrating Research
9:15am – 10:00am - Gerontology Auditorium



JOHN BROOKS SLAUGHTER, Ph.D., P.E.
Professor of Education and Engineering
University of Southern California

A former director of the National Science Foundation, chancellor of the University of Maryland, College Park, and president of Occidental College, Dr. Slaughter has served for many years as a leader in the education, engineering and scientific communities. He is well known for his commitment to increasing diversity in higher education with a special focus on the STEM disciplines.

Graduating Ph.D. Presentations
10:00am - 12:00pm - Gerontology Auditorium

Signal Processing

10:00am	Matthew P. Black	You made me do it: Classification of Blame in Married Couples' Interactions - A Case Study in Behavioral Signal Processing
10:10am	SangHyun Chang	Human and Environment Sensing via UWB Radar
10:20am	Yu-Teng Chang	Modular Graph Partitioning: Statistical Null Models and Applications
10:30am	Seongho Steve Cho	Block-Based Image Steganalysis: Algorithm and Performance Evaluation
10:40am	Zihong Fan	Interactive Navigation of Large Datasets, Random Retrieval, Tiling and Compression
10:50am	Prasanta Ghosh	A computational framework for exploring the role of speech production in speech recognition
11:00am	Athanasios A. Katsamanis	Multiple Instance Learning for Behavioral Signal Processing
11:10am	Woo-Shik Kim	3-D Video Coding System with Enhanced Rendered View Quality
11:20am	Sunil Kumar	Transform based Graph Signal Processing (GSP) Methods
11:30am	Cheng-Hao Kuo	Multi-Person Tracking by On-Line Learned Discriminative Appearance Models
11:40am	Emily Kaplan Mower	Emotions in Engineering: Methods for the Interpretation of Ambiguous Emotional Content
11:50am	Michael Ian Proctor	An MRI Study of Human Beatboxing

Applied Electromagnetics

1.	Esin Sozer	Magnesium based photocathodes for pulsed power switching applications
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Bio-Electronics and Bio-Optics

2.	Ben McIntosh	A Visual Simulator and Intraocular Camera for Retinal Prostheses
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Computer Architecture

3.	Lizhong Chen	Critical Bubble Scheme: An Efficient Implementation of Globally-aware Network Flow Control
4.	Woojin Choi	Unified Signatures for Improving Performance in Transactional Memory
5.	Waleed Dweik	Reliability Aware Exceptions for Software Directed Fault Handling
6.	Yuho Jin	Communication-Aware Globally-Coordinated On-Chip Networks
7.	Mehrtash Manoochehri	CPPC: Correctable Parity Protected Cache
8.	Ruisheng Wang	Thread Criticality Support in On-Chip Networks
9.	Bardia Zandian	WearMon: Reliability Monitoring Using Adaptive Critical Path Testing

Controls

10.	Afshin Abadi	Intelligent Assist Driving in a Megacity
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Integrated Circuits and Systems

11.	Firooz Aflatouni	RF Assisted Phase Control of Semiconductor Lasers
12.	SangHyun Chang	Human Feature Detection Radar Authors: Ta-Shun Chu, Jonathan Roderick, SangHyun Chang, Chenliang Du, Timothy Mercer
13.	Behnam Analui	0-6GHz Software-Defined Receiver

Nano-Science, Nano-Technology & MEMS

14.	Mehmet Aykol	Electromechanical Resonance Behavior of Suspended Carbon Nanotubes under High Bias Voltages
15.	Chun-Yung Chi	Large area GaAs NW on Si
16.	Chih-Chieh Hsu	A Biomimetic Fabricated Carbon Nanotube Synapse for Prosthetic Applications
17.	Anderson Lin	Real-Time Label-Free Detection of DNA Synthesis by FBAR-Based Mass Sensing
18.	Yen Ting Lin	InGaN Light Emitting Diodes Grown on GaN Nanostructures
19.	Chuan Wang	Macroelectronic Integrated Circuits Using High-Performance Separated Carbon Nanotube Thin-Film Transistors
20.	Jialu Zhang	Air-Stable n-Type Separated Carbon Nanotube Thin-Film Transistors and Its Application in CMOS Logic Circuits

Networks

21.	Majed A. Alresaini	Backpressure With Adaptive Redundancy (BWAR)
22.	Dilip Bethanabhotla	Optimizing video streaming experience for a user in a cellular network
23.	Hao Feng	Diversity Backpressure Algorithm with Mutual Information Accumulation
24.	Yi Gai	Online Learning Algorithms for Network Optimization with Unknown Variables
25.	Harsha Honnappa	The γ /G/1 Queue
26.	Dileep M. Kalathil	Incentive Mechanisms for Spectrum Sharing - Contracts for Cooperation
27.	Hoang Le	A Memory-Efficient and Modular Approach for Dictionary-Based String Matching on FPGAs
28.	Shuping Peter Liu	Machine Learning Based Automatic Patient Monitoring and Prioritizing by Body Sensor Network Systems
29.	Maheswaran Sathiamoorthy	Distributed Storage Codes Reduce Latency in Vehicular Networks
30.	Kyuhoo Son	Towards Green Cellular Networks
31.	Wenyuan Tang	Network Game Theory
32.	Yi Wang	Markov-optimal sensing policy for user state estimation in mobile devices
33.	Yi-Hua Edward Yang	High Performance IP Lookup on FPGA with Combined Length-Infix Pipelined Search

Photonics

34.	Thanh Le	Integration of High Sensitivity Whispering Gallery Mode Resonators Sensing System: a Practical Device
35.	Yoo Seung Lee	Hybrid Si-LiNbO ₃ Micro-Ring Electro-Optically Tunable Resonators for Active Photonic Devices
36.	Yun Chu Li	Novel Coupling Modulation Design Using Ring-Resonator-Based Light Drop Structure
37.	Chenxi Lin	Optical Modelling of Silicon Nanowire Arrays for Photovoltaic Applications
38.	Jing Ma	Applications of Optical Forces in Tunable Microphotonic Devices
39.	Hari Mahalingam	Solgel based titania films for high index optical waveguides
40.	Yan Yan	On-Chip Mirrorless-Oscillation in Nonlinear Silicon Waveguides Using Non-degenerate Four-Wave Mixing
41.	Omer Faruk Yilmaz	Tunable Optical Tapped Delay Lines using Wavelength Conversion and Chromatic Dispersion based Delays

VLSI/CAD

42.	Prasaneet Das	Generating vectors for post silicon delay characterization
43.	Jonathan R. Joshi	Modeling Biological Neural Compartment using Custom Silicon Circuits
44.	Mohammad Mirza-Aghatabar	Redundancy and Partitioning for Yield/Area Maximization of SoC in Nano-Technologies with High Defect Densities

Graduating Ph.D. Presentations
1:00pm - 3:00pm - Gerontology Auditorium

Communications

1:00pm	Marjan Baghaie	Cooperative Communication in Wireless Networks
1:10pm	Ozgun Bursalioglu	Joint Source-Channel Coding for Deep Space Image Transmission Using Rateless Codes
1:20pm	Hoon Huh	Large System Analysis of Multi-cell MIMO Downlink: Fairness Scheduling and Inter-cell Cooperation

Networks

1:30pm	Joon Ahn	Optimizing Data Dissemination in Wireless Networks
1:40pm	Chih-ping Li	Delay and Power-Optimal Control in Multi-Class Queueing Systems
1:50pm	Yi Wang	Energy Efficient Mobile Sensing: Principles and Architectures

Controls

2:00pm	Yun Wang	Dynamic Variable Speed Limit Control: Design, Analysis and Benefit
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Integrated Circuits and Systems

2:10pm	Firooz Aflatouni	RF Assisted Phase Control of Semiconductor Lasers
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Photonics

2:20pm	Yoo Seung Lee	Active Integrated Photonic Devices in Single Crystal LiNbO ₃ Micro-Platelets and Hybrid Si- LiNbO ₃ Platform (Presentation)
2:30pm	Lawrence Simpson Stewart	In-Plane Thermally Tuned Silicon-on-Insulator Wavelength Selective Reflector

VLSI/CAD

2:40pm	Doochul Shin	Circuit Designing and Synthesis Techniques for Error Tolerance Applications
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Computer Architecture

2:50pm	Young Hoon Kang	Fault-Tolerant Flow Control in On-Chip Networks
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Poster Session #2**1:00pm - 3:00pm - Gerontology Patio****Communications**

1.	Sunav Choudhary	A Sparse Approximation for the Under Water Acoustic Channel
2.	Chiranjib Choudhuri	Information vs. Estimation
3.	Hassan Ghozlan	Interference Focusing for Mitigating Cross-Phase Modulation in a Simplified Optical Fiber Model
4.	Ming Yue Ji	Interference Alignment, Algorithms and Application to Wireless Cellular Networks
5.	Ching-Yi Lai	Entanglement-assisted Quantum Error-correcting Codes
6.	Dimitris S. Papailiopoulos	Interference Alignment as a Rank Constrained Rank Minimization
7.	Kristen Leigh Pudenz	Software Verification via Quantum Learning and Testing
8.	Karthikeyan Shanmugam	Caching in Video aware wireless networks
9.	Jun Yang Shen	Passive Target Positioning Using TOA Measurements
10.	Asher Voskoboinik	Frequency Domain Multiple Tone Interrogation for Fast Brillouin Distributed Optical Fiber Sensors
11.	Srinivas Yerramalli	Partial FFT Demodulation: A Detection Method for Doppler Distorted OFDM Systems
12.	Yicong Zheng	Geometric Manipulation of Ensembles of Atoms on Atom Chip for Quantum Computation
13.	Daphney-Stavroula Zois	Optimal Sensor Selection for Multihypothesis Physical Activity Detection in Wireless Body Area Networks

Signal Processing

14.	Sergul Aydore	Partial Phase Locking Value for Multidimensional Circular Gaussian Model
15.	Chitresh Bhushan	Surface Constrained Volumetric Registration of Diffusion Tensor Images
16.	Daniel Bone	Intoxicated Speech Detection Using Hierarchical Features and Iterative Speaker Normalization
17.	Zihong Fan	Interactive fast random access, retrieval and navigation of large datasets
18.	Prasanta Ghosh	Processing speech signal using auditory-like filterbank provides least uncertainty about articulatory gestures
19.	James Gibson	Classification of Couples' Behavioral Interaction using Diverse Density Support Vector Machines
20.	Dian Gong	Tensor Voting for Robust Manifold Learning with both Inlier and Outlier Noise
21.	Jangwon Kim	An Exploratory Study of Manifolds of Emotional Speech
22.	Mohammad Korjani	Perceptual Computing: Aiding People in Making Subjective Judgments

23.	Sung Won Lee	Joint Optimization of Transport Cost and Reconstruction for Spatially-Localized Compressed Sensing in Multi-Hop Sensor Networks
24.	Ming Li	The KNOWME network: body sensing, processing and modeling methods in metabolic health monitoring
25.	Yanguang Lin	Kinetic Parameters Estimation for Heterogeneous Tumor Model
26.	Yenting Greg Lin	Transmission Traveltime Tomography For High Contrast Velocity Line Structures
27.	Tsung-Jung Liu	A Multi-metric Fusion Approach to Visual Quality Assessment
28.	Sean Raymond McPherson	Detecting Low-Rate Periodic Events in Internet Traffic Using Renewal Theory
29.	Angeliki Metallinou	Tracking Changes in Continuous Emotion States using Body Language and Prosodic Cues
30.	Nicolo Michelusi	Hybrid Sparse/Diffuse UWB Channel Estimation
31.	Mohammad Reza Rajati	Solving Zadeh's Challenge Problems in Computing with Words
32.	Vikram N. Ramanarayanan	Prosodic Variation within Speech Planning and Execution – Insights from Real-Time MRI
33.	Benjamin Louis Raskob	Stereo Vision Using Disparity Phase Interference
34.	Samir D. Sharma	Accelerated Water-Fat MRI
35.	Travis B. Smith	Piecewise Linear Deblurring Improves Resolution in Spiral Magnetic Resonance Imaging
36.	Qun Feng Tan	Enhanced Sparse Imputation Techniques for a Robust Speech Recognition Front-End
37.	David S. Wheland	Structural Analysis of the Cerebral Cortex Using Blind Source Separation
38.	Bo Xiao	Multimodal Turn Taking Analysis on Human Dyadic Conversation
49.	Ali Yousefi	Supervised Learning in a Single Layer Dynamic Synapses Neural Network
40.	Wentao Zhu	Longitudinal Registration of Liver PET Scans Using Four Phase CT
41.	Yinghua Zhu	Dynamic 3D Visualization of Vocal Tract Shaping During Speech

Undergraduate Research Presentations

1.	Michael Caselden	Gracie Gets Roxy: An interactive demonstration of hardware hacking Presenting 10am-12pm
2.	Soyoung Kang & Rittik Shah	Mouse Blink Stimulator Presenting 10am-12pm & 1pm-3pm

Best Paper Nominees

Hamed Abrishami	Harsha Honnappa	Dimitri Papailiopoulos
Marjan Baghaie	Dileep Kalathil	Jinho Suh
Matt Black	Young Hoon Kang	QunFeng Tan
Yoon-Sik Cho	Cheng-Hao Kuo	Rahul Uргаonkar
Chiranjib Choudhuri	Hoang Le	Yi Wang
Joyita Dutta	Yoo Seung Lee	Chaun Wang
Zihong Fan	Ming Li	Ozgun Yilmaz
Yi Gai	Anderson Lin	Bardi Zanadian
Prasanta Ghosh	Chenxi Lin	Jialu Zhang
Dian Gong	Mehrtash Mannochehri	
	Osonde Osoba	

Panel Session

4:30pm - 5:30pm – Gerontology Auditorium

The Birth of Aerospace in Southern California: a conversation about Engineering, History and Art

For the last century Southern California has provided the primary home for the U.S. aerospace industry. This panel considers some of the consequences for USC, the engineering profession, and for Southern California itself, as aerospace influence ranged from art and architecture to pop culture.

Panelists:

Ron Blackwelder, Aerospace & Mechanical Engineering, USC
Robert McEliece, Allen E. Puckett Professor, Electrical Engineering, CalTech
Ken Richardson, former President & COO, Hughes Aircraft Company
Laif Swanson, Jet Propulsion Laboratory
Jason Weems, History of Art, UC Riverside
Peter Westwick, History, USC

Organized by:

Bill Deverell, Huntington-USC Institute on California and the West
Urbashi Mitra, Ming Hsieh Department of Electrical Engineering
sponsored by the USC Center for Excellence in Research, the Ming Hsieh Institute and the Viterbi School of Engineering