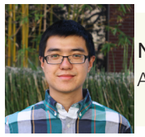
MING HSIEH INSTITUTE
PH.D. SCHOLARS

Shermin Arab
Advisor: Steve Cronin

Kunal Datta
Advisor: Hossein Hashemi



Ningfeng Huang
Advisor: Michelle Povinelli

Vasilis Ntranos
Advisor: Guisseppe Caire

Yan Yan
Advisor: Allan Wilner

Each year, a select group of Ph.D. students from the EE Department are selected as Ming Hsieh Institute Scholars. These students are carefully chosen by a faculty committee on the basis of their research accomplishments and desire for an academic career.

2014-2015 Scholar Highlights

Shermin Arab gave a talk at Columbia University and will begin at Oxford University in 2016 as a Postdoc

Scholar **Vasilis Ntranos** will begin his Postdoc position in the fall of 2015 at UC Berkley

Ningfeng Huang delivered a talk at the 2015 OSA Meeting that took place in Canada.

Using funds from MHI, **the 2014-2015 Scholars** developed the Entrepreneurship Seminar Series for PhD Students. This seminar series exposed Ph.D. Students to the entrepreneurial side of EE and covered such topics as Intellectual Property and Small Business Ownership.

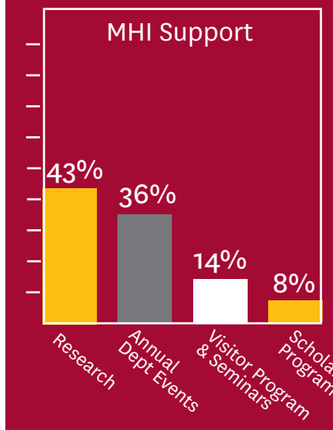
DISTINGUISHED VISITORS PROGRAM

Dr. Zhisheng Niu *Tsinghua University (Principal Investigator: Bhaskar Krishnamachari and Andreas Molisch) Fall 2014.* MHI welcomed Zhisheng Niu as its first Distinguished Visiting Fellow. Dr. Niu, from Tsinghua University located in Beijing, is a Professor of EE, Deputy Dean of the School of Information Science and Technology and is the Director of Tsinghua-Hitachi Joint Lab on Environmental Harmonious ICT. During his three-week visit, he gave three seminars and collaborated regularly with USC Faculty and Ph.D. students.

Dr. Georgios B. Giannakis *University of Minnesota (Principal Investigator: Richard Leahy) Spring 2015* Georgios B Giannakis is a Professor of EE at the University of Minnesota where he holds the ADC Chair in Wireless Telecommunications and serves as Director of the Digital Technology Center. He has broad research interests in signal processing, digital communications and networks. He visited USC in March of 2015 to explore mutual research interests in big data analytics, machine learning and stochastic optimization with applications to the analysis and optimization of communications, power distribution, social and brain networks. While visiting, Dr. Giannakis held 2 seminar talks, one on Learning Tools for Big Data Analytics and another on Comprehensive State Inference for Cognitive Radio.

ABOUT THE MING HSIEH INSTITUTE

The Ming Hsieh Institute (MHI) is a research institute focused on enhancing academic and research programs within the Ming Hsieh Department of Electrical Engineering. Through supporting innovative activities and hosting top research visitors, MHI positions the department at the forefront of emerging fields within electrical engineering.



- 43% **Research:** Supported research projects and workshops initiated by EE faculty
- 36% **Annual Department Events:** Developed & organized by MHI to encourage collaboration of faculty, students, and alumni
- 14% **Visitor Program & Seminars:** Encouraged leading researchers around the world to visit USC, give talks, and work with EE faculty and students
- 8% **Scholar Program:** Award, travel funding, workshop and event support

MHI Leadership
Shri Narayanan, Director
Hossein Hashemi, Co-Director
Bhaskar Krishnamachari, Co-Director
Elise Herrera-Green, Business Administrator

2014-2015 Faculty Advisory Council
Murali Annavaram
Stephen Cronin
Mahta Moghaddam
Krishna Nayak
Antonio Ortega
Massoud Pedram

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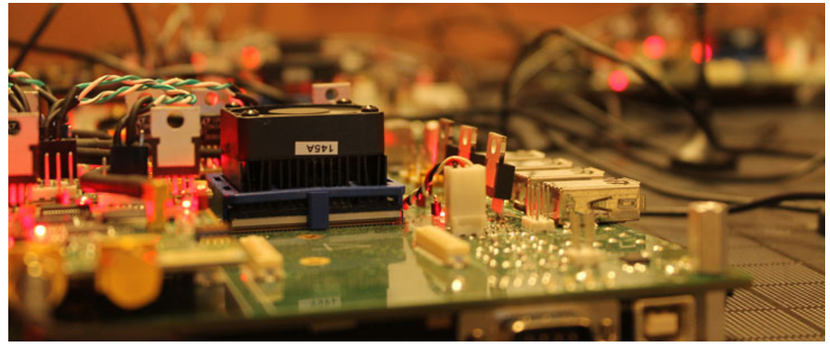

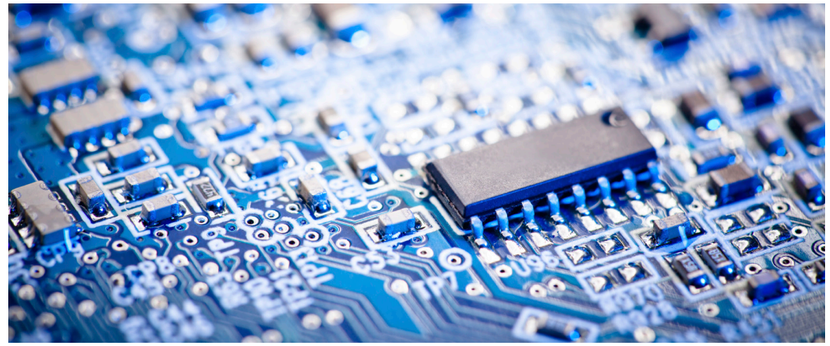

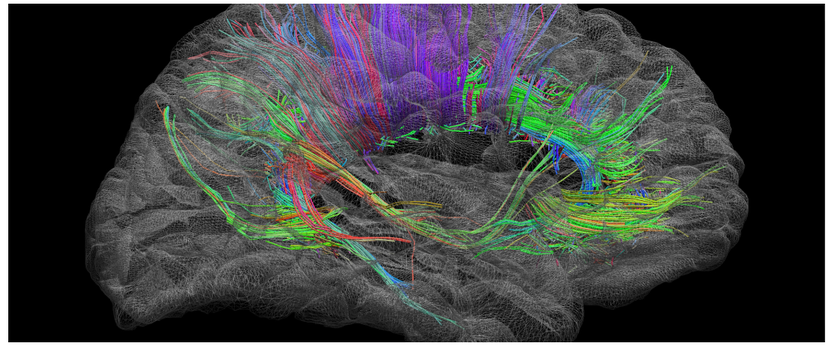

Ming Hsieh Institute
intelligent technologies to empower mankind

2014 2015 ANNUAL REPORT

EVENTS

New Ph.D. Student Welcome Dinner – October 14, 2014, Bacaro LA - Annually hosted with EE Student Services, this evening out encourages our scholars to become a resource for new students to discover more about the Ming Hsieh Department of EE.

8th Naming Anniversary Event – October 23, 2014, EEB 132
The year 2014 marked the 8th Naming Anniversary of the Ming Hsieh Department of Electrical Engineering. MHI celebrated this special occasion with a reception honoring donor, Ming Hsieh.

5th Annual EE Research Festival – November 7, 2014, Gerontology Patio & EEB 132 - A day-long event that welcomes the entire USC Viterbi community, alumni and engineering industry representatives. Over 100 undergraduate and graduate students presented their research through poster sessions, demos and oral presentations at this years festival.

Ming Hsieh Department of EE Retreat – April 11 – April 12, 2015, Hyatt Regency Newport Beach - This retreat brought faculty & Ph.D. students together to discuss the future of Electrical Engineering at USC and beyond. A total of 160 guests attended this Department Retreat.

EE Ph.D. Commencement Luncheon – May 14, 2015, EEB 132 Seminar Room - EE Ph.D. graduates from the class of 2015 were invited to celebrate their accomplishments. Advisors spoke to guests about each of their students' time at the Ming Hsieh Department of EE.

SEMINARS

Pictured above from left: Professor Robert (Bob) Hellwarth and Professor Jack Feinberg at the Electrical Engineering Pioneer Series held on March 11, 2015.

Electrical Engineering Pioneer Series Spring 2014-Present- Developed in the Spring of 2014, by the Ming Hsieh Institute, the EE Pioneer Series focuses its attention on the stories and journeys of the many faculty who have been a crucial part of the growth and evolution of the EE Department over the last several decades. This year's honorees included Professors John Choma (11/21/2014), Melvin Breuer (10/15/2014), Solomon Golomb (11/7/2014), Robert Hellwarth (3/11/2015), and Jerry Mendel (5/5/2015).

CommNets Seminar Series - (Principal Investigator: Rahul Jain) Spring 2011-Present. CommNets is a weekly seminar that brings together faculty and students in communications, networks and controls. One of the primary goals of the series is to expose students in various areas to the work taking place in other areas of engineering. The seminars, open to all, have been very well-attended over the course of the last year, and featured 19 speakers in the 2014-2015 academic year from Universities across the United States including UCLA, Stanford, UC Berkeley, University of Maryland, and the University of Illinois.

Distinguished Speaker Series on Innovation in Informatics to Address Smart Energy Challenges- (Principal Investigators: Viktor Prasanna and Marc Frincu) Fall 2014 - Present The Energy Informatics series is a new initiative to promote knowledge sharing in the interdisciplinary field of energy informatics, bringing together information technology and energy management. This series was organized to learn about the cutting edge work in the space that will help the USC Center of Energy Informatics, and to create opportunities to build collaborations and identify funding opportunities.

Medical Imaging Seminar Series - (Principal Investigator: Krishna Nayak) Spring 2012 - Present The MHI-Sponsored Medical Imaging Seminar Series was a success in Fall 2014, it's third year. Three speakers were hosted in the Fall of 2014; Derya Dol Gungor from Ohio State University, Kelvin Chow, and Pablo Prado, President of One Resonance LLC.

Nano Material and Device Seminar Series (Principal Investigators: Steve Cronin, Chongwu Zhou, Wei Wu, and Han Wang) Spring 2015 - Present
The Nano Material and Device Seminar Series aimed to expose students to cutting-edge research in the field of nanotechnology. Speakers from academia were invited to share their most recent achievements in the nanotech area. This seminar series provided a great opportunity to bring together students, familiarize undergraduate students with state-of-the-art research, and provide industry links to students. This seminar hosted 8 speakers from local Universities, including, California Institute of Technology, UC Santa Barbara, UC Riverside, and Stanford University.

Integrated Systems Seminar Series - (Principal Investigator: Hossein Hashemi) Spring 2011-Present. This series targeted academia and industry speakers in integrated systems, circuits, and devices, with a wide range of applications including communication, computation, networking, sensing and imaging. The Integrated Systems Seminar Series hosted a total of 16 invited speakers during the 2014-15 academic calendar. These prominent speakers from academia and industry spanned various research disciplines including integrated circuits, devices and technologies.

RESEARCH

Single Photon Source Testbed for Quantum Computing and Quantum Information Processing (Organizer: Stephen Cronin) Fall 2013 – Fall 2015
The single photon source testbed for quantum computing and quantum information processing aimed to build an electrically-driven single photon source testbed at USC. Results from the research completed were presented at the 15th International Conference on the Science & Application of Nanotubes, Texas A&M University and at the 225th Electrochemical Society Meeting.

Studies on the Effectiveness of Cellular Technologies in Coping with the Spectrum Crunch (Organizer: A. Molisch) Spring 2015
With growing user data demand and limited available spectrum, there is an impending spectrum crunch and need to improve spectral efficiency. The work addressed in this thematic proposal asked the question of whether the spectrum crunch can be overcome by using different schemes.

USC Workshop on Future Directions in Controls, Optimization and Networks (Organizer: Petros Ioannou, Rahul Jain, Urbashi Mitra, and Ashutosh Nayyar) December 18, 2014
This Workshop was designed to draw in the best researchers in Controls, Optimization, and Networks. In a daylong series of presentations these brilliant minds met and discussed the issues surrounding Controls, Optimization and Networks and how to specifically define the direction that the field of Controls is going, in order to meet the new challenges that may appear.