

## THE NEW EE DEPARTMENT WEBSITE

The Ming Hsieh Institute took the lead in the funding and development of the new department website, which came online in Fall of 2016. This major project included months of research, planning, editing, writing, and design. With the previous website built nearly 10 years ago, it marked a major step forward and greatly improved the department's image and communication abilities.

During the research phase, our team met with students, faculty, and staff at the department and school levels and compared the strategies of various peer institution websites. The findings that MHI gained were presented to Viterbi leadership. As the school prepares to roll out a new website of their own in 2017, insights from our research, interviews, and focus groups has helped inform them of how to move forward with messaging and design.



## DISTINGUISHED VISITORS PROGRAM

In 2015-2016 MHI hosted two distinguished faculty on campus.



**Dr. K.J. Ray Liu**  
 University of Maryland

(Principal Investigator: Shrikanth Narayanan and C.C. Jay Kuo)

Dr. K. J. Ray Liu was named a Distinguished Scholar/Teacher at the University of Maryland, College Park, in 2007, where he is a Christine Kim Eminent Professor of Information Technology. He leads the Maryland Signals and Information Group conducting research encompassing broad areas of information and communications technology. During his visit he gave three lectures on Time-Reversal and its impact on the future of 5G and the Internet of Things, Learning with Strategic Decision Making in Social Media, and Becoming an Academic Entrepreneur. He also met with students and visited labs in the department.



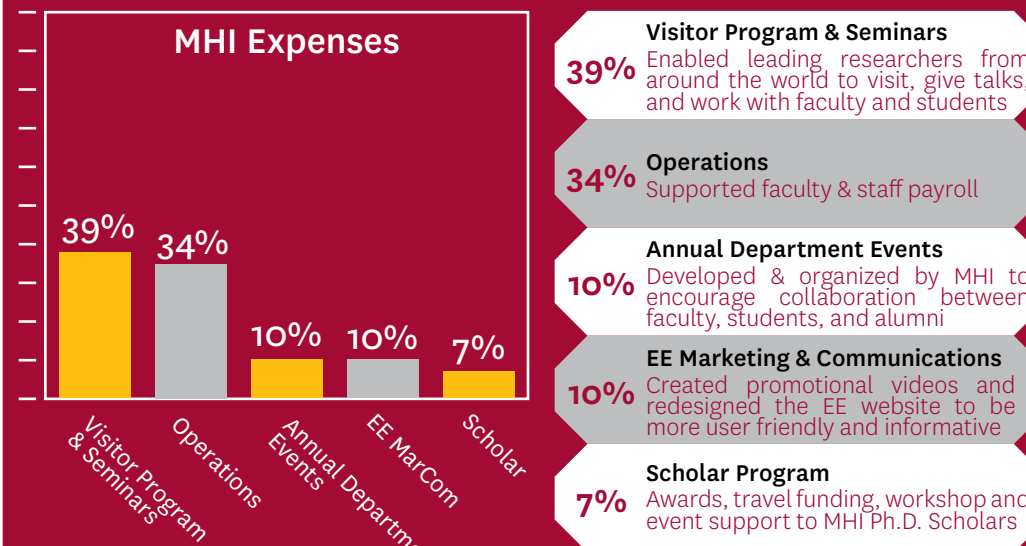
**Dr. Bijan Pesaran**  
 New York University

(Principal Investigator: Maryam Shanechi)

Bijan Pesaran is Associate Professor of Neural Science at the Center for Neural Science at New York University. An expert in neural dynamics and decision-making, he is also a member of NYU's Center for Neuroeconomics. His lab has developed large-scale neurophysiological circuit mapping capabilities to understand how behavior emerges from neuronal activity across interacting brain circuits. Dr. Pesaran's talk, titled "How do large networks of neurons make decisions?", addressed new insights into how the human brain makes decisions.

## ABOUT THE MING HSIEH INSTITUTE

The Ming Hsieh Institute (MHI) is focused on enhancing academic and research programs within the Ming Hsieh Department of Electrical Engineering. Through supporting innovative activities and hosting leading researchers from around the globe, MHI helps position the department at the forefront of emerging fields within electrical engineering.



- 39% Visitor Program & Seminars**  
 Enabled leading researchers from around the world to visit, give talks, and work with faculty and students
- 34% Operations**  
 Supported faculty & staff payroll
- 10% Annual Department Events**  
 Developed & organized by MHI to encourage collaboration between faculty, students, and alumni
- 10% EE Marketing & Communications**  
 Created promotional videos and redesigned the EE website to be more user friendly and informative
- 7% Scholar Program**  
 Awards, travel funding, workshop and event support to MHI Ph.D. Scholars

### MHI Leadership

- Shri Narayanan, Director
- Hossein Hashemi, Co-Director
- Bhaskar Krishnamachari, Co-Director
- Cathy Huang, Business Officer
- Benjamin Paul, Communications Manager

### 2015-2016 Faculty Advisory Council

- Salman Avestimehr
- Rehan Kapadia
- Mahta Moghaddam
- Krishna Nayak
- Antonio Ortega

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# Ming Hsieh Institute

*intelligent technologies to empower mankind*



## EVENTS



### New PhD Student Welcome Dinner October 22, 2015,

Bacaro LA - Annually hosted with EE Student Services. MHI Scholars met with new PhD students to provide mentorship and resources.

### 6th Annual EE Research Festival November 7, 2015

A day-long event that welcomes the entire USC Viterbi community, alumni and engineering industry representatives. At last year's festival, over 100 undergraduate and graduate students presented their research through poster sessions, demos and oral presentations.



### Holiday Open House December 21, 2015

What better way to enjoy the holidays than at the MHI Lounge? Music, food, drinks, singing - and our MHI Director, Shri as bartender!



### EE PhD Commencement Luncheon May 12, 2016

EE Ph.D. graduates from the class of 2015 were invited to celebrate their accomplishments. Advisors spoke about each of their students' time at the Ming Hsieh Department of EE.



## WORKSHOPS

### Molecular & Biological System Workshop

(Organizer: Urbashi Mitra) Fall 2015

This 2-day workshop brought together scientists and engineers conducting research at the interface of biology, physics, chemistry, neuroscience, information theory, control, communications, computing, and signal processing. Speakers from 15 universities across the country came together to create an interdisciplinary forum for researchers to share ideas and enable further technical innovation.

### Next-Generation Internet of Things

(Organizer: Bhaskar Krishnamachari, Valerie Issarny) Spring 2016

The Ming Hsieh Institute co-organized this 2-day workshop in collaboration with Inria@SiliconValley. The goal was to bring together a select group of researchers and practitioners from academia, industry, and government across the US and Europe. The group identified research challenges and new directions that can help shape the next-generation of Internet of Things technology. A final report that identifies major challenges and directions was put out by the group in July.

## SEMINARS

### MHI CommNets and Systems Seminar Series

This series 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 to the work taking place in other areas of engineering.

2015-16 Number of speakers: 29

2015-16 Budget: \$10,000

### MHI Integrated Systems Seminar Series

This series hosts researchers to cover topics related to integrated circuits, systems, and related devices in the context of diverse applications including communication, computation, networking, sensing and imaging. Speakers from academia and industry covered topics related to brain-inspired integrated circuits for computation and communications, silicon integrated circuits, and high-speed integrated transceivers.

2015-16 Number of speakers: 11

2015-16 Budget: \$10,000

### MHI Medical Imaging Seminar Series

This series features lecturers from leading universities and medical institutions in the US and abroad on all topics related to the various aspects of medical imaging.

2015-16 Number of speakers: 13

2015-16 Budget: \$13,000

### MHI Nano Materials and Devices Seminar Series

This series aims to expose students to cutting-edge research in the field of nanotechnology. In 2015-16, leaders in academia and industrial research institutes shared their most recent achievement in the diverse field of nanoscale materials, devices and systems.

2015-16 Number of speakers: 16

2015-16 Budget: \$10,000

### MHI Cyber-Physical Systems Seminar Series

The first edition of the Cyber-Physical Systems Seminar Series was especially active in 2016. Visitors from industry and leading universities participated in the Spring as part of class EE 598. Even more talks will be scheduled for Fall of 2016.

2015-16 Number of speakers: 14

2015-16 Budget: \$10,000



Photo excerpted from Next-Generation Internet of Things. (<http://anrg.usc.edu/ngiot16/>)

## SCHOLARS

## MING HSIEH INSTITUTE 2015-16 PhD SCHOLARS

Each year, a select group of PhD 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. They assist MHI in carrying out its mission.



**Navid Naderializadeh**  
Advisor: Salman Avestimehr



**Ahmad Abbas**  
Advisor: Chongwu Zhou



**Di Zhu**  
Advisor: Massoud Pedram



**Danny Bone**  
Advisor: Shrikanth Narayanan



**Yongxiong Ren**  
Advisor: Alan Willner

## 2015 - 16 Scholar Highlights

Using funds from MHI, the 2015-16 Scholars **developed the 2015-16 MHI Undergraduate Achievement Award Program** to provide recognition for outstanding academic achievement by undergraduate students. Two top undergraduate students were awarded with a certificate and cash prize.

Using funds from MHI, the 2015-16 Scholars **hosted an event** where graduate students had to do simple engineering tasks in teams while socializing with fellow students. The engineering task for 2015 was to build the tallest tower with straws.

Using funds from MHI, the 2015-16 Scholars **hosted a panel** in which professors shared how to balance being a teacher while also starting a business.

**Scholar Danny Bone** traveled to San Francisco to attend a training session on the Autism Diagnostic Observation Schedule. The training allowed him to gain insights and feedback regarding his efforts to quantify behavior of individuals with autism. He also had the opportunity to run a pilot experiment in which the clinicians marked change points in diagnosis and confidence over time in videos.

The MHI travel fund sponsored **Scholar Yongxiong Ren** to travel to Hong Kong to give a talk at the 2015 Asia Communications and Photonics Conference. The conference was a great platform for people in academia and industry to share experiences and exchange ideas. Yongxiong Ren spoke in the "Recent Advances in Space-Division Multiplexing (SDM)" workshop.