

**Center for Integrated Circuits and Systems
Microsystems Technology Laboratories
Massachusetts Institute of Technology
Nov. 1, 2023**

Center for Integrated Circuits and Systems

**Ruonan Han, CICS Director
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CICS Faculty



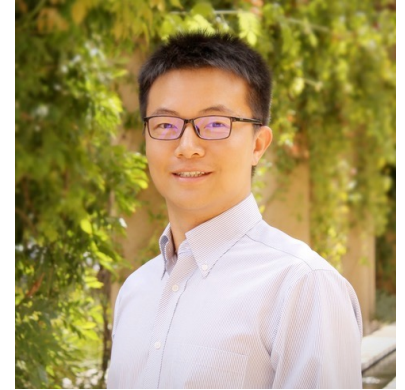
Ruonan Han, Director
RF-THz, Quantum,
Security



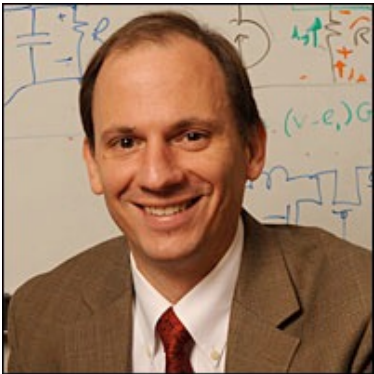
Anantha Chandrakasan
Low Power, AI, Security,
Biomedical



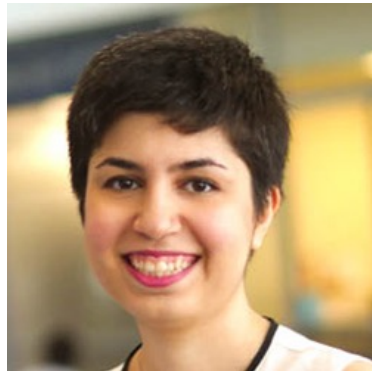
Hae-Seung (Harry) Lee
Analog, Mixed-Signal,
AI, Biomedical



Song Han
Tiny ML



David Perreault
Power Electronics



Negar Reiskarimian
RF, Analog



Charlie Sodini
Biomedical



Vivienne Sze
Energy Efficient AI,
Robotics

Agenda

Morning

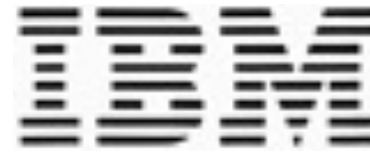
9:00 AM	Prof. Ruonan Han	Welcoming Remarks
9:10 AM	Ji Lin (on behalf of Prof. Song Han)	Research Overview: Model Compression and Efficient AI Computing: From TinyML to Large Language Model
9:20 AM	Ji Lin and Haotian Tang	TinyChat: On-Device Large Language Model
9:45 AM	Prof. Anantha Chandrakasan	Research Overview
9:55 AM	Kyungmi Lee	SecureLoop: Design Space Exploration of Secure DNN Accelerators
10:20 AM		<i>Coffee Break and Demo</i>
10:50 AM	Prof. Vivienne Sze	Research Overview
11:00 AM	Peter Li	GMMMap: Memory-Efficient Continuous Occupancy Map Using Gaussian Mixture Model
11:20 AM	Soumya Sudhakar	Uncertainty from Motion for Deep Neural Network-based Monocular Depth Estimation
11:40 AM	Syed Muhammad Imaduddin (Postdoc of Charlie Sodini, Harry Lee and Thomas Heldt)	Techniques for Ophthalmic Volumetric Blood Flow Measurement
12:05 PM		<i>Lunch</i>

Agenda

Afternoon

1:10 PM	Prof. Ruonan Han	Research Overview
1:20 PM	Eunseok Lee (Co-Advised by Ruonan and Anantha)	A Packageless Anti-Tampering Tag Utilizing Unclonable Sub-THz Wave Scattering at the Chip-Item Interface
1:40 PM	Jinchen Wang	A CMOS-Integrated Color Center Pulse-Sequence Control and Detection System
2:00 PM	Negar Reiskarimian	Research Overview
2:10 PM	Soroush Araei	A Harmonic Blocker-Free Software-Defined Radio: A Passive Approach
2:35 PM		<i>Coffee Break</i>
2:55 PM	Prof. Harry Lee	Research Overview
3:05 PM	Mohamed Elsheikh	Interface Circuits for Analog In-Memory Computing
3:30 PM	Prof. David Perreault	Research Overview
3:40 PM	Amanda Jackson	Large-Signal Characterization of Piezoelectric Resonators for Power Conversion
4:05 PM		<i>Adjourn</i>

CICS Industry Members



- **Membership fee: \$50k/year**
 - MTL full member can choose to use \$50k/year out of the \$150k/year MTL membership fee to join CICS
- **We need your support. Let us know how we can get better!**

CICS Membership Benefits

- **Access to all research conducted by participating faculty**
 - Non-CICS faculty (in quantum, photonics, nano devices, etc.) are invited to the annual review to present their research and to foster their collaboration with the CICS members
- **Bi-annual reviews in early May and early November**
 - Research in all stages from concepts to completion, often unpublished, is presented
- **Attendees get familiarized with CICS faculty & students as well as network with other industrial participants**
- **Close technical interaction and possibility of future collaborative research and/or research contracts**



CICS Membership Benefits (II)

- Access to CICS website
 - <https://cics.mit.edu>
 - Exclusive contents for CICS members
Note: you can only use your “@company.com” email to register
 - CICS research abstracts
 - Access to resume of >50 CICS graduate students
- Access to undergraduate students interested in circuits (guest lectures, internship/hire info, etc.)



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CIRCUITS AND SYSTEMS



CICS Membership Benefits (III)

- CICS assists organizing meetings with graduate students on or around research reviews upon request
- Invitation to MTL/CICS reception at ISSCC
- CICS assists organizing meetings in Bay Area with graduate students traveling to the West Coast at ISSCC each year upon request

