



Electrical and Computer Engineering

Spring 2017 Seminar Series

Brain-Inspired Computing: Grand Challenges, Hardware Designs, and Emerging Applications

MONDAY FEBRUARY 20, 2017

11:00 AM – HEC 450

The emerging field of "brain-inspired computing" has the potential to revolutionize the technology world. The rapidly evolving field of neuromorphic computing systems, which are based on non-traditional architectures that mimic bio-neurological processes, holds great promise for many emerging engineering and scientific applications. These unconventional computing architectures exploit intrinsic computational dynamics to provide faster, less expensive, and more energy-efficient computing platforms than conventional architectures.

In this talk, I will give an overview of current research activities and corresponding grand challenges in the field of neuromorphic computing. Then I will discuss our research on high performance and energy efficient neuromorphic system design and its exploration to emerging applications such as high data rate symbol detection. The key challenges of our research including fundamental theory development, neuromorphic chip design and fabrication, and software environment will be analyzed. The possible solutions, development strategy and roadmap, and future trends of this research will also be discussed

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Yang (Cindy) Yi is an Assistant Professor in the Electrical Engineering and Computer Science (EECS) Department at the University of Kansas (KU). She obtained her Ph.D. in Electrical and Computer Engineering at Texas A&M University, the M.S. and B.S. in Electrical Engineering at Shanghai Jiao Tong University. Prior to joining KU, she was with Freescale, IBM, Intel, and Texas Instruments (TI). Her research interests include Very Large Scale Integrated (VLSI) Circuits and Systems, High Performance Computing, Neuromorphic Computing, Emerging Nano-Device, and Internet of Things (IoT).

Yang (Cindy) Yi has more than 60 publications in international journals and conference proceedings. She received Best Paper Award from GLOBECOM 2016, Best Paper Award Finalist from ISQED 2017, VLSI-DAT 2011, and EPEPS 2006. She serves as an editorial board member for 4 international journals, a technical program committee (TPC) Track Chair for ISQED, and a TPC member for 18 international conferences. She received the Air Force Office of Scientific Research (AFOSR) Summer Faculty Fellowship, and Miller Professional Development Award for Distinguished Research in 2016, NSF EPSCoR First Award, AFOSR Summer Faculty Fellowship, KU Miller Scholar Award, KU New Faculty General Research Award in 2015, Air Force Research Lab (AFRL) Visiting Faculty Research Fellowship, University Academic Program Faculty Scholar, and Texas Instruments (TI) University Program Equipment Award in 2014.

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