Fall 2014 Seminar Series
Presented by the ECE Division

EMERGING NONVOLATILE MEMORY TECHNOLOGIES: DESIGN SPACE EXPLORATION AND APPLICATIONS IN CONVENTIONAL AND NEUROMORPHIC COMPUTING

TUESDAY NOVEMBER 25, 2014
11:00 AM – HEC 101

The severe scaling challenges of mainstream memories motivated recent active research on emerging nonvolatile memory (eNVM) technologies. Some promising candidates, i.e., phase change memory, spintronic memory, and resistive memory (memristor), have been extensively studied, demonstrating many attractive properties in integration density, power efficiency, reliability, and scalability. In this talk, I will examine the expectations of modern computing systems on memory hierarchy and computing efficiency, and then introduce three examples in eNVM designs and applications in neuromorphic computing and heterogeneous platforms.

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Dr. Yiran Chen received B.S and M.S. (both with honor) from Tsinghua University and Ph.D. from Purdue University in 2005. After five years in industry, he joined University of Pittsburgh in 2010 as Assistant Professor (promoted to associate professor with tenure in 2014) in Electrical and Computer Engineering Department. He is leading evolutionary intelligence lab (www.ei-lab.org) which focuses on the research of low-power design, emerging device and circuit, bio-inspired computing, and embedded systems. Dr. Chen has published 1 book, several book chapters, and about 190 journal and conference publications. He has been granted 83 US and international patents with other 18 pending applications. He is the associate editor of IEEE TCAD, ACM JETC, ACM SIGDA E-news and served on the technical and organization committees of more than 30 conferences. He received 3 best paper awards from ISQED'08, ISLPED'10 and GLSVLS'13 and other 7 nominations from DAC, DATE, ASPDAC, ISQED etc. Dr. Chen is the recipient of NSF CAREER award in 2013, ACM SIGDA outstanding young faculty award in 2014, and was the invitee of 2013 U.S. Frontiers of Engineering Symposium of National Academy of Engineering.