Temple University
College of Engineering

Spring Seminar Series
Department of Electrical and Computer Engineering

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Noon – 1:00 PM EST, EN102 The Fishbowl
Video Available for Faculty, Please email han.wang.hw@temple.edu

Robust and Reliable Neural Network Accelerators via Self-testing and Self-healing

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Abstract: Hardware accelerators are essential to the accommodation of ever-increasing Deep Neural Network (DNN) workloads on the resource-constrained embedded devices. While accelerators facilitate fast and energy-efficient DNN operations, their accuracy is threatened by faults in their on-chip and off-chip memories, where millions of DNN weights are held. Our research project aims to investigate, characterize, and mitigate errors in the DNN accelerators that may originate from process variation, aging, and/or fault injection attacks. This talk introduces our recent contributions on defect-aware deployment, on-line self-monitoring of accelerator healthiness, and on-line detection of fault injection attacks.
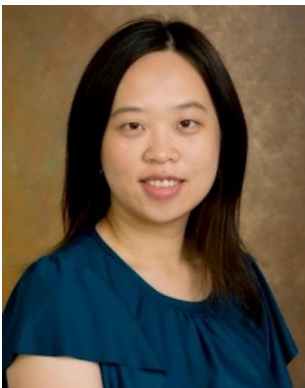
Biography: CHENGMO YANG received the B.S. degree from Peking University, China, and the M.S. and Ph.D. degrees from the University of California at San Diego, USA. She is currently a Professor with the Department of Electrical and Computer Engineering at the University of Delaware. Her research interests lie in the broad areas of embedded systems and design automation, with a particular focus on improving reliability, security, and energy-efficiency of next generation embedded and smart devices. Prof. Yang has authored over 90 papers in peer-reviewed international journals and conferences. She has two best paper awards and four additional best paper nominations.