High-Performance, Low-Power and Flexible Communication Fabrics for Manycore Architectures

The proliferation of core counts in chip-multiprocessors (CMP) enables extraordinary growth in computer performance by harnessing parallelism. The most critical barrier towards exploiting parallel computing on the chip is the fundamental challenge of communication. This signals the advent of a paradigm shift from computation-centric to communication-centric systems. In this talk, Dr. Zheng will present his research projects on designing high-performance, low-power and flexible communication fabrics for modern and future computer systems. The talk will conclude with some future research directions in his research group at UCF.

Dr. Zheng’s research interests are computer architecture and parallel computing, with emphasis on network-on-chip, energy-efficient manycore architectures and machine learning for efficient computing. Prior to joining UCF, Dr. Zheng received his Ph.D. in computer engineering at George Washington University in 2021. His research has been published in leading computer architecture and EDA venues such as HPCA, DAC, TETC and TPDS.