UCF DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

Spring 2016 Seminar Series

POWER CONSTRAINED PERFORMANCE OPTIMIZATION IN COMPUTER SYSTEMS
THURSDAY FEBRUARY 25, 2016
11:00 AM – HEC 356

Power consumption has imposed a first-order design constraint to the entire spectrum of computer systems, from the smallest hand-held devices to the largest data centers. Limitations on the power consumption due to the small battery capacity in mobile devices, the limited cooling capacity in desktops, and the tight electricity expense budget in data centers, require innovations that allow computer systems with larger numbers of cores to dynamically adapt to time-varying needs of modern workloads within a limited power budget. In the first part of his talk, Dr. Kai Ma will provide the background of power management for computer systems. In the second part of his talk, he will introduce FreqPar, a power management solution that controls the power consumption of a many-core processor under a fixed power budget, as well as to optimize the performance of the processor by dynamically adjusting the frequency of each core on a multi-core processor. In the third part of his talk, Dr. Ma will summarize his previous projects on power management for multi-core processor, GPU/CPU heterogeneous systems, cooling power and computational power co-optimization, and data center power optimization.

DR. KAI MA
Qualcomm

Dr. Kai Ma was awarded Ph.D. in Electrical Engineering (major in computer architecture, minor in control theory) from the Ohio State University in 2013. Since then, he has been working as a senior engineer at Qualcomm, contributing to Snapdragon© processor design and optimization. Dr. Kai Ma also has industry experiences with NEC Labs, IBM, and Alcatel-Lucent.

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