

Faculty Candidate Seminar

Real-Time Scheduling for Cyber-Physical Systems on Heterogeneous Platforms

Kecheng Yang

The University of North Carolina at Chapel Hill

Abstract: Cyber-Physical Systems (CPS) are engineered systems that are built from, and depend upon, the seamless integration of computational algorithms and physical components. In many CPS, embedded computers interact with physical processes that are time-critical. In such systems, the response time of a task is more than an issue of performance but an issue of correctness. Therefore, real-time scheduling techniques are in need to model, analyze, and certify those systems even before they are built. Since the multicore revolution, attention has shifted to supporting multiprocessors. Meanwhile, the multicore revolution is currently undergoing a second wave of innovation in the form of heterogeneous processing elements, which offer advantages with respect to size, weight, and power (SWaP) limitations. As a result, realizing modern real-time embedded CPS on heterogeneous multiprocessor platforms is an inevitable trend. In this talk, I will talk about my work that addressing real-time scheduling challenges that arise on heterogeneous platforms where the heterogeneity may be due to differing processor speeds, functionalities, or virtualization.

Bio: Kecheng Yang is a Ph.D. candidate in the Department of Computer Science at the University of North Carolina at Chapel Hill. He received an M.S. degree in Computer Science from the University of North Carolina at Chapel Hill in 2015 and a B.E. degree in Computer Science and Technology from Hunan University in 2013. His research interests include real-time and cyber-physical systems, scheduling theory and resource allocation algorithms, and heterogeneous multiprocessor platforms.

Date: March 7, 2018

Time: 10:00 am

209 Computer Science Building

