



Cyber-Physical Systems (CPS) Seminar Series

Title: Predictable GPGPU Computing in Safety-Critical Cyber-Physical Systems

Speaker: Dr. Cong Liu, Assistant Professor, University of Texas at Dallas

Abstract: Graphic processing units (GPUs) have seen wide-spread use in several computing domains as they have the power to enable orders of magnitude faster and more energy-efficient execution of many applications. Unfortunately, it is not straightforward to reliably adopt GPUs in many safety-critical cyber-physical systems that require predictable timing correctness, one of the most important tenets in certification required for such systems. A key example is the advanced automotive system where timeliness of computations is an essential requirement of correctness due to the interaction with the physical world. In this talk, I will describe several system-level and algorithmic challenges and our developed solutions on ensuring predictable timing correctness in GPU-accelerated systems.

Biography: Cong Liu is currently a tenure-track assistant professor in the Department of Computer Science at the University of Texas at Dallas, after obtaining his Ph.D. in Computer Science from the University of North Carolina at Chapel Hill in summer 2013. His current research focuses on Real-Time and Embedded Systems, GPGPU Computing, and Data-driven Design of Cyber-Physical Systems. He received the Best Student Paper Award at the 30th IEEE Real-Time Systems Symposium (RTSS'09) and the Outstanding Paper Award at the 38th IEEE Real-Time Systems Symposium (RTSS'16), where RTSS is the premier real-time and embedded systems conference; he also received several best paper nominations in conferences including INFOCOM'17, RTCSA'17, RTCSA'12. He received NSF Early Career Award in 2017.



Date: Monday, Feb. 12, 2018

Time: 3:30PM-4:45PM

Location: King 312