Computer Science and Engineering Professor Receives NSF Award to Expand Research on Cyber-Physical Systems

TAMPA, Fla. (October 23, 2009) – Dr. Hao Zheng, assistant professor of Computer Science and Engineering and the Principal Investigator in collaboration with Dr Chris Myers of the University of Utah was awarded a $530,000 three-year National Science Foundation (NSF) grant to investigate and develop methods and tools for the analysis and verification of cyber-physical systems.

A cyber-physical system (CPS) is a tight integration of and coordination between various computational, sensing, actuating, and other physical elements. Cyber-physical systems can be found in diverse areas such as aerospace, automotive, chemical processes, civil infrastructure, energy, healthcare, manufacturing, transportation, entertainment, and consumer appliances, etc. These systems have great impact on various aspects of our daily life and our society, and failures of these systems may cause astronomical losses. Therefore, it is a top priority to ensure the correctness, reliability, dependability and efficiency of these systems.

"I am very happy to be awarded this NSF grant, which allows us to expand our research in concurrent digital system verification to more general and more complex cyber-physical system analysis and verification," said Dr. Zheng. "The collaboration with Dr Myers, who has extensive experience in modeling and analysis of biological systems and analog circuit designs, forms a strong team for this research. Additionally, this grant allows us to offer greater opportunities for undergraduate students to get involved in this research in their early study here in USF."

The objective of this research is to investigate and develop methods and tools for the modeling, analysis, and verification of cyber-physical systems. The results from this research will help system designers address the challenges in cyber physical system development, and improve system qualities such as higher reliability, better fault-tolerance, improved performance, and lower design costs.

The University of South Florida is one of the nation's top 63 public research universities and one of only 25 public research universities nationwide with very high research activity that is designated as community engaged by the Carnegie Foundation for the Advancement of Teaching. USF was awarded $380.4 million in research contracts and grants in FY 2008/2009. The university offers 232 degree programs at the undergraduate, graduate, specialist and doctoral levels, including the doctor of medicine. The USF System has a $1.8 billion annual budget, an annual economic impact of $3.2 billion, and serves more than 47,000 students on institutions/campuses in Tampa, St. Petersburg, Sarasota-Manatee and Lakeland. USF is a member of the Big East Athletic Conference.

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