Department of Systems Engineering and Engineering Management

Seminar Series

Design of Reliable Cyber-Physical Systems: Challenges and Emerging Solutions

Prof. Zebo Peng
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Date	22 August 2018 (Wednesday)
Time	10:30am - 11:30am
Venue	P7303, 7/F, Yeung Kin Man Academic Building

Abstract

An advanced cyber-physical system consists of computational components, implemented usually as a multi-core architecture, interacting tightly with the physical world. Many of such systems are now used for safety-critical applications, such as automotive electronics and medical equipment. These applications impose stringent requirements on reliability, low-power and testability of the underlying multi-core hardware architecture. With silicon technology scaling, however, such hardware is built with smaller transistors, performs at higher clock frequencies, runs at lower voltage levels, and operates very often at higher temperature. All these have negative impact on reliability, performance, power-efficiency and testability. This talk will address the different issues related to reliability and other challenges for the design of cyber-physical systems. In particular, it will focus on the challenges related to the thermal problem and its interplay with the stringent real-time requirements imposed by many safety-critical applications. It will also present several technology trends and emerging solutions for cyber-physical systems.

About the Speaker

Zebo Peng received his Ph.D. in Computer Science from Linköping University in 1987. He has been Professor and Director of the Embedded Systems Laboratory at Linköping University since 1996. He is currently also the Vice-Chairman of the Department of Computer Science at Linköping University, and served as the head of the Swedish National Graduate School in Computer Science in 2006-2008. His current research interests include design and test of embedded and cyber-physical systems, electronic design automation, SoC testing, fault tolerant computing, hardware/software co-design, and real-time systems. He has published over 350 technical papers and five books in these areas. He has received four best paper awards and a best presentation award in major international conferences. Two of his publications have been selected as the most influential papers of 10 years of DATE (the Design, Automation, and Test in Europe Conference). He has served on the program committee of a dozen international conferences, including ATS, DATE, DDECS, DFT, ETS, IOLTS, ISVLSI, ITC, RTCSA, and VLSI-SOC, and was the Program Chair of DDECS'04, ETS'07, DATE'08, and ETS'13. He served as the Chair of the IEEE European Test Technology Technical Council (ETTTC) in 2006-2009, and has been a Golden Core Member of the IEEE Computer Society since 2005. He is a recipient of the IEEE Computer Society Outstanding Contribution Award (2010) and Meritorious Service Award (2005), as well as the ACM Recognition of Service Award (2008).

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All are Welcome!

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