Spring 2018 ECE Distinguished Seminar

Towards Self-Aware Computing Systems through Intelligent Cross-Layer Coordination

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Showcase Room

Abstract

Although there is a rich history of cross-layer design for embedded computing systems to achieve desired QoS, we are facing ever more challenges from the intertwined goals of energy- efficiency, thermal design constraints, as well as resilience to errors emanating from the application, environment and hardware platforms. We posit that next-generation computing platforms must necessarily deploy intelligent cross-layer design achieved through self-awareness principles inspired by biology and nature. Such an approach will move us from current strategies (using limited cross-layer coordination) to a holistic cross-layer strategy that enables intelligent cross-layer management policies which can adaptively tune itself based on the current state of the system. The talk will present design exemplars that embrace this intelligent cross-layer approach, and highlight the role of self-awareness in achieving dynamic adaptivity.

Bio

Fadi Kurdahi received his PhD from the University of Southern California in 1987. Since then, he has been a faculty at the Department of Electrical & Computer Engineering at UCI, where he conducts research in the areas of Computer Aided Design and design methodology of large scale systems. He serves as the Associate Dean for Graduate and Professional Studies of the Henry Samueli School of Engineering, and the Director of the Center for Embedded & Cyber-physical Systems (CECS), comprised of world-class researchers in the general area of Embedded and Cyber-physical Systems. He served on numerous editorial boards, and was program chair or general chair on program committees of several workshops, symposia and conferences in the area of CAD, VLSI, and system design. He received the best paper awards for the IEEE Transactions on VLSI in 2002, ISQED in 2006 and ASP-DAC in 2016, and other distinguished paper awards at DAC, EuroDAC, ASP- DAC and ISQED. He also received the Distinguished Alumnus award from his *Alma Mater*, the American University of Beirut in 2008. He is a Fellow of the IEEE and the AAAS.