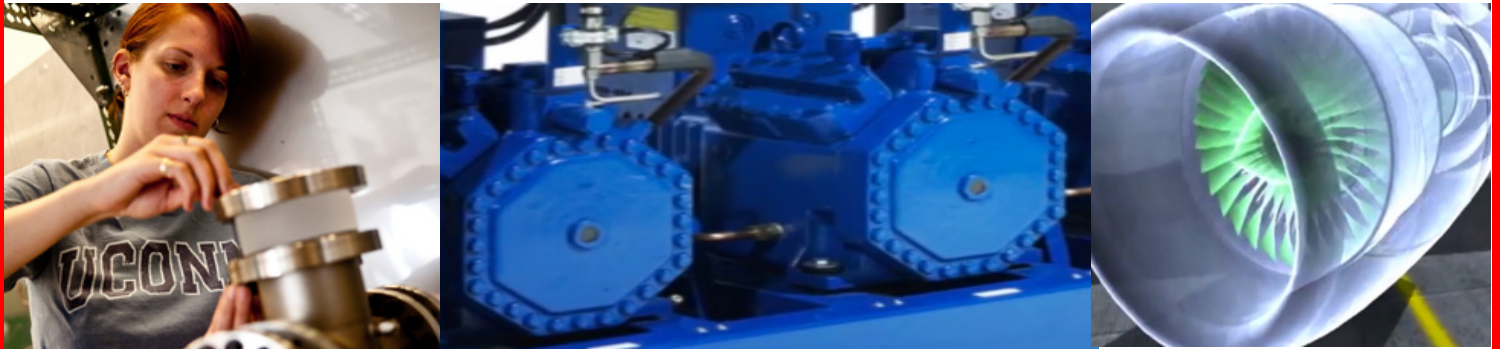


UTC Institute for Advanced Systems Engineering Distinguished Lecture Series



Sanjoy Baruah, Ph.D.

University of North Carolina at Chapel Hill

Scheduling Theories for Cyber-Physical Systems

Tuesday June 30, 2015

10:00 a.m. – 12:00 p.m.

Storrs Campus, ITEB 336

Abstract: In the context of computer systems, scheduling theory is concerned with the efficient allocation of limited computational resources amongst competing demands. We will examine the evolving role of real-time scheduling theory within the emergent discipline of cyber-physical systems (CPS). Methodologies that are currently widely used in the design and implementation of safety-critical real-time systems are primarily focused on ensuring correctness. This, in conjunction with the trend towards implementing such systems using COTS components, may lead to poor resource utilization during run-time. We will seek to understand why efficiency of implementation is becoming ever more important in CPS; discuss how such systems pose unique challenges to real-time scheduling theory; describe how real-time scheduling theory is beginning to respond to these challenges by devising new models and methods for the design and analysis of cyber-physical systems; and list some of the many important open issues that remain to be dealt with.

Speaker Bio: Sanjoy Baruah is a professor in the Department of Computer Science at the University of North Carolina at Chapel Hill. He received his Ph.D. from the University of Texas at Austin in 1993. His research and teaching interests are in scheduling theory, cyber-physical systems design, and resource-allocation and sharing in distributed computing environments. He is a Fellow of the IEEE, and the recipient of the 2014 Outstanding Technical Contributions and Leadership Award of the IEEE Technical Committee on Real-Time Systems.