

**DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING**

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

***Smart Networked Systems and Societies:
Research Challenges***

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ABSTRACT

We are witnessing a new revolution in computing and communication. The Internet, which has spanned several networks in a wide variety of domains, is having a significant impact on every aspect of our lives. The next generation of networks will utilize a wide variety of resources with significant sensing capabilities. Such networks will extend beyond physically linked computers to included multimodal information from biological, cognitive, semantic, and social networks. This paradigm shift will involve symbiotic networks of people (social networks), intelligent devices, and mobile personal computing and communication devices (mPCDs), that will form smart networked *systems and societies (SNSS) or cyber-physical social systems (CPSS)*. mPCDs are already equipped with myriad sensors, with regular updates of additional sensing capabilities. Additionally, we are witnessing the emergence of “intelligent devices,” such as smart meters, smart cars, etc., with considerable sensing and networking capabilities. Hence, these devices – and the network -- will be constantly sensing, monitoring, and interpreting the environment; this is sometimes referred to as the *Internet of Things (IOT)*. The symbiosis of IOT and social networks will have significant implications for both the market for advanced computing and communication infrastructure and the future markets – for nearly 4.5 billion people -- that SNSS will create. In this work, I will discuss the research challenges for SNSS with a specific focus on *smart healthcare*.

**TUESDAY, NOVEMBER 20, 2012
ANDRUS GERONTOLOGY BLDG (GER) ROOM 309
3:30 – 5:00 PM**

About the Speaker:



Ram D. Sriram is currently the chief of the Software and Systems Division, Information Technology Laboratory, at the National Institute of Standards and Technology. Before joining the Software and Systems Division, Sriram was the leader of the Design and Process group in the Manufacturing Systems Integration Division, Manufacturing Engineering Laboratory, where he conducted research on standards for interoperability of computer-aided design systems. He was also the manager of the Sustainable Manufacturing Program. Prior to joining NIST, he was on the engineering faculty (1986-1994) at the Massachusetts Institute of Technology (MIT) and was instrumental in setting up the Intelligent Engineering Systems Laboratory. Sriram has co-authored or authored nearly 250 publications, including several books. Sriram was a founding co-editor of the International Journal for AI in Engineering. In 1989, he was awarded a Presidential Young Investigator Award from the National Science Foundation. In 2011, Sriram received the ASME Design Automation Award for his work on computer-supported collaborative design. Sriram is a Fellow of ASME and AAAS, a member (life) of ACM, a Senior Member of the IEEE, and a member (life) of AAAI. Sriram has a B.Tech. from IIT, Madras, India, and an M.S. and a Ph.D. from Carnegie Mellon University, Pittsburgh, USA.