RESEARCH CHALLENGES AND POTENTIAL SOLUTIONS IN CPS AND IOT SCALABILITY, SECURITY, AND PRIVACY

presented by

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Abstract:
Internet of Things (IoT) and Cyber-Physical Systems (CPS) will form the foundation of our progress towards creating smart cities, smart transportation, and smart grid. The growth in IoT/CPS would result in over 35 billion new devices connected to the Internet over the next 5-7 years. Further, all these devices will be connected at the Internet-edge, which has always been the bandwidth- and capability-limited portion of the Internet. This brings forth several interesting and hereto unseen research challenges that span several interdisciplinary research domains. The host-based networking model currently used in the Internet is up-ended by these devices, data security and privacy become more important, and data volumes keep growing. In this talk, Dr. Misra will discuss these challenges in the context of the smart grid and discuss proposed network architecture to address some of the problems. Dr. Misra will also discuss several IoT/CPS scalability and security/privacy solutions proposed by his research group. These solutions will be relevant to devices on the smart grid, and broadly to smart cities and smart transportation.

Bio:
Satyajayant Misra is an associate professor in computer science at New Mexico State University. His research interests include wireless networks and the Internet, supercomputing, and smart grid architectures and protocols, especially in scalability, security and privacy. He has been involved actively in several IEEE/ACM journal editorial boards and conference executive committees (Communications on Surveys and Tutorials, Wireless Communications Magazine, MOBICOM 2015, ANTS 2014, SECON 2010, INFOCOM 2012). He has authored more than 50 peer-reviewed IEEE/ACM journal articles and conference proceedings with over 2900 international citations.