Internet of Things (IoT) - Demystified

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Abstract:

The Internet of Things (IoT) is considered as the core technology that can enable the design and operation of smart cities. The IoT makes components of smart cities, which need not be inherently smart or intelligent, smart or intelligent. For example, owing to IoT, buildings, energy-grids, transport-systems, and health-care systems are made smart or intelligent. IoT can be regarded as a configurable dynamic global network of networks consisting of four main components: (1) The Things, (2) Internet, (3) LAN, and (4) The Cloud. The "Things" refers to any physical object that has its own IP address and can connect and send/receive data via network. The IoT infrastructure consists of various components including sensors, electronics, networks, middleware, firmware, and software. This talk will present detailed insight of IoT. The talk will address many questions about IoT including the following: (1) What is IoT? (2) What are the critical components of IoT? (3) What are the challenges of design and operation of IoT? (4) How to perform Design for excellence (DFX) of IoT "Things"? (5) How can one simulate an IoT framework consisting of multidiscipline systems and components of IoT before its actual deployment? (6) What is the state-of-the-art in IoT and future direction?

Speaker Biography:

Dr. **Saraju P. Mohanty** is a Professor at the Department of Computer Science and Engineering (CSE), University of North Texas (UNT). He obtained a Ph.D. in Computer Engineering from the University of South Florida (USF) in 2003, a Master's degree in Systems Science and Automation (SSA) from the Indian Institute of Science (IISc), Bangalore, India in 1999. Prof. Mohanty was conferred the Glorious India Award in 2017 for his exemplary contributions to the discipline. He received Society for Technical Communication (STC) 2017 Award of Merit for his outstanding contributions to IEEE Consumer Electronics Magazine. He was the recipient of 2016 PROSE Award for best Textbook in Physical Sciences & Mathematics from the Association of American Publishers for his book titled "Nanoelectronic Mixed-Signal System Design" published by McGraw-Hill in 2015. He received 2016-17 UNT Toulouse Scholars Award for sustained excellent scholarly and teaching achievements. Prof. Mohanty's research is in "Energy-Efficient High-Performance Secure Electronic Systems". Prof. Mohanty's research has been funded by National Science Foundation (NSF), Semiconductor Research Corporation (SRC), and USA Air Force. Dr. Mohanty is an inventor of 4 US patents. Prof. Mohanty is an author of 220 peer-reviewed journal and conference articles, and 3 books. He serves as the Editor-in-Chief (EiC) of the IEEE Consumer Electronics Magazine. Prof. Mohanty has been serving on the editorial board of several peer-reviewed international journals or transactions, including IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD) and ACM Journal on Emerging Technologies in Computing Systems (JETC). Prof. Mohanty serves as the Chair of Technical Committee on Very Large Scale Integration (TCVLSI), IEEE Computer Society (IEEE-CS), after elected by a global ballot to oversee a dozen of IEEE conferences. He serves on the steering, organizing, and program committees of several international IEEE conferences including ISVLSI, iNIS, and ICCE. More about his biography, research, education, and outreach activities can be obtained from his website: http://www.smohanty.org.