Smart Healthcare - Demystified

Saraju P. Mohanty
Department of Computer Science and Engineering
University of North Texas, Denton, TX 76207, USA.
Homepage: http://www.smohanty.org/
Email: saraju.mohanty@unt.edu

Abstract:
The Internet of Things (IoT) was born in 1990 when for the first time an object (a toaster) other than a computer was connected to the Internet, even though Internet started since 1969. Since then IoT has evolved from cloud-based to edge/fog based. The IoT is considered as the core technology that can enable the design and operation of smart cities providing them Instrumentation, Interconnection, and Intelligence (3I) capabilities. A specific instance of IoT is Internet-of-Medical-Things (IoMT), which is configurable dynamic network of networks, available anywhere, anytime, by anything and anyone. IoMT is essential to build smart healthcare (sHealth) which is an important component of smart cities. sHealth has evolved from healthcare from its predecessors such as mobile healthcare (mHealth), electronic healthcare (eHealth), and connected healthcare (cHealth). The IoMT infrastructure consists of various components including sensors, biosensors, electronics, wearables, implantables, networks, middleware, firmware, and software. This talk will present detailed insight of IoMT based smart healthcare. The talk will address many questions about IoMT based smart healthcare including the following: (1) What is Internet-of-Medical-Things (IoMT) or Internet-of-Health-Things (IoHT)? (2) What are the critical components of IoMT? (3) What are the challenges of design and operation of IoMT? (4) What is smart healthcare? (5) What are the driving technologies for smart healthcare? (6) What are the security, privacy issues and their solutions in smart healthcare? (7) Is edge computing or cloud computing better for smart healthcare? (8) What is Internet-of-Everything (IoE)?

Speaker Biography:

Dr. Saraju P. Mohanty is a Professor with the University of North Texas. His research is in "smart electronic systems" which has been funded by National Science Foundations (NSF), Semiconductor Research Corporation (SRC), U.S. Air Force, IUSSTF, and Mission Innovation. He has authored 300 research articles, 4 books, and invented 4 U.S. patents. His has Google Scholar citations with an H-index of 32 and i10-index of 110. He was a recipient of nine best paper awards, the IEEE-CS-TCVLSI Distinguished Leadership Award in 2018 for services to the IEEE and to the VLSI research community, the 2016 PROSE Award for Best Textbook in Physical Sciences and Mathematics category from the Association of American Publishers for his Mixed-Signal System Design book published by McGraw-Hill, Society for Technical Communication (STC) 2017 Award of Merit for his outstanding contributions to IEEE Consumer Electronics Magazine, and 2016-17 UNT Toulouse Scholars Award for sustained excellent scholarship and teaching achievements. He has delivered eight keynote talks at various international conferences. He has been recognized as an IEEE Distinguished Lecturer by the CESoc during 2017-2018. He is the Editor-in-Chief (EiC) of the IEEE Consumer Electronics Magazine. He serves on the Board of Governors (BoG) of IEEE Consumer Electronics Society (CESoc) since 2019. He served as the Chair of Technical Committee on VLSI, IEEE Computer Society during 2014-2018.