FAU

INSTITUTE FOR SENSING AND EMBEDDED NETWORK SYSTEMS ENGINEERING

Division of Research
Florida Atlantic University

I-SENSE Seminar Series

RF Sensing in the IoT with Commodity WiFi

Abstract

Internet of Things (IoT) refers to a worldwide network of interconnected uniquely addressable things based on standard communication protocols. In recent years, healthcare has been recognized as one of the most attractive application areas of the IoT, with applications ranging from health monitoring to patient and equipment tracking in home and medical facilities. In this talk, we will present our recent work on exploiting RF sensing with commodity WiFi for vital sign monitoring and for fingerprinting based indoor localization. The first part of this talk is to exploit channel state information (CSI) to monitor respiration of a patient with commodity WiFi devices, where a tensor decomposition based design is proposed. The second part of this talk is on our recent work on employing deep learning for fingerprinting based indoor localization. We will present the design of ResLoc, which employs bi-modal CSI tensor data to train a deep residual sharing learning network. Experimental results will be presented to validate the performance of the proposed schemes.

Bio

Shiwen Mao received his Ph.D. in electrical and computer engineering from Polytechnic University, Brooklyn, NY in 2004. He is the Samuel Ginn Distinguished Professor, and Director of the Wireless Engineering Research and Education Center (WEREC) at Auburn University, Auburn, AL. His research interests include 5G wireless, IoT, and Smart Grid. He is a Distinguished Speaker of the IEEE Vehicular Technology Society. He is on the Editorial Board of IEEE Transactions on Mobile Computing, IEEE Transactions on Multimedia, IEEE Internet of Things Journal, IEEE Multimedia, ACM GetMobile, among others. He received the 2017 IEEE ComSoc ITC Outstanding Service Award, the 2015 IEEE ComSoC TC-CSR Distinguished Service Award, the 2013 IEEE ComSoc MMTC Outstanding Leadership Award, and the NSF CAREER Award in 2010. He is a co-recipient of the Best Paper Awards from IEEE GLOBECOM 2016, IEEE GLOBECOM 2015, IEEE WCNC 2015, and IEEE ICC 2013, the Best Demo Award from IEEE SECON 2017, the IEEE ComSoc MMTC 2017 Best Conference Paper Award, and the 2004 IEEE Communications Society Leonard G. Abraham Prize in the Field of Communications Systems.

Shiwen Mao, Ph.D.

Samuel Ginn Distinguished Professor, and Director of the Wireless Engineering Research and Education Center (WEREC) Auburn University

Thurs., Sept. 13

11 a.m. – 12 p.m.

FAU Engineering East
777 Glades Rd, EE 405
Boca Raton, FL

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