Department of Electrical and Computer Engineering

TEXAS TECH UNIVERSITY
Edward E. Whitacre Jr.
College *of* Engineering™

Fall 2023 Seminar Series

Seminar Title: *LOCALIZATION-OF-THINGS:*
FROM FOUNDATION TO OPERATION TOWARD 6G ECOSYSTEM

Time: 2:00-2:50 PM, Friday, Oct. 20, 2023
Location: Biology 101

Speaker:
Moe Z. Win
Massachusetts Institute of Technology

Abstract:
The availability of real-time and precise location awareness is essential for current and future wireless applications, particularly those involving Internet-of-Things and beyond 5G networks toward 6G. The coming years will see the emergence of network localization and navigation in challenging environments with sub-meter accuracy, low latency, and minimal infrastructure requirements. This will call for the Localization-of-Things (LoT), a recent paradigm referring to locating, tracking, and navigating collaborative and non-collaborative nodes (e.g., sensors, vehicles, and objects). Our work −relying on statistical inference, network optimization, and communication theory− approaches LoT from different perspectives. This talk will give an overview of LoT, examining our recent research results in this exciting new field, from the perspectives of theoretical framework, cooperative algorithms, network operations, and network experimentation. We will also present LoT enablers, including 5G New Radio and reconfigurable intelligent surfaces, which promise to provide dramatic gains in terms of localization accuracy and system robustness in next generation wireless ecosystems.

Speaker Bio:
Dr. Moe Win is a Professor at the Massachusetts Institute of Technology (MIT) and the founding director of the Wireless Information and Network Sciences Laboratory. Prior to joining MIT, he was with AT&T Research Laboratories and NASA Jet Propulsion Laboratory. His research encompasses theoretical foundation, algorithm design, and network experimentation for a broad range of real-world problems. His current research topics include network localization and navigation, network interference exploitation, and quantum information science. Professor Win has served the IEEE Communications Society as an elected Member-at-Large on the Board of Governors, as elected Chair of the Radio Communications Committee, and as an IEEE Distinguished Lecturer. He was honored with two IEEE Technical Field Awards: the IEEE Kiyo Tomiyasu Award and the IEEE Eric E. Sumner Award. His publications, co-authored with students and colleagues, have received several awards. Other recognitions include the MIT Everett Moore Baker Award, the IEEE Vehicular Technology Society James Evans Avant Garde Award, the IEEE Communications Society Edwin H. Armstrong Achievement Award, the Cristoforo Colombo International Prize for Communications, the Copernicus Fellowship and the Laurea Honoris Causa from the Università degli Studi di Ferrara, and the U.S. Presidential Early Career Award for Scientists and Engineers. Professor Win is elected Fellow of the AAAS, the EURASIP, the IEEE, and the IET. He is an ISI Highly Cited Researcher.