

『Tsinghua Information Forum』

#85—NEC #2



- Title: FOUNDATIONS OF NETWORK LOCALIZATION AND LOCATION-BASED SERVICES
- Speaker: Professor Moe Win
FAAAS, FIEEE, FIET
Laboratory for Information and Decision Systems (LIDS)
Massachusetts Institute of Technology
- Time: May.22, 15: 30—17: 00
- Venue: 1-415, FIT Building, Tsinghua

Abstract:

The availability of positional information is of great importance in numerous commercial, health-care, public safety, and military applications. The coming years will see the emergence of high-definition location-aware (HDLA) networks with sub-meter accuracy, minimal infrastructure, and robustness in harsh environments. We propose to realize this vision using a combination of wide bandwidth transmission and cooperative techniques. This talk presents a brief technical overview of our recent activities with particular emphasis on network localization employing wideband wireless technology from three points of view: fundamental performance bounds, cooperative algorithms, and experimentation. Fundamental bounds serve as performance benchmarks and as guidelines for network design. Cooperative algorithms will be designed to approach these bounds, resulting in dramatic performance improvements over traditional techniques. Experimentation will be used to determine important attributes of physical environments; these realistic models are necessary to obtain accurate bounds, to develop robust algorithms, and to validate their performance in harsh environments.

Biography:

Moe Win is an Associate Professor at the Massachusetts Institute of Technology (MIT). Prior to joining MIT, he was at AT&T Research Laboratories for five years and at the Jet Propulsion Laboratory for seven years. His research encompasses fundamental theories, algorithm design, and experimentation for a broad range of real-world problems. His current research topics include network localization and navigation, network interference exploitation, intrinsic wireless secrecy, adaptive diversity techniques, and ultra-wide bandwidth systems. Professor Win is a Fellow of the AAAS, the IEEE, and the IET, and was an IEEE Distinguished Lecturer. He is an elected Member-at-Large on the IEEE Communications Society Board of Governors (2011–2013). He was the chair (2004–2006) and secretary (2002–2004) for the Radio Communications Committee of the IEEE Communications Society. He was honored with two IEEE Technical Field Awards: the IEEE Kiyo Tomiyasu Award and the IEEE Eric E. Sumner Award (jointly with R. A. Scholtz). He received the Copernicus Fellowship, the Royal Academy of Engineering Distinguished Visiting Fellowship, the Fulbright Fellowship, the Laurea Honoris Causa from the University of Ferrara, and the U.S. Presidential Early Career Award for Scientists and Engineers.

Organizer: SIST

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