

## Spring 2016 Seminar Series

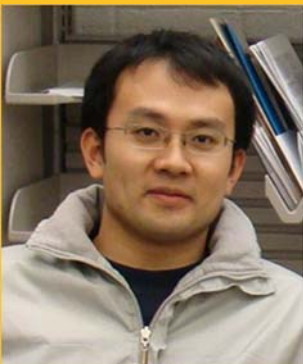
RADIO FREQUENCY NON-CONTACT SENSING AND LOCALIZATION

TUESDAY JANUARY 19, 2016

11:00 AM – HEC 356

Wireless sensors with embedded control and communication links have the potential to improve the quality of service in healthcare, infrastructure maintenance, and energy conservation. This presentation provides an overview of our research activities on smart radio frequency (RF) sensors aided with advanced technologies such as beamforming, inverse synthetic aperture radar (ISAR), and flexible electronics. The scope of applications extends to sleep study, fall detection, indoor localization, and civil engineering. Specifically, our recent efforts on smart house, cancer treatment, and structure monitoring will be discussed. In a smart house, the sensors ensure human well-being and energy efficiency by tracking users' location, health, gait, occupancy and gesture information. In cancer radiotherapy, we investigate accurate non-contact tumor tracking, which provides a method to dynamically target a tumor with a radiation beam even when the tumor moves due to the respiratory movement of a patient. In structural health monitoring, our RF sensors advance infrastructure maintenance by remotely monitoring structural vibrations and movements, as aging infrastructure remains a national concern with widespread impacts on the quality of our daily lives.

**DR. CHANGZHI LI**  
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Changzhi Li received the Ph.D. degree in electrical engineering from the University of Florida, Gainesville, FL, in 2009. In the summers of 2007–2009, he was with Alereon inc. Ausitn, TX, USA, and Coherent Logix inc. Austin, TX, USA, where he was involved with ultrawideband (UWB) transceivers and software-defined radio. He joined Texas Tech University as an Assistant Professor in 2009, and became an Associate Professor in 2014. His research interests include biomedical applications of microwave/RF, wireless sensor, and RF/analog circuits.

Dr. Li is an associate editor for the IEEE Transactions on Circuits and Systems I. He served as the TPC co-chair for the IEEE Wireless and Microwave Technology Conference in 2012 and 2013. He received the ASEE Frederick Emmons Terman Award in 2014, the IEEE-HKN Outstanding Young Professional Award in 2014, the NSF Faculty Early CAREER Award in 2013, and the IEEE MTT-S Graduate Fellowship Award in 2008. He is the advisor or co-author of several best paper awards.

