

Talk title: Signal Processing Approaches to Sensing without Sensors

Abstract: Human activity recognition is the core technology that enables a wide variety of applications such as health care, smart homes, fitness tracking, and building surveillance. We recognize human activities using signals from commercial WiFi devices. Human bodies reflect wireless signals as they are mostly made of water. Different human activities cause different changes on wireless signals. Thus, by analyzing the changes in wireless signals, we can recognize the corresponding human activities that cause the changes. We classify human activities into macro activities, which involve mostly arm, leg, or body scale movements, and micro activities, which involve mostly finger or hand scale movements. Human activity recognition and monitoring is the enabling technology for various applications such as elderly/health care, building surveillance, human-computer interaction, health care, smart homes, and fitness tracking. In this talk, I will present our research results on this topic.