

Distinguished Speakers'



UEE Seminar Series

Hosted by School of Urban & Environmental Engineering

Smart Sensing and Machine Learning Techniques for Large Transportation Infrastructure Networks

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The current hardware-centered paradigm was mainly developed during the construction booming era of the U.S. Interstate Highway Systems in 1960s. This old paradigm is not sustainable for our rapidly aging infrastructure, nor does it ensure necessary performance of civil infrastructure. Aged infrastructure is a significant threat to national security due to decreasing infrastructure resilience against nature and human-induced hazards. The development of smart sensing, computer vision (CV) and structural health monitoring (SHM) empowered with artificial intelligence (AI) is essential to move toward smart cities and resilient civil infrastructure systems, which enable to understand deterioration mechanisms and hence to predict future conditions based on quantitative data. The mission of the Advanced Imaging, Monitoring and Sensing Laboratory (AIMS) at the University of Central Florida (UCF) is to develop field-enabled technologies for civil infrastructure using the state-of-the-art technologies in smart sensing, signal processing, system identification, computer vision, machine learning and data mining. This seminar addresses rapid inspection technologies for large infrastructure networks, developed by the researchers at AIMS, including (1) computer vision-based automated rapid pavement distress inspection using state-of-the-art GPU-based Parallel Processing and Deep Learning technology, and (2) novel dielectric constant identification technique for underground imaging using 3D ground penetrating radar, and (3) non-contact stress sensing for large rail networks using fluorescence spectroscopy. The feasibility of the above techniques will be discussed using realistic field application examples.



- **When :** 2018.09.06.(Thu) 4 p.m.
- **Where:** Bldg.110(EB4), Room.N101
- **Host :** Prof. Sim, Sung-Han
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