Department of Structural Engineering
University of California, San Diego
SE 290 Seminar

Long Wang
Ph. D. Candidate, Structural Engineering
University of California, San Diego

"Nanocomposite Sensors for Structural and Human Health Monitoring"
Wednesday, January 30, 2019
1:00 pm - 1:50 pm, Cognitive Science Building, Room 001

https://structures.ucsd.edu/seminars

Abstract

Structural health monitoring (SHM) significantly relies on the rich data provided by sensing devices. Although various sensors (e.g., strain gages, fiber optics, and so forth) have been commonly utilized, they can be incompatible to flexible structural systems. For instance, inflatable deployable structures are promising candidates for serving various aerospace missions. However, they can be damaged due to the harsh extraterrestrial operating conditions, causing catastrophic mission failure. In addition, human body, as a flexible biological structural system, entails robust sensing systems for assessing its health condition. On the other hand, nanomaterials provide tremendous opportunities for developing high-performance transducers due to their extraordinary mechanical and electrical properties. In this talk, the fabrication and characterization of the carbon nanotubes (CNT)- / graphene-based piezoresistive nanocomposite thin films, along with their applications in the context of SHM and wearable technology, will be presented. This work lays the foundation for transitioning nano-/micro-scale material properties to high-performance macro-scale multifunctional devices.

Biography

Long Wang is currently a Ph.D. candidate in the Department of Structural Engineering at the University of California at San Diego. He received his M.S. Degrees in Civil Engineering and Mechanical & Aerospace Engineering from the University of California at Davis (2014 - 2015). Prior to joining the UCD, he graduated with a B.S. Degree in Port, Waterway, and Coastal Engineering from the Dalian University of Technology, China (2010 - 2014). His research currently focuses on designing, characterizing, and implementing nanocomposites-based sensing systems for structural health monitoring and human performance monitoring.