Stony Brook University

Department of Civil Engineering

College of Engineering and Applied Sciences

SPRING 2021 ONLINE SEMINAR SERIES

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Monday, March 1st, 2:40 – 3:35 PM

Future Infrastructure Management using the 4.0 Industry Revolution Technology

Abstract

Recent developments in robotics, measurement science, and the Internet of Things can potentially revolutionize the way and process that civil infrastructures are managed. In this grand yet challenging transition era, automation and informatics are two emerging concepts that will boost a wide range of innovations in civil engineering. In this presentation, new developments and potential applications of nondestructive evaluations, sensing systems, imaging systems, data analytics, and climbing and flying robots will be introduced and reviewed in the context of bridge inspection and maintenance. Sensing and imaging systems and robots can be integrated into the current practice of visual inspection in a systematic framework to transform the current ad-hoc approach to a data-driven management of bridges. Some of the culture and policy challenges in leveraging sensing, imaging, and computer simulation tools for managing existing infrastructures will be discussed.

ZOOM LINK: Meeting ID: 950 6760 3617; Passcode: 426506
https://stonybrook.zoom.us/j/95067603617?pwd=dXQybEprSkNlTFY3WHlWYjViUG95UT09

Biography

Dr. Chen received his Ph.D. degree from the State University of New York at Buffalo in 1992 and joined Missouri University of Science and Technology (S&T) in 1996 after over three years of bridge design, inspection, and construction practices with Steinman Consulting Engineers in New York City. Since 1996, Dr. Chen has authored or co-authored over 400 technical publications in structural health monitoring (SHM), structural control, structural and robotic dynamics, computational and experimental mechanics, life-cycle assessment and deterioration mitigation of infrastructure, multi-hazards assessment and mitigation, transportation infrastructure preservation and resiliency including over 180 journal papers, 5 book chapters, and 27 keynote and invited presentations at international conferences. He chaired the 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure (SHMII-9), St. Louis, Missouri, August 4-7, 2019. He received one patent on distributed coax cable strain/crack sensors and two patents on enamel coating of steel reinforcing bars for corrosion protection and steel-concrete bond strength. He received the 2019 SHM Person of the Year award, the 1998 National Science Foundation CAREER Award, the 2004 Academy of Civil Engineers Faculty Achievement Award, and the 2009, 2011, and 2013 Missouri S&T Faculty Research Awards. In 2016, he was nominated and inducted into the Academy of Civil Engineers at Missouri S&T and became an honorary member of Chi Epsilon. He is a Fellow of American Society of Civil Engineers (ASCE), Structural Engineering Institute (SEI), and the International Society for Structural Health Monitoring of Intelligent Infrastructure (ISHMII). He is a Section Editor of the Intelligent Sensors, Associate Editor of the Journal of Civil Structural Health Monitoring, Associate Editor of Advances in Bridge Engineering, Editorial Board Member of Advances in Structural Engineering, and Vice President of the U.S. Panel on Structural Control and Monitoring.