



GEOTECHNICAL
ENGINEERING

STUDENT
ORGANIZATION

GESO Guest Speaker Presentation
Friday, April 24th, 2015
12:00 PM – 1:00 PM
Yeh Center Room 3310

SMART INFRASTRUCTURE AND CONSTRUCTION

Kenichi Soga, Ph.D (University of Cambridge)

One of the greatest challenges facing civil engineers in the 21st century is the stewardship of civil engineering infrastructure. Since infrastructure is a large part of our society's assets, efficient management and maintenance of infrastructure should be a perpetual, ongoing commitment. The application of emerging technologies to advanced health monitoring of critical infrastructure assets will reduce the risk of failure. Emerging technologies will also transform the industry through a whole-life approach to achieving sustainability in construction and infrastructure in an integrated way – design and commissioning, the construction process, exploitation and use, and eventual de-commissioning. Crucial elements of these technologies will be the application of the latest sensor technologies and data management tools to the construction industry, both during infrastructure construction and throughout its design life. Advances in the development of innovative technologies such as distributed fibre optics sensing, computer vision, micro-electro-mechanical sensors, energy harvesting and ultra-low power wireless sensor network offer intriguing possibilities that can radically alter the paradigms underlying existing methods of condition assessment and monitoring. These new technologies often provide new engineering data sets we have not seen before and the challenge is to develop methodologies that will utilize such data for engineering design and risk assessment during construction and operation (inc. decommissioning). This talk will introduce several case studies of applying these technologies for monitoring the conditions of underground structures in London and discuss how engineering decisions were made from the data.

Kenichi Soga is Professor of Civil Engineering and the Head of the Geotechnical Group at the University of Cambridge. He is Fellow of the Royal Academy of Engineering as well as Fellow of the Institution of Civil Engineers. He obtained his BEng and MEng from Kyoto University in Japan and PhD from the University of California at Berkeley in 1994. His current research activities are innovative monitoring and long-term performance of geoinfrastructure, energy geomechanics, and modeling of geotechnical construction processes.

As always, food and refreshments will be provided.

Everyone is welcome!!