



ANNOUNCEMENT

AGS (HK) & The Hong Kong Polytechnic University Joint Technical Seminar

“Adaptive updating of soil properties through monitoring data for improved prediction of excavation response”

by

Dr Andy Leung

- Date** : Thursday, 29 August 2019
- Time** : 6:30 pm – 8:00 pm
- Venue** : Lecture Theatre Y302, 3/F Lee Shau Kee Building, The Hong Kong Polytechnic University, Kowloon (see enclosed map)
- Enquiry** : For enquiries, please contact
Haydn Chan (email: haydn.chan@arup.com)
- Seminar Fee** : Free of charge
- Registration** : No prior registration is required. Seating capacity is provided for approximately 120 people. CPD certificates will be provided after the seminar.
- Book Prize** : Book prize is open to all young attendants under 35 years old for the submission of a good quality report (max. 500 words) on this event. Book Prize reward comprises a book "Geology of Site Investigation Boreholes in Hong Kong" by Chris Fletcher and book coupon HK\$300 from 三聯書店.

Synopsis:

This presentation introduces an adaptive model updating approach for deep excavations, which considers various sources of uncertainty that lead to discrepancies between predicted and actual excavation responses. The approach utilizes field monitoring data, e.g. inclinometer measurements, to update the model bias and spatial variability features in soil stiffness and strength parameters. Based on the updated parameters, subsequent predictions on excavation responses and levels of uncertainty can be continuously refined as the construction progresses. To reduce the computational demands associated with the algorithm, the approach incorporates machine learning techniques including surrogate modelling and Bayesian methods. These are illustrated through two cases, where the approach provides an efficient modelling tool to facilitate data-driven decision making.



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About the Speaker

Dr. Leung is currently Associate Professor at The Hong Kong Polytechnic University. He graduated from The University of Hong Kong (BEng) and University of California, Berkeley (MS), before he obtained PhD degree at the University of Cambridge, UK. Before joining PolyU, Dr Leung has practised geotechnical engineering both in Hong Kong and the United States, and had been involved in a number of large-scale civil engineering projects in Hong Kong, the United States, United Kingdom, India and the Middle East. His research interests include soil-structure interaction, reliability of geotechnical and structural systems and probabilistic analysis approaches. He has received awards including the HKIE Fugro Prize, Departmental Teaching Excellence Award, Dean's Award for Outstanding Achievement in Research Funding, etc. Currently, he also serves as the Secretary-General of Hong Kong Geotechnical Society.

