SEMINAR IN GEOTECHNICAL ENGINEERING

WHAT TO DO WITH GOOD DATA, BAD DATA, CPTU DATA?

The faculty of Built Environment is inviting you to an afternoon seminar addressing the increasing amount of data we are facing in geotechnical engineering. The keynote speaker is Professor *Kok-Kwang* Phoon from NUS who is a world leading expert on this topic.
The seminar will take place on Thursday 31st of October at 14.15 in lecture hall RG202 in the faculty of Built Environment.

The program for the seminar is the following:

Professor Kok-Kwang Phoon will have an 1 hour keynote lecture with the topic

Big Ugly Data in Geotechnics or BUG

Afterwards we will have about 20 minute's lectures as follows;

SHANSEP based transformation models	Marco D'Ignazio	NGI/Ramboll/TAU
Reliability of CPTU	Mika Knuuti/Juha Selänpää	TAU
CPTU based transformation models	Bruno D'Buo/Tim Länsivaara	TAU
Influence of Data coherence on transformation models	Mohammad Farhadi	TAU

Coffee will be served before the seminar. Kindly confirm your participation to
johanna.harju@tuni.fi

Welcome

Tim Länsivaara

Lecture at Tampere University of Technology

31 October 2019

Big Ugly Data in Geotechnics or BUG

Different geotechnical engineers could define good data in different ways. Some may view data from undisturbed block samples to be good. Some may say precise data with minimum measurement errors are good. Others may reasonably say data collected at the site of interest are more valuable than those at nearby sites or sites with comparable geology. Another type of good data could be measurements from high quality laboratory tests under controlled boundary conditions or even better still, direct measurements that can be used in constitutive models without further transformation (called design parameters). Bad data are obvious – they are totally corrupted data that do not contain useful information or could even contain misleading information regarding the state of the ground.

Ugly data are in between good and bad data. They could be uncertain, but less precise data are not useless. They may need to be transformed to design parameters, resulting in further loss of precision due to transformation uncertainties. They are data from past projects rather than those collected in the current project. They may be good quality monitoring or proof test data, but one could say they are ugly because it is difficult to relate them to our elegant physical models. Some records may even be corrupted, but not all are corrupted. By definition, we have a lot more ugly data than good data.

It seems reasonable to suppose that the first step towards digital transformation is to go beyond good data and learn how to monetize big ugly data in geotechnics or BUG. This purpose of this lecture is explore some preliminary ideas on what we can do with such data.

Kok-Kwang Phoon

Distinguished Professor, National University of Singapore (NUS)

Research Awardee of the Alexander von Humboldt Foundation

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Bio: Kok-Kwang Phoon is Distinguished Professor and Vice Provost (Academic Personnel), National University of Singapore. He obtained his BEng and MEng from the National University of Singapore and his PhD from Cornell University. He is a Professional Engineer in Singapore and past President of the Geotechnical Society of Singapore. Prof Phoon is particularly interested in developing statistical and other data-driven methods to support decision making in geotechnical engineering. He is the lead editor of 3 books: *Reliability of Geotechnical Structures in ISO2394* (CRC Press/Balkema, 2016), *Risk and Reliability in Geotechnical Engineering* (CRC Press, 2015), and *Reliability-based Design in Geotechnical Engineering* (Spon Press, 2008). He was bestowed with numerous research awards, including the ASCE Norman Medal in 2005, the John Booker Medal in 2014, and the Humboldt Research Award in 2017. He is the Founding Editor of Georisk and advisory board member for the WEF Global Risks Report. He was elected as a Fellow of the Academy of Engineering Singapore in 2012.