

WEBINAR TALK ON MACHINE LEARNING-POWERED LANDSLIDE FORECASTING: FROM INITIATION TO MOBILITY

SPEAKER:
DR. TE XIAO



31 OCTOBER 2025, FRIDAY



10.00AM - 12.00PM

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Registration Fees Student Members : Free

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SYNOPSIS

Promptly predicting where and when landslides will occur and how far they will move during future rainstorms is essential for addressing the increasing landslide risks in a changing climate. Although machine learning algorithms have advanced rapidly, most existing studies remain limited to landslide susceptibility mapping, hindered by the challenges of time-unknown and terrain-unmatched issues in landslide data. This webinar will introduce two novel machine learning strategies designed to predict the spatio-temporal distribution of landslides considering both initiation and mobility. Hong Kong is taken as an example to demonstrate the capacity of city-scale landslide forecasting using machine learning. The spatio-temporal evolution of both man-made slope failures and natural terrain landslides in a rainstorm can be well predicted using machine learning models, which provides a powerful real-time decision-making tool for landslide early warning and risk management. Finally, the webinar will showcase practical applications of these models within a digital twin framework for Hong Kong's slope safety system.

SPEAKER'S PROFILE

Dr. Te Xiao is currently an Associate Professor of Civil Engineering at Shanghai Jiao Tong University. Previously, he was a Research Assistant Professor at The Hong Kong University of Science and Technology. His research focuses on geotechnical uncertainty and risk, landslide hazard mitigation, machine learning, and digital twins. He has authored over 40 international journal papers on these topics, in addition to a textbook entitled *Geotechnical Reliability Analysis: Theories, Methods and Algorithms*, published by Springer. He has been honored with several distinctions, including the ISSMGE (International Society of Soil Mechanics and Geotechnical Engineering) Bright Spark Lecture Award and the HKIE (The Hong Kong Institution of Engineers) Geotechnical Paper Award. He also serves as an Assistant Editor for the international journal *Georisk*.