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DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
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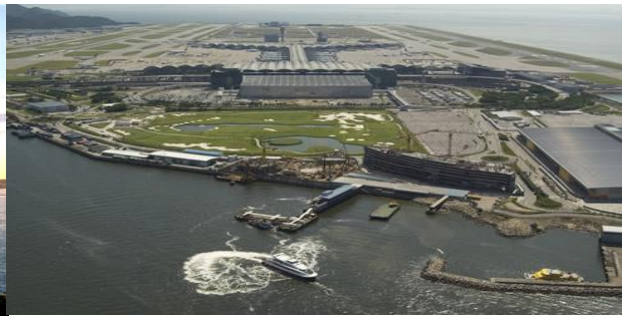

Deep Learning based Neural Network for Civil Structural Health Monitoring

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Venue: **Room ZS970, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong**

SEMINAR ABSTRACT

Machine learning techniques explore the study and construction of algorithms that can learn from and make predictions on data. Deep learning is a branch of machine learning based on a set of algorithms that attempt to model high-level abstractions in data by using multiple processing layers, with complex structures or multiple non-linear transformations. Civil Structural Health Monitoring (SHM) provides practical means to assess and predict the civil structural performance under operational conditions. It is usually referred as the measurement of the critical responses of a structure to track and evaluate the symptoms of operational incidents, anomalies, and deterioration that may affect the serviceability and safety of civil structures. Structural damage identification based on changes in vibration characteristics of structures can be formulated as a pattern-recognition problem, which is one of the most developed areas in machine learning. Artificial Neural networks (ANN) and Genetic Algorithms (GA) are computational approaches based on machine learning to learn and make predictions based on data, and have been applied successfully in diverse applications including SHM in civil engineering. quantification. We proposed to use a few variations of the recently-proposed deep learning based neural network for structural damage identification. The accuracy and efficiency of utilizing these novel techniques are evaluated and demonstrated with simulated data and the measured experimental data.

SPEAKER'S BIOGRAPHY

Professor Ling Li obtained her BSc (Computer Science) from Sichuan University, MEng (Computer Engineering) from China Academy of Post and Telecommunication, and PhD from Nanyang Technological University, Singapore. She worked as a Lecturer, Senior Lecturer, and Associate Professor in Nanyang Technological University before moving to Curtin University in Australia. She is now a Professor and Head of School of Electrical Engineering, Computing and Mathematical Sciences in Curtin. Her research interests are mainly in machine learning, artificial intelligence, computer vision and visualisation.

***** All Interested Are Welcome *****

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