

The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

**Machine Learning for Stochastic Control and
High-dimensional Nonlinear PDEs**

By

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Abstract

The development of numerical methods for the control of random dynamical systems and partial differential equations (PDEs) that are ubiquitous in engineering, finance and economy, represents a major scientific challenge for high-dimensional nonlinear problems. Techniques from deep neural networks has shown their efficiency and success in many fields (image recognition, computer vision, etc), and have recently emerged in stochastic control and PDE. This talk gives an introduction to machine learning methods, and presents several deep learning algorithms for control problem and numerical resolution of high-dimensional PDEs. Convergence of these numerical schemes will be discussed and several examples and applications illustrate our results.

Date : December 17, 2019 (Tuesday)

Time : 4pm – 5pm

Venue : TU801, The Hong Kong Polytechnic University

***** ALL ARE WELCOME *****