



## Seminar

# **Prof. Haomin ZHOU**

## Georgia Institute of Technology, USA

### Topic

Analysis and Computation of Wasserstein Geometric Flow in Parameter Space

### Date | Time

18 June 2024 (Tuesday) | 04:00 pm – 05:00 pm (HK Time)

#### **Venue:**

Y303, Main Campus

#### **Abstract:**

We introduce a new parameterization strategy that can be used to design algorithms simulating geometric flows on Wasserstein manifold, the probability density space equipped with optimal transport metric. The framework leverages the theory of optimal transport and the techniques like the push-forward operators and neural networks, leading to a system of ODEs for the parameters of neural networks. The resulting methods are mesh-less, basisless, sample-based schemes that scale well to higher dimensional problems. The strategy works for Wasserstein gradient flows such as Fokker-Planck equation, and Wasserstein Hamiltonian flow like Schrodinger equation. Theoretical error bounds measured in Wasserstein metric is established. This presentation is based on joint work with Yijie Jin (Math, GT), Shu Liu (UCLA), Hao Wu (Wells Fargo), Xiaojing Ye (Georgia State), and Hongyuan Zha (CUHK-SZ).

#### **ALL ARE WELCOME**