中央研究院統計科學研究所
學 術 演 講

講 題：Deep Learning Group - A Tutorial on Flow-Matching for Statisticians Who are New to Deep Generative Models

演 講 人：Dr. Tso-Jung Yen

Institute of Statistical Science, Academia Sinica

時 間：2025-02-20（Thu.）14:00-15:30

地 點：R6005, 6F, RCEC Building；The tea reception will be held at 13:40.

備 註：Online live streaming through Cisco Webex will be available.

Abstract

Generative models are popular tools in manipulating data and have been widely applied in many commercial and scientific projects. However, their formulation requires careful planning, and their training relies on large amounts of data and compute. In this talk we give a self-contained tutorial on Flow
Matching, a flexible generative modelling framework that allows researchers to utilize customized flow maps for building generative models. We first describe challenges in high dimensional generative problems. We then explain Flow Matching by exploring its solutions to the high dimensional generative problems. Next we discuss recent developments in Flow Matching by focusing on its extensions to guided and accelerated generations. We also explore its connections to diffusion probabilistic models and other generative modelling frameworks. Finally we demonstrate Flow Matching by applying it to solve three real-world generative problems, including image translation, point cloud reconstruction, and graph generation.

中 央 研 究 院

統 計 科 學 研 究 所