

# 中央研究院統計科學研究所

## 學術演講

講題：Generative Distribution Prediction for Multimodal Learning

演講人：Prof. Xiaotong Shen (沈曉彤 教授)

School of Statistics, University of Minnesota

時間：2025-05-26 (Mon.) 10:30-12:00

地點：Auditorium, B1F, Institute of Statistical Science; The tea reception will be held at 10:10.

備註：Online live streaming through Google Meet will be available.

### Abstract

Accurate multimodal prediction—spanning tabular, textual, and visual data—is crucial for advancing analytics across diverse domains. However, traditional models often struggle to integrate heterogeneous data while preserving high predictive accuracy. In this talk, we present Generative Distribution Prediction, a flexible framework that enhances predictive performance through multimodal synthetic data generation, including conditional diffusion models. This framework facilitates transfer learning, adapts to various loss functions for risk minimization, and provides statistical guarantees on predictive accuracy. We empirically validate its versatility and effectiveness across four supervised tasks: tabular data prediction, question answering, image captioning, and adaptive quantile regression.

Joint work with Dr. Xinyu Tian, School of Statistics, University of Minnesota.



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