Department of Applied Mathematics Seminar

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Topic
Learning invariant representations for algorithmic fairness and domain generalization with minimax optimality

Date| Time
30 April 2025 (Wednesday) | 10:30 – 11:30 (HK Time)

Venue
Y303

Abstract:
Machine learning methods often assume that the test data have the same distribution as the training data. However, this assumption may not hold due to multiple levels of heterogeneity. In this work, we address the problem of fair and generalizable machine learning in unseen environments. we first propose a training environment-based oracle, FAIRM, which has desirable fairness and domain generalization properties in unseen environments under a diversity-type of conditions. We then adapt the FAIRM framework to linear models. We develop efficient algorithms for these models and provide finite sample guarantees. We evaluate our method in multiple numerical studies and show that it outperforms ERM and Maximin estimators.

ALL ARE WELCOME