In Favour of Posting

THE CHINESE UNIVERSITY OF HONG KONG

Department of Information Engineering

Seminar

Robust Learning with Performative Data

By

Miss Wenjing Yan

Hong Kong University of Science and Technology

Date : 19 August 2024 (Monday)

Time : 09:45am – 10:45am

Venue : Rm 801, Ho Sin Hang Engineering Building, CUHK

Abstract

Distribution shifts in machine learning, driven by the dynamic nature of deployment environments, significantly impact the performance of learning models. This talk explores endogenous distribution shifts in learning systems, where deployed models influence environments and subsequently alter data distributions. This phenomenon, first formalized as "performative prediction" by Perdomo et al. (2020) through decision-dependent distribution mappings, is ubiquitous in various domains, including finance, transportation, banking, and recommendation systems. Our discussion investigates the performative effect in centralized constrained optimizations and decentralized noncooperative games. We begin by elucidating the concept of performative prediction, followed by a characterization of the optimality and stability conditions of the considered performative prediction problems. We then present effective algorithms for computing optimal and stable points. Finally, we conclude this talk by highlighting some promising future research directions in this emerging and important field.

Biography

Wenjing Yan received the B.S. degree in Electronic Information Engineering from Chongqing University in 2018, and the M.S. degree in Electronic and Communication Engineering from the University of Electronic Science and Technology of China in 2021. Currently, she is a final year Ph.D. student in Electronic and Computer Engineering at the Hong Kong University of Science and Technology. Her main research interests include distributed optimization, machine learning, decision theory, signal processing, and reconfigurable intelligent surfaces.

**** ALL ARE WELCOME ****

Host: Prof. VONTOBEL Pascal O. (Tel: 3943-8390, Email: pascal.vontobel@ie.cuhk.edu.hk)

Enquiries: Information Engineering Dept., CUHK (Tel.: 3943-8385)