



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON STATISTICS

**Precision Medicine: Subgroup Identification
in Clinical Trials**

By

Prof. Lei LIU

Washington University in St. Louis

Abstract

In randomized controlled trials, individual subjects often exhibit heterogeneous treatment effects; that is, while some subjects might benefit significantly, others may see little to no improvement, or even detrimental effects. These variations can lead to an overall treatment effect that appears negligible. To address this issue in what might be considered failed trials, we employ an interaction tree framework to identify subgroups that exhibit heterogeneous treatment effects. We utilize the Classification and Regression Tree (CART) methodology, which recursively partitions the data into subsets demonstrating the most significant interaction with the treatment. The variability in treatment effects is evaluated using different models tailored to various outcome types. We have applied our methods to three randomized controlled trials, showcasing their potential to guide the direction of future clinical studies.

Date : 09 December 2024 (Monday)

Time : 4:00p.m.-5:00p.m.

Venue : Room 1409 (Lift 25/26)

All are Welcome!