

Department of Statistics & Data Science

Colloquium Series

Fall 2019

Speaker: Xiaogang Su

Title: RELIEF-Based Feature Selection for Individualized Treatment Effects

Date: Friday, October 4th, 2019

Time: 11:00 – 12:00

Location: Technology Commons II - Room 222

Abstract:

We extend the Relief feature selection technique to precision medicine. The proposed method facilitates a variable importance ranking for covariates in terms of their predictive (vs. prognostic) value in modifying the treatment effects on a binary outcome. Our approach is originally motivated by the case-only analysis in randomized controlled trials, but amazingly it is applicable to both RCT and observational studies owing to the local inference that Relief makes. A statistical interpretation is provided from the machine learning perspective. Our proposed method is especially advantageous in retrospective studies with rare outcomes. We demonstrate its usefulness and efficiency and compare it to other competitive approaches via both simulation and real data applications.

About the Speaker:

Dr. Xiaogang Su is a professor of statistics at the University of Texas at El Paso. He earned his bachelor's degree in mathematics from Beijing Normal University in 1995 and his MS/PhD in statistics from the University of California at Davis in 2001. He had worked at the University of Central Florida (UCF) and the University of Alabama at Birmingham since graduation. His statistical research areas include tree-structured modeling, variable selection, machine learning, and precision medicine. He has also done considerable collaborative research in a variety of areas including nursing, transportation safety, dental research, and other biomedical fields.