Mathematical Sciences

Spring 2020

Colloquium Series

Monday, February 24, 2020
Bell Hall 143
3pm

(Note the unusual day)

For further information, please contact Dr. Ori Rosen, orosen@utep.edu

Candidate for Data Science Faculty Position

Dr. Abhijit Mandal

Wayne State University

Robust Variable Selection for the Penalized Regression

Abstract

In this talk, I will present a penalized robust variable selection procedure using a divergence based M-estimator. It produces robust estimates of the regression parameters and simultaneously selects the important explanatory variables. I will discuss on the asymptotic distribution and the influence function of the regression coefficients. The widely used model selection procedures based on the Mallows's C_p statistic and Akaike information criterion (AIC) often show very poor performance in the presence of heavy-tailed error or outliers. For this purpose, I will introduce robust versions of these information criteria based on our proposed method. The simulation studies show that the robust variable selection technique outperforms the classical likelihood-based techniques in the presence of outliers. The performance of the proposed method will also be explored through the real data analysis.