THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

MASTER'S THESIS PRESENTATION

CHENG PENG
Department of Statistics
The University of Chicago

LASSO-Driven Simultaneous Inference on High Dimensional Dependent Data

THURSDAY, November 17, 2022, at 2:00 PM
VIA ZOOM
Zoom info sent via email announcement

ABSTRACT

With increasing interest in dealing with high-dimensional data, scientists put great emphasis doing estimation and inference in a system of regression equations allowing for temporal and spatial dependency in covariates and error processes with high dimension. LASSO is a popular method for model selection purposes and a refined procedure of choosing penalty level and constructing the simultaneous confidence region is proposed in order to improve the accuracy of the parameter estimation as well as achieve a better empirical power and size accuracy of the confidence interval. Additionally, a block bootstrap technique is adapted to account for the dependency of the data. To evaluate the performance of the method, we do the simulation study to compare the average rejection rates for a specific hypothesis testing problem using simultaneous inference and individual inference. Furthermore, we apply the method to real market data to study the spillover effect of textual sentiment variables among individual stocks and detect the joint influence among sectors of stocks.