DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

50th Anniversary Seminar Series

Dr. Xuening ZHU

Department of Statistics
Pennsylvania State University
USA

will give a talk

entitled

NETWORK VECTOR AUTOREGRESSION

Abstract

We consider here a large-scale social network with a continuous response observed for each node at equally spaced time points. The responses from different nodes constitute an ultra-high dimensional vector, whose time series dynamic is to be investigated. In addition, the network structure is also taken into consideration, for which we propose a network vector autoregressive (NAR) model. The NAR model assumes each node's response at a given time point as a linear combination of (a) its previous value, (b) the average of its connected neighbors, (c) a set of node-specific covariates, and (d) an independent noise. The corresponding coefficients are referred to as the momentum effect, the network effect, and the nodal effect respectively. Conditions for strict stationarity of the NAR models are obtained. In order to estimate the NAR model, an ordinary least squares type estimator is developed, and its asymptotic properties are investigated. We further illustrate the usefulness of the NAR model through a number of interesting potential applications. Simulation studies and an empirical example are presented.

on

Monday, January 22, 2018

(Refreshments will be served from 10:15 a.m. outside Room 301 Run Run Shaw Building)

10:30 a.m. – 11:30 a.m.

at

Room 301, Run Run Shaw Building

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

ALL INTERESTED ARE WELCOME