STEVENS
Institute of Technology

Department of Mathematical Sciences
Charles V. Schaefer Jr. School of Engineering & Sciences

Dr. Xiaodong Lin

MSIS Department, Rutgers Business School
Rutgers University

Regularization for Stationary Time Series

Monday, November 23, 2009
4:00 pm
Peirce 120

Abstract:

The past decade has seen a rapid development of regularization techniques such as ridge regression, LASSO, SCAD, LARS and their extensions. However, these techniques have been developed mainly for circumstances where the observations are independent. In practice, many classes of interesting problems such as financial time series involve dependent data. In this talk, we will first describe extensions of the results of penalized methods for independent data to stationary multivariate time series. Under mild regularity conditions, our penalized estimators are sparse-consistent and possess well-known oracle properties. We demonstrate the utility of our results by developing a sparse version of the full factor GARCH model. Furthermore, we study the problem of regularization for AR(p) models with varying lags. With the appropriate choices of penalty functions, the resulting estimator achieves desired asymptotic consistency as well as automatic selection of important lag coefficients. Finally, we show the applicability of our theory and methods via real and simulated data.

Xiaodong Lin is an associate professor at the department of Management Science and Information Systems at Rutgers University. Prior to joining Rutgers, he was a faculty member at the department of Mathematical Sciences at University of Cincinnati. He obtained his Ph.D. degree in statistics from Purdue University in 2003. His research interests include statistical machine learning, financial time series and data privacy and confidentiality.

Refreshments will be provided.
For more information contact Darinka Dentcheva or call 201-216-5449.