RUTGERS UNIVERSITY
DEPARTMENT OF STATISTICS AND BIOSTATISTICS
HILL CENTER #501, BUSCH CAMPUS, PISCATAWAY

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Seminar

Speaker: Adam Rothman, University of Michigan

Title: Sparse estimation of high-dimensional covariance matrices

Date: Monday, February 8, 2010

Time: 12 Noon

Place: 552 Hill Center

Abstract

This talk will present some methods and asymptotic theories that we have developed for sparse estimation of the covariance matrix and the inverse covariance (concentration) matrix in high-dimensional settings. An estimate of the covariance matrix or its inverse is needed for classification by discriminant analysis, Gaussian graphical model inference, and principal components analysis. We highlight two methods that are invariant to the ordering of the variables, and for both, we obtain explicit convergence rates in matrix norms that show the trade-off between the sparsity of the true model, dimension, and the sample size. These sparse covariance estimators are compared to other estimators on simulated data and on data examples from gene microarray experiments. If time permits, we will discuss covariance estimators that exploit variable ordering.