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Seminar

Speaker: **Hui Zou**
Associate Professor
School of Statistics
University of Minnesota

Title: **Rank-Based Estimation of Gaussian Copula Graphical Models**

Time: **3:20 – 4:20pm, Wednesday, December 5, 2012**

Place: **552 Hill Center**

Abstract

A sparse precision matrix can be directly translated into a sparse Gaussian graphical model under the assumption that the data follow a joint normal distribution. This neat property makes high-dimensional precision matrix estimation very appealing in many applications. However, in practice we often face non-normal (heavy tailed or skewed) data and variable transformation is often used to achieve normality. A natural extension of the normal model is the Gaussian copula model, assuming that the variables follow a joint normal distribution after a set of unknown monotone transformations. We propose a rank-based estimation scheme for estimating the inverse correlation matrix of the Gaussian copula model. The advantage of this approach is that we do not need to estimate the unknown transformation functions and still achieve the optimal rate of convergence. In particular, we study the rank-based graphical lasso, the rank-based neighborhood Dantzig selector and the rankbased CLIME, and show they behave like their oracle counterparts. If time permits I will talk about the adaptive minimax estimation of sparse correlation matrices of Gaussian copula.

**** Refreshments will be served at @2:50pm in Room 502 Hill Center ****

