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## RUTGERS UNIVERSITY

### DEPARTMENT OF STATISTICS AND BIOSTATISTICS DEPARTMENT OF COMPUTER SCIENCE

## Seminar

Speaker: **Dr. Sahand Negahban**  
**Massachusetts Institute of Technology**

Title: **Structured Estimation in High-Dimensions**

Time: **12:00pm, Monday, February 11, 2013**

Place: **552 Hill Center**

### Abstract

Modern techniques in data accumulation and sensing have led to an explosion in both the volume and variety of data. These advancements have presented us with a tremendous opportunity to perform more sophisticated inference and decision making tasks. Such problems arise in: genomics, graphical model learning, and recommendation systems. Many of the resulting estimation problems are high-dimensional, meaning that the number of parameters to estimate can be far greater than the number of examples. The high-dimensionality and volume of the data leads to substantial challenges, both statistical and computational.

A major focus of my work has been developing an understanding of how hidden low-complexity structure in large datasets can be used to develop computationally efficient estimation methods. I will introduce a unified framework for establishing the error behavior of a broad class of estimators under high-dimensional scaling. I will then discuss how to compute these estimates and draw connections between the statistical and computational properties of our methods. Interestingly, the same tools used to establish good estimation performance have a direct impact for optimization: better conditioned statistical problems lead to more efficient computational methods. Finally, I will discuss new results on rank aggregation procedures.

[Joint work with Alekh Agarwal, Sewoong Oh, Pradeep Ravikumar,  
Devavrat Shah, Martin Wainwright and Bin Yu]

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

**Any inquiries please contact Ms. Arlene Gray at 848-445-7670 or agray@stat.rutgers.edu**

