



The University of Chicago  
Department of Statistics

Seminar Series

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**ART OWEN**

Department of Statistics  
Stanford University

**Empirical Stationary Correlations  
for Semi-Supervised Learning on Graphs**

**FRIDAY, May 8, 2009, at 2:30 PM**  
**110 Eckhart Hall, 5734 S. University Avenue**

*Refreshments following the seminar.*

**ABSTRACT**

In semi-supervised learning on graphs, response variables observed at one node are used to estimate missing values at other nodes. The methods exploit correlations between nearby nodes in the graph. We prove that many such proposals are equivalent to kriging predictors based on a covariance matrix driven by the link structure of the graph. We then propose a data-driven estimator of the correlation structure that exploits patterns among the observed response values. By incorporating even a small fraction of observed covariation into the predictions we are able to obtain much improved prediction on two graph datasets.

This is joint work with Ya Xu and Justin Dyer.