

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, November 3, 2003
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Bayesian Isotonic Regression Using Bernstein Polynomials, with Application to Microarray Data

Abstract:

Bayesian isotonic regressions are studied using priors on Bernstein polynomials and Markov chain Monte Carlo methods. These priors are flexible and have support the space of bounded, increasing, and continuous functions satisfying certain geometric properties, such as being convex or sigmoidal. As an application, a Bayesian isotonic and sigmoidal regression model is successfully employed to conduct data normalization in cDNA microarray experiments with DNA control sequences, where calibration curves relating fluorescence signal intensities to gene expressional levels are studied as regression functions.