

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, July 11, 2006
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

Iddo Drori
Department of Statistics
Stanford University

Fast L_1 Minimization

Finding the sparsest solution to underdetermined systems of linear equations is NP-hard. Solution methods which find the L_1 -norm are convex and computationally tractable by linear programming in cubic time. We describe iterative algorithms running in linear time which are faster than general purpose solvers by two orders of magnitude. We demonstrate the applicability of our approach to genomewide analysis of mRNA lengths, feature selection and classification in the case of observations from a small number of examples and a large number of interacting features, and multidimensional NMR spectroscopy for protein structure determination.