STANFORD UNIVERSITY

DEPARTMENT OF STATISTICS

DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, October 24, 2000
Sequoia Hall Rm. 200
(Cookies at 3:45 in 1st Floor Lounge)

Trevor Hastie
Department of Statistics
Stanford University

Support Vector Machines - a Statistics Perspective

The SVM techniques pioneered by Vladimir Vapnik has created a growth industry in computer science and machine learning. Originally developed as enhancements of the separating hyperplane for two-class classification, we now have SVM versions of regression, principal components, time-series models, ..., and the crank is still turning.

In this talk I describe the SVM, and its use of "inner-product" kernels to achieve flexible generalizations. I then view the SVM as as the minimization of a regularized error function in a reproducing kernel Hilbert space of functions, with strong connections to the smoothing spline technology of Grace Wahba.

This talk is based on material from chapter 11 of "Elements of Statistical Learning", a monograph near completion by Friedman, Hastie and Tibshirani. Current versions of this chapter are available from http://www-stat.stanford.edu/ tibs/book