

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, October 2, 2001
Sequoia Hall Rm. 200
(Cookies at 3:45 in 1st Floor Lounge)

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Error Estimation with Rademacher and Gaussian Complexities

We investigate model selection strategies based on penalized empirical loss minimization. We point out a tight relationship between error estimation and data-based complexity penalization: any good error estimate may be converted into a data-based penalty function and the performance of the estimate is governed by the quality of the error estimate. We focus in particular on Rademacher and gaussian complexities, and show how estimates of these complexities can be computed. We give examples of the application of these techniques in finding data-dependent error estimates for decision trees, neural networks and support vector machines.

(Joint work with Stephane Boucheron, Gabor Lugosi, and Shahar Mendelson.)