

**STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR**

3:15 p.m., Wednesday, October 31, 2007
Building 380, Room 380-C

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Statistics without Probability: the French Way

I will present the geometric and perturbative approaches to multivariate statistics popularized in France in the mid-seventies. Inner products are central to this perspective, and I will show how they enable a unified treatment of principal components, multiple regression, discriminant analysis, kernel methods, correspondence analysis, multidimensional scaling, multivariate spatial analysis and conjoint analysis of a data cube. This geometric picture of data analysis is now very popular with the machine learning community. I will concentrate on some of the earlier tricks such as supplementary points and perturbation analysis that can be applied today to new problems in biology.