



The University of Chicago  
Department of Statistics  
Seminar Series

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**“Statistical Performance of Support Vector Machines”**

**MONDAY, January 29, 2007 at 4:00 PM**  
**133 Eckhart Hall, 5734 S. University Avenue**

*Refreshments following the seminar in Eckhart 110.*

**ABSTRACT**

I will present a contribution to the statistical analysis of Support Vector Machines (SVMs). The SVM is a very popular algorithm initially designed by Vapnik for solving classification problems. From a mathematical perspective, it can be shortly described as a regularized minimum empirical risk estimator, using a convex loss function adapted to the classification setting and a regularization term proportional to the squared norm in a certain Hilbert space. We present an “oracle type” inequality for the risk of the estimator obtained by the SVM algorithm. This allows us to show that the SVM enjoys adaptivity properties, in a way comparable to the well-studied regularized least-squares methods in regression. For this we use tools of empirical processes theory and functional analysis. We present several flavors of the bounds that can be obtained this way and compare their respective merits.