The Consistency of Kernel-Based Large-Margin Classification

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In the past few decades, a large amount of classificaiton methods are developed from different perspective. There are two main groups of methods: soft and hard classification. Roughly speaking, a soft classification rule generally estimates the class conditional probabilities explicitly and then predicts the class based on the largest estimated probability. In contrast with the soft classification rule, the hard classification tends to directly estimate the classification boundary. However, it is not so clear that how to choose between soft and hard classification in practical applications. The recently proposed large-margin classifiers offers a unique transition from hard to soft classifiers. In this talk, we mainly study the kernel-based large-margin classification from learning theory point of view. Quantitative error analysis for these learning algorithms is provided.