Fisher Linear Discriminant Analysis on Reproducing Kernel Hilbert Spaces

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Abstract

In the recent development of learning theory, kernel machines are probably the most popular and influential tool in classification, pattern recognition, inverse problems, clustering analysis, etc. Kernels used in the kernel machines are reproducing kernels. In this talk, I will focus on a particular type of kernel machines coming from kernelizing the Fisher linear discriminant analysis. This kernelized Fisher discriminant analysis is based on the maximum likelihood ratio of two Gaussians on a reproducing kernel Hilbert space. The separating boundary is versatile nonlinear one in the original data space, while linear in the RKHS.