中央研究院統計科學研究所
學 術 演 講

講　題：Supervised classification of functional data using subspace projection

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時　間：2017年11月27日（星期一）上午10:30–12:00

地　點：中央研究院統計科學研究所二樓交誼廳

※茶 會：上午 10：10 統計所二樓交誼廳

Abstract

We propose a covariate-adjusted subspace projection method for classifying functional data, where the covariate effects on the response functions influence the classification outcome. The proposed method is a subspace classifier based on functional projection, and the covariates affect the response function through the mean of a functional regression model. We assume that the response functions in each class are embedded in a class specific subspace spanned by a covariate-adjusted mean function and a set of eigenfunctions of the covariance kernel through the covariate-adjusted Karhunen–Loève expansion. A newly observed response function is classified into the optimally predicted class that has the minimal distance between the observation and its projection onto the subspaces among all classes. The covariate adjustment is useful for functional classification, especially when the covariate effects on the mean functions are significantly different among the classes. We demonstrate the proposed classification method and its performance through simulation studies and data applications.

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