Robust multivariate functional discriminant coordinates

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Abstract

In this paper, we consider the discriminant coordinates for multivariate functional data and their application to classification problem. We present more general construction of the multivariate functional discriminant coordinates than that known in the literature. The construction is based on basis expansion of functional data. To overcome the non-robustness of the classical estimators, we also propose robust estimation methods of unknown parameters in the multivariate functional discriminant coordinates. The constructed classification rules for multivariate functional data based on the linear discriminant analysis and standard and robust discriminant coordinates are compared on a simulation study. The results indicate possible usefulness of proposed methods in practice.

Keywords

Discriminant coordinates, Linear discriminant analysis, Multivariate functional data analysis, Robust location and scatter estimation.

References


