

Combining Models in Discrete Discriminant Analysis

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Abstract

Diverse Discrete Discriminant Analysis (DDA) models perform differently on different sample observations (Brito et al.(2006)). This fact has encouraged research in combined models for DDA. This research seems to be specially promising when the *a priori* classes are not well separated or when small or moderate sized samples are considered, which often occurs in practice. In this work we evaluate the performance of a linear combination of two DDA models (Marques et al. (2008)): the First-Order Independence Model (FOIM) and the Dependence Trees Model (DTM) (Celeux and Nakache (1994)). The proposed methodology also uses a Hierarchical Coupling Model (HIERM) when addressing multiclass classification problems, decomposing the multiclass problems into several bi-class problems, using a binary tree structure (Sousa Ferreira (2000)). The analysis is based both on simulated and real datasets. Results include measures of precision regarding a training set, a test set and cross-validation. The R software is used for the algorithm's implementation.

Keywords

Combining model, Discrete Discriminant Analysis , First-order Independence Model, Dependence Trees Model

References

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