

A new knn-classifier for functional data with applications

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Abstract: In this talk, we discuss a new knn (k-nearest neighbors) classifier for functional data. For supervised classification of functional data, several classifiers have been proposed in the literature, including the well-known classic knn classifier. The classic knn classifier selects k nearest neighbors around a new observation and determines its class-membership according to a majority vote. A difficulty arises when there are two classes having the same largest number of votes. To overcome this difficulty, we propose a new knn classifier which selects k nearest neighbors around a new observation from each class. The class-membership of the new observation is determined by the minimum average distance or semi-distance between the k nearest neighbors and the new observation. Good performance of the new knn classifier is demonstrated by simulation studies and real data examples.