AN ALGORITHM FOR PRECISE SELECTION OF MINIMAL FEATURES FOR PATTERN CLASSIFICATION

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Abstract

In this paper a universal algorithm for selection of minimum dimensionality of feature vector for pattern classification is proposed, based on theory of set partitions and can be applied to any pattern classification problem. To classify all the patterns of a database, the algorithm proposed gives a single and precise value of minimum dimensionality. To make pattern classification/recognition algorithms computationally efficient especially for on-line pattern recognition, selection of minimum dimensionality is a crucial task, where aim is to classify all the patterns in the database with efficiency.

The performance of the algorithm is tested for a character image database of 1000 handwritten Devnagiri numerals with ring data features and classification is verified using Fuzzy Min-Max Neural Network (FMN) proposed by Patrick Simpson. Due to familiarity of pattern recognition community with Fisher Iris data, performance of the algorithm is also tested for it verified using same neural network.

Keywords : Pattern classification, feature selection, minimum dimensionality of feature set, feature reduction.