Comparing Feature Extraction Techniques and Classifiers in the Handwritten Letters ... (2010)

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10.1007/978-3-642-15825-4_12 Abstract:The aim of this study is to compare the performance of two feature extraction techniques, Independent Component Analysis (ICA) and Principal Component Analysis (PCA) and also to compare two different kinds of classifiers, Neural Networks and Support Vector Machine (SVM). To this aim, a system for handwritten letters recognition was developed, which consist of two stages: a feature extraction stage using either ICA or PCA, and a classifier based on neural networks or SVM. To test the performance of the system, the subset of uppercase letters of the NIST#19 database was used. From the results of our tests, it can be concluded that when a neural network is used as classifier, the results are very similar with the two feature extraction techniques (ICA and PCA). But when the SVM classifier is used, the results are quite different, performing better the feature extractor based on ICA.