Abstract

Most of the reported works in the field of character recognition systems achieve modest results by using a single method for calculating the parameters of the character image and a single approach in the classification phase of the system. So, in order to improve the recognition rate, this document proposes an automatic system to recognize isolated printed Tifinagh characters by using a fusion of some classifiers and a combination of some features extraction methods. The Legendre moments, Zernike moments, Hu moments, Walsh transform, GIST and texture are used as descriptors in the features extraction phase due to their invariance to translation, rotation and scaling changes. In the classification phase, the neural network, the Bayesian
network, the multiclass SVM (Support Vector Machine) and the nearest neighbour classifiers are combined together. The experimental results of each single features extraction method with each single classification method are compared with our approach to show its robustness. A recognition rate of 100% is achieved by using some combined descriptors and classifiers.

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Index Terms

Computer Science

Pattern Recognition

Keywords

Recognition system; Legendre moments; Zernike moment; Hu moments; Texture; GIST; Walsh transform; Neural Networks; Bayesian Networks; Multiclass SVM; nearest neighbour classifier; Tifinagh characters.