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Abstract

In supervised classification of image database, feature vectors of images with known classes, are used for training purpose. Feature vectors are extracted in such a way that it will represent maximum information in minimum elements. Accuracy of classification highly depends on the content of training feature vectors and number of training feature vectors. If the number of training images increases then the performance of classification also improves. But it also leads to more storage space and computation time. The main aim of this research is to reduce the number of feature vectors in an effective way so as to reduce memory space required and computation time as well as to increase an accuracy. This paper proposes three major steps for automatic classification of image database. First step is the generation of feature vector of an image using column transform, row mean vector and fusion method. Then vector Quantization (code book size 4,8 and 16) is applied to reduce the number of training feature vectors per class and generate an effective and compact representation of them. Finally nearest neighbor classification algorithm is used as a classifier. The experiments are conducted on augmented Wang database. The results for various transforms, different similarity measures, varying sizes of feature vector, three code book sizes and different number

of training images, are analyzed and compared. Results show that the proposed method increases accuracy in most of the cases.

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Index Terms

Computer Science

Image Processing

Keywords

Supervised Classification Row Mean Vector Similarity Measures Nearest Neighbor Classifier

Feature Vector.

