Abstract

A simple recognition system is proposed which clusters the gray scale images using K-means algorithm based on wavelet features. The method is based on information extracted from the images known as features extraction. The features are extracted by using the following process: the image is decomposed by applying 2D- discrete wavelet transform (DWT) for one, two, three
and four levels. The dimensionality of the image data is reduced up to desired level by the application of wavelets. The decomposed coefficients of an image are considered as the feature sets. The four methods of reducing dimensions are applied on a specific set of images to obtain four different data sets which serve as input to the k-means algorithm for clustering. The number of clusters is fixed prior to the experiments. The relative performances of k-means based on four different data sets are evaluated in terms of clustering accuracy and CPU time consumed.

Reference

4. k-means clustering tutorial Available: http://people.revoledu.com/kardi/tutorial/kMean/


Index Terms

Computer Science

Image Processing

Key words

DWT

k-means

clustering

feature

extraction

normalization