Abstract

This paper identifies two novel techniques for face features extraction based on two different multi-resolution analysis tools; the first called curvelet transform while the second is waveatom transform. The resultant features are trained and tested via three improved hidden Markov Model (HMM) classifiers, such as: Structural HMM (SHMM), Deviance Information...
Criterion-Inverse Weighted Average K-mean-SHMM (DIC-IWAK-SHMM), and Enclosed Model Selection Criterion (EMC) coupled with DIC-IWAK-SHMM as the proposed methods for face recognition.

A comparative study for DIC-IWAK-SHMM approach to recognize the face were achieved by using two type of features; one method using Waveatom features and the other method uses 2-level Curvelet features, these two methods compared with a six methods that used in previous researches.

The goal of the paper is twofold; using Deviance information criterion and IWAK-means clustering algorithm based on SHMM.

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HMM
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