Abstract

In this paper a new method is proposed for face recognition when subject is illuminated from left and right direction in a fixed pose named "generalized ring averaging". We have proposed new features called "generalized ring averaging" features, which is extension to ring features. Ring features are invariant to rotation and used for binary images only. Proposed features are invariant to direction of illumination (left and right) and used for gray scale images. Well known Fuzzy min-max neural network classifier is used for recognition purpose. The proposed method is found better than one of the most popular method used for face recognition called "eigenfaces", in terms of percentage recognition rate, when compared with same dimensionality of feature vector. The proposed method requires less time to extract features than eigenfaces and recall time per pattern is found comparable to eigenfaces. However, the proposed method is suitable only for frontal poses and its little variants, which are very close to frontal pose and only for left and right direction of illumination by keeping pose and illumination strength around constant.

Reference

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Generalized Ring averaging: a new method for left and right directional illumination invariant face recognition for frontal poses and their small variants.

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Index Terms

Computer Science Pattern Recognition

Key words
generalized ring averaging

eigenfaces
Generalized Ring averaging: a new method for left and right directional illumination invariant face recognition.