

FACE RECOGNITION : A COMPARATIVE STUDY OF PRINCIPAL COMPONENT ANALYSIS AND DIFFERENCE COMPONENT ANALYSIS

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ABSTRACT

Face recognition is one of the most important bio metric which seems to be a good compromise between actuality and social reception and balances security and privacy. Principal Component Analysis (PCA) has been widely employed for face recognition algorithms. PCA reduces the dimensionality of the face image and also retains some of the variations in the face data. Difference Component Analysis is a novel technique for face recognition using the concept of minimum distance and statistical analysis. The DCA removes all the general features of images and compute the difference components of the images. The DCA is based on the principle that two similar images will have least difference components. This paper compares the face recognition accuracy and computation time in principal component analysis (PCA) and Difference Component Analysis (DCA). The proposed method has been evaluated using the AT&T, IFD and Yale face database. Experimental results show that the proposed method has better recognition performance compared to PCA.

KEYWORDS: Difference Component Analysis, Face Recognition, Image Processing, Principal Component Analysis