Abstract

With rapidly developing technology, it is important to invent an efficient and effective security system that will help to detect unauthorized access on any system. Hence it is essential necessary to implement a highly secure, economic and reliable face recognition system to enable the protection of computer systems from unauthorized access. So, in this paper a fast efficient approach is proposed for the recognition of human faces. Thus, firstly Haar wavelet transform is implemented for multilevel decomposition of face image into several subband images. The decomposed image subbands are then used as input by Improved Principal Component Analysis (IPCA) approach for extracting features with the help of eigenvalues and Eigen vectors. Then classification of features using Back Propagation Neural Network (BPNN) is done and finally image is being recognized comparing it to the testing images existing in the images database. More efficient BPNN is used to improve the recognition rate and to overcome the problems associated with variations in illumination and poses. Thus feed forward neural network shows the effectiveness of the proposed algorithm.
- Ki-Chung Chung, Seok Cheol Kee, Sang Ryong Kim, "Face Recognition using Principal Component Analysis of Gabor Filter Responses.

Index Terms
Computer Science  Artificial Intelligence

**Keywords**
- Eigen vectors
- Improved Principal component analysis (IPCA)
- Feature extraction
- Discrete Wavelet Transform.