Abstract

For the past few years, a number of new face recognition techniques have been proposed. Always it is a big unanswered question among face recognition researchers about which method or technique will have better performance. In this study an approach to recognize known faces based on Eigen vectors and a hybrid Meta-heuristic feature selection algorithm is proposed. The eigenvectors which are covariance matrix of the face images together describes the difference between face images. Face recognition problem is viewed as a two dimensional recognition problem. Initially the face images are projected in to face space and using Principal component analysis the eigenvectors with high Eigenvalues are extracted to reduce the dimension of the feature vector. Further to select the best feature vectors which increase the classification accuracy is selected by using a hybrid meta-heuristic algorithm using Genetic algorithm (GA) and Bacteria Foraging Optimization (BFO). In this study the Support vector machine (SVM) and Back propagation neural network (BPNN) are used for classification. The classifiers are trained and tested separately using the frontal face images taken from AT&T database. The SVM and BPNN produces an average classification accuracy of 82.6% and 83.28% respectively.
References


Article, Key Laboratory of Industrial Informatics, Shenyang Institute of Automation, Chinese Academy of Sciences, China, 2009.


Index Terms

Computer Science

Pattern Recognition

Keywords

Meta-Heuristics Genetic Algorithm Bacteria Foraging Optimization support vector machine (SVM)