

ABSTRACT

Recently, the importance of the security system is increasing rapidly and identification method have developed into a key technology in various application, i.e acces control to enter buildings, access control for ATM and computer network, and in the prominent field of criminal investigation. Such application have caused biometrics system development. Biometric identification is the technique of automatically identifying or verifying an individual by a physical characteristic or personal trait. Face is one of the human physical characteristic which can be used for identification.

Human have ability to memorize a pattern information completely and adapted the pattern process well. Artificial Neural Network (ANN) is designed and trained to have ability like human. Therefore, one of the motivation to learn pattern recognition connected with artificial neural network is to understand of the human's ability and hope that ANN's intelligent can be similar with human.

This final project representing a digital image's object recognition method that classifies images whether it recognize or not. The identification process are : First, pattern classification where each pixel in an image as a coordinate in high dimension space projected into lower dimension space using PCA (Principal Component Analysis) technique with Hebbian Learning method; Second, using Back Propagation Network as the classification method.

System testing shows the accuracy of this method is 96,2264 % with recognition time for one image is 0,01 seconds, as tested with 106 images.

Keyword : Digital Image, Pixel, PCA (Principal Component Analysis), Hebbian Learning, Back Propagation Network