

ABSTRACT

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Face Recognition Using Wavelet Transform and Back-propagation Neural Network

(xvi + 104 pages; 68 figures; 27 tables; 42 appendixes)

The application of image recognition is widely found in the automation industry. Fundamentally, image recognition is a study on how the computer can recognize images automatically. Particularly, this research discusses about face recognition which is based on Wavelet Transform and Back-propagation Neural Network.

A sample of 25 face images was taken from five people. All images were stored in the form of the 24-bit Bitmap format. The recognition process started with changing the images into 8-bit grayscale format, followed by extracting that image features with wavelet transform. By using this transform the size of the image was reduced from (96×128) pixels into (12×16) pixels. The result of this process was a matrix of $[25 \times 197]$. Finally, the matrix was used as an input in the back-propagation neural network process for classifying the image.

A number of experiments were then conducted to evaluate the performance of the system. The result has shown that this method has successfully recognized the given images with about 97.33% of accuracy and got threshold about 0.813108 which came from one hidden layer artificial neural network configuration.

References: 18 (1988 - 2005).