

ABSTRACT

Indonesia is a country that often experience natural disasters. The difficult problem is identifying the victims of the natural disaster. Biometrics are often used in identifying individuals have a weakness that is prone to change. The researchers found that there is an alternative when identifying a person, using rugae palatina because of the position within the oral cavity and surrounded by the teeth causing the rugae palatina to be resistant to weather, temperature, age, and decomposition. This is what makes the authors do research to identify individuals by comparing two extraction features between DWT and Gabor Wavelet.

This stage of individual identification process is done with image processing. The data is rugae palatina image taken from rugae prints with gypsum material obtained from Faculty of Dentistry, Padjadjaran University, Bandung. Based on the ANN-BP classification, DWT and Gabor Wavelet feature extraction combinations are expected to find more accurate characteristic extraction based on accuracy and computation time. ANN-BP is an information learning system that has characteristics similar to biological neural networks, where the brain can process information. DWD is image decomposition at subband frequency of image by passing LPF and HPF. Gabor Wavelet requires a convolution between a gabor kernel and an image pixel to get a characteristic value based on the frequency scale and orientation.

This research has the final result of a program that can identify rugae palatina pattern using Gabor Wavelet and Discrete Wavelet Transform method with Artificial Neural Network-Backpropagation method using Matlab which has accuracy 50,6666% for TWD and 21,3333% for Gabor Wavelet. The optimal parameters of DWT and ANN-BP are obtained by using all subband (LL, LH, HL, HH), decomposition level=6, hidden neuron=7, image size=128x128, and computation time of feature extraction is 12.0417s. Gabor Wavelet and ANN-BP parameters were obtained using frequency=3, orientation=8, hidden neuron=3, image size=50x50, and computation time of feature extraction is 63.99482s. So DWT is a more effective feature extraction than Gabor Wavelet because it provides greater accuracy and faster computation time.

Keywords : *Rugae Palatina, Gabor Wavelet, DWT, ANN-BP.*