ABSTRACT

Saribatiara. Clustering of Signature Image using SOM Kohonen Two Dimensional Method and Wavelet Preprocess. Supervised by MUSHTHOFA and ARIEF RAMADHAN.

Biometric is a science for recognizing the identity of a person based on their behavioral traits. A signature is one of the characteristics of human behavior. This research aims to cluster signature images using two dimension self organizing maps (SOM) Kohonen with and without wavelet transformation preprocessing. SOM Kohonen is a type of artificial neural network that has unsupervised learning method. The images used are 40x60 grayscale signature images. Image dimension is reduced to half of the image dimension using Haar Wavelet transform. Silhouette coefficient and Davies Bouldin Index (DBI) are used as the evaluation functions for the clustering. The result shows that optimum clustering for cluster images without Haar Wavelet transform is obtained when alpha is equal to 0.7, initial width neighbor equal to 4 and final width neighbor equal to 4. Optimum clustering for cluster images using Haar Wavelet transform is obtained when the value of DBI is minimum, which is achieved when the value of alpha is equal to 0.8, initial width neighbor equal to 4 and final width neighbor equal to 2

Keywords: image signature, SOM Kohonen, the Haar wavelet transform, Silhouette coefficient, Davies-Bouldin Index.