

## **ABSTRACT**

*Kohonen Network is the special form from Competitive Network. Kohonen Network is mostly used to divide the input pattern into several clusters or the class of data. Output Network is the cluster which is more likely with the given input. The measurement which is mostly used is the minimum distance between the data. Every cluster in Competitive Layer is separated by certain distance. Recently, the distance between the data is too wide and inefficient. So that we need certain analysis in order to increase the performance of Kohonen Network.*

*The purpose of this Research is to make a helping-tools to diagnose the heart beat and classify the types of heart failure and also observe the performance comparison by comparing the performance between the interdata measurement techniques which are used to measure the distance between data in Competitive Layer. The measurement is done to get the minimum distance, which will alter the performance of Kohonen Network. Heart failure detection system is generally classified in to two main parts, which are : feature classification uses wavelet packet decomposition and feature extraction uses the NEURAL NETWORK Kohonen. The heartbeat signal's spectral will be divided by using wavelet packet decomposition. The results of the decomposition, which are in the form of subbands, will be counted to get certain features. These features are known by using NEURAL NETWORK Kohonen later.*

*From the trial results by feature classification using wavelet filter db2, the heart failure detector's accuracy is 93,33% for training data 90 and 94,47 % for training data 150 .*

*Key words : heart failure, cluster, wavelet packet decomposition, Kohonen Neural Network*