ABSTRACT

Phobias are an irrational problem of fear in objects or situation that make it difficult to recognize. Phobias are things that can affect the condition to attract trypophobia. Trypophobia is a phobia against a collection of holes. The person identified as being infected with trypophobia will feel the reluctance, anxiety, and symptoms in his body. Behaviors controlled by the human brain, allowing the brain to be observed using EEG. EEG or known as Electroencepalograph is an activity that records the electrical activity of neurons in the brain.

In this final project the system was built to classify trypophobia conditions with relaxed conditions based on theta and alpha EEG results. Using the K-Nearest Neighbor (K-NN) algorithm as a classification method, and to improve the performance of the systems the researchers built using Principal Component Analysis (PCA) as extraction in dimensional reduction in the EEG data set.

The test results show the best accuracy of theta and alpha signals in scenarios 1 and 2 with a value of 79.167% for theta and 91.667% for alpha signals. It can be concluded that trypophobia brain signals are more dominant in alpha signal waves.

Keywords: *Trypophobia, Electroencephalograph, Principal Component Analysis, K-Nearest Neighbor*