

ABSTRACT

When someone is watching a horror movie, there is an impact that is produced to the human brain in a form of fear and affects the signal fluctuation in brain activity and produce a certain signal characteristic. Activities that occur in the brain can be recorded by EEG or Electroencephalography. Human have 5 kinds of brain signals i.e. alpha, beta, theta, delta, and gamma. The purpose of this final task is to understand human brain signal waveform of a certain signal frequency range. Those are theta (4-8) Hz and delta which has a frequency range of (0.5-4) Hz. Also, to notice any synchronization between brain signal, heart rate, and expression of someone when you see a scene of horror.

In this final task, the method that is used in classification is K-Nearest Neighbor (K-NN) and the feature extraction that is used is Principal Component Analysis (PCA). The parameters in the PCA process are data mean, covariance matrix, eigen value and eigen vectors. K-NN is used as a method to perform classification, the distance calculation that is used in K-NN is Euclidian Distance.

The test result showed a comparison signal theta that is dominant to show up on the AF7 and AF8 channels. While for the delta signals dominant to appear on TP9 and TP10 channels. The highest accuracy that is obtained is located on AF7 and AF8 channels. On AF7 channel the accuracy value is obtained in the amount of 50% for delta signal and 55.56% in theta signal. While, on AF8 channel the accuracy value is obtained in the amount of 55.56% for delta signal and 50% in theta signals.

Keywords: *Horror movie, EEG, PCA, K-NN, theta, delta, heartbeat*