

ABSTRACT

The audiovisual era carries a special weight in physiology condition that can possibly affect human emotions especially in the case of Human Computer Interaction (HCI). This can be seen from the ability of human to feel different emotions when listen and/or watch a music video clip. Those emotions appear because of the stimulus from the music video that lead to a fluctuation of the brain activity with a different characteristic of brain signal that can be obtained. Now using the electroencepalography (EEG) signal, a classification of brain signal characteristic based on arousal type of category can be obtained.

In this research will use a secondary dataset from DEAP: A Database for Emotion Analysis using Physiological Signals that has gone through the pre-processing stage by DEAP researchers. The dataset then will be extracted using Principal Component Analysis (PCA) with 3 features as the output to be classified hereafter with the help of Support Vector Machine (SVM) as the classifier. The dataset being used in the classifying stage is the data from the best trial chosen from the preliminary dataset to prevent an error classification system that spring from the normal variance of EEG.

In this research the system accuracy reached 60% maximum with the use of Linear, Gaussian, and Polynomial kernel function on the 8th trial and the correlation between features combination of PCA diagonal eigen value, entropy, and kurtosis are dominating in the process. This occurred with the testing scenario by dividing 50% of the preliminary data into train data and eval data.

Keyword : EEG, PCA, SVM, emotion classification, arousal, normal variance