An investigation on visual and audiovisual stimulus based emotion recognition using EEG

In this paper, we investigate the possibility of using visual and audio visual stimulus for detecting the human emotion by measuring electroencephalogram (EEG). Visual and audiovisual stimulus based protocols is designed to acquire the EEG signals over five healthy subjects using 63 biosensors. We propose the analysis of EEG signals using discrete wavelet transform and classification using neural network. EEG signals were decomposed into five frequency sub-bands using 'db4' wavelet function and two statistical features were extracted from the alpha band. These statistical features were used as input to the neural network for classifying five emotions (disgust, happy, surprise, sad and anger). In the experiments of recognising human emotions from visual and audiovisual stimulus, the average recognition rate of 56.66% and 66.67% is obtained. The experimental result shows that the audiovisual stimulus based emotion recognition gives better classification accuracy over visual stimulus.