Moving one dimensional cursor using extracted parameter from brain signals

 Abstract

This study focuses on developing a method to determine parameters to control cursor movement using noninvasive brain signals, or electroencephalogram (EEG) for brain-computer interface (BCI). Two conditions were applied i.e. Control condition where subjects relax (resting state); and Task condition where subjects imagine a movement. In both conditions, EEG signals were recorded from 19 scalp locations. In Task condition, subjects were asked to imagine a movement to move the cursor on the screen towards target position. Fast Fourier Transform (FFT) was used to analyze the recorded EEG signals. To obtain maximum speed and accuracy, EEG data were divided into various interval and difference in power values between Task and Control conditions were calculated. As conclusion, the present study suggests that difference in delta frequency band between resting and active imagination may be use to control one dimensional cursor movement with parietal region produces the optimum output.