Epileptic Seizure Prediction using Power Spectrum and Amplitude Analysis of Beta Band of EEG Signals

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Abstract

Epilepsy is a spectrum condition which varies from person-to-person. It is characterized by unpredictable seizures which cause severe health related problems for the person concerned. Recent research works have focused on predicting epileptic seizures by analysis of frequency band of Electroencephalogram (EEG) signals. This paper proposes a new seizure prediction method by using frequency and amplitude analysis of beta band in EEG signals. In this method, the power spectrum of the beta band of EEG signal is calculated. The power value generated is then combined with the amplitude of the EEG signal and classified using SVM (Support Vector Machine) to achieve efficient and accurate results. Data of 39 patients in the pre-ictal and inter-ictal period was tested using this method. The method used predicts seizures with an accuracy of 70%.

References
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Index Terms

Computer Science
Signal Processing

Keywords
EEG; Epileptic Seizure; Beta band; Power Spectrum; SVM