Epileptic Seizure Prediction Focusing on Relative Change in Consecutive Segments of EEG Signal

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Abstract : Epilepsy is a common neurological disorders characterized by sudden recurrent seizures. Electroencephalogram (EEG) is widely used to diagnose possible epileptic seizure. Many research works have been devoted to predict epileptic seizure by analyzing EEG signal. Seizure prediction by analyzing EEG signals are challenging task due to variations of brain signals of different patients. In this paper, we propose a new approach for feature extraction based on phase correlation in EEG signals. In phase correlation, we calculate relative change between two consecutive segments of an EEG signal and then combine the changes with neighboring signals to extract features. These features are then used to classify preictal/ictal and interictal EEG signals for seizure prediction. Experiment results show that the proposed method carries good prediction rate with greater consistence for the benchmark data set in different brain locations compared to the existing state-of-the-art methods.

Keywords : EEG, epilepsy, phase correlation, seizure
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