

Epilepsy Detection from EEG Signals Using Artificial Neural Network

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Abstract:

In the field of medical science, one of the major recent researches is the diagnosis of the abnormalities in brain. Electroencephalogram (EEG) is a record of neuro signals that occur due the different electrical activities in the brain. These signals can be captured and processed to get the useful information that can be used in early detection of some mental and brain diseases. Suitable analysis is essential for EEG to differentiate between normal and abnormal signals in order to detect epilepsy which is one of the most common neurological disorders. Epilepsy is a recurrent seizure disorder caused by abnormal electrical discharges from the brain cells, often in the cerebral cortex. This research focuses on the usefulness of EGG signal in detecting seizure activities in brainwaves. Artificial Neural Network (ANN) is used to train the data set. Then tests are conducted on the test data of EEG signals to identify normal (nonseizure) and abnormal (seizure) states of the brain. Finally, accuracy is computed to evaluate the performance of ANN. The experiments are carried out on CHB-MIT Scalp EEG Database. The experiments show plausible results from the proposed approach in terms of accuracy.

Keywords: Electroencephalogram; Artificial neural networks; Discrete wavelet transform