Abstract

In the last couple of years, the EEG signal analysis was focused on epilepsy seizure detection. Epilepsy is a common chronic neurological disorder; they are result of transient and unexpected electrical disturbance of the brain. Epilepsy seizures also a symptom of brain tumor existence, 30% patients with brain tumor are affected with epilepsy seizure. This paper proposes a two level brain tumor epilepsy seizure identification method that combines bio-medical engineering techniques and clinical diagnosis data. First level classify the given EEG signal in to normal and epilepsy seizure, based on the first level input second level identifies the epilepsy seizure signal is from brain tumor or other neural disorders. Proposed method uses multi wavelet transform for feature extraction, in which EEG signal is decompose in to sub-bands. Irregularities present in the EEG signal are measured by using the approximate entropy. Feed forward neural network is used to classify input EEG signal as normal and brain tumor epilepsy signal. Obtained results are promising with first level epilepsy seizure identification accuracy of 93%.
Brain Tumor Epilepsy Seizure Identification using Multi-Wavelet Transform, Neural Network and Clinical Diagnosis Data

- http://www.fil.ion.ucl.ac.uk/EEGvolunteerguide.pdf
- The testing dataset is referred from the link: http://physionet.fri.uni-lj.si/pn6/chbmit/.
- Sharanreddy and Dr. P. K. Kulkarni "Literature Survey on EEG based Automatic Diagnosis of Epilepsy seizures & Brain Tumor using WT and ANN", International Conference on Biomedical Engineering (ICBME 2011), Dec 10-12, 2011, Manipal, India.
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Index Terms

Computer Science

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**Keywords**

Artificial Intelligence (AI)  
Brain tumor  
Clinical Diagnosis  
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Multi-wavelet transforms (MWT)  
Neural Network (NN)