

عنوان مقاله:

EEG signal classification for epilepsy seizure detection using double density discrete wavelet transform and feed-forward neural network model

محل انتشار:

سومین کنفرانس ملی اوبونیک ایران (سال: 1396)

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نویسندگان:

Seyed morteza ghazali - Babol Noshirvani University of Technology, Shariati Avenue, Babol, IRAN

mohammad reza hasanzadeh - Babol Noshirvani University of Technology, Shariati Avenue, Babol, IRAN

azadeh fazeli - sari hadaf univercity of technology, sari, IRAN

خلاصه مقاله:

Epilepsy is the neurological disorder of the brain, which is difficult to diagnose visually using electroencephalogram (EEG) signals. Our final goal of this paper is the automatic detection of the epileptic disorders in the EEG in order to support the diagnosis and care of the epileptic syndromes and related seizure disorders. We introduce a feed-forward neural network classification model with three neurons in hidden layer to classify 'healthy subjects from epileptic seizure subjects' and four neurons in hidden layer to classify 'healthy subjects from epilepsy patients in seizure-free intervals from epilepsy patients with epileptic seizure'. After subtracting the average of signal from the original signal, signal obtained using double density discrete wavelet transform (DD DWT) is decomposed to five levels which are one low-pass frequency sub-band and ten high-pass frequency sub-bands. Then we extract features such as energy, entropy, sum, variance and standard deviation from ten high-pass frequency sub-bands and after that normalize them. We show that the proposed model results in very good satisfactory classifications

کلمات کلیدی:

Epilepsy; EEG signal; Double density discrete wavelet transform; Feed-forward neural network; Classification

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