

Analysis of EEG Signals Using Wavelet Entropy and Approximate Entropy: A Case Study on Depression Patients

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Abstract : Analyzing brain signals of the patients suffering from the state of depression may lead to interesting observations in the signal parameters that is quite different from a normal control. The present study adopts two different methods: Time frequency domain and nonlinear method for the analysis of EEG signals acquired from depression patients and age and sex matched normal controls. The time frequency domain analysis is realized using wavelet entropy and approximate entropy is employed for the nonlinear method of analysis. The ability of the signal processing technique and the nonlinear method in differentiating the physiological aspects of the brain state are revealed using Wavelet entropy and Approximate entropy.

Keywords : EEG, depression, wavelet entropy, approximate entropy, relative wavelet energy, multiresolution decomposition

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