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Chapter

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Discrimination of Brain States Using Wavelet and Power Spectral Density

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Abstract

Cognitive task produces activation in the brain which are different from normal state. In order to study the brain behavior during cognitive state, different techniques are available. Wavelet energy and power spectral density (PSD) are well established methods for brain signal classification. In this paper, cognitive state of the brain is compared with the baseline using EEG. Data are taken from all lobes of the brain to see the effect of cognitive task in the whole brain and analyzed using wavelet energy and PSD. Graph of wavelet energy and power spectral density are plotted separately for each subject to see the effect individually. Individual results showed that the behavior of human brain change with the cognitive task and this change occurred in most of the human brain. This change is due to the neural activity which is increased during the cognitive task (IQ) and is better measured with wavelet compared to PSD.

Keywords

Electroencephalography (EEG) Wavelet energy Power spectral density

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