MODEL BASED EEG SIGNAL PURIFICATION TO IMPROVE THE ACCURACY OF THE BCI SYSTEMS (MonAmOR2)

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Abstract :

Brain−Computer Interfaces are an interesting emerging technology that translates intentional variations in the Electroencephalogram (EEG) into a set of particular commands in order to control a real world machine. For this purpose it is necessary to classify EEG signals correlated with various physical or mental activities. Most of the work in BCI research is devoted to increase the accuracy of the EEG classification. Due to the noisy nature of the EEG including the background brain activity, one of the potential approaches to increase the classification accuracy is to improve the SNR of the EEG signals. In this paper EEG signal denoising in some active channels is investigated using the parametric models developed for relating their signals to the signals of all other channels. The models are used for signal purification in the selected channels. It is shown that the purified signals can improve the classification accuracy of the EEG signals up to 15%.

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