

عنوان مقاله:

EEG Based Brain Computer Interface Hand Grasp Control: Feature Extraction Method MTCSP

محل انتشار:

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خلاصه مقاله:

Brain-Computer Interfaces (BCIs) are communication systems, which enable users to send commands to computers by using brain activity only; this activity being generally measured by Electroencephalography (EEG). BCIs are generally designed according to a pattern recognition approach, i.e., by extracting features from EEG signals, and by using a classifier to identify the user's mental state from such features. In this study, we have considered the BCI Competition data sets 2b-2008; additionally, Multi-Taper Common Spatial Pattern (MTCSP) feature extraction method is used for extracting the features of right and left hand data, Logistic Regression (Logreg) classifier is chosen to classify the data sets. In this paper, TPR, FPR, ACC and k function are used as evaluation criteria. The comparison of the results with the results of the BCI competition 2008 has proved the effectiveness, high accuracy and resolution of the proposed method. The results have shown that MTCSP method provides even higher classification accuracy. It points out that utilizing suitable preprocessing to keep the EEG signal free of redundant information is for sure a very important in the BCI development.

کلمات کلیدی:

(Brain-Computer Interfaces (BCI), Feature Extraction, Multi-Taper Common Spatial Pattern (MTCSP)

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