

## عنوان مقاله:

Comparison of Different Linear Filter Design Methods for Handling Comparison of Different Linear Filter Design Methods for Handling

## محل انتشار:

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## خلاصه مقاله:

Brain-computer interfaces (BCI) record brain signals, analyze and translate them into control commands which are relayed to output devices that carry out desired actions. These systems do not use normal neuromuscular output pathways. Actually, the principal goal of BCI systems is to provide better life style for physically-challenged people which are suffered from cerebral palsy, amyotrophic lateral sclerosis, stroke, or spinal cord injury. One of the focal points in Brain-Computer Interface (BCI) systems is physiological artifacts handling. Physiological artifacts such as Electrooculography (EOG) and Electrooculography (EMG) are considered among the most important sources of physiological artifacts in BCI systems. Pre-processing is considerable step by means of next steps such as feature extraction and classification that we need clean signals without undesirable artifacts to have better classification rate. Using a linear filter to remove these artifacts is like a dime a dozen due to their acceptable results in recent BCI preprocessing researches. Although this method has different options, Forasmuch as the mu (8–13 Hz) and beta (16–25 Hz) frequency bands play a key role in classification of motor imagery we have decided to design two band pass filters with Elliptic and Butterworth Infinite impulse response designing methods in 8 to 40 Hz frequencies. Our results in Graz 2a dataset in BCI Competition IV indicates that, Elliptic band-pass filter has better performance for EOG removing in this specific dataset.

## کلمات کلیدی:

Brain computer interface, Band pass filter, EEG, EOG

## لینک ثابت مقاله در پایگاه سیویلیکا:

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