Abstract

Electroencephalographic (EEG) signal records the electrical activity of the neurons near the scalp within the brain. Significant artifacts are introduced in the recording of EEG signals which leads to unreliable results. EEG paves the way for diagnosis of many neurological disorders and other abnormalities in the human body. The main aim of research is to get clean EEG signal with enhanced accuracy for proper diagnosis. Extensive research has been conducted in this area with different techniques. This paper reviews some of the important artifact removal techniques for performance enhancement.

References


12. Saeid Sanei, Jonathon Chambers EEG signal processing, John Wiley & Sons Ltd, 2007


24. Jerald Yoo, Member, IEEE, Long Yan, Member, IEEE, Dinab El Damak, Student Member, IEEE, Muhammad Awais Bin Altaf, Student Member, IEEE, Ali H. Shoeb, and Anantha P. Chandrakasan, Fellow, IEEE, An 8-channel scalable EEG acquisition SOC with fully integrated patient-specific seizure classification and recording processor Solid-State Circuits Conference Digest of Technical Papers (ISSCC), 2012 IEEE International, IEEE JOURNAL OF SOLID-STATE CIRCUITS, VOL. 48, NO. 1, JANUARY 2013


30. Hong Peng, Bin Hu, Qixia Shi, Martyn Ratcliffe, Qinglin Zhao, Yanbing Qi, and Guoping Gao “Removal of Ocular Artifacts in EEG—An Improved Approach Combining DWT and ANC for Portable Applications” IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS, VOL. 17, NO. 3, MAY 2013


33. Qinglin Zhao, Bin Hu, Yujun Shi, Yang Li, Philip Moore, Minghou Sun, and Hong Peng “Automatic Identification and Removal of Ocular Artifacts in EEG—Improved Adaptive Predictor Filtering for Portable Applications”, IEEE TRANSACTIONS ON NANOBIOINFORMATICS, VOL. 13, NO. 2, JUNE 2014


35. Markus Waser, Heinrich Garn, Senior Member, IEEE “Removing Cardiac Interference from the Electroencephalogram Using a Modified Pan-Tompkins Algorithm and Linear Regression” 35th Annual International Conference of the IEEE EMBS Osaka, Japan, 3 - 7 July, 2013


41. Vandana Roy, Shailaja Shukla “A NLMS Based Approach for Artifacts Removal in Multichannel EEG Signals with ICA and Double Density Wavelet Transform” 2015 Fifth International Conference on Communication Systems and Network Technologies

Index Terms

Computer Science  Signal Processing

Keywords

EEG, Artifacts, EOG, EMG, ECG, EMA, Adaptive Filtering.