Abstract

When acquiring the Electrocardiogram (ECG) signal from the person, it should be preprocess before sending to the analyst for taking decision of the signal, because signal should be affected with various artifacts. For numerous applications of noise cancellation in the corrupted signals, adaptive filters play important role. The various artifacts which commonly occur in the acquisition of ECG signals are physiological and non-physiological noises, those are main supply power line interference, muscle artifact, electrode motion artifact and base line wander noises. The adaptive Least Mean Square (LMS) algorithm provides a low convergence rate, so that for fast convergence rate and reduced noise, in this paper an efficient Recursive Least Square algorithm is considered, for removing of power line noise and muscle noise. For double validation of the signal, and for high Signal to Noise Ratio (SNR), fast convergence rate, is achieved by using LMS to RLS adaptive algorithm at the cost of additional computations.
Performance of Efficient RLS Adaptive Algorithm Used to Enhance the ECG Signal Quality in Telecardiology


15. Shi-jin Liu, Da-li Liu, Jing-quan Zhang, Yan-jun Zeng, 2011 “Extraction of Fetal Electrocardiogram using Recursive Least Squares and Normalized Least Mean Squares..."
Performance of Efficient RLS Adaptive Algorithm Used to Enhance the ECG Signal Quality in Telecardiology


Index Terms

Computer Science
Signal Processing

Keywords

Adaptive algorithm, RLS algorithm, SNR, Artifacts, Convergence rate.