Abstract

Mohamed S El-Mahallawy

MATLAB Simulation Comparison for Different Adaptive Noise Cancelation Algorithms

Electrocardiographic (ECG) signal can be contaminated by diverse forms of noise: baseline wander, 60 Hz power line interference, muscle noise, and motion artifact. 60Hz power line interference can be cancelled using two different approaches an adaptive filter notch filters. The adaptive filter essentially minimizes the meansquared error between a primary input, which is the noisy ECG, and a reference input, which is either noise that is correlated in some way with the noise in the primary input a signal that is correlated only with ECG in the primary input. In this paper we present a MATLAB simulation comparison between different adaptive filter algorithms Least Mean Square (LMS), Normalised LMS (NLMS), Variable Step size LMS (VSLMS), Recursive Least Square (RLS) and Blind LMS. The comparison is carried out in terms of both, MSE and the algorithm convergence rate.