

Performance Study of Adaptive Filtering and Noise Cancellation of Artifacts in ECG Signals

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Abstract— In Electrocardiogram (ECG) application, we face various types of artifacts added to the ECG signal. Different Researchers have been interested in this problem due to its importance. In this paper we introduce a study of different algorithms and their effects on the performance of the ECG noise canceller. We have used many kinds of algorithms such as: LMS (Least Mean Square), NLMS (Normalized Least Mean Square), Signed Regressor LMS (SRLMS), Sign LMS (SLMS), Sign-Sign LMS (SSLMS) and a new proposed modified LMS called Variable Step size Least Mean Square (VSLMS) using MATLAB software package as well as Unbiased Linear output Neural Network (ULNN) and Unbiased Non Linear output Neural Network (UNLNN). It is promising to clarify the difference among these algorithms with the aim of obtaining better performance.

Keyword— ECG signal, Adaptive Noise Canceller, Neural Network, LMS Algorithm, Artifacts.



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