Simulation and Comparative Analysis of Adaptive Noise Cancellations using LMS, NLMS AND RLS Algorithms

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Abstract. This paper focused on the adaptive noise cancellation of speech signal using Least Mean Square (LMS), Normalized Least Mean Square (NLMS) and Recursive Least Square methods. Adaptive noise cancellation is an alternative way of cancelling noise present in a corrupted signal. In this technique, evaluation of distorted signal by additive noise or interference achieved with no a priori estimates of signal or noise. A comparative study is carried out using LMS, NLMS and RLS methods. Result shows that these methods have potential in noise cancellation and can be used for system identification problem and variety of applications. Computer simulations for all cases are carried out using MAT LAB software.

Keywords: LMS, NLMS, RLS, Noise Cancellation, Adaptive Filtering, System Identification, Convergence rate, MATLAB CODES

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