Abstract

Wireless communication with fading as a major impairment along with other phenomena gives rise to noise in the channel. One of the major issues in wireless communication is to cancel out noise effects primarily when the propagation medium demonstrates stochastic behavior. Data transmission in noisy communication channel is controlled with the help of error control coding. Also, the elimination of noise is effective with the help of adaptive filters as these track the variations in the input signal compared to a given reference signal. In this paper, we explore certain methods of noise cancellation using error correction coding as well as adaptive filter trained with Least Mean Square (LMS), Normalised Least Mean Square (NLMS) and Recursive Least Square (RLS) algorithm. The experiments performed show satisfactory results in severely faded Nakagami-m channels. The work formulates a methodology for developing certain insight into the use of error control coding and adaptive filtering to fight fading in wireless channel.

References

Noise Cancellation in Stochastic Wireless Channels using Coding and Adaptive Filtering


Index Terms

Computer Science  Signal Processing

Keywords

Adaptive Filters  Nakagami M Fading  Convolutional Code