Abstract

Fading is a random behavior and generally modeled with statistical distributions. Fading caused by multipath propagation can degrade the bit error rate (BER) performance of a digital communication system. To mitigate fading and to have reliable communication in wireless channel error control coding along with adaptive filtering techniques are employed. In this paper, certain methods of noise cancellation in stochastic multiple-input-multiple output wireless channel 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 are explored. The experiments performed show satisfactory results in severely faded Nakagami-m channels for SIMO, MISO and MIMO set ups. The work intends to formulate a framework for developing certain insight into the use of error control coding and adaptive filtering to fight fading in stochastic wireless channel.
Coding Assisted Adaptive Noise Cancellation in Stochastic MIMO Wireless Channels


Index Terms
Computer Science Wireless

Keywords
Adaptive filters, Nakagami-m fading, convolutional code, SIMO, MISO, MIMO System.