عنوان مقاله:

Empirical Mode Decomposition based Adaptive Filtering for Orthogonal Frequency Division Multiplexing Channel Estimation

محل انتشار:

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خلاصه مقاله:

This paper presents an empirical mode decomposition (EMD) based adaptive filter (AF) for channel estimation in OFDM system. In this method, length of channel impulse response (CIR) is first approximated using Akaike information criterion (AIC). Then, CIR is estimated using adaptive filter with EMD decomposed IMF of the received OFDM symbol. The correlation and kurtosis measures are used to select the useful IMF component from among available IMFs. Conventional AF uses random initial weight vector. The novelty of the proposed method is that it uses decimated version of one of the decomposed IMFs of received OFDM symbol as initial weight vector. This makes the proposed EMD based AF method converge to minimum mean square error (MMSE) in less number of iterations resulting in almost 50% saving of computations. The simulation studies in terms of bit error rate (BER) and mean square error (MSE) calculations established the efficacy of proposed method; and comparative studies under different modulation schemes and fading conditions revealed improved performance

کلمات کلیدی:

Orthogonal Frequency Division Multiplexing,Multi Carrier Channel Estimation,Adaptive Filtering,Empirical Mode ,Decomposition,Multipath Fading Channel