Abstract

A Hybrid optimization algorithm is applied for designing stable infinite impulse response (IIR) digital filter based on L1-approximation error criterion. The proposed Hybrid method calculates the optimal filter coefficients by exploring and exploiting the search space locally as well globally. The filter designed based on L1-approximation error possesses flat passbands and stopbands in comparison to that of least square design and the minimax approach. A comparison with other design techniques is made, demonstrating that the proposed hybrid approach can obtain better digital IIR filters than the existing Genetic Algorithm (GA) based methods.

References


Index Terms

Computer Science

Signal Processing
Keywords
Digital IIR filters  Hybrid search algorithm  L1-approximation error  Stability