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.

**Index Terms**

Computer Science

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