An Enhanced Simulated Kalman Filter Algorithm and its Application in Adaptive Beamforming

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Abstract:
The Simulated Kalman Filter (SKF) algorithm is a newly introduced optimization algorithm inspired by the estimation capabilities of Kalman filter. In this paper, a population based metaheuristic algorithm named Simulated Kalman Filter with Modified Measurement (SKFMM) is proposed for adaptive beamforming application. SKFMM is compared with the existing SKF and OBSKF algorithms for adaptive beamforming. The experimental results show that the SKFMM algorithm can produce better mean Signal to Interference Plus Noise Ratio (SINR) values compared to the current SKF and OBSKF algorithms for adaptive beamforming application, producing statistically significant results

Keyword: Adaptive Beamforming, Simulated Kalman Filter