Multiresolution Transform based Denoising in Direction Finding

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Abstract

In this paper, multi-resolution transforms based denoising followed by an improved method of Direction of Arrival (DOA) estimation is investigated. The predominant subspace method, Multiple Signal Classification (MUSIC) algorithm is very practical and efficient for direction of arrival estimation, but it fails to determine the direction at low Signal to Noise Ratio (SNR). The pre-eminence of MUSIC algorithm is used to upgrade the resolution of direction of arrival under adverse noisy situations. The noise is suppressed and thereby the gain of the received signal from sensors is improved by ridgelet transform and GHM (Geronimo J. S, Hardin D. P and Massopust P. R) multiwavelet transform based denoising. The simulation results of denoising and pseudo spectrum of the algorithm delivers improved performance in terms of root mean
square error (RMSE), spectrum function, bias and gain. SNR, snapshots, array elements are the input parameters.

References


Index Terms

Computer Science  Signal Processing

Keywords

Multiresolution Transform  Ridgelet Transform  Ghm Multiwavelet Transform  Doa Estimation

Denoising

Subspace Methods