Abstract

This paper, aims to analyse, time domain beamforming on wavelet decomposed signals. Using a multiresolution signal representation extra computational effort is required by the wavelet processing. But due to reduced dimensionality of the subband data, the computational load for beamforming is reduced significantly. Advantage of using discrete wavelet transform is that it is capable of providing both time and frequency information simultaneously, which gives a
joint time-frequency representation of the signal. Also it is apt for both stationary and non-stationary signals and is the most appropriate system in the field of signal detection. Discrete wavelet transform is implemented through multi-resolution analysis and digital filter banks. Wavelet analysis is the breaking up of a signal into a set of scaled and translated versions of an original (or mother) wavelet. In wavelet transform, original signal is decomposed into wavelet coefficients. These coefficients represent the signal in the wavelet domain and all data operations can be performed using just the corresponding wavelet coefficients. The major issue concerning wavelet processing is choosing optimal wavelet for signals. The performance of time domain beamformer is analyzed using different wavelets and db9 is found to be optimum.

Reference

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**Index Terms**

Computer Science

Wireless

**Key words**

Beamforming

wavelet transform

discrete wavelet transform

multiresolution analysis