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Authors:

Pallavi Agrawal, Madhu Shandilya

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Abstract

Over the past decades there has been technological breakthrough from analog to digital. Ever since the world war and also the invention of electromagnetic radio, there has always been an urge to know from which direction the signals were arriving to the listener's direction finding receiver. The methodology of determining the direction of arrival (DOA) of incoming signals impinging on the uniform antenna array has drastically changed from conventional methods to subspace based methods. The main goal of this paper is to provide a comparative study of various classical multi-channel DOA algorithms and subspace based high resolution multi-channel DOA algorithms for multiple signals which are arriving at different DOA. Also detailed algorithm analysis and performance evaluation for subspace based multiple signal classification (MUSIC) algorithm is provided. It is shown that subspace based high resolution multi-channel MUSIC algorithm is statistically efficient and is a promising method for use against military communication in an electronic warfare direction finding system.

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Index Terms

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Keywords

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