

Spacetime Adaptive Processing For Radar

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Spacetime Adaptive Processing For Radar

Space-time adaptive processing is a signal processing technique most commonly used in radar systems. It involves adaptive array processing algorithms to aid in target detection. Radar signal processing benefits from STAP in areas where interference is a problem. Through careful application of STAP, it is possible to achieve order-of-magnitude sensitivity improvements in target detection. STAP involves a two-dimensional filtering technique using a phased-array antenna with multiple spatial channels

Space-time adaptive processing - Wikipedia

Space-Time Adaptive Processing for Radar 2nd Edition by J R Guerci (Author) 5.0 out of 5 stars 1 rating. ISBN-13: 978-1608078202. ISBN-10: 1608078205. Why is ISBN important? ISBN. This bar-code number lets you verify that you're getting exactly the right version or edition of a book. The 13-digit and 10-digit formats both work.

Space-Time Adaptive Processing for Radar: Guerci, J R ...

A technique called space time adaptive processing (STAP) can be used to find targets that could otherwise not be detected. Because the jammer is transmitted continuously, its energy is present in all the range bins. And, as shown in Figure 1, the jammer cuts across the all Doppler frequency bins due to its wideband, noise-like nature.

Radar Basics - Part 4: Space-time adaptive processing | EE ...

This course will give you an in-depth overview of space-time adaptive processing (STAP) to radar and review of radar and digital signal processing fundamentals. You'll learn about beamforming techniques, key STAP concepts, critical performance metrics, and practical processing architectures.

Space-Time Adaptive Processing: Application to Radar | GTPE

Space-time adaptive processing (STAP) is an exciting technology for advanced radar systems that allows for significant performance enhancements over conventional approaches. Based on a time-tested course taught in industry, government and academia, this second edition reviews basic STAP concepts and methods, placing emphasis on implementation in real-world systems.

Space-Time Adaptive Processing for Radar, Second Edition ...

Space-time adaptive processing for airborne radar. Abstract: Advanced airborne radar systems are required to detect targets in the presence of both clutter and jamming. Ground clutter is extended in both angle and range, and is spread in Doppler frequency because of the platform motion. Space-time adaptive processing (STAP) refers to the simultaneous processing of the signals from an array antenna during a multiple pulse coherent waveform.

Space-time adaptive processing for airborne radar - IET ...

Abstract This paper provides a survey of space-time adaptive processing for radar target detection. Specifically, early work on adaptive array processing from the point of view of maximum signal-to-noise-ratio and minimum mean squared error perspectives are briefly reviewed for motivation.

An Overview of Space-Time Adaptive Processing for Radar

Although originally coined for airborne multichannel moving target indicator (MTI) radar [1, 2], space-time adaptive processing (STAP) has been adopted in many disciplines in which joint adaptive sensor temporal and spatial processing are performed (e.g., multidimensional adaptive filtering).

Space-Time Adaptive Processing for Radar

Space-Time Adaptive Processing for Airborne Radar by J.Ward (<https://www.mathworks.com/matlabcentral/fileexchange/47750-space-time-adaptive-processing-for-airborne-radar-by-j-ward>), MATLAB Central File Exchange. Retrieved January 9, 2021.

Space-Time Adaptive Processing for Airborne Radar by J ...

Space-time adaptive processing (STAP) is an exciting technology for advanced radar systems that allows for significant performance enhancements over conventional approaches. Based on a time-tested...

Space-time Adaptive Processing for Radar by J. R. Guerci ...

Whether you are a radar engineer looking to apply effective STAP (space-time adaptive processing) techniques to your system, or a non-radar specialist interested in important applications of...

Space-time Adaptive Processing for Radar - J. R. Guerci ...

Space-time adaptive processing for airborne radar - NASA/ADS. Future airborne radars will be required to detect targets in an interference background comprised of clutter and jamming. Space-time adaptive processing (STAP) refers to multidimensional adaptive filtering algorithms that simultaneously combine the signals from the elements of an array antenna and the multiple pulses of a coherent radar waveform, to suppress interference and provide target detection.

Space-time adaptive processing for airborne radar - NASA/ADS

The chapter culminates with a design example in 6487 Book.indb 9 9/22/14 5:37 PM f10 Space-Time Adaptive Processing for Radar which the requisite sample support for a sample matrix-based STAP processor is reduced by an order-of-magnitude, with commensurate computational reductions in the adaptation process.

Space-Time Adaptive Processing for Radar | J. R. Guerci ...

J. R. Guerci. Written for engineers familiar with radar, electromagnetics and signal processing, this book establishes basic first order space-time models for clutter and jamming, details important second order and higher effects, and introduces modern space-time adaptive processing (STAP) algorithms. Guerci (Defense Advanced Research Projects Agency) presents design examples that illustrate ways in which various reduced rank STAP methods can be combined to yield good signal-to-interference ...

Space-time adaptive processing for radar | J. R. Guerci ...

"Space-time adaptive processing (STAP) is an exciting technology for advanced radar systems that allows for significant performance enhancements over conventional approaches.

RF Cafe Quiz #64: Space-Time Adaptive Processing for Radar

MIMO Radar Space-Time Adaptive Processing for Multipath Clutter Mitigation Abstract: This paper describes a multiple-input-multiple-output (MIMO) generalization of space-time adaptive processing (STAP) to mitigate radar clutter subject to multipath propagation between transmit and receive arrays.

MIMO Radar Space-Time Adaptive Processing for Multipath ...

GPU-Based Space-Time Adaptive. Processing for Radar. Thomas M. Benson, GTRI. Ryan K. Hersey, GTRI. Edwin Culpepper, AFRL. •Moving radar platform clutter spread in Doppler. •Detecting targets with speeds similar to background. clutter requires clutter suppression. •STAP applies an adaptive 2D filter to suppress clutter.

GPU-Based Space-Time Adaptive Processing for Radar

STAP techniques filter the signal in both the angular and Doppler domains (thus, the name "space-time adaptive processing") to suppress the clutter and jammer returns. In the following sections, we simulate returns from target, clutter, and jammer and illustrate how STAP techniques filter the interference from the received signal.

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