

Inverse Synthetic Aperture Radar Imaging Principles Algorithms And Applications Electromagnetics And Radar

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Inverse Synthetic Aperture Radar Imaging

Inverse synthetic aperture radar is a radar technique using Radar imaging to generate a two-dimensional high resolution image of a target. It is analogous to conventional SAR, except that ISAR technology uses the movement of the target rather than the emitter to create the synthetic aperture. ISAR radars have a significant role aboard maritime patrol aircraft to provide them with radar image of sufficient quality to allow it to be used for target recognition purposes. In situations where other r

Inverse synthetic-aperture radar - Wikipedia

Inverse synthetic aperture radar (ISAR) has proven to be a powerful signal processing tool used to create images of moving targets. This book first takes readers through all the core concepts underlying the creation of ISAR imagery and then guides them step by step through basic ISAR research.

Inverse Synthetic Aperture Radar Imaging With MATLAB ...

Inverse Synthetic Aperture Radar Imaging: Principles, algorithms and applications (Radar, Sonar and Navigation)

Inverse Synthetic Aperture Radar Imaging: Principles ...

In defense industry, inverse synthetic aperture radar imaging of moving objects is an important tool for automatic target recognition. The problem of radar imaging of an aircraft using ISAR is addressed in this project, with emphasis on motion compensation.

Inverse Synthetic Aperture Radar Imaging

ISAR is a form of range-Doppler imaging in which object motion is used to form an image. An account is presently given of the use of laser radar to conduct ambiguity function-like (AFL) and subaperture AFL (SAFL) imaging with all-digital processing. ... Alan L. Kachelmyer "Inverse synthetic aperture radar (ISAR) image processing", Proc. SPIE ...

Inverse synthetic aperture radar image processing

In the defense industry, inverse synthetic aperture radar (ISAR) imaging of moving objects is an important tool for automatic target recognition. The problem of radar imaging of an aircraft using ISAR is addressed in this project, with emphasis on motion compensation.

Inverse Synthetic Aperture Radar Imaging

Inverse synthetic aperture radar (ISAR) has been proven to be a powerful signal processing tool for imaging moving targets usually on the two- dimensional (2D) down-range cross-range plane. ISAR imagery plays an important role especially in military applications such as target identification, recognition, and classification.

Inverse Synthetic Aperture Radar Imaging with MATLAB ...

In order to optimize the range resolution, a nonlinearity calibration approach is presented to solve the signal distortion. To verify the imaging performance of the THz radar, the inverse synthetic aperture radar experiments are performed and the imaging results obtained by the 2-D fast Fourier transform method and back-projection algorithm, respectively, show that the THz radar can achieve high resolution in the range and azimuth dimensions.

Terahertz Imaging Radar With Inverse Aperture Synthesis ...

Inverse Synthetic Aperture Radar (ISAR) For Terrestrial Targets ... The Phase II effort shall integrate moving ground vehicle ISAR feature-aided tracking into a major radar vendor's operational MHT tracker and thus advance the technology to TRL 8 for ground-based post-processing. ... (DDR). BENEFIT: EMSI's moving ground vehicle radar imaging ...

Inverse Synthetic Aperture Radar (ISAR) For Terrestrial ...

Synthetic aperture radar (SAR) imaging is a way to synthesize very large antenna array by moving single antenna on a known path. If there are no moving targets in the scene then one radar taking many measurements along a path gives the same result as one ridiculously large radar that is as long as the movement path. SAR imaging of a single target.

Synthetic-aperture radar imaging - Henrik's Blog

Inverse synthetic aperture radar (ISAR) is another kind of SAR system which can produce high-resolution on two- and three-dimensional images. An ISAR system consists of a stationary radar antenna and a target scene that is undergoing some motion.

Imaging radar - Wikipedia

A system model and inversion for synthetic aperture radar imaging Abstract: A system model and its corresponding inversion for synthetic aperture radar (SAR) imaging are presented. The system model incorporates the spherical nature of a radar's radiation pattern at far field.

A system model and inversion for synthetic aperture radar ...

4 Inverse Synthetic Aperture Radar Imaging and Its Basic Concepts 121 4.1 SAR versus ISAR 121 4.2 The Relation of Scattered Field to the Image Function in ISAR 125 4.3 One-Dimensional (1D) Range Profile 126 4.4 1D Cross-Range Profile 131 4.5 2D ISAR Image Formation (Small Bandwidth, Small Angle) 133 4.5.1 Range and Cross-Range Resolutions 139 4.5.2 Range and Cross-Range Extends 140 4.5.3 Imaging Multi-Bounces in ISAR 140 4.5.4 Sample Design Procedure for ISAR 144 4.6 2D ISAR Image Formation ...

Inverse synthetic aperture radar imaging with MATLAB ...

Spaceborne Imaging Radar-C/X-Band Synthetic Aperture Radar (SIR-C/X-SAR) is a joint U.S.-German-Italian project that uses a highly sophisticated imaging radar to capture images of Earth that are useful to scientists across a great range of disciplines. The instrument was flown on two flights in 1994.

SIR-C/X-SAR Images

Inverse Synthetic Aperture Radar Imaging With MATLAB Algorithms | Wiley This book provides a full representation of Inverse Synthetic Aperture Radar (ISAR) imagery, which is a popular and important radar signal processing tool. The book covers all possible aspects of ISAR imaging.

Inverse Synthetic Aperture Radar Imaging With MATLAB ...

Due to the capability of achieving high resolution images of moving targets (aircrafts, satellites, vessels, etc.), the Inverse Aperture Radar Imaging (ISAR) technique has been used for various civil and military applications [1,2,3].

Logarithmic Laplacian Prior Based Bayesian Inverse ...

With additional data processing the radar can produce fully focused Inverse Synthetic Aperture Radar (ISAR) images and perform near field transformations of the data to correct the phase curvature across the target region. The radar achieves a range resolution of 4 inches at S-band and a sensitivity of -70 dBsm at a 30ft.

Inverse Synthetic Aperture Imaging - NSI-MI Technologies

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Inverse synthetic aperture radar image processing

Abstract As a powerful signal processing tool for imaging moving targets, placing radar on a non-stationary platform (such as an aerostat) is a future direction of Inverse Synthetic Aperture Radar (ISAR) systems.