Blind reconstruction of synthetic aperture radar images

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Abstract

The article discusses the problem of compensation of degradation effects of the spatial resolution of a synthetic aperture radar (SAR) resulting from the effects of radio wave propagation in the Earth's atmosphere and errors in the information on the geometry of relative motion of the SAR and the reflecting surface. The article also proposes the algorithms for blind reconstruction of SAR images, including those based on the method of minimum entropy, for the cases of both parametric (autofocus) and nonparametric uncertainty. The authors present the results of experimental verification of the proposed algorithms when reconstructing the L-band aircraft SAR.

Keywords: blind reconstruction, synthetic aperture, radar image, synthetic aperture radar, SAR, Earth's atmosphere, reflecting surface, radio wave, minimum entropy, autofocus, nonparametric uncertainty, L-band.

Citation: Goryachkin OV. Blind reconstruction of synthetic aperture radar images. Computer Optics 2003; 25: 168-174.

Access full text (in Russian)

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