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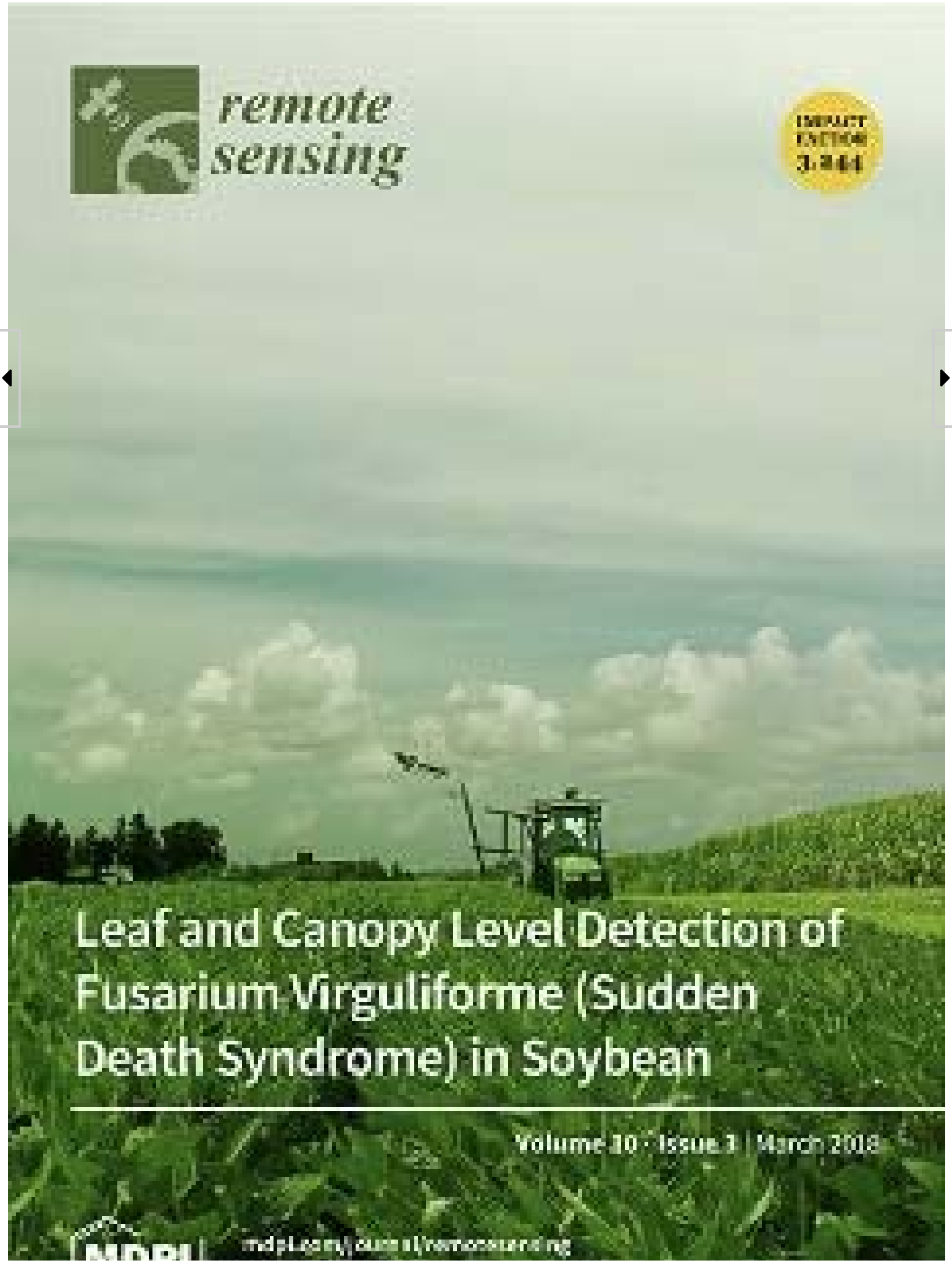
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Speckle Suppression Based on Sparse Representation with Non-Local Priors

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Received: 16 January 2018 / Revised: 28 February 2018 / Accepted: 9 March 2018 / Published: 11 March 2018

(This article belongs to the Special Issue Data Restoration and Denoising of Remote Sensing Data (/journal/remotesensing /special_issues/DataRestoration_Denoising))

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Abstract

As speckle seriously restricts the applications of remote sensing images in many fields, the ability to efficiently and effectively suppress speckle in a coherent imaging system is indispensable. In order to overcome the over-smoothing problem caused by the speckle suppression algorithm based on classical sparse representation, we propose a non-local speckle suppression algorithm that combines the non-local prior knowledge of the image into the sparse representation. The proposed algorithm first applies shearlet to sparsely represent the input image. We then incorporate the non-local priors as constraints into the image sparse representation de-noising problem. The denoised image is obtained by utilizing an alternating minimization algorithm to solve the corresponding constrained de-noising problem. The experimental results show that the proposed algorithm can not only significantly remove speckle noise, but also improve the visual effect and retain the texture information of the image better. View Full-Text (/2072-4292/10/3/439/htm)

Keywords: speckle suppression (/search?q=speckle suppression); sparse representation (/search?q=sparse representation); non-local prior (/search?q=non-local prior); shearlet (/search?q=shearlet)

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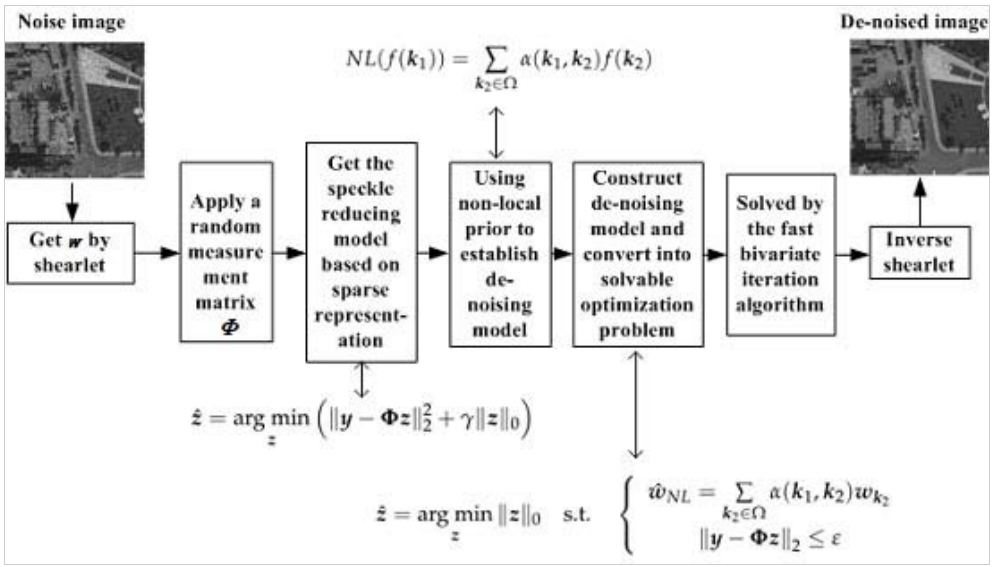

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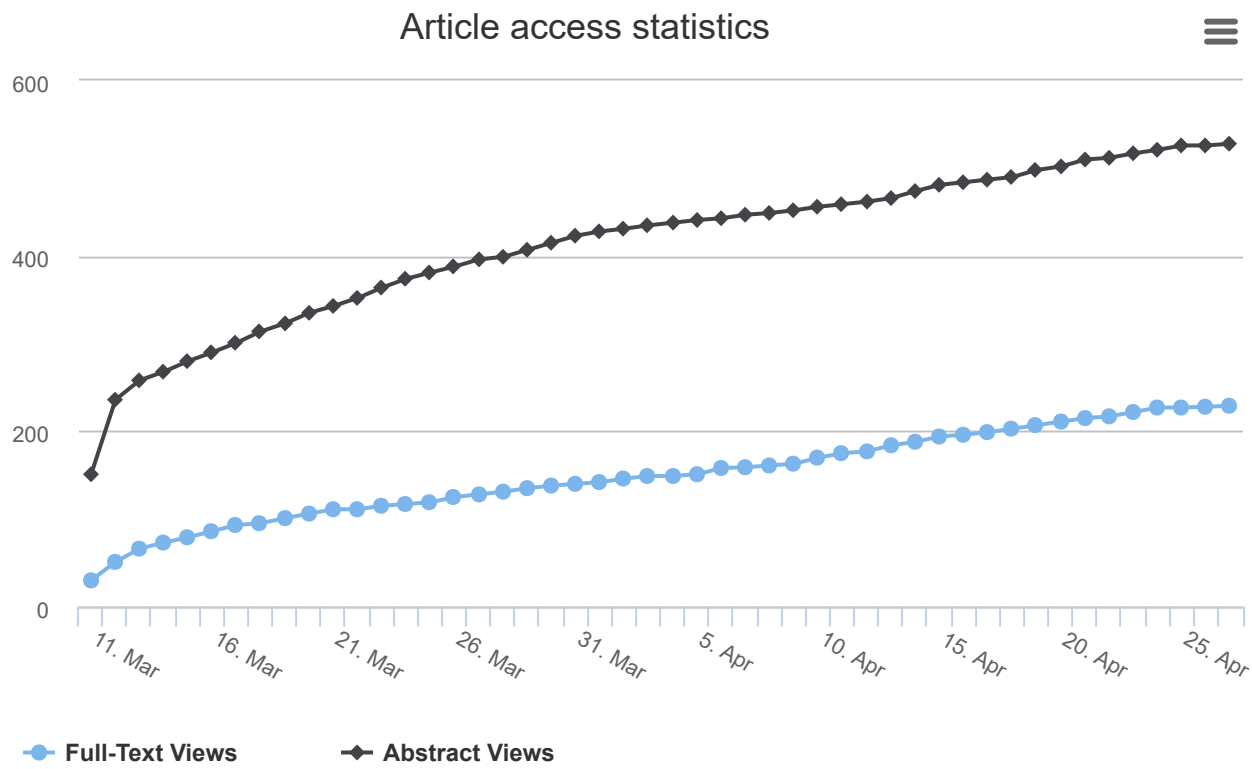

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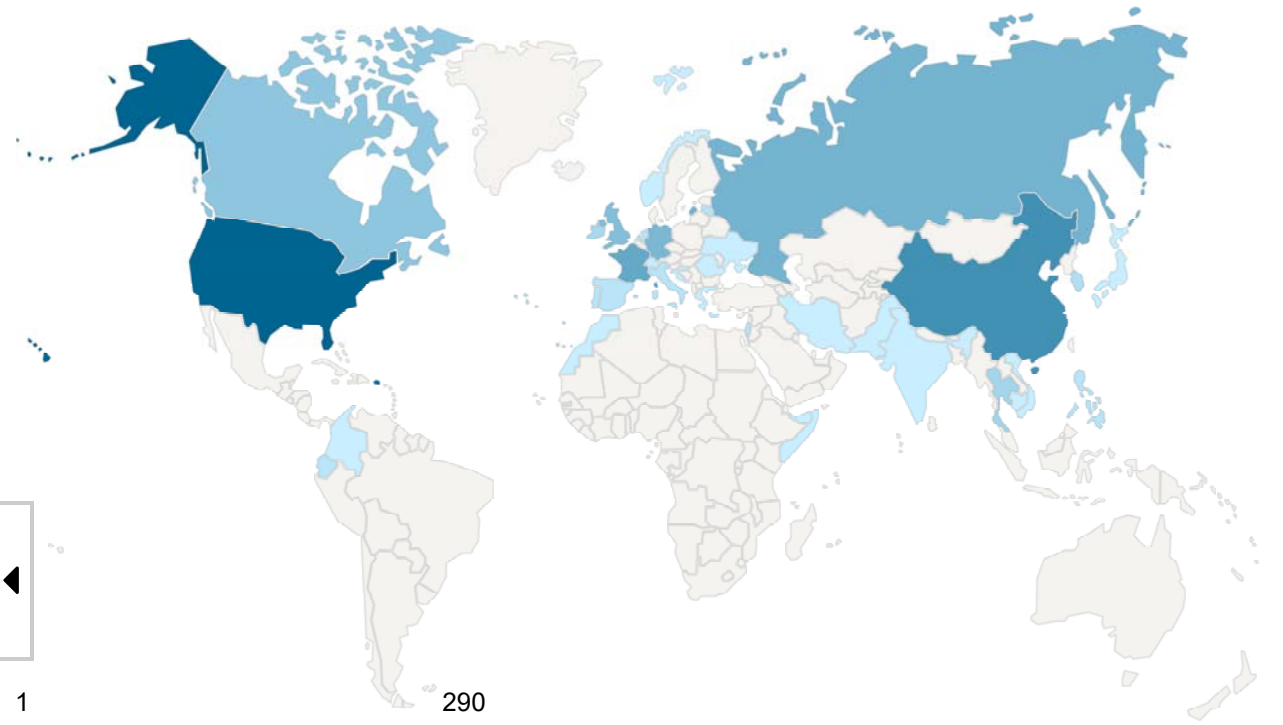

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