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成像技术与图像处理

基于边缘保持的SAR图像滤波算法研究

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摘要: 为了有效去除SAR图像中的相干斑噪声,同时很好地保留图像中的边缘细节,将双边滤波算法应用到SAR图像滤波,并使用ENL和EPI对其参数进行估计;经过参数估计的双边滤波算法作用于SAR图像后,很好地去除了斑点噪声且保留了边缘信息;实验结果表明,该算法的主观和客观数据都优于经典Lee滤波算法。

关键词: 相干斑去噪 双边滤波 边缘保持 ENL EPI

Algorithm Research of Filtering for SAR Images Based on Edges-Preserving

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Abstract: In order to effectively clear away the speckle in SAR images, while preserving the SAR images edge detail, the application of BF (bilateral filtering) is extended to SAR images despeckling. The despeckling evaluation indexes, including the equivalent number of looks and the edge preserve index, are used to estimate the parameters. After BF with estimated parameters imposed on a normalized SAR image, the filtering result can achieve both despeckling and edge preservation simultaneously. Experimental results show that the visual quality and evaluation indexes of the proposed algorithm outperforms that of the classical Lee filtering algorithm.

Keywords: despeckling bilateral filtering edge preserve ENL EPI

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