

论文

基于ROI和证据理论的目标融合检测算法

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摘要:

考虑合成孔径雷达图像(SAR)和光学图像的互补特性, 提出了一种基于感兴趣目标区域(regions of interest, ROI)决策层融合的军事目标检测方法: 分别在SAR图像和光学图像中提取出ROI, 再利用各自的统计特征和几何特征给提取出的ROI分配置信度, 以表示正确鉴别ROI的概率。最后在决策层上运用D-S证据理论融合两个源中同一ROI的置信度, 获得更可靠的融合检测结果。该方法很好的实现了SAR和光学图像的优势互补, 并在对遥感图像测试集的试验中得到了验证。

关键词: 目标检测; 感兴趣目标区域; 决策层融合; D-S证据理论

Target Fusion Detection Algorithm Based on ROI and Evidence Theory

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Abstract:

Taking advantage of the complementary characteristics in synthetic aperture radar (SAR) and optical images, a military target detection method based on decision fusion of regions of interest (ROI) is proposed. The algorithm firstly extracts ROI from SAR and optical images respectively, and then assigns reliability degrees, which indicated the probability of target, to ROI based on their statistical features and geometric features. Finally, the reliability degrees of the same ROI from two sources are combined by D-S decision level fusion theory before an ultimate detection result is obtained. The method makes good complementary of the advantages of SAR and optical images, which is validated in the experiments with remote sensing image set.

Keywords: Target detection regions of interest decision fusion D-S evidential theory

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