عنوان مقاله:

Target Detection Using Multispectral Images, A Case Study: Wheat Detection in Chenaran County in Iran

محل انتشار:

نویسنده:

M. Imani - *Department of Telecommunication, Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, Iran*.

خلاصه مقاله:

Background and Objectives: Target detection is one of the main applications of remote sensing. Multispectral (MS) images with higher spatial resolution than hyperspectral images are an important source for shape and geometric characterization, and so, MS target detection is interested. Methods: A target detector appropriate for multispectral (MS) images is selected among hyperspectral target detectors and redefined in this paper. Many target detectors have been proposed for hyperspectral images in the remote sensing filed. Most of these detectors just use the spectral information. Since, the MS images have higher spatial resolution compared to hyperspectral ones, it is proposed that select a target detector that uses both of the spectral and spatial features. To this end, the attribute profile based collaborative representation (AP-CR) hyperspectral detector is chosen for MS images. Shape structures extracted by flexible attribute filters can significantly improve the MS target detection. Results: As a case study, the wheat fields in Chenaran County in Iran are chosen as targets to be detected. The image acquired by Landsat 8 is used for doing experiment. The results show the superior performance of AP-CR with 96.09 % accuracy for wheat detection using MS image of Landsat 8. Conclusion: The high performance of AP-CR is due to extraction of flexible attribute characteristics and the use of collaborative representation for approximation of each image pixel. Although the AP-CR method provides the highest accuracy, it needs a high running time compared to other detectors.

کلمات کلیدی:

target detection, multispectral image, wheat field, attribute filter, collaborative representation

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