عنوان مقاله:

EVALUtion of the impact of misregistration error in fused images on the accuacy of feature extraction

محل انتشار:

پنجمین کنفرانس بین المللی پیشرفت های علوم و تکنولوژی (سال: 1390)

تعداد صفحات اصل مقاله: 9

نویسندگان:

h Cheraghchi - *Dept. of Surveying and Geomatics Eng., College of Eng., University of Isfahan*

s Homayouni - *Dept. of Surveying and Geomatics Eng., College of Eng., University of Tehran*

M Momeni

خلاصه مقاله:

Hyperspectral images provide the abundant spectral data from ground surface in hundreds spectral bands, therefore has been considered in various remote sensing applications. The spatial resolution of these sensors is limited. In some of applications like urban feature extraction, in addition to high spectral resolution, also the high spatial resolution is necessary. Here, image fusion techniques are suggested for the enhancing spatial resolution of hyperspectral data. Image registration is one of the most important steps in the fusion process. The main objective in image registration is to bring the target image into alignment with the reference image by applying a set of transformation to the target image. Irrespective of what method of fusion is used, the main challenge in image fusion at pixel level is image registration. In this paper, the effect of misregistration error on the accuracy of road extraction algorithms is investigated. The roads are extracted using an object-oriented fuzzy classification approach. For evaluation misregistration error in accuracy of road extraction, a coarsened spatial resolution hyperspectral data and a multispectral data are generated from an original hyperspectral data. These images are misregistered by 0, 1, 2, 3 pixels in the diagonal direction. Then, the coarsened hyperspectral and shifted multispectral images are fused. After, roads extract through the fused data and the original hyperspectral data. For accuracy assessment of extracted roads, the correctness, completeness and quality indexes are calculated. This study clearly showed that misregistration error has significant effects on the accuracy of feature extraction and we need to achieve sub-pixel values of image registration accuracy to ensure a rational accuracy for road extraction

کلمات کلیدی:

Hyperspectral Image, Image Fusion, Image Registration, Feature Extraction, Object-Oriented Classification

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