Abstract

An important aspect of spectral image analysis is identification of materials present in the object or scene being imaged. Since multi-spectral or hyper-spectral imagery is generally low resolution, it is possible for pixels in the image to contain several materials. A paramount issue in image processing area is to design and implement an efficient segmentation and classification techniques demanding optimal resources. This paper presents a survey on all prominent region growing segmentation techniques analyzing each one and thus sorting out an optimal and promising technique. Finally study the importance of the best merge region growing normally produces segmentations with closed connected region objects. Recognizing that spectrally similar objects often appear in spatially separate locations, present an approach for tightly integrating best merge region growing with nonadjacent region object aggregation, which we call hierarchical segmentation or HSeg. The effectiveness of the proposed methodology is illustrated by comparing its performance with the state-of-the-art methods on synthetic and real hyper-spectral image data sets. The reported results give clear evidence of the relevance of using both spatial and spectral information in hyper-spectral image segmentation.
References


Index Terms

Computer Science               Image Processing

Keywords

Image analysis, hyper spectral images, image classification, image region analysis, image segmentation, objects detection.