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Imp_hist-Si: Improved Hybrid Image Segmentation Technique for Satellite Imagery to Decrease the Segmentation Error Rate

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Abstract : Image segmentation is a technique where a picture is parted into distinct parts having similar features which have a place with similar items. Various segmentation strategies have been proposed as of late by prominent analysts. But, after ultimate thorough research, the novelists have analyzed that generally, the old methods do not decrease the segmentation error rate. Then author finds the technique HIST-SI to decrease the segmentation error rates. In this technique, cluster-based and threshold-based segmentation techniques are merged together. After then, to improve the result of HIST-SI, the authors added the method of filtering and linking in this technique named Imp_HIST-SI to decrease the segmentation error rates. The goal of this research is to find a new technique to decrease the segmentation error rates and produce much better results than the HIST-SI technique. For testing the proposed technique, a dataset of Bhuvan – a National Geoportal developed and hosted by ISRO (Indian Space Research Organisation) is used. Experiments are conducted using Scikit-image & OpenCV tools of Python, and performance is evaluated and compared over various existing image segmentation techniques for several matrices, i.e., Mean Square Error (MSE) and Peak Signal Noise Ratio (PSNR).

Keywords : satellite image, image segmentation, edge detection, error rate, MSE, PSNR, HIST-SI, linking, filtering, imp_HIST-SI
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