An Efficient Approach toward Color Image Segmentation with Combined Effort of Soft Clustering and Region based Techniques using L Channel of LAB Color Space

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Authors:
Dibya Jyoti Bora, Anil Kumar Gupta, Fayaz Ahmad Khan

Abstract

Finding an efficient approach for color image segmentation is always sought by the researchers in the color image processing research. We have different clustering based and region based methods for the same. But still there arises the requirement of an optimal method. In this paper, a new approach for color image segmentation is proposed. Here the segmentation is carried out on the L channel of LAB color space. The input color image is first converted from RGB to LAB. Then L channel is extracted from the LAB converted image and sent as input to FCM algorithm. After this initial segmentation, the segmented image is filtered by sobel filter. The filtered image is then segmented by Meyer’s Watershed algorithm to produce the final segmented image of the original image. The results of the proposed approach are found efficient when the same are analyzed in terms of MSE and PSNR. Also the segmented images are found free from over segmentation.

References
17. CIELAB
27. MATLAB Demo Images
29. Berkeley Segmentation Dataset: Images

Index Terms

Computer Science   Image Processing

Keywords

Color Image Segmentation, FCM, LAB, Sobel Filter and Watershed Algorithm