Unsupervised Histogram Based Color Image Segmentation

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Summary

In this paper, a new technique is proposed for the segmentation of color images. The technique is based on the use of the sigma filter and multithresholding of 2-band histograms. A sigma filter is first applied to smooth out regions while keeping edges. Histograms are then computed, smoothed and downsampled. A peak picking algorithm finds the predominant peaks in the histograms. A concordance process between the dominant peaks is performed to determine the corresponding peaks in the histograms. Labels are assigned to corresponding peaks. The resulting histograms are partitioned into regions having the right labels. The partitioned histograms are used to segment the R, G and B bands. Finally, the segmented bands are fused together to give the final segmented image.

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