Abstract

Does K-Means reasonably divides the data into k groups is an important question that arises when one works on Image Segmentation? Which color space one should choose and how to ascertain that the k we determine is valid? The purpose of this study was to explore the answers to aforementioned questions. We perform K-Means on a number of 2-cluster, 3-cluster and k-cluster color images (k>3) in RGB and L*a*b* feature space. Ground truth (GT) images have been used to accomplish validation task. Silhouette analysis supports the peaks for given k-cluster image. Model accuracy in RGB space falls between 30% and 55% while in L*a*b* color space it ranges from 30% to 65%. Though few images used, but experimentation proves that K-Means significantly segment images much better in L*a*b* color space as compared to RGB feature space.

References

K-Means Cluster Analysis for Image Segmentation

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Index Terms

Computer Science
Image Processing
Keywords
Cluster evaluation  L*a*b* Color Space  Precision Recall Graph  Image Segmentation