This work is based on color image segmentation by spatial-color pixel classification in Luv color space. Classes of pixels are difficult to be identified when the color distributions of the different objects highly overlap in the color space and when the color points give rise to non-convex clusters. It is proposed to apply spectral classification to regroup the pixels which represent the same regions, into classes. Spectral clustering achieves a spectral decomposition of a similarity matrix in order to construct an eigen-space in which the clusters are expected to be well separated. The similarity matrix used in this paper is derived from a spatial-color compactness function. This function takes into account both the distribution of colors in the color space and the spatial location of colors in the image plane. Spectral clustering that uses FCM performs better in Luv color space when compared with other Spectral clustering algorithms.

Reference

Spectral Clustering of Images in LUV Color Space by Spatial-Color Pixel Classification


**Index Terms**

Computer Science  
Computer Vision

**Key words**

Spectral Clustering  
Non-convex clusters  
Eigen-Space