Abstract

Color spaces, color histograms, histogram distance measurements, size and quantization play an important role in retrieving images based on similarities. This paper presents a study of the effect of color quantization schemes for different color spaces (HSV, YIQ and YCbCr) on the performance of content-based image retrieval (CBIR), using different histogram distance measurements (Histogram Euclidean Distance and Histogram Intersection Distance). For the purpose of this study, a CBIR system that implements two content-based image retrieval algorithms has been developed. The first algorithm is based only on the color feature, while the second one is based on combination of the color and texture features. The color histogram is used for image color feature extraction and Haar wavelet transform is used for image texture feature extraction. The WANG image database, which contains 1000 general-purpose color images, has been used in the experiments of this study. The experimental results show which histogram distance measurement is best, which color space gives better retrieval precision, and the best quantization schemes for the considered color spaces, when using only the color feature, and when using a combination of the color and texture features.
A Study of the Effect of Color Quantization Schemes for Different Color Spaces on Content-based Image Retrieval

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Index Terms

Computer Science  Image Processing

Keywords

Histogram-based image retrieval  Color quantization  Color spaces  Precision
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