Abstract

This paper presents two content-based image retrieval algorithms that are based on image partitioning. The retrieval in the first algorithm is based only on the image color feature represented by the color histogram, while the retrieval in the second one is based on the image color and texture features represented by the color histogram and Haar wavelet transform, respectively. In these algorithms, each image in the database and the query image are divided into 4-equal sized blocks. Color and texture features are extracted for each block. Distances between the blocks of the query image and the blocks of a database image are calculated, then, the similarity between the query image and the database image is calculated by finding the minimum cost matching based on most similar highest priority (MSHP) principle. A CBIR system that implements the proposed algorithms has been developed. To evaluate the effectiveness of the proposed algorithms, experiments have been carried out using different color quantization schemes for three different color spaces (HSV, YIQ and YCbCr) with two similarity measures, namely the Histogram Euclidean Distance and Histogram Intersection Distance. The WANG image database, which contains 1000 general-purpose color images, has been used in the experiments.
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Index Terms

Computer Science
Image Processing

Keywords

Histogram-based image retrieval  Haar wavelet transform  Image partitioning  Color quantization
Color spaces
Histogram similarity measures

Most Similar Highest Priority (MSHP) principle.