Abstract

Nowadays, rapid and effective searching for relevant images in large image databases has become an area of wide interest in many applications. The current image retrieval system is based on text-based approaches. This system has many challenges such as it cannot retrieve images that are context sensitive and the amount of effort required to manually annotate every image, as well as the difference in human perception when describing the images, which result in inaccuracies during the retrieval process. Content-based image retrieval (CBIR) supports an effective way to retrieve images depending on automatically derived image features. It retrieves relevant images using unique image features such as texture, color or shape.

This paper presents novel methods to retrieve relevant images from large image databases. Two proposed methods are presented. The first proposed method improves the retrieval performance by identifying the most efficient gray-level co-occurrence matrix (GLCM) texture features and combine them with the appropriate Discrete Wavelet Transform (DWT) decomposition band. The second proposed method increases the system performance by
combining color and texture features as one feature vector which is resulting in increasing the retrieval accuracy. The proposed methods have shown a promising and faster retrieval on a WANG image database containing 1000 color images. The retrieval performance has been evaluated with the existing systems that discussed in the literature. The proposed methods give better performance than other systems.

References


Index Terms

Computer Science  Image Processing

Keywords

CBIR, Color Histogram, GLCM, DWT, Image Retrieval, WANG image database, Euclidean distance