CTDCIRS: Content based Image Retrieval System based on Dominant Color and Texture Features

Abstract

There is a great need of developing efficient content based image retrieval systems because of the availability of large image databases. A new image retrieval system CTDCIRS (color-texture and dominant color based image retrieval system) to retrieve the images using three features called dynamic dominant color (DDC), Motif co-occurrence matrix (MCM) and
difference between pixels of scan pattern (DBPSP) is proposed. Initially the image is divided into eight coarse partitions using the fast color quantization algorithm and the eight dominant colors are obtained from eight partitions. Next the texture of the image is represented by the MCM and DBPSP. MCM is derived using a motif transformed image. MCM is similar to color co-occurrence matrix (CCM). MCM is the conventional pattern co-occurrence matrix that calculates the probability of the occurrence of same pixel color between each pixel and its adjacent ones in each image, and this probability is considered as the attribute of the image. MCM captures third order image statistics in the local neighborhood which describes the direction of textures but not the complexity of the textures. That is why the DBPSP is also considered as one of the texture features. The three features Dominant color, MCM and DBPSP are integrated to facilitate the image retrieval system. Experimental results show that the proposed image retrieval is more efficient in retrieving the user-interested images.

Reference

- Tzu-Chuen Lu, Chin-Chen Chang, Color image retrieval technique based on color features and image bitmap, Information Processing and Management 43 (2) (2007) 461–472.

Index Terms

Computer Science

Computer Vision

Key words

Image retrieval

Dominant color

Texture

Co-occurrence

Motif