

CONTENT BASED IMAGE RETRIEVAL SYSTEM

L. H. A. Nilmini

Postgraduate Institute of Science
University of Peradeniya
Peradeniya
Sri Lanka

In these days people are interested in using digital images and visual information for multiple purposes. Because of that size of the database is enormously large. Thus there is a requirement for developing an efficient and effective technique for finding and manipulating the images. The Main goal of any Content Based Image Retrieval system is to construct meaningful descriptions in terms of physical attributes from images. Many researches have been made to extract physical features such as color, texture, edge, structure or a combination of them or combine with some mathematical features such as mean, standard deviation and derived matrixes and so on.

This report proposes a CBIR method which uses the combination of dominant color descriptor and motif co-occurrence matrix. In the proposed method, we used level searching mechanism to enhance the effectiveness and efficiency. We used dominant color descriptor (DCD) as an image describer of the first level, because DCD is an inexpensive searching algorithm. Dominant colors depict color features with a smaller number of features and invariant to translation and rotation. This method effectively shortens image retrieval time and enhances retrieval performance.

In the second level, we used Motif co-occurrence matrix (MCM) as an image describer. It shows the combination of information related to both color and texture. Also it represents the third order statistics of the image. MCM is sensitive to translation invariants. Therefore we compute the similarity for three translational invariant to overcome above effects.

The proposed method reduces the time complexity by using different level similarity measuring functions to enhance the total computational time. Within the first level, system retrieves 150 similar images from image database using DCD method which has less computational overhead. Next, the system retrieve the twenty best matches among the first level best matching images using MCM method which has complex computational overhead. The experimental results shows that the proposed method yield higher average precision while reducing the average retrieval time over the other methods.