

Abstract

Nowadays, the content-based image retrieval systems (CBIR) are used to search, analyze, and retrieve images from a large database based on the information provided. There are various applications derived from this image retrieval algorithms such as face recognition and finger print recognition. The CBIR is also used to provide the relevant images for search engine system to reduce the searching time. However, the selection criteria of relevant images is selective and not trivial problems. Most of CBIR system is based on image segmentation and object recognition techniques. Thus, the current CBIR systems are not satisfied with the requirement in term of speed and accuracy. Many researchers propose algorithms and techniques to retrieve relevant images based on either its color properties or shape properties. Very rare attempts to combine the texture and color features to enhance the accuracy and precision of the CBIR system.

This thesis presents the new representation for content-based image retrieval system using the color feature representation, and texture feature representation. First, the color feature can be calculated using color histograms and color moments. Then, the texture feature also calculate using first and second derivative representation of the image. Finally, the Principle Component Analysis is used to integrate the color features and texture features to provide the final feature representation and also reduce the size of combined features. Experiments are set to test this new representation with 1,000 different images. The results show significant improvement of accuracy, precision and retrieving speed.