



Faculty of Engineering - Alexandria University

CBIR: EFFECT OF COLOR, TEXTURE AND RELEVANCE FEEDBACK

A Thesis

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ABSTRACT

Our world is dominated by visual information and a tremendous amount of such information is being added day by-day. It would be impossible to cope with this explosion of visual data, unless they are organized such that we can retrieve them efficiently and effectively. The main problem in organizing and managing such visual data is indexing, the assignment of a synthetic descriptor which facilitates its retrieval. It involves extracting relevant entities or characteristics from images as index keys. Then a representation is chosen for the keys and specific meaning is assigned to it. Visual database systems require efficient indexing to facilitate fast access to the images in the database. Recent Content-Based Image Retrieval (CBIR) techniques are based on features such as color, texture, shape, spatial relationships, object motion, etc. As the number of digital images grows, there is a need for automatic image retrieval based on their content. This thesis is related to CBIR research area that is a promising area of research in terms of performance and cost.

The visual contents of an image is represented by both the global and local descriptors. Then, the image can be presented by the image signature. The image signature is represented by a multi-dimensional feature vector of dimension d , that is extracted from both color and texture features.

The presented CBIR system has three components. Firstly, a comparison takes place between different feature extraction techniques regarding both color and texture. Secondly, for the similarity retrieval, a degree of similarity is defined based on a weighted sum of the color and texture features. Thirdly, feedback approaches are applied to enhance the results and increase the system retrieval accuracy.