Volume-6, Issue-1, January - 2017 • ISSN No 2277 - 8160 IF : 3.62 | IC Value 80.26

Original Research Paper Computer Science

A STUDY ON RECOUPING IMAGES WITH INTERACTIVE GENETIC ALGORITHM AND DIGITAL IMAGE PROCESSING

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ABSTRACT *For last few years, with the development of digital image techniques and digital album on the Internet, the use of digital s has increased widely. An image retrieval system is a computer system for browsing, searching and retrieving images from huge databases of digital images. In order to increase the accuracy of image retrieval, an intent-based image retrieval system(IBIR) based on interactive genetic algorithm (IGA) is proposed. Color, texture and edge have been the primitive low level image descriptors in content based image retrieval systems. In this paper we proposed a system that splits the retrieval process into two stages. In the query stage, the feature descriptors of a query image were extracted and then used to evaluate the similarity between the query image and those images in the database. In the evolution stage, the most relevant images were retrieved by using the IGA. IGA is employed to help the users identify the images that are most satisfied to the users need.*

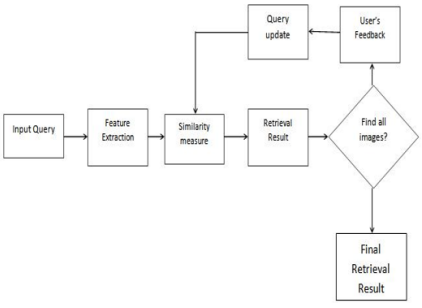
KEYWORDS : Digital Image, interactive genetic algorithm, digital image processing, intent based image retrieval.

INTRODUCTION

Image retrieval techniques are useful in many image-processing applications. Content-based image retrieval systems work with whole images and searching is based on comparison of the query. General techniques for image retrieval use color, texture and shape. These techniques are applied to get an image from the image database. They are not concerned with the various resolutions of the images, size and spatial color distribution. Hence all these methods are not appropriate to the art image retrieval. Moreover shape based retrievals are useful only in the limited domain. The content and metadata based system gives images using an effective image retrieval technique. Many Image retrieval techniques are useful in many image-processing applications. Content-based image retrieval systems work with whole images and searching is based on comparison of the query. Other image retrieval systems use global features like color, shape and texture. But the prior results say there are too many false positives while using those global features to search for similar images. Hence we give the new view of image retrieval system using both content and metadata.

Background:

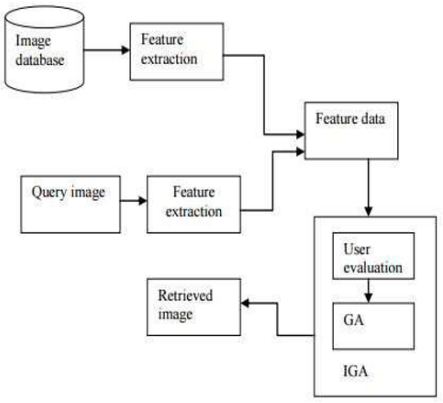
With the growth of Digital Imaging, use of images in human communication is hardly new.Our cave-dwelling ancestors painted pictures on the walls of their caves, and the use of maps and building plans to convey information almost certainly dates back to pre-roman times. But the twentieth century has witnessed unparalleled growth in the number, availability and importance of images in all walks of life. Images now play a crucial role in fields as diverse as medicine, journalism, advertising, design, education and entertainment. Technology, in the form of inventions such as photography and television, has played a major role in facilitating the capture and communication of image data. But the real engine of the imaging revolution has been the computer, bringing with it a range of techniques for digital image capture, processing, storage and transmission which would surely have started even pioneers like John Logie Baird. The involvement of computers in imaging can be dated back to 1965, with Ivan Sutherland's Sketchpad project, which demonstrated the feasibility of computerized creation, manipulation and storage of images, though the high cost of hardware limited their use until the mid-1980s. Once computerized imaging became affordable, it soon penetrated into areas traditionally depending heavily on images for communication, such as engineering, architecture and medicine. Photograph libraries, art galleries and museums, too, began to see the advantages of making their collections available in electronic form. The creation of the World-Wide Web in the early 1990s, enabling users to access data in a variety of media from anywhere on the planet, has provided a further massive stimulus to the exploitation of digital images.



CASE STUDY

An image is worth more than ten thousand words. Human beings are able to explain a narrative from an image on the basis of observations and specifically their background knowledge. One important question that arises is whether it can be develop an intelligent model to learn image concepts like human. There is no doubt that the ambitious efforts have been made to develop an intelligent model in the past decade. The most straightforward form of image retrieval systems, simply asks the user to specify one or more relevant images. To improve the query results, some systems allow the user to manually change the weight of image features [2]. This gives higher weights to features in which example images are similar and gives lower weights to those features where the images differ. Some systems allow the users to specify irrelevant images as negative examples. This approach, however, introduces undesirable side effects because it tries to cluster negative examples into one class. In actuality, negative examples can be many classes of images in the database. There are some literatures that survey the most important CBIR systems[6]. Also, there are some papers that overview and compare the current techniques in this area [7]. Since the early studies on CBIR, various color descriptors have been adopted. Yooet. al. [8] proposed a signature-based color-spatial image retrieval system. Different type of color spaces and its spatial distribution within the image are used for the features. In [9], a CBIR scheme based on the global and local color distributions in an image is presented. Vadivel et. al. [10] have introduced an integrated approach for capturing spatial variation of both color and intensity levels and shown its usefulness in image retrieval applications. Like color, texture is also an important visual feature in defining high level semantics for image retrieval purposes. Wavelet based texture evaluation using subbands by bit-plane extractions in texture image retrieval were presented in [11]. An effective and efficient

characterization to overcome some limitations, such as computational expensive approaches or poor retrieval accuracy, in a few texture based image retrieval methods, Kokareet. al. [12] concentrated on the problem of finding good texture features for CBIR. Pi and Li [13] combined fractal parameters and collage error to propose a set of new statistical fractal signatures.



CONCLUSIONS

This paper gives one of the effective retrieval method in CBIR, where the use of IGA gives efficient and accurate results in contrast to the conventional approaches that are based on visual features, the IGA method provides an interactive mechanism to bridge the gap between visual features & human perception. The color information of an image & entropy in addition with texture descriptor using GLCM gives vital help in characterizing the image. As these features & performances of IGA approach to image retrieval lifts up a task of CBIR at more significant level.

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