

A REVIEW ON IMAGE MINING BASED OBJECT IDENTIFICATION AND TAGGING

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ABSTRACT

Massive image data that are accumulated in any organization due to frequent occurrences of various events possess tremendous challenges and issues in terms of storage and access. Compared to the text data, image data are complex. These image data could be transformed into useful information if it is analyzed properly. Image mining is a special category under the field of data mining where new patterns and relationships are extracted from the pre-existing database. There exist several image mining based techniques that is used to identify images that contain potential objects from a large collection of data. Embedded details in the image could be extracted using low level and high level features that are invariant and highly robust to any changes associated with that image. This review focuses researching the current image mining approaches and techniques for Content Based Image Retrieval (CBIR) aiming at widening the possibilities of potential object identification. This paper aims at reviewing the current state of the feature extraction as well as at describing challenges and identifying directions of the future research in the field.

Keywords: *Image mining, Object identification, Image retrieval, Tagging, Knowledge discovery.*

I.INTRODUCTION

The one thing that is gradually increasing in the world is data. The visual complexity of image data are larger compared to the text data. There exist several situations such as weather forecast monitoring system, business organizations, satellites, cameras installed at public venues where images are captured in each seconds to collect information's and to generate new relationships and patterns. Image mining is a technique that is useful in organizing this wide amount of image data. It is the process of generating new relationships and patterns from a large previously existing collection of image data. The process of searching and discovering valuable information's and knowledge in large volume of image data deals with Extraction of implicit knowledge, Identifying image data relationships and discovering other patterns that are not explicitly stored in image. The visual content in the image and other challenges such as illumination, noise, clutter, scale and occlusion makes it more complex compared to the text data. The function driven and information driven image mining techniques are used to identify image that contain a potential object from a large collection of image data. This paper aims at reviewing different image mining technique for feature extraction and object identification.

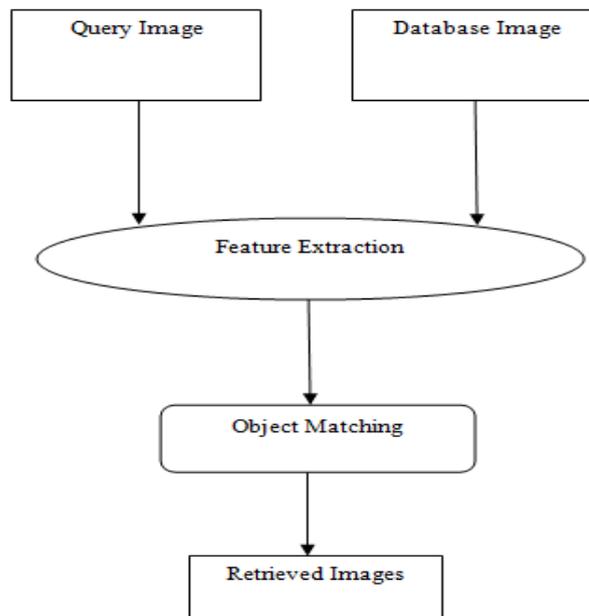


Fig.1 Content Based Image Retrieval Flow

The figure represents the flow of content based image retrieval. Both the query image and the database image are going through the process of feature extraction and low level features such as colour, shape, pixels, and textures are extracted. Feature vector is created for both the images and similarity is identified.

II.ADAPTIVE QUERY SEARCH

Content Based Image Retrieval is practiced through query based search mechanism. Query based image retrieval is practiced mainly based on the concept of Support Vector Machine (SVM). Adaptive query search method in which the system is working based on the users interest to generate the collection of retrieved images. Users are providing query according to their convenience and based on that particular query, the images are retrieved from the large collection of image data. The colour, shape and texture features are extracted using the concept of Autocorrelogram, HSV colour space, Colour moment and Gabor wavelet transforms [3].

III.IMAGE MINING USING LOW-LEVEL FEATURES

The system in [4] proposing a method for the classification of textual images. The classification is based on certain low level features including the concept of Grey Level Co-Occurrence Matrix. First the image is converted into slices and for each pixel in the images the image features such as mean, skewness, energy contrast and entropy are identified. Based on these extracted features the textual images are classified under different categories such as document images, or caption images. Initially the system converts the color images into grey scale images using the functions of MATLAB. Image features are extracted and for each pixel a GLCM is created. According to the features extracted the classification is practiced. Document images are those



whose mean is calculated as the highest. The caption images are classified based on the features energy and contrast. Training and testing is practiced on WEKA tool.

IV.VIBGYOR INDEXING TECHNIQUE

The system [5] describes a method based on the VIBGYOR indexing technique. The method consists of two main parts and that is the VIBGYOR indexing technique and the second stage is the application of a simple image mining algorithm. Initially the database is equally divided into seven equal parts based on the colors in vibgyor such as violet indigo blue green yellow orange and red. For each query image the system calculate the percentage of colors in the image and identifying the highest percentage of color. The image is then stored into that particular part of the database. Image mining algorithms are applied to retrieve images from the data base. For the query image and the image in the database color percentages are extracted initially and the results are stored. Identifying the similarity between these two color percentage and retrieving the image that is preferred by the user.

V.CONCLUSION

The objective of the work is to provide a general idea of Image mining techniques that can be employed in Content Based Image Retrieval systems. This study can be done using different classification algorithms and techniques for retrieving images that contain potential objects from a large collection of image data. Image mining methods are essential because the complexity of visual contents in the images is comparatively larger than the text data. So a system that is used to retrieve potential images from a large collection of image data is highly significant. Image mining technique based on low level and high level feature extraction methods are increasing day by day.

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