

Survey On Content Base Image Retrieval System

Swarnalata V. Wankhede, Rashmi V. Sawalakhe, S.M Inzalkar

Abstract— this paper shows a novel framework for combining all the three features color, texture and shape information.

Also it achieves higher retrieval efficiency using dominant color feature. The image and its complement are divided into non-overlapping tiles of same size. The features drawn from co-occurrence conditional histograms between the image tiles and corresponding complement tiles. In RGB color space, act as local descriptors of color, shape and texture. In this paper apply the integration of the above combination, then cluster based on like properties. Based on dominant colors and retrieve the similar images. The information of Image is captured in terms of edge images this image computed using Gradient Vector Flow fields. Constant moments are then used to store the shape features.

Index Terms— *CBIR, Image Retrieval, Cluster, Dominant Color*

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1 INTRODUCTION

Practical for very large databases or for images and it is generated automatically. It is also possible to miss images that use different synonyms in their descriptions. Systems based on categorizing images in semantic classes like "cat" as a subclass of "animal" avoid this problem, but still face the same scaling issues [3].

The Content Based Image Retrieval (CBIR) technique uses image content to search and retrieve digital images from database. Content-based image retrieval systems were introduced to overcome the problems associated with text-based image retrieval. Content based image retrieval is a set of techniques for retrieving semantically-relevant images from an image database based on automatically-derived image features [4]. The main goal of CBIR is efficiency during image indexing and retrieval, thereby reducing the need for human intervention in the indexing process[5]. The computer must be able to retrieve images from a database without any human assumption on specific domain. In this computer era, all aspects of human life like government, hospitals, surveillance engineering, commerce ,architecture, journalism, fashion and graphic design, crime prevention and historical research use images for efficient services. An image database is a system where image data are integrated and pages from database. Content-based image retrieval systems were introduced to overcome the problems associated with text-based image retrieval. Content based image retrieval is a set of techniques for retrieving semantically-relevant images from an image database based on automatically-derived image features [4]. The main goal of CBIR is efficiency during image indexing and retrieval, thereby reducing the need for human intervention in the indexing process[5]. The computer must be able to retrieve images from a database without any human assumption on specific domain.

2 IMAGE RETRIEVAL

2.1 Review Stage

Image retrieval system is a computer system for searching, browsing and retrieving images from a

large database of digital libraries. The use of Metadata such as captioning, keywords or descriptions to the images stored in the database along with the images or the low level feature extracted from the image like shape, color, texture etc. have been used till now for the image retrieval from the existing search engine. A user formulating a query usually has in mind just one topic, while the results produced to satisfy this query may belong to different topics. Therefore only parts of the search results are relevant for a user.

Needs for a good image retrieval system:

It must take less response time.

It must be accurate.

Stage Querying for image retrieval is not to difficult.

Techniques for image retrieval:

There are different existing techniques for image retrieval. Some of the main techniques are discussed below.

- 1) Text based Image Retrieval
- 2) Content Based Image Retrieval
- 3) Region based image retrieval

Text based image Retrieval

TBIR store text in the form of keywords together with the image. Some TBIR uses Surrounding text of the image for searching the keywords which are physically close to the image. Search Engines that uses this technique are Google, yahoo & AltaVista.

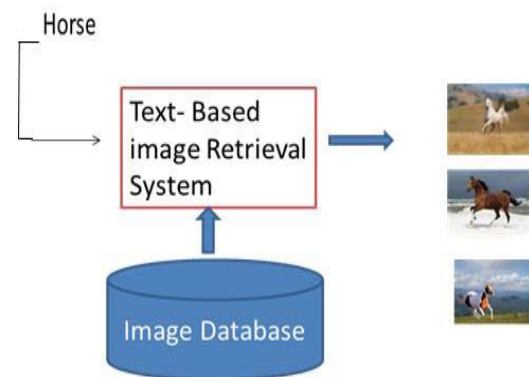


Figure: 1 Text based Image retrieval.

Merits of TBIR

- There is no need of drawing, example image or other advanced tools of constructing queries. It are easy to construct queries.
- Image retrieval is fast & quick.
- String Matching is a relatively resource – friendly task.

Merits of CBIR

This technique removes the difficulty that can arise upon trying to describe images with words i.e TBIR. It does not depend upon image size or orientation for searching.

Demerits of CBIR

Indexing of large image repositories is time and resource consuming. A major demerit of CBIR system is limited small databases.

It is not possible to search for the semantic of the images.

Tools to construct query image may be complicated to use.

Due to semantic gap between low level features and high level features of the image Sometimes CBIR returns irrelevant result.

Region Based Image Retrieval

RBIR is an extension of content based image retrieval techniques. Region based image retrieval system provide new query types to search for objects embedded in an arbitrary environment. An RBIR system automatically segments images in to a variable number of regions and uses a segmentation algorithm to extract a set of features (like colours, shapes and sketches) for each region. A function determines the differences between the image database and a set of reference region. Systems that use region based image retrieval are Blob world, Walrus and Simplicity.

Merits of RBIR

It can correctly separate the regions that have the same properties.

Region growing methods can provide the original images which have clear edges and the good segmentation results.

Demerits of RBIR

This computation is takes more time and power.

Noise or variation of intensity may result in over segmentation.

This method may not distinguish the shading of real images.

Context based or Semantic Image Retrieval

This is a comparatively new approach of image retrieval. Context is any information that can be used to characterize the situation of an entity. Context is the where, who, what and when of an object. if a piece of information can be used to characterize the situation of a participant in an interaction or conversation, this information is

context. And there are two type of image context. These are follows

- 1) Static Context
- 2) Dynamic Context

Static Context: Static context often refers to the context that can be measured by hardware sensors e.g. location, time, sound, temperature, movement touch, light, humidity and air pressure. Static context is information added to the image when the image is captured or created. This context never changes in time. Because of static nature of context; Image retrieval based on static information is relatively easy.

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Dynamic context: this context is added after the image is captured and can change in time, situation and it is dependent on the viewer is. The same image can be interpreted differently by different viewer.

The context based search engine can automatically select relevant image based on the description given in textual passage. Context based search uses semantic role labelling and Concept net technique for retrieval of image using textual passage.

Advantages of Context Based search

1. This is fully automated and requires less human interaction for querying.
2. It can lessen the semantic gap problem in searching of relevant images.
3. User can make a query to the search engine easily either in image or text formats.

Disadvantages of Context Based search

1. It is difficult to implement because it require machine intelligence.
2. It is complex and time consuming to search images using context because context may change with time.

3. Literature Review

In 2005, Xiaojun Qi et al. [6] propose a new fusion approach to content-based image retrieval. In their retrieval system, an image is represented by a set of colour -clustering-based segmented regions and global or semi-global edge histogram descriptors (EHDs). Then the result is resemblance of two images is mapped on the basis of similarities in both region-based and global or semi-global-based. Image level In their

approach, every segmented region corresponds to an object or parts of an object and it is indicated by two sets of fuzz field colour as well as texture features. A fuzzy region matching technique, which allows one region to match variously regions, is then incorporated to the issues related with the colour or texture which is not correct and segmentation uncertainties. The matched regions, together with the simple semantics for determining the relative importance of each region, are further used to calculate the region-based image level similarity. The global or semi-global EHDs are also incorporated into our retrieval system since them independent on the segmentation results. These EHDs

Decrease the impact of inaccurate segmentation as well as reduce the possible retrieval accuracy degradation after applying the fuzzy approach to the accurate segmentation for images with distinctive and relevant scenes. The Manhattan distance is used to map the global or semi-global image level similarity.

In 2008, N. S. Vassilieva [7] presents a survey of common feature extraction and representation techniques for the corresponding feature spaces. Color, texture, and shape features are to be considered. A detailed classification of the currently known features' representations is given. Results of Experiment on the efficiency comparison of various methods for representation and comparison of image content as applied to the retrieval and classification tasks are presented by the author.

In 2011, Chandan Singh et al. [8] proposed a new solution Local features extraction for content based image retrieval system.

5. Conclusion

When Users needs to be retrieve images from a collection come from a various areas, including, government, medicine, architecture, fashion, crime prevention and publishing. Sometimes little has

yet been published on the way such that users search for images and uses images, are being made to categorize users' behaviour in the hope that this will enable their needs to be better met in the future. So this paper shows an effective way for image retrieval based on the combination of features i.e. colour, texture and shape.

6. REFERENCES

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