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Robust image Retrieval technique using Auto correlogram and color moments

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Abstract.

An retrieval of image is a process, in which it allows to surf, search and pop out the desired images. This process of taking out the required query image accurately from a uncountable number of database images based on the required contents of a given image is called CBIR ie content based image retrieval . Color, local features ,texture, shape are few of the common methods employed for take out a specifically desired image . CBIR best suits with all types image formats and the intensive search is based on the precise comparison of prominent features of image with the given inquiry image. Features are the prime components of CBIR system, which includes the colors ,texture and Geometric shape of an image. The most prominently and widely used visual feature parameters in an image recovery is color feature .

This paper proposes image features are compared based on pair wise Euclidean distance between query image and database image based on various methods like city block, minkowski, chebychev, cosine, correlation, spearman.

1. Introduction.

Color histogram is the generally used techniques for the color attribute drawing out in image retrieval which is based on color. Color histogram is a practice for unfolding the color content from an image. It is constructed in such a way that by including the total number of pixels available of each color. There are two widely used conventional procedures for the color based image recovery: GCH stands for global color histogram that explains image with single block histogram and LCH which stands for local color histograms that fragments given image into fixed size blocks and there after generates color histogram for each

fixed sized image block. Global color histogram lacks in capturing the content of images adequately, whereas local color histograms contain more information and also enable the colour distances among regions between images to be compared [Gaurav Jaswal *et al*., 2012].

To solve the quantization effects of the color histogram the color moment such as Hue, Saturation and brightness Value (HSV) is used as quality vectors for the image recovery. Given that any color allotment can be distinguished by its moments and most data is originated on the low order moments such as , first moment skew-ness, the second moment is the variance and the third moment is the mean, they are measured a

s the characteristic vectors. With a very reasonable size of the feature vector, the computation is not expensive [S. Deb *et al*., 2004]. Color Moments of an image distinguishes based on the color attributes of an image. However, the fundamental sense following the color moment is to presume that for a image the allocation of color can be distinguished as a distribution probability.

2. The significant merit is that, its skew can be taken as a evaluation of the amount of irregularity in the color distribution.

2. Objectives of Research Work.

Based on the research background and the related issues, the objectives of this research have been formulated as follow:

1. Very first step in proposed work is creation of database of features that are extracted .
2. Instead of extracting features of database images after receiving query image will be time consuming so we will store features itself in database which will enable much faster execution and obtaining retrieved image.
3. A simple GUI will be created for creating, updating, and loading database.
4. Select query image and various comparison methods are applied and display retrieved images.
5. Features of query image are extracted. Feature vector from stored database is retrieved and it will be compared one by one , to determine degree of closeness of

images. Then these comparison results are sorted in descending order.

6. First 'n' images will be displayed as result which shows close match to query image.

3. Analysis and Statistical Considerations

There is a significantly growing requirement for searching and get back the digital images correctly applying capable algorithm, where these images are disseminated haphazardly in the large stand alone databases or WWW ie World Wide Web. Present search engines for image retrieval , for example such as google and yahoo softwares , are rely only on an appropriate text that is given to each image in image database. But an identical ie synonym and multiple meanings ie polysemy of the key texts direct to the severe restriction. To answer these lacunae , the important visual features which are extracted and used in content based image retrieval (CBIR) . GCH stands for global color histogram that explains image with single block histogram and LCH which stands for local color histograms that fragments given image into fixed size blocks and there after generates color histogram for each fixed sized image block, average values of channels of red, green and blue color ie average RGB and color moment of HSV values ie hue, saturation and brightness are some of the methodologies that are been employed in CBIR system to take out the image features for query image. The outcome of every technique are employed for comparison of images; the importance of this evaluation ,is to find out which of these methods give highly precise and proficient results.

However, most of the proposed approaches are based on finding the best representation using simple image features like color attributes using mean and standard deviation, and texture features like entropy based on GLCM(Gray Level Co-occurrence matrix) , IGA(Interactive Genetic Algorithm) and edge histogram.

In this proposed work advanced and more robust features for CBIR are used. Color attributes like, color auto-correlogram, HSV (Hue Saturation Value) histogram and color moments , 'mean square energy' and mean amplitude of 2D wavelet components are considered in texture features. Also mean and standard deviation of wavelet coefficients are considered in texture features description.

These features are prominently used in CBIR to make the process of retrieval fast and accurate. Creating dataset of features used in the proposed for any set of images will be easier , compared with other features.

Furthermore, for more accurate features comparison and retrieval SVM classifier is employed. Features are compared based on pairwise euclidean distance between query image and database image based on various methods like cityblock, minkowski, chebychev, cosine, correlation, spearman.

4. **Merits.**

- Optimal image retrieval
- High efficient system.
- Time efficient techniques

5. **Demerits.**

- Manual analysis of image retrival.

6. **APPLICATIONS:**

- Medical Imaging.
- Scientific Databases.
- World Wide Web.

7. **Conclusion.**

8. In this project , it has been offered that CBIR that involves alternatives to respond to a given image as a query, which are to employ as either based on color or based on global features or it can be a combination of both color and global. In this proposed work Gabor filter is used which is a very commanding texture removal system either in unfolding the global or image region content of a given image.

9. As a color attribute ,color histogram and as color comparison metric , histogram connection united with Gabor texture has been completely proved to give more or less advantageous recovery results of an image.

10. The usefulness of the CBIR system amplified through estimating surface features of an image section which is only after segmentation practice where instead of employing the mean of pixel set which is in the course of the practice of segmentation .

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