

# Survey of Content Based Image Retrieval Architecture, Advantages and Disadvantages

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**Abstract** - Image recovery has been one of the most stimulating and vivid research areas in the field of computer vision. Content-based image retrieval (CBIR) systems are used in order to automatically index, search, retrieve and browse picture databases. Color & texture features are significant properties in content-based image retrieval systems. So today the content based image retrieval (CBIR) is attractive a source of exact and fast retrieval. In recent years, a variation of techniques have been established to improve the performance of CBIR. In this paper we have declared detailed organization of CBIR system..

**Keywords** - CBIR, Image Processing, Computer Vision and Color and Text features.

## I. INTRODUCTION

A CBIR system uses visual contents of the pictures described in the method of short level features like color, texture, shape and spatial locations to represent the pictures in the databases. The structure retrieves alike images when a sample image or sketch is obtainable as input to the system. In typical CBIR system image low level features like color, texture, size & spatial positions are represented in the method of a multidimensional feature direction. The feature vectors of pictures in the databank form a feature database.

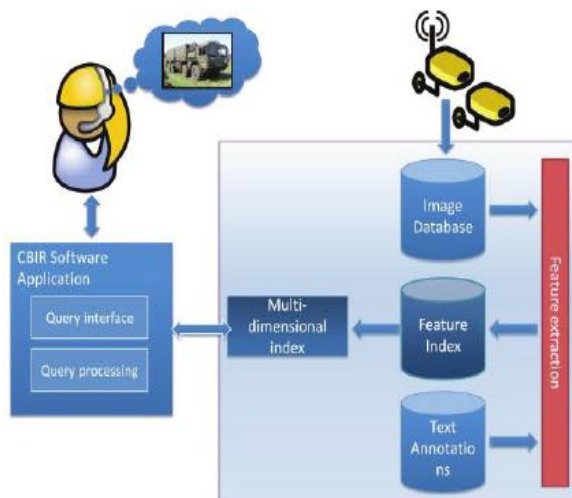


Fig.1 Architecture of a typical CBIR system

The recovery process is started when a consumer query the system using an example image or sketch of the object. The query picture is converted into the internal demonstration of feature vector using the same feature extraction routine that was castoff for structure the feature databank. The comparison measure is employed to calculate the distance between the feature paths of query picture & those of the target pictures in the feature database. Finally, the retrieval is performed with an indexing scheme which simplifies the efficient searching of the image database. Recently, user's relevance feedback is likewise incorporated to further develop the retrieval process in order to produce perceptually and semantically more significant retrieval effect. Here we deliberate these fundamental techniques for content- based image retrieval.[1]

## Applications

- Publishing and advertisement.
- Crime prevention
- Medical images
- Design engineers
- Space models
- X-Rays
- Web images

## II. WHY CBIR USE?

The CBIR system relies on color, texture and shape which are low level image features. The various possible low level features available in the literature. The low level features are removed from the database pictures & stowed in a feature database. Similarly, the low level features are extracted from the query image and the query image features are compared with the database image features using the distance measure. Pictures having the least distance with the inquiry image are displayed as the result. The several popular distance measures described in the literature are presented. The main drawback of the CBIR system is that the images with similar low level features may differ from the query picture in positions of the semantics perceived by the user [3].

In the field of CBIR systems, technology driven methods are performing good then others. Vast researches are going in the field of the CBIR systems as per user's need [43]. Modeling complex human behavior is a formidable task,

however, and the current knowledge on the subject is relatively limited.

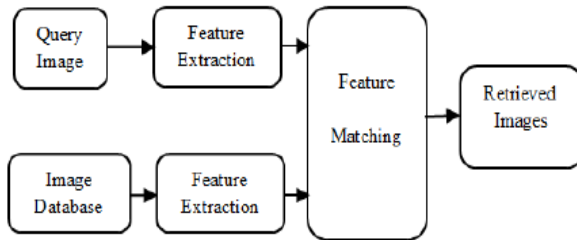


Fig.2 CBIR systems [20]

### III. ADVANTAGES AND DISADVANTAGE

| Advantages   | Disadvantages   |
|--|---|
| <ol style="list-style-type: none"> <li>1. CBIR has become a very active area research for 2 major research publics, Database Organization and Computer Vision.</li> <li>2. Feature Extraction methods are easy, effective &amp; less costly.</li> <li>3. Time needs is less to find all those related image.</li> <li>4. More than one related outcomes occur by only one search (If more than one equally likely image present in the database). Content Based Image Retrieval [4]</li> </ol> | <ol style="list-style-type: none"> <li>1. The semantic gap is the lack of coincidence between the data that one can Excerpt from the visual information&amp; the understanding that the same data have for a consumer in a given situation.</li> <li>2. How to signify visual content of pictures. What are “visual subjects”? Colors, sizes, textures, substances, or meta-data (e.g., devices) resultingfrom pictures which type of “visual contented” should be used for representing image?Difficult to understand the information needs of an user from a query image.</li> <li>3. Huge amount of objects to search among.[5]</li> </ol> |

### IV. LITERATURE SURVEY

**Michele Saad 2008[6]** discuss a feature selection algorithm based on a fuzzy method& relevance feedback; an method that attempts to bridge the gap between lowlevel features removed from a picture & high equal semantic features. **Mohd. Danish et.al[7]** some technical aspects of current content-based picture retrieval systems & defined the picture segmentation in picture processing & the features similarneuron fuzzy

method, color histogram, texture, & shape for correct& effective Content Based Image Retrieval Scheme after doing the deep study of related works. **Sudhir P. Vegad et.al 2015[8]** global image features based CBIR with feed forward back-propagation neural network. Neural network is used for organization of query picture as per training databank. At first neural network is skilled about the color features of pictures in the databank. The training is done by using back-propagation process. This trained databank is used for organization of the query image. Allowing to recovered image class additional color based CBIR is used for retrieving similar images. **Nidhi Singhai et.al 2010 [9]** the techniques of content based image retrieval are deliberated, analyzed& compared. It also presented the feature like neuro fuzzy method, color histogram, texture & edge thickness for accurate & effective Pleased Based Image Retrieval System. **Mrs Monika Jain et al 2011[10]** method HDK that usages more than one clustering method to progress the performance of CBIR. This technique makes use of hierarchical &division and conquer K Means clustering technique with equivalency & compatible relative concepts to improve the presentation of the K-Means for using in high dimensional datasets. It likewise familiarized the feature like color, texture&figure for accurate and effective retrieval system. **Amit Kaul et.al** practical achievements in the investigation area of image recovery, especially content based image retrieval (CBIR). The research in this arena way initiated way rear at the finish of nineteenth period but this has increased impetus from 1970 onwards with the insertion from 2 major research publics, database management and computer vision. In this paper an effort has been complete to show the chronological growing in this arena.

### V. PREVIOUS WORK

- 1) In a small database, a simple sequential scan is usually employed for k nearest – neighbor (KNN) search. But for great data set, effectual indexing processes are imperative. High dimensional data is increasingly in many communal fields. As the number of extents increase, several clustering techniques begin to suffer from the curse of dimensionality, debasing the excellence of the outcomes. In high dimensions, data becomes very sparse and distance measures become progressively meaningless. There is a universal categorization for high dimensional data set clustering:
  - 2) 1-Dimension decrease,
  - 3) 2-Parisionious replicas,
  - 4) 3-Subspace collecting [13].
- 2) Feature selection and feature extraction are most popular techniques in length reduction. It is perfect that in both techniques we will have losing data which naturally affects accurateness [14].

3) Reviewed the literature on parsimonious models & Gaussian models from the greatest complex to essayist which yields a technique similar to the K Means method. When we have short dimensional spaces these structures aren't able to exertion well. There are 2 major methods for subspaces methods: in first class centers are considered on a same unidentified subspace & in second each class is positioned on specific subspace [15].

4) The idea of subtopics or subcategories is suitable for document collecting and text mining [16] [17]

5) Contradiction has been shown in those communal data sets because of outlier [18]

6) Proposed a framework which assimilates subspace selection & collecting. Equivalency between kernel K-Means clustering and iterative subspace selection [19].

## VI. CONCLUSION

CBIR algorithms have been proposed in different papers. The selection feature is 1 of the significant aspects of Image Retrieval Structure to better capture user's intention. It will display the pictures from database which are the more attention to the user. CBIR methods gives better performance than the further techniques. The foremost Challenge in visible of the CBIR structure is time Complexity and to design the good, efficient GUI.

## VII. REFERENCES

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