

Content Based Image Retrieval: State of The Art Review

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Abstract: Development in digital photography has led to a huge collection of still images that are stored in digital format. As the demand for digital images will increase, the requirement to store and retrieve images in an economical manner arises. Therefore, Content-Based Image Retrieval (CBIR) plays a very important role in the research field of computer vision and digital Image processing. This paper describes a system that can filter images based on their content and provide better indexing and return a more accurate result.

IndexTerms – CBIR, Feature Extraction .

I. INTRODUCTION

Content-Based Image Retrieval (CBIR) is the technique of retrieving the related images from the large database. This technique uses visual contents to search images such as color, shape, texture, and spatial layout to represent and index the image. The purpose of CBIR is to leave out the use of textual descriptions. In CBIR every individual image is kept within the massive information and its features are extracted, compared to the features of the query image. Thus, broadly, it involves two procedures, such as feature extraction and feature matching.

II. LITERATURE REVIEW

Content-based image retrieval is the retrieval of images from a large database depending on the visual content of the images rather than the textual content associated with the images. Content-Based Image Retrieval (CBIR) system is a technique for retrieving images on the basis of automatically derived features such as color, texture, and shape. The block diagram of CBIR system is as shown in Figure 1:

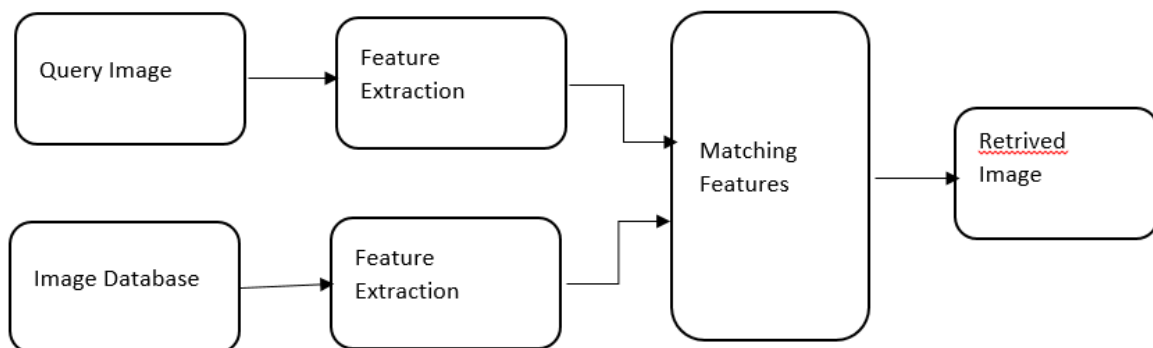


Figure 1: block diagram of CBIR system

CBIR system requires a database of images. The image database is needed for looking out relevant images as per the user demand or query. In the feature extraction block, a feature vector from each image in the database is extracted and stored. At query time, a features of query image is extracted from the query image and is given for matching to the system. Finally, the matching of the feature vectors of the query image and the images in the database is done. Content-based image retrieval system uses the visual contents of an image like texture, color, shape, and spatial layout to represent the image. In CBIR system, the visual contents of the images in the database are extracted and are described by multi-dimensional feature vectors. The feature vectors of images within the database form a feature database. To retrieve the images, users gives the retrieval system with example images. The system then changes these examples into its internal representation of feature vectors and compare the query image with the stored images.

The typical CBIR system performs 2 major tasks. The first one is feature extraction wherever a set of options known as feature vectors are derived from the query image and therefore the images within the database. The second one is similarity measurement where the distance between a query image and the image in the database is calculated. Almost all of the current CBIR systems use query-by-example, a technique in which an image is selected by the user as the query. The system extracts the feature of the query image, searches the images with similar features in the database, and show relevant images to the user in order of similarity to the query given by the user.

Following figure 2 describing the result of CBIR system. Query Image and its Retrieved Images have been shown in figure 2.



Figure.2: result of CBIR

III. CONCLUSION

Content Based Image Retrieval (CBIR) is a significant and increasingly popular approach that helps in the retrieval of image data from a huge collection. Image representation based on certain features helps in the retrieval process. This paper has focused on the process involved in content-based image retrieval (CBIR), feature extraction and retrieval result.

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