

# Survey on Sketch based Image Retrieval

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**Abstract:** *CBIR is stand for Content based image retrieval. It is one of the most popular, rising research areas of the digital image processing. Now-a-days the available image search tools, such as Google Images and Bing, Yahoo. Image search, are based on textual annotation of images. In these tools, images are manually commented with keywords and then they are recovered using text-based search methods. The performance of the system is unsatisfactory. The goal of CBIR is to extract the visual content of an image automatically such as color, texture, or shape with the help of the existing methods, describe a possible remedy of how to design and implement a task specific descriptor, which can bridge the informational gap between a sketch and image, hereby making an opportunity for the efficient search. CBIR system is mainly based on a free hand sketch, Sketch based image retrieval. The SBIR is used to construct a special sequence of preprocessing steps in such a way that the transformed full color image and the sketch can be compared. We present an efficient approach for image retrieval from number of images based on user-drawn sketches. We concentrate on the creative ideas instead of symbols to deliver their thoughts. However, most of the current graphics constructing tools require users to input graphical components using mouse with lots of toolbar buttons or menu items for selection.*

**Keywords:** Content based image retrieval(CBIR), Sketch based image retrieval(SBIR)

## 1. Introduction

Before the spreading of information technology a large amount of data need to be managed, processed and stored. It was also textual and visual information. Due to the appearance and quick evolution of computers an increasing measure of data had to be managed. The growing of data storage and revolution of internet had changed the world. The efficiency of searching in information set is an important point of view. Instead of texts we can search flexibly using keywords, but if we use images, we can't apply dynamic methods. Two questions can be raised. The first is who yields the keywords. Second is an image that can be well presented by keywords.

Now-a-days the growth of multimedia applications proceeds with the emergence of large-scale image collections which has brought about the need for efficient methods for storage, browsing, indexing and also retrieval of images or sketches. Content Based Image Retrieval (CBIR) is an automatic process to search relevant images based user input. The input should be sketches or images.

Typically, CBIR process first extracts the image contents and stores them. Then it compares with images from the database and returns the results. Feature extraction and similarity measures are dependent on the features which are used. There can be more than one representation for each feature.

Content Based Image Retrieval (CBIR) is one of the application of computer vision for the image retrieval trouble, so as the difficulty of searching for digital image in large-scale databases. "Content-based" means with the purpose to explore and analyze the good contents of the image. The term "content" in this context might refer to shade, figure, surface, or some other information which can be derived from the image itself. In many cases if we want to

search efficiently, some data has to be remembered. The human is capable of remembering information diagrammatically more easily. Let's take an example, the shape of an object and arrangement of colors and objects.

Our purpose is to develop a content based image retrieval system, which can be recovered using sketches or images in the databases used frequently. The user has a drawing area where he can draw the sketches, and which is the base of the retrieval method.

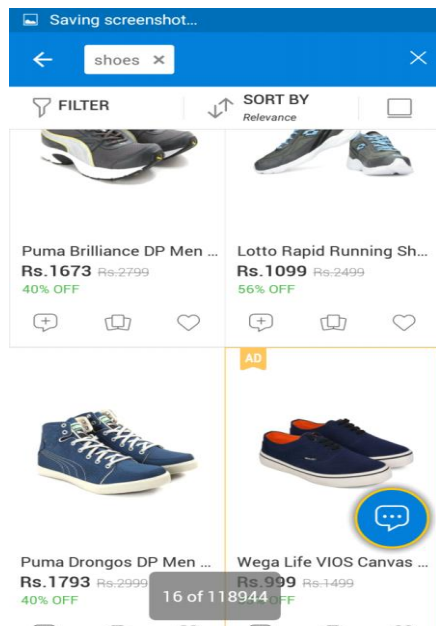
A sketch based system can be very important and efficient in many sectors of the life. In some cases it can be recalled by our minds with the help of drawing. Most research efforts still have focus on sketch-to-image matching on a small-scale data set. But practically, a large-scale image database is highly desired to ensure that the system can always try to find correct matches for any sketch query.

According to the latest updates, the usage of e-classes and touch based smart computing devices has increased a lot. This e-classes and touch based smart computing devices which provide a user friendly interface naturally to input the user's request in the form of sketches and also helps in retrieving the relevant sketch based images from a large database. Each sketch in a database is a collection of strokes and the retrieval is equivalent to finding a stroke or many strokes from the database that matches with the query strokes.

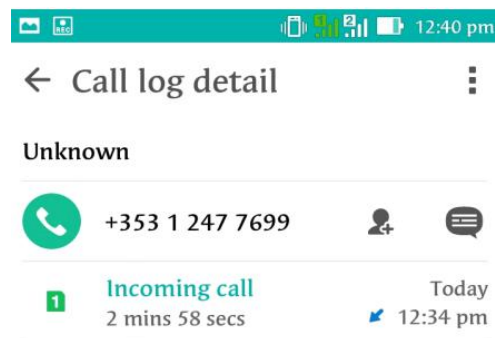
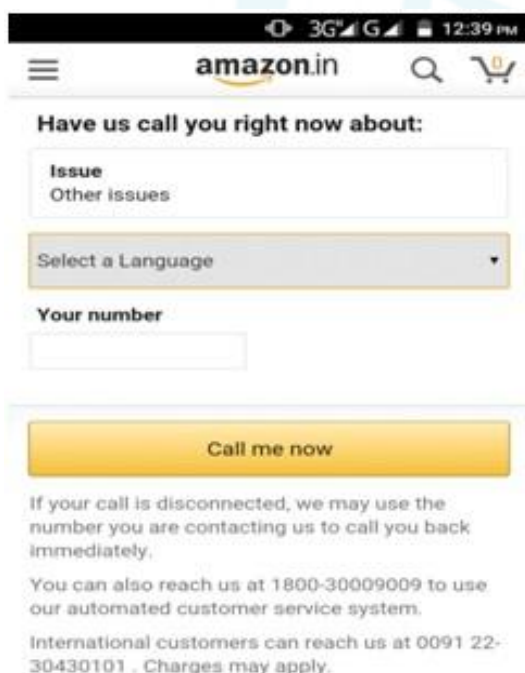
## 2. Literature Survey

The concept of an image retrieval system and describes the suitable background literature. Scientific publications included in the literature survey have been selected in order to build a sufficient background that would help out in solving the research difficulties.

i) As in the current system, we face problem like we have to type the text to find a particular product. Also to find a particular product we need to go on searching for thousands of results.



So, we had given a call to the amazon customer care to ask whether such a type of features exist in current system or not. Then they replied by saying it is not yet available.



ii) Sketch4Match – Content-based Image Retrieval System Using Sketches, B. Szántó, P. Pozsegovics, Z. Vámosy, Sz. Sergyán[1]. In this paper we studied, the measure of research in sketch-based image retrieval expansion, there is no popular used SBIR system. Paper goal is to develop a content-based associative search engine, which databases are available for any user who are looking for freehand drawing. The user is provided with drawing area, where he can draw all shapes and moments, which are expected to occur in the given location and with a given size. The retrieval results are clustered by color for better quality. The most important task is to reduce the information gap between the drawing and the picture, which is helped by their preprocessing transformation process. Afterwards the data flow model of the system from the user's point of view. First the user draws a sketch or loads an image. When the drawing has been finished, the appropriate image has been display.

iii) Investigation of Accuracy for Drawing Of Object Detection

Method With Sketch, Yoshiki Kubota, Takuya Akashi, Minoru Fukumi, And Yoshisuke Kurozumi[2]. This paper give introduction of shape information is necessary in matching process. Therefore, this method convert target image to binary edge image. Detect edge to get robustness for object detection for various background and illumination. It is possible to detect the optimal edge. Thresholds are set manually. Edge is detected manually. The reason is that the optimal edge is different from each target and users. In this paper, GA template matching is used to create an object detection system with sketch. This method sets a mask region automatically on a template using shape of a given image. In the matching step, not a square shape but this mask region is evaluated.

iv) Enhancing Content Based Image Retrieval by using sketches, Prasad Mahale, Rakesh Kumar, Amit Mishra, Shiv Kumar [3]. This paper makes use of SURF algorithm which contribute different color intensity, that is used to calculate image found in databases, so it is very simple probability to find the color image with different intensity that is calculated by SURF standard deviation algorithm. This is very effective idea to implement on the basis of SURF algorithm that also have an advance analysis with combination of standard deviation calculation. The important further carry out is fitting to the consistent with of whole images.

### 3. Comparison

#### 3.1 Decision Tree algorithm

A decision tree is made of internal nodes of decision and leaf nodes. Each internal node corresponds to a test A over a single attribute of the input data and has a number of branches, each of which handles an outcome of the test A. Each leaf node represents a class that is the result of decision for a case. The process of constructing a decision tree is basically a divide and conquer process.

#### 3.2 Genetic algorithm

Genetic Algorithms have been applied to solve search and optimization problems. The fundamental concept of this algorithm is to search a predicted space to find the best prediction result. A pool of initial predictions called a population is randomly generated and each prediction is evaluated with a fitness function. By comparing these two algorithm we got to know that Genetic algorithm is more complex than Decision tree algorithm.

### 4. Conclusion

So, we can conclude that, our system is going to reduce the human efforts and make searching easier. As human can remember visual contents easily rather than text. So we are going to overcome all the issues faced in previous systems. And our current system will be more reliable than previous. The main aim of our system is to include the features of our system into different shopping sites such as Amazon, Myntra, Flipkart etc.

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