Mechanism for Image Search with Prediction of Users Intention with Relevant Feedback

Miss.Vrushali Ingle[1] Prof.Swati Jaipurkar[2]
[1]M.E. Student [2]Professor
[1,2]Department of Computer Science
[1,2]MIT College, Aurangabad

Abstract— this paper is recognizes and predicts user's intention, which is done by selecting one of the most relevant search results from the internet image search. Web scale image search engine mostly depends on text features, i.e. like Google, Yahoo, Bing uses query as a text to search an image. It means that it retrieve the result based on keyword search methodology. But one drawback is that it leads to noisy and ambiguous result which is not relevant as per the user's interest. So that it may become difficult to interpret user's intention. To overcome this drawback we have introduced a system which may help to interpret user's interest and find relevant search result based on a query. This paper is organized in such a way that it focuses on textual as well as visual features of the query and based on that only relevant data is retrieved with the other suggestions as per the user's interest. For this purpose following steps should be followed 1) enter keyword as a query to search images. (as like Google or Bing search engine). 2) select most relevant search image as per our interest. By doing this it retrieves the relevant data as per the user's interest and also shows other suggestions based on the search result. The result comes out automatically without extra effort from the users side. This is one of the significant approaches to search an image and predict the user's interest.

Key words: Re-Ranking, Categorization, Visual Feature

I. INTRODUCTION

Image searching tool basically designed, developed and implemented to search the images. Image searching is designed to find images either from database or any other sources. A user has to type query in text form including keywords, image file, image link, or select something by clicking on any image etc and then system would retrieve "relevant" images to the user. Basically system performs similarity checking by considering some points like image color, file name, metadata, log data, region detection, face, objects present in image etc. there are two standard widely popular methods available are –

- Text based Image Retrieval (TBIR)
- Content based Image Retrieval (CBIR)

There are many commercial and popular image search engines are available who takes query from user and returns a result like Google search Engine, Bing search engine. One thing is common in all these search engine is giving input method to system, all engines ask user to type text keyword for searching. User type text keywords in intention to find relevant images and system returns piles of similar images ranked form. But this technique suffers some drawback like result set contains ambiguity and noisy result. In order to solve the flaws of TBIR, we need to combine text features as well as visual features of images .Semantic meaning of text query and image features get checked here and based on that result get returned. Clustering is performed here so user can get multiple positive as well as negative images from CBIR. Here we can combine text plus visual features to find relevant images. Some of the visual features like images with their color, texture feature, size and shape of object, Retrieve object from the images. To extract image based on content consists of following steps:

- Apply basic features such as color, pattern, and texture, shape of object, spatial location, and region.
- Find out the object of given type in image and retrieve it.
- Checking out abstract attribute which involves high level checking.

e.g. "find picture of blue car". Soto obtain accurate result user has to take extra effort; he has to give feedback again and again to system till he gets exact set of output images [1].

II. EXISTING NEED

Image searching basically is a process of retrieving and displaying relevant images based on user typed a query to system. But there are some problems regarding text query that it returns noisy and ambiguous result and sometimes user can't type accurate query because he may have not enough knowledge about how to type and how to write in words or he doesn't have enough knowledge about the topic. Even in CBIR method, it returns result containing set of relevant and irrelevant images because it fails to identify exact semantic meaning of text entered by user and images in database. Besides as the clustering gets formed based on query image and database's images similarity user get duplicate and repeated images in result [2].

Image searching basically includes following steps:

- Checking the similarity of images in database based on text query keyword and visual features.
- Apply some advanced searching like keyword expansion and visual query expansion to get more similar images.
- Forming a cluster of relevant images, ranking them.
- Return the result with ranking [3].

To improve internet web image searching results, to identify the user intention and returns a set of relevant images is very important issue in image searching. The problem of web inspection, image similarity checking, finding relevance in image and capturing user intention in this field is important and widely open.

III. PROPOSED WORK

Image searching process is important to find out accurate image from database and returns to system. Popular search engine Google provides text-query method to type query and also provides user suggestion while typing query in the intention to help in writing exact query. But it may lead to

divert user intention. Firstly system asks user to type text query and then it retrieves similar images regarding query. But it may possible that system did not succeed to return satisfactory result to user. So second step is, user has to select one image out of that images and that will become next input to system and then system will check the similarity between image query with remaining queries present in database, it will expand the query and well as visual query to get more no of similar images and finally it will re- rank the images and return the quality image result. Query image is first categorized into some predefined category like object, portrait, scenery, general object etc. we assign each set as fixed measurement or weight values so it will help to capture images having same weight value. This is primary method but not that useful method which will retrieve similar images to user. In the next step, we do keyword expansion. Now suppose user has entered apple query, so system can retrieve similar set of images containing apple fruit, apple mob, apple logo, apple tree etc. but once user clicked on particular query like suppose he clicked on apple fruit, so system will do keyword expansion internally, there are various colors of apple fruit are there like green apple or red apple or he may wants apple tree etc .this process of expanding keywords is called keyword expansion system will automatically do this. Suppose word w is suggested by keyword expansion, then system will check that w word present in set of images and will form a cluster. Text features and set of visual features combine in visual expansion method to expand the image pool so user can get set of intended images plus also some suggestive images. At last we have implemented detection of duplicate images, and also detection of repetitive images and we have avoided them [4][5].

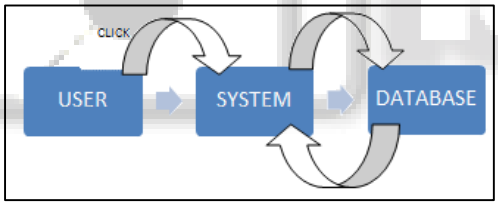

Fig. 1: Work Flow Diagram of Proposed System

IV. ADVANTAGES

1) Here are some features like duplication detection and category wise search who gives exact match.
2) Cost of the system is less as compared to existing search engines.
3) System is satisfied the user, no extra input overhead is required to the user.
4) The system is more flexible, interactive to user.
5) No other training or guidance required for the using of the system.
6) The vital advantage of the system is that it exactly captures the user intention and retrieves the relevant images.

V. SYSTEM FLOW

The following figure (2) shows the detailed process about system. The efficient flow of the one click user intention image search System is shown as follows:

A. Image Search

CBIR combines text query similarity as well as visual similarity to store images in database. And then it retrieves images from the dataset by text query the major challenges of content-based image retrieval is to learn the visual similarities which will reflect the semantic relevance of images

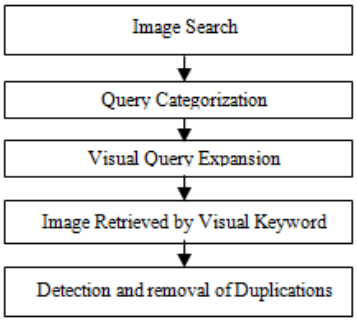

Fig. 2: Workflow of System

Large training image set is maintained to check the similarity of set of images. Algorithm checks it and forms cluster .So basically in image search normal search is done. Similar images will be retrieved .This step is not so effective for searching [6,7].

B. Query Categorization

Image similarity is defined. Query image has assigned set of category and according to theses category training image set also categorized to store in database. These are some set of predefined properties like: General Object, Object consists of Simple Background, Scenery Images, Portrait, and People. When query image gets as input to system that image is gets categorize in above mentioned properties. At initial stage we are using 1000 manually labeled images, 10 for each category, a decision tree for query categorization. We have set of images of each training category. The features we used for query categorization are: existence of faces, the number of faces in image, the percentage of the image frame taken up by the face region, the coordinate of the face centre relative to the centre of the image.

C. Visual Query Expansion

This module is mainly used to expand image pool by considering visual features. We will combine here visual and texture features so that system can be obtained multiple positive images. Suppose for example, we have text query as a apple, so an query image is an 'apple fruit' so system will automatically capture the similarity between apple and another images containing apple in that image. e.g images containing tree with apple .And there are many irrelevant images among the top-ranked images. The visual similarity metric learned from one query example image is not robust enough. Adding more positive examples to learn a more robust similarity metric as irrelevant images can be filtered out. Adding additional positive examples were typically done through relevance feedback required more users' labeling burden. Aim at developing an image re-ranking method which only requires one-click on the query image and thus positive examples have to be obtained automatically.

D. Image Retrieved by Expanded Keywords

In this method, considering efficiency, image search engines, Bing image search, only re-rank the top N images of the text-based image search result. If the query keywords fail to capture user's search intention accurately, then there will be small no of similar images will be in result and more no of negative images will also be there. So this problem is solved in proposed system. Visual query expansion and combining it with the query specific visual similarity metric can further improve the performance of image re-ranking

E. Detection and Removal of Duplication

In this method, we have removed the duplicate entries. While searching images there are multiple number of images with same name so we are searching with category for exact result [8,9].

VI. CONCLUSION

It is easy to retrieve similar images based on text based query and content based retrieval system. But it sometimes fails to capture user intention exactly. In this search engine it is done by asking user to click on one image so system can capture its exact intention. Thus the overall efficiency is 85% by using this process compared to other approaches of image searching .So different algorithm like storing image in database, identifying only keywords from text query and to perform re-ranking gives better results. The text based system requires additional input overhead to user by typing exact query or re-type query till he get the exact match, and also user should have knowledge about the topic. This overhead is reduced in implementation. User only has to click on one time so according to image query combination of text and visual feature will done automatically and user will get set of positive images only. Again if system finds the result set contains duplicate images, it will remove it in final result. There is one more option category wise search so if he enters correct input, he will get exact set of images instantly. Image search result is completely satisfactory result for user, it's easy to access and retrieve quality images faster. it is efficient all steps are done automatically in system without asking any overhead to user like asking him some more details about exact match ,or letting him fill form to get more information.

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