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Survey and Analysis of Technique For Quality Image Retrieval On Web

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Abstract— Image Searching on web is very popular now days for getting intended images. People generally use available and popular search engines like (Google search engines, Bing search, and Yahoo search engine). This popular search engines have common method i.e. Text based Retrieval, user has to type keyword in text and search engine will respond with relevant images .Though this method is very popular and widely used, still it has some no of flaws like resulting images may be ambiguous and noisy .Besides to acquire accurate result user should have little knowledge about intended search. So these flaws are not that much satisfactory. In Google search, user type text keyword and similar added keywords searches it gets from advanced suggested keyword expansion .But this added feature can possibly divert user intention while searching. So to avoid above listed drawback. We have to combine visual information with it. To retrieve Exact matching , and acquire user's intention we can allow them text query with extended or related images as a suggestion.

A detailed survey and study of different techniques for retrieving quality images and giving exact match to query which has been present in this paper.

Keywords- *Image search, relevance feedback adaptive similarity, visual properties ,keyword and visual expansion.*

1. INTRODUCTION

Image searching is the process of finding relevant images on web search engines .A huge database has been maintained to store and retrieve images at server side. Besides relevance feedback is a technique to retrieve images on web.

Relevance feedback[10] technique can be used to find similar images which are having semantic meaning and we can form group of them. Again this technique helps in re-ranking of relevant images from web search.

Clustering is again technique where similar images can put together. It helps in satisfying the user with large and intended no of relevant images.

There are generally two techniques of retrieval 1st is TBIR(Text –based retrieval).which is very common ,popular and old technique. It is popular in all types of search engines. But it gives ambiguities in result. Example user has entered query 'apple', so as the entered query is not specific system can retrieve images like 'apple logo', 'apple fruit', apple tree', apple company images' etc...another drawback of TBIR is user should have knowledge about query keyword else he can't get useful images. The semantic meaning of query keyword may be different than intended. Google search engine provides additional text keyword suggestion when user enters the query its advantageous but it may possible that user may get diverted from its way .

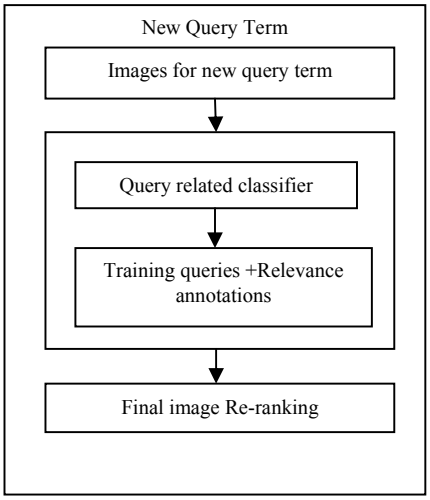
Another technique is CBIR (Content based retrieval) with relevance feedback. here we can combine text plus visual features to find relevant images. Some of the visual features like sort out images with their colour, texture feature ,size and shape of object. Retrieve object from the images. We believe that adding visual information is helpful to capture user intention and retrieves quality images .

This paper has been introduced by following sections. Section 2 contains review of existing techniques which helps in retrieval of quality images on web . in section 3 we are going to see technique of proposed system and finally section 4 contains conclusion.

2. LITERATURE SURVEY

2.1 Improving web image search results using query-relatives classifiers.

In this paper a generic classifier has been created, which is related to query –relative classifier [3]. Here a team of authors have combined textual features and visual features of images , have maintained a data set with extra information like metadata[3],visual histogram representations etc. So whenever new query term comes, the algorithm searches the occurrence of query term in web pages and metadata in dataset .data set is formed based on query term , so that if new query term comes no need to compare with whole dataset ,only need to check in various metadata fields. e .g web page title, image file name. Images are represented here by histograms of visual words ,and then average histogram is calculated over the set of retrieved images for each query.



This histogram shows how frequently that query term occurs in dataset ,and final image retrieval is done by histogram and re-ranked images are returned without additional training to each new query.

2.2 Improving web –based image search via content based clustering

In this paper author Nadav Ben et[2] has introduced a new approach called ReSPEC (Re-ranking Sets of Pictures by Exploiting Consistency.)
ReSPEC consists two methods 1.based on user query image search engine (Google ,yahoo),retrieves images ,forms clusters ,and returns that cluster to user which are having most relevant images .2. This approach directly ranks images images which are most relevant to query term.
Following are some steps performed during processing –

2.2.1 Image segmentation-

Each retrieved image is broken down into division of objects. Images has divided into no of pixel and each pixel is treated as node .images is transformed into no of nodes and connecting edges to that nodes, each edge has weight encoding similar value to show the similarity between two pixels.

2.2.2 Feature selection

Here author has used colour histogram HSV model to represent image features. here how much images blobs are similar has been checked and represented in histogram.

2.2.3 Mean shift clustering in feature space

In this step author needs to form clusters according to similarity of image blobs. Mean shift algorithm[2] has used to treat the points in the dimensional feature space as an empirical probability density function where dense regions in the feature space correspond to the local maxima or modes of underlying distribution.

2.2.4 Re-ranking the images

Chi-squared distance comparisons are used in re-ranking .

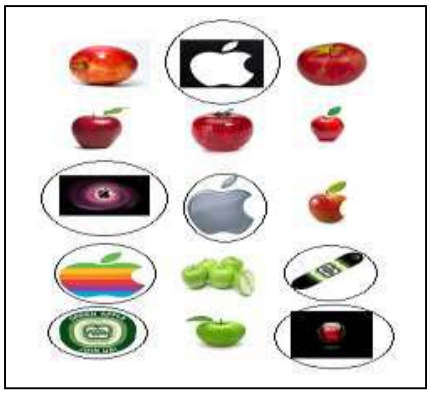


Fig 2 (a) search result before re-ranking

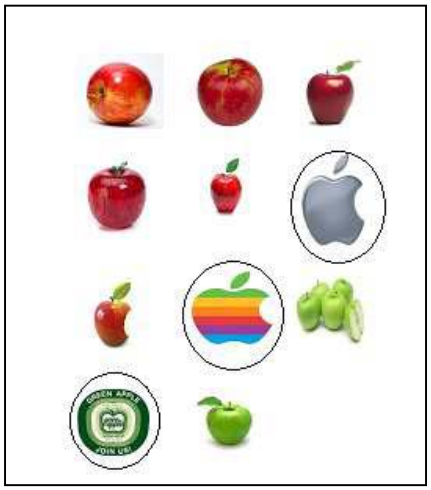


Fig 2(b) after re-ranking

Fig 2 (a) and (b) shows collection of images after and before re-ranking.

2.3 Online Non –Feedback Image Re-ranking Via Dominant Data Selection

In this paper a team of authors Chen Cao1, Shifeng Chen1, Yuhong Li1, Jianzhuang Liu [4] , have presented image re-ranking algorithm exploring the cluster information of image set. They have built a spectral graph on images that retrieved by search engines and have removed isolated nodes as noisy images. Positive samples which are taken from initial top ranked images has been selected ,and are used for ranking. Algorithm[4] used in this paper is online and non-feedback.
The common task is user enters a keyword and group of similar –dissimilar images are retrieved. A graph has been

built on these retrieved images to remove isolated nodes as a noise .another graph on top ranked images has also been built to select data in most dominant cluster as positive queries. And SSL[4] is then employed on these queries for re-ranking.in this paper a new approach has been presented to consider global noise removal in online and non-feedback image re-ranking.

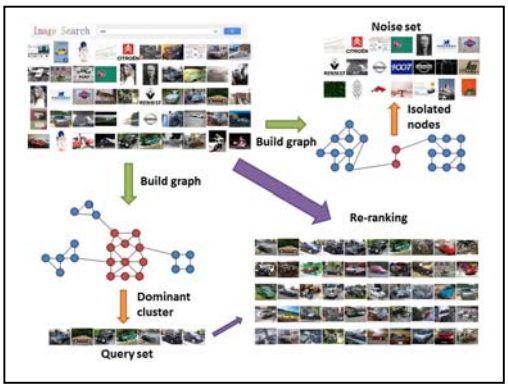


Fig.4 spectral graph approach for online re-ranking .

Above fig4. Shows the framework and steps of this paper. This method is implemented by constructing graph on retrieved images .they have employed data mapping and spectral clustering model to remove noisy images resided in low dominance cluster.

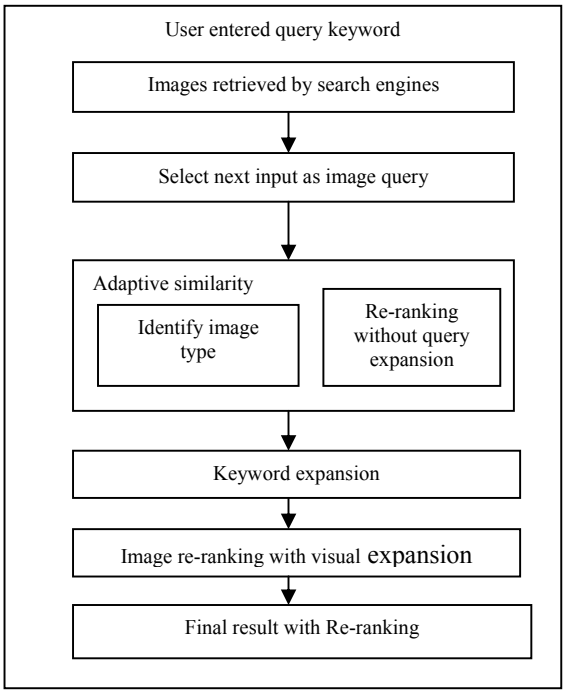
2.4. Hierarchical Semantic indexing for large scale Image Retrieval

This paper mainly focuses on addressing semantic duplication of images[5] in clusters of images. The main track of this paper is to learn to recognize semantic attributes of images, And then using a already defined comparison function based on known hierarchical structure to produce a similarity score for retrieval. In this paper a novel hashing strategy has been developed that gives a sub linear time solution for retrieval and forms a generally usable component on its own[5].the basic idea to identify semantic similarity is given by example .have a look suppose we have a image a and set of similar attributes {1.....k}.we can later categories object as a whole object(e.g. dog), or part of object (e.g. has legs),visual descriptions (e.g. is black).so first step is features of given images are extracted then applying learned semantics attributes model[5] to learn their features ,then forming an hierarchy ,doing comparison and at last defining the measure of similarity all this steps have done in this paper.

3. INTENTSEARCH: CAPTURING USER INTENTION FOR ONE-CLICK INTERNET IMAGE SEARCH

The drawback of above discussed techniques are ,It is difficult for user to type query in text keyword ,he may get ambiguous and noisy result or may be unwanted result. it is necessary to combine text and visual information to solve above problems. In this paper Xiaoou Tang et al [1] has proposed a novel technique to capture user intention in one single click. User can tolerate single click and he can get intended images.

For example: Google search engine provides extra suggestion for user when he enters the query.



System architecture of user intention for one click user intention

3.3.1 Following are the steps involved in developing this paper.

3.3.1.1. Adaptive similarity

In this method images are first categories in such type like portrait image, scenery image, background image, face image. To implement this user has used a weight schema strategy. Here in this method we can obtain user intention by clicking on set of obtained images from search engine.

3.3.1.2 query expansion

Here query keywords are getting expands just to catch user's intention. [1] suppose word 'w' is the suggested word for the expansion of query, and if we get a cluster of images similar to the query image and plus that word 'w' must be present there.

Author believes that users will tolerate one-click interaction which has been used by many popular text-based search engines. For example, Google requires a user to select a suggested textual query expansion by one-click to get additional results. The key problem to be solved in this paper is how to capture user intention from this one-click query image.

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3.3.1.3.image pool expansion

Expanded keywords help to enlarge pool of image to contain more relevant images. This step is automatically done user does not need to give feedback. In this module, considering efficiency, image search engines, such as Bing image search, only re-rank the top *N* images of the text-based image search result. If the query keywords do not capture the user's search intention accurately, there are only a small number of relevant images with the same semantic meanings as the query image in the image pool.

3.3.1.4 visual query expansion

This method has used to obtain multiple positive examples images to learn visual similarity metrics which is more robust and specific to query image. Visual query expansion and combining it with the query specific visual similarity metric can further improve the performance of image re-ranking.

4. CONCLUSION

In this paper we represented our semantic literature review on web image searching approach on search engines and how to improve quality of images by acquiring user intention. The review of these papers will support our future research on improving image search with faster speed and high quality on web. we plan to design and develop a search engine which would return positive images to user with single click and avoiding duplication of images with relevance feedback mechanism.

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