

Capturing User Intention for Efficient Image Retrieval

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Abstract -- Largely used web-search engines mostly rely on the textual based image search. This provides us with random and noisy results as outcome. Even the image based search do not give satisfactory results. With even the combinations of both the textual and image based search, the user's intention is not achieved. In this paper, we present a novel internet image search approach. It only requires the user to click on one query image with minimum effort and images from a pool retrieved by text-based search are reranked based on both visual and textual content. Our contribution for achieving user's intention from one-click is in four steps; 1) The query image is categorized according to the adaptive weight categories and is reranked to get better results. 2) With the help of selected image by the user, the query keyword is expanded to capture user's intention. 3) As per the expanded keyword, the image pool is expanded to get more relevant images. 4) Expanded keywords are also used to expand the query image to multiple positive visual examples from which new query specific visual and textual similarity metrics are learned to further improve content-based image reranking. All the above steps are automatic. No extra efforts are needed. It is extremely simple for the user to achieve their intention and to use this interface. Experimental evaluation shows that our approach significantly improves the precision of top-ranked images and also the user experience.

Keywords- Query Image, Search Engines, Image Retrieval, Algorithms, Re-ranking, User Intention, Image Search

I. INTRODUCTION

We are familiar with many search engines (e.g.; Google image search, Bing image search, iLike image search) which are used in large scale for commercial use. Many of the search engines still work on the textual based image extraction technique. User enter a query keyword related to their intent image and gets bulk of image as output. Some of the images from this bulk are related, while some are unambiguous. In short, keywords provides users intent in short. For example, the query keyword "apple" had provide different images. Some may be intent images. Some may not [1][6][7]. The ambiguity occurs here. Firstly, the meaning of the query word is not understood according to user's expectations. Secondly, user may not have much knowledge about the textual description of query. And the last and most important, user cannot fully describe the expected image using textual query.

In order to solve this ambiguity, some additional features has been used to capture user's intention. The textual based search is performed then, it is made to reranked according to its various categories of search. The additional feature starts from here. From the textual-based result, user is provided a provision to choice an image according or related to its intention. This is considered as query image as per users intention. Then the adaptive weighing scheme is

implemented in the selected query image and the obtained images. Again reranking is performed on this images, and we obtained top-ranked images related to our query image.

Even we get some noisy images attached to it. The keyword expansion is done on the texts of the images. We obtain some keyword and according to those keyword again the categorisation is done.

II. PROPOSED WORK

Our work mainly focused on the image retrieval by eliminating unwanted images from the obtained images as result. We emphasis on the images that are nearly related to the query image. The algorithm we used to obtain the efficient retrieval of images is as follows:

- 1) Textual-based Search.
- 2) Adaptive Weighing Scheme.
- 3) Keyword Expansion.
- 4) Re-ranking with Visual Expansion.

This algorithm gives us the images that are nearly related to the query image.

III. IMPLEMENTATION

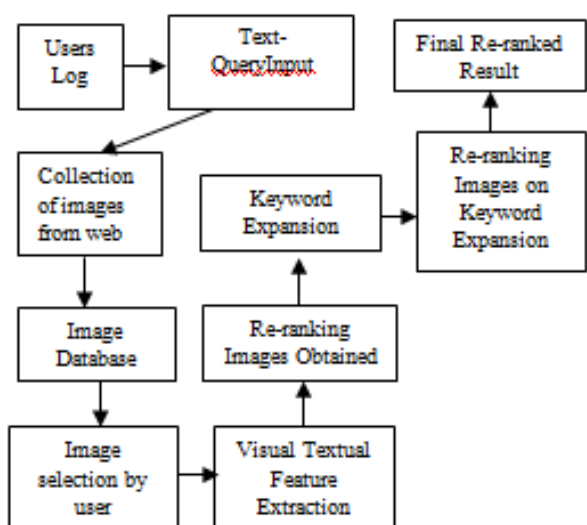


Figure 1. Implementation flow diagram

IV. DESIGN

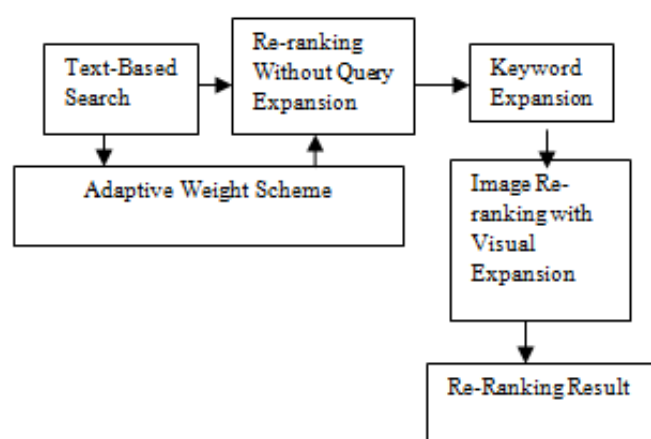


Figure 2 . Flow diagram of proposed work

V. PARAMETERS

We are suppose to give input as text query and are suppose to get output as image related to our text query. We are going to provide two provisions for user. 1)User can input text query are input and they will get image pool as according to his query. Then user has to select an image related to his query then user will get in return re-ranked images. 2) User can input both Textual as well as image as query input and then user will get re-ranked image pool according to his intention.

Output final weight for feature fusion. The final output of the new is a linear combination of all the base rankers generated in each step. However, since there are actually n

rankers, the output is equivalent to a weighted combination of the n similarity measurements.



Figure 3. An example of content-based image ranking result with many irrelevant images among top-ranked images. The query keyword is “palm” and the query image is the top leftmost image of “palm tree.”

VI. CONCLUSION

In this system I propose a novel Internet image search approach which only requires one-click user feedback. Intention specific weight schema is proposed to combine visual features and to compute visual similarity adaptive to QIs. Without additional human feedback, textual and visual expansions are integrated to capture user intention. Expanded keywords are used to extend positive example images and also enlarge the image pool to include more relevant images. The proposed new image reranking framework consists of multiple steps, which can be improved separately or replaced by other techniques equivalently effective. In future work, this framework can be further improved by making use of the query log data, which provides valuable co-occurrence information of keywords, for keyword expansion. One shortcoming of the current system is that sometimes duplicate images show up as similar images to the query. This can be improved by including duplicate detection in the future work. Finally, to further improve the quality of reranked images, we intend to combine this work with photo quality assessment work to rerank images not only by content similarity but also by the visual quality of the images.

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