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RESEARCH ARTICLE

Image Re-Ranking for Web Search

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Abstract— Modern search engines has adopted Image re-ranking for an efficient web based image search. A group of images has been saved based on their contextual information and each image has given a specific keyword. By giving a query keyword from the pool, the rest of the images are being re-ranked based on their similarities. So a framework is proposed using semantic signatures. The framework that consists of semantic spaces for different keywords in offline.

Keywords— semantic signatures; query keywords

I. INTRODUCTION

Web image search engines use keywords as queries and it depends upon nearby text to search images. But they undergo with the uncertainty of query keywords. For example, giving “apple” as query, the retrieved images belong to various categories, such as “apple tree”, “red apple”, “apple logo”, and “apple laptop”. Online image re-ranking [6], [7] has been shown to be an effective way to improve the image search results. Major internet image search engines have since adopted the re-ranking strategy [8]. Given a query keyword input by a user, according to the stored word-image index file, a pool of images relevant to the query keyword are retrieved by the search engine. Users are asked to pick up the query image from the retrieved group of images. By this way the left over images in the group are re-ranked based on their visual resemblance with the query image. The visual characteristics of images are pre-calculated offline and stored by the search engine. The main online computational cost of image re-ranking

is on comparing visual characteristics. High efficiency will be achieved when the visual characteristics are short and faster in matching.

II. RELATED WORK

Content-based image retrieval uses visual features to calculate image similarity. Relevance feedback was widely used to learn visual similarity metrics to capture users' search objective. It requires users' effort to select multiple relevant and irrelevant image examples and often needs online training. For a web-scale system, users' feedback has to be limited to the minimum with no online training. Cui et al. [6] proposed an image re-ranking approach which limited users' effort to just one-click feedback. Such simple image re-ranking approach has been adopted by popular web-scale image search engines such as Bing and Google recently.

The key component of image re-ranking is to compute the visual similarities between images. Recently, for general image recognition and matching, there have been a number of works on using predefined concepts or attributes as image signature. Rasiwasia et al. mapped visual features to a universal concept dictionary. Lampert et al. used predefined attributes with semantic meanings to detect novel object classes. Some approaches transferred knowledge between object classes by measuring the similarities between novel object classes and known object classes (called reference classes). All these concepts/attributes/reference-classes were universally applied to all the images and their training data was manually selected. They are more suitable for offline databases with lower diversity (such as animal databases and face databases) such that object classes better share similarities.

III. DRAWBACKS OF EXISTING SYSTEM

Web based image search mostly use keywords as queries for searching the images and they suffer from the ambiguity of query keywords, so this becomes hard for users to accurately describe the visual content of the target images by only using keywords. The keyword based searches usually provide results from blogs or other discussion boards. So the users cannot have satisfaction with these results due to lack of trust.

IV. ADVANTAGES OF PROPOSED SYSTEM

The main advantage is that the semantic spaces for various query keywords has been pre-computed individually and automatically in offline through the expansion of keywords due to the dynamic variations on the web. Therefore the semantic signatures are very short and this becomes image re-ranking extremely efficient.

V. METHODOLOGY

When the user wants to search the images, he has to first register. The admin is the person who decides whether he is a valid user or not. If he is a valid user he can search for the images.

If he is not a valid user he cannot view the details and he can only see the contents in the encrypted form. Though he may be a valid user he has to get permission from admin to search for the images. Then the server will response to the user, then that image rank will be increased.

VI. WORKING MODULE

In this framework, there are three modules namely Admin, User and Re-ranking chart. In User module, there can be n numbers of users. Before searching for any images user should request a secrete key to admin, then the admin will generate a secrete key for particular user and send it to the user. After getting a secrete key user can search the images based on query and fields like image name, image color, image usage and image type. And server will give response to the user, then that image rank will be increased.

In Admin module, the Admin can do some operations such as upload images, view uploaded images, view the searching history, view all image ranking and view all users, search images and logout.

The admin can upload n number of images. If the admin want to upload a new image, then the admin will enter some fields like image name, image color, image description, image type, image usage, then submit and these data will be stored in database.

In Re-ranking chart module, the image Re-ranking chart for all the images can be viewed. This chart shows the re-ranking images in the form of PI diagram with the image name and image color. After viewing the images, rank will be increased and the re-ranking Pi diagram chart will increased based on the number of views.

VII. CONCLUSION

By using this framework, images can be re-ranked by excluding the other unlimited number of irrelevant concepts. Thus the proposed approach takes very less time to answer the queries while providing more accurate information. Also query-specific semantic spaces significantly improve the effectiveness and efficiency of online image re-ranking.

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