RESEARCH ARTICLE OPEN ACCESS

Ranking of Images Based on Tags

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ABSTRACT

Social image analysis and retrieval is important for helping people organize and access the increasing amount of user-tagged multimedia. Since user tagging is known to be uncontrolled, ambiguous, and overly personalized, a fundamental problem is how to interpret the relevance of a user-contributed tag with respect to the visual content the tag is describing. In this work, it proposes a social re-ranking system for tag-based image retrieval with the consideration of image's relevance and diversity. We aim at re-ranking images according to their visual information, semantic information and social clues. The initial results include images contributed by different social users. Usually each user contributes several images. First we sort these images by inter-user re-ranking. Users that have higher contribution to the given query rank higher. Then we sequentially check title and time stamp ranking in which the desired output will get on the basis of title information and the recent time stamp which enhance the diversity performance of image ranking system also it count number of views has been utilized to improve the relevance performance of the image retrieval results. These selected images compose the final retrieved results. We build an identify keyword relevancy match the data is retrieved for the social image dataset to accelerate the searching process. Further we enhance the proposing to tag all the members who logs in to the system by using a face detection technique and it also uses any scanner techniques to tag the other members also. Experimental results on social dataset show that our tag image re-ranking method is effective and efficient.

Keywords:- Social Media, Tag- based Image Retrieval, Image Search, Title Information Re-Ranking, Time-Stamp Re-Ranking, Face Detection technique.

I. INTRODUCTION

In recent years, many online social media websites allow users to both upload multimedia data and annotate the content with tags. The social tagging is foreseen as a method to bridge the semantic gap in image analysis. Tag-based search, which returns images annotated with a specific query tag is an important way of searching or browsing images on social dataset. This image search method, to some extent, has achieved some success on exploiting the associated tags for indexing and searching large-scale web images compared with text-based image search and content-based image search.

Despite the success of social tagging, however, tags contributed by common users are known to be ambiguous, limited in terms of completeness, and overly personalized. This is not surprising because of the uncontrolled nature of social tagging and the diversity of knowledge and cultural background of its users. Although the relevance of a tag given the visual content can be subjective for a specific user, an objective criterion is desirable for general-purpose search and visual content understanding. We consider a tag relevant to an image if the tag accurately describes objective aspects of the visual content, or in other words, users with common knowledge relate the tag to the visual content easily and consistently[1].

Generally speaking, tag-based image search is more commonly used in social media than content based image retrieval [2] and context-and-content based image retrieval [3]. In recent years, the re-ranking problem in the tag-based image retrieval has gained researchers' wide attention. Starting from this intuition and above analysis, it proposes a social re-ranking algorithm which user information is firstly introduced into the traditional ranking method considering the semantics, social clues and visual information of images. The contributions of this paper can be described as follows:

1) A tag-based image search approach with social re-ranking. We systematically fuse the visual information, social user's information and image view times to boost the diversity performance of the search result.

2) Inter user ranking is applied to rank users images according to query given. With this ranking the system achieve the good trade off between the diversity and relevance performance which also effectively eliminate the similar images from the same user in a ranked result.

3) Title and time stamp ranking in which the desired output will get on the basis of title information and the recent time stamp which enhance the diversity performance of image ranking system.

4) The view of an image in social media community is an important feature which indicates the click count of this image. The number of click count has been utilized to improve the relevance performance of the image retrieval results.

We take Flickr as an example to study the characteristics of social tagging. Flickr is one of the earliest and most popular social media sharing web sites and it has been intensively studied in recent years, especially on tagging characteristic, tag recommendation, etc. A recent study in reveals that users do annotate their photos with the motivation to make them better accessible to the general public. However, the tags provided by Flickr users are highly noisy and there are only around 50% tags actually related to the image. Fig. 1 illustrates an exemplary image from Flickr and its tags. From the figure we can see that only "sky" and "cloud" correctly describe the content of the given image, and the other tags are imprecise(e.g., dog, girl, etc.) or subjective1(e.g., family, city, etc.), Meanwhile, several other tags that can be useful, such as "tree" and "grass", have not been provided. The imprecise and incomplete tagging characteristics have significantly limited the access of social media. The imprecise tags will introduce false positives into user's search result and incomplete tags will make the actually related images inaccessible. Therefore, it would be advantageous if a dedicated approach can be developed to improve the tags associated with social images such that they can better describe the content of the images

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Fig. 1. An exemplar image from Flickr and its associated tags.

II. RELATED WORK

A. Tag Processing Strategy

It has been long acknowledged that tag ranking and refinement play an important role in the re-ranking of tag-based image retrieval, for they lay a firm foundation on the development of re-ranking in tag based image retrieval (TBIR). Author in [1] proposed to learn the relevance of tags by visually weighted neighbour voting, a variant of the popular baseline neighbour voting algorithm. Author in [11] proposed a relevance tag ranking algorithm, which can automatically rank tags according to their relevance with the image content and presented a tag fusion method for tag relevance estimation to solve the limitations of a single measurement on tag relevance. Author in [12] raised a tag completion algorithm to fill in the missing tags and correct the erroneous tags for the given image.

B. Relevance Ranking Approach

To directly rank the raw photos without undergoing any intermediate tag processing, Author in [7] utilized an optimization framework to automatically rank images based on their relevance to a given tag. Visual consistency between images and semantic information of tags are both considered. Author in [10] proposed an image ranking and link analysis. Author in [13] proposed a duplicate method which represent images by sets of regions and apply these representations to the multiple-instance learning based on the max margin framework.

C. Diversity Enhancement

Many images on social media websites are actually close to each other. For example, several users used to upload continuously captured images in batch, and many of them will be visually and semantically close. When these images appear simultaneously in the top results, users will get only limited information. Therefore, a ranking scheme that can simultaneously generate relevant and diverse results is highly desired. The relevance based image retrieval approaches can boost the relevance performance; however the diversity performance of searching are often ignored. Many researchers dedicated their extensive efforts to solve this problem. Author proposed a hierarchical clustering method to cluster the search results into different semantic clusters by using visual, textual detection algorithm to represent images with hash code, so that large image database with similar hash codes can be grouped quickly. We first get the initial results by keyword matching process. Then the inter-user and intra-user re-ranking are introduced to re-rank the initial results. Inter-user re-ranking algorithm is applied to rank users according to their contribution to the given query. After the inter-user re-ranking, we further introduce intra-user re-ranking to sequentially select the most relevant image from each image dataset of the ranked users.

III. SYSTEM OVERVIEW

Our social re-ranking system includes two main sections: online and offline as shown in Fig.2.

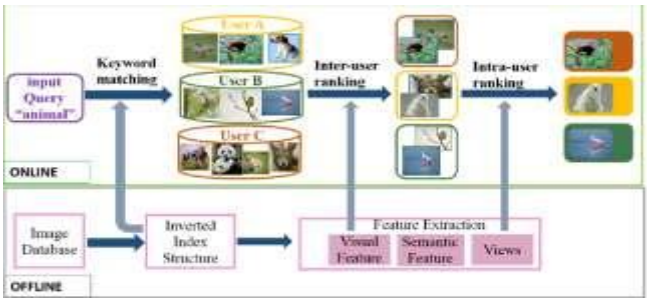

Fig. 2 The system framework of tag-based image retrieval with social re-ranking.

The offline section contains two parts: 1) Inverted index structure construction for image dataset. An inverted index structure is built to accelerate the retrieval speed. 2) Feature extraction. In this paper, we extract the visual feature, semantic feature and views for the images dataset. Semantic feature refers to the co-occurrence word set of query tags and the tags of the images

.Our online parts consist of the following three steps:
1) Keyword matching. For an input query, our system will return the initial retrieval results by keyword matching. And the following two online steps are all conducted to re-rank the initial results. 2) Inter-user re-ranking. The inter-user re-ranking is applied to rank the corresponding users with the consideration of their contributions to the given query. 3) Intra-user re-ranking. A regularization framework is proposed to determine the relevance level of each image by fusing the visual, semantic and views information into a unified system. Then we sequentially select the most relevant image in each ranked user's image set. These selected images constitute our re-ranking results [14].

IV. METHODS OF RE-RANKING

In tag-based image search we can used the different approaches are as follows [14]:

a) VR: View-based re-ranking, a measure that rank the initial results by views in a descending order.

b) VUR: View and user based re-ranking. This approach is based on VR, and the final re-ranked results are obtained by removing the images which share the same user. That is to say, we only keep the image with the largest views for a user in the top ranked results.

c) SR: Social re-ranking promotes the relevance and diversity performance of our results. User information is utilized to boost the diversity performance. A regularization framework which fuses the semantic, visual and views information is introduced to improve the relevance performance.

d) TTSR: Our proposed method Title and time stamp information to search tag based images by considering the title information and time stamp information, so that time consumption in searching the result will be reduced and desired output will be obtain.

V. FACE DETECTION TECHINQE

Face detection is a computer technology being used in a variety of applications that identifies human faces in digital images.[1] Face detection also refers to the psychological process by which humans locate and attend to faces in a visual scene. Face detection can be regarded as a specific case of object-class detection. In object-class detection, the task is to find the locations and sizes of all objects in an image that belong to a given class. Examples include upper torsos, pedestrians, and cars.

Face-detection algorithms focus on the detection of frontal human faces. It is analogous to image detection in which the image of a person is matched bit by bit. Image matches with the image stores in database. Any facial feature changes in the database will invalidate the matching process.

A reliable face-detection approach based on the genetic algorithm and the Eigen-face technique. Firstly, the possible human eye regions are detected by testing all the valley regions in the gray-level image. Then the genetic algorithm is used to generate all the possible face regions which include the eyebrows, the iris, the nostril and the mouth corners.

Each possible face candidate is normalized to reduce both the lightning effect, which is caused by uneven illumination; and the shirring effect, which is due to head movement. The fitness value of each candidate is measured based on its projection on the Eigen-faces. After a number of iterations, all the face candidates with a high fitness value are selected for further verification. At this stage, the face symmetry is measured and the existence of the different facial features is verified for each face candidate.

VI.CONCLUSION

In this paper, we propose a social re-ranking method for tag-based image retrieval. It is a new approach of tag image re-ranking for social dataset. It can be used for retrieving images on the basis of tagging.

This approach for Social image analysis and retrieval is important for helping people organize and access the increasing amount of user-tagged multimedia. Tag-based image search is an important method to find images contributed by social users in social websites. Content based visual search is better than random sampling; it produces a good tag relevance measurement for both image ranking and tag ranking. This system is used for accurate and easy tag based image retrieval using social re-ranking. This system reduced the duplication of tag and tag mismatching also develop the appropriate content retrieval system. It reduces time for query based search by considering title information and time stamp ranking which is effective and efficient. This system enhances the diversity performance of image ranking system.

ACKNOWLEDGEMENT

This work was supported by **K. Chaitanya**, M.Tech. Assistant Professor, Department of Computer Science and Engineering by their valuable guidance, constant encouragement, constructive criticism and keen interest.

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