

Image Re-Ranking Based on Topic Diversity

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Abstract:

Social Media uses automatic image annotation technique for the better result related to Images. This technique mostly used in applications like Facebook, Instagram, Flickr. In the application like Flickr. The user upload image and allow to describe image called tag which is contributing to image retrieval and image search. Tag is important part of image search . The main drawback of the Flickr application is the duplication of images with same tag, Hence the main obstacle is to remove this duplication with the help of different algorithms and give that certain image a diversity by the ranking of the image with higher ranked result. Multiple images are provided by the user, so the task is to rearrange the images by ranking process. User may have major contribution of that image based on the views it got gives the higher rank. Concluding, the image is rearranged on the basis of canny edge detection algorithm which has different feature such as colour feature texture feature. Thus, Duplication of image is removed by this process.

I. INTRODUCTION

There are certain challenges that blocks the way of development of rearrangement technology in the tag image retrieval. They are as follows 1) No Matching Keyword. On social networking platform every user share their images with their own tags with others. There is no predefined ontology or social image encoding taxonomy as it exist like the ontology best image annotation. Tag made by different users can be very much different for the same image. Hence, Therefore the same image can be uploaded with different tags and in different ways liking on the background of the image. Thus, We can find irrelevant tags introduce in social networking sites. 2) Query Ambiguity. The users can not describe accurately the request with just words and tags, it always recommends the closest related word with the current set of tags. The other causes of query ambiguity can be dictated as polysemy and synonyms. So the basic problem to reclassify the tag base system on image recovery on social networking sites is the way to solve the problems. The Main Approach of solving the diversity problem in present is image clustering and duplicate removal. However, The Social images and tagged images which are uploaded by the user are user. This images taken at that specific fixed point and same time range are observed to be similar. The Top Ranked search results can be diversified with the help of reclassifying and deleting the duplicate images of different users as well as same user. In this paper, we propose identification topic community using constructing tag graph and diversify the semantic analysis . The contributions of this paper are summarized as follows:

- 1) We propose a ranking of image based on topic community and diversify the semantic analysis. we use inter-community ranking method and intra-community ranking methods on retrieved image to get appropriate result.
- 2) Main step is identify community which is done by the constructing tag graph for this we use word2vec model which based on English corpus.
- 3) We rank each community according to relevance score between query. We rank community based on relevance score and it called as inter-community ranking which is based on relevance score. we rank community With the adaptive random walk model.

II. RELATED WORK

A. Feature Extraction:-

1) Colour Feature:- The image scaling, rotation, translation are sub divisions for in variance which makes this feature one of the most widely used in this process the image is divided in four equal blocks and a centralized image with equal size for every block the computation of 9-D colour moment is made

which makes the dimensions of colour comment for each image as 45. The 9-D colour moment of 5 segment image is used which includes the values of mean, standard deviation and skewness in HSV colour space.

2) Edge Detection:- The Edges contains the most of the shape information of an image. So the first work we have to do is detect these edges and then filters are applied which enhance the image edges which results in the increase in sharpness of image and the image will become more clear. Mostly Canny Edge Detection technique is used to extract useful structure information and reduce the amount of data to be processed. It is mostly used in various computer visual systems.

3) Word2Vec:- It is a group of related models used to produce word embeddings. They are shallow, two layer neural networks which are trained to re-design linguistic contexts of words. It takes large corpus of text as input and makes a several 100 dimensions vector space. The words that share common context in corpus are localised close to each other in space and these are the word vectors which are positioned in vector space.

4) Tag Processing Strategy:- The re-ranking of tag based image retrieval has to be done under two important aspects that are the i.e Tag ranking and refinement. A Tag ranking was proposed to rank the given images tag which makes use of probability density estimation to get initial relevance scores and to refine these scores a random walk is proposed for a tag similarity graph.

5) Relevance Ranking Approach:- An Optimization Framework was utilized to automatically rank images on the basis of the relevance scores without undergoing any intermediate tag processing to rank the raw photos this was proposed by [3] Liu et al. In this proposal both the semantic information and the visual consistency between images are considered.

6) Diversity Enhancement:- The relevance performance can be boosted by the relevance based image retrieval approaches but diversity performance of searching is important. An Approach for diversifying the landmark improvisation was proposed by [5] Qian et al with respect to relative viewpoint of each image.

III. SYSTEM OVERVIEW

A. Tag Graph Construction.

First, we created inverted index structure for all images. Inverted index structure is data structure in which data is stored in such a manner that it gives the fastest result of image retrieval. In which we created vector structure in which image and related tag is stored. So it gives the fastest retrieval.

Second we construct tag based graph using word2vec model for this we use skip-gram model. This model is trained using English wiki corpus. In this model every word is converted to vector form using this vector we created graph based on similarity of words. Basically graph is such that more similar words are connected to each other with minimum distance. Different words with maximum distance.

B. Community Detection.

After constructing tag based graph an important thing is to identify community of query which user entered for obtained topic based image re-ranking. For finding community we use clustering method because tag based graph is basically graph between community therefore for finding community we use Affinity Propagation (AP) is a clustering algorithm. This algorithm is a semi-supervised method mostly used for text-mining therefore for mining community Affinity Propagation (AP) is a very useful method.

C. Image Mapping to Community.

In this we assign community to each image which user uploads. This is a very important step for maintaining graph and whole system. When user uploads any image then we update graph every time for this we use Vector Space Model in which finding overlapping between tag and assign community for each image. This is an iterative method for maintaining stability and increasing accuracy.

D. Inter Community Ranking

In this after getting query according query we collected m set of community which is related to query by tag based image search method we collected m community then in this phase we ranking those m community based on relevance score of community by using semantic matrix semantic matrix is matrix of similarity of community for ranking community we use random walk model . this model use semantic matrix and rank community according to relevance score.

E. Intra Community Ranking

After Inter Community Ranking we get top relevant community after we ranking between community we rank inside community we get images present in specific community and rank them according to relevance and semantic similarity between query tag of image according to semantic and relance we rank image of each community for this we use relance score and semantic distance and we use Euclidance distance and google distance for ranking this method perform on each community which we selected. After Intra Community Ranking we get final result which most apporopiate result because it ranked twice first between community and second inside community.

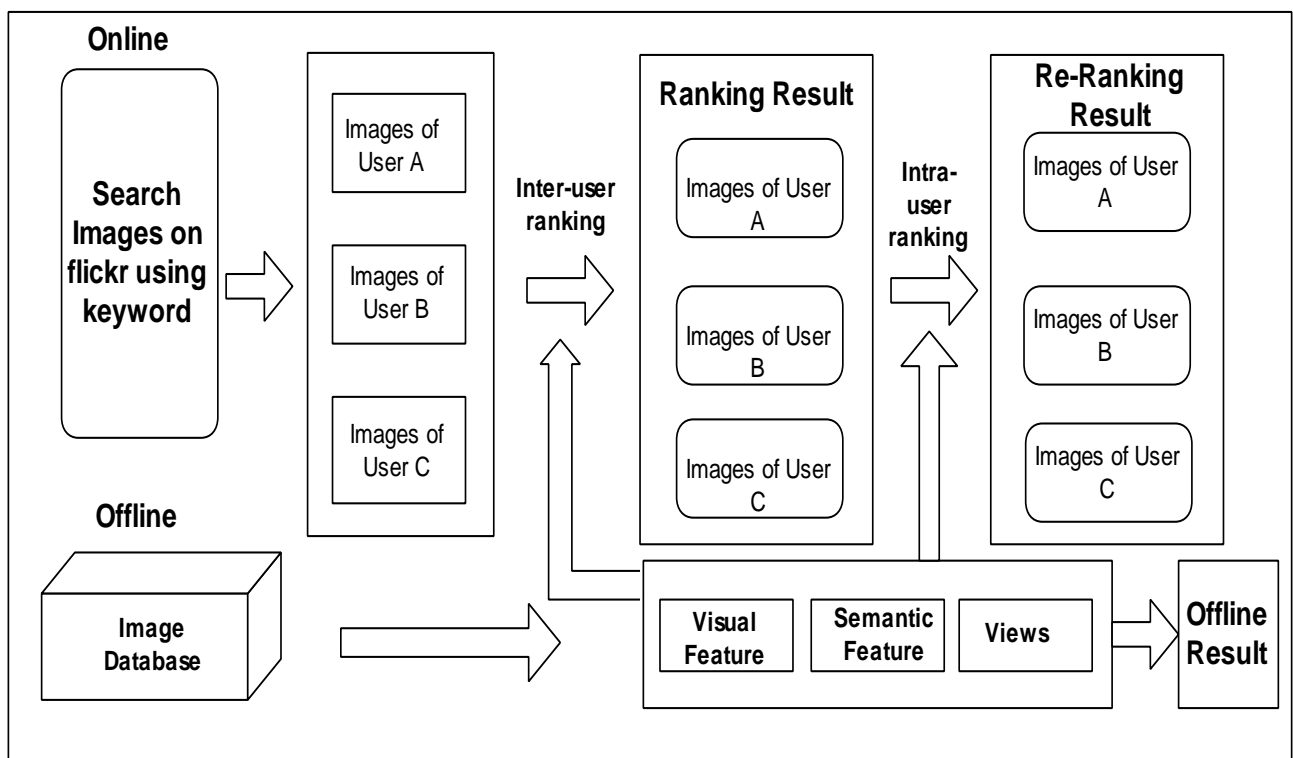


Figure 1 Framework of proposed method

CONCLUSION

In this work, we propose a social re-ranking method for tag based image retrieval. In this social re-ranking method, image ranking and image re-ranking are carried out to obtain the retrieved result in order to enhance the diversity performance. User information is firstly introduced into our proposed approach and obtain satisfactory result. However, in the user ranking and re-ranking process, image view count and time stamp is considered and the similarity among users image set is ignored. In addition to this, much information in flicker data-set are still ignored such as title information, time stamp, so on. We will work on it.

This Paper Describes literature review of image re- ranking and retrieval method. We will be trying to re-rank these retrieved images by using image extraction features and deploying the duplication of images to obtain the uniqueness for every image. To improve the traditional methods used in Flickr data-set should be ignore such as title-information, time-stamp to ease the process of ranking .

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