IMAGE RETRIEVAL BASED ON CIRCULAR RERANKING TECHNIQUE

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ABSTRACT: The best way to find image is to do image search. Image search is done by providing text in search methods available for image search are based on the text provided in the search. But sometimes resulting image contains irrelevant images to overcome this reranking came into existence. Reranking technique consider characteristics or modalities to retrieve image or video. This paper suggests new reranking technique called circular reranking which replaces reranking technique and to improve the performance of searching it support the mutual exchange of information across multiple modalities. It also follows the philosophy that strong modalities get advance from weak ones and weak modalities get profited from strong ones. In this paper we discuss many properties of circular reranking and includes how and in which order the information is propagated to use the potential of modalities for reranking.

KEYWORDS: Circular reranking, visual search, multimodality fusion.

I. INTRODUCTION

The fast development of web technology has led several researches on visual search. By reranking the visual document which is returned from search engine which uses richer and larger set of data search performance can be improved. The main aim is to seek decision from various features to reorder the document and thereby improve retrieval precision. In early study recurrent pattern implicitly or explicitly increase the rank of repeatedly occurring documents. Random walk, it perform self reranking by identifying similar patter based on initial rank score and inter image similarity. There are two general approach visual pattern mining and multimodality fusion. This paper proposes a new reranking technique called circular reranking which make use of both visual search pattern and multimodality fusion.

Circular reranking provide interaction among modalities through mutual exchange of information .This enables strong modalities to communicate with weak ones and weak modalities get profited from strong ones. Circular reranking technique performs a cyclic walk by exchanges ranking scores among different modalities. This algorithm overcomes the drawback of other techniques by interacting with several modalities.

Visual search is task which requires some attention to look for something in congested visual environment. Items what you reach for is termed as target and non target items are termed as distracters. Visual search can be done either by moving or not moving the eye. Practical example of visual search is searching for the books in the library or searching for products in supermarket and so on.

Multimodality fusion has gained much attention of researchers because of its results towards multimedia analysis processes. Modalities interact to mine the recurring pattern and on other hand to leverage with modalities of different strength to improve search performance. Multimodality fusion is a fusion of audio and visual along with textual information which leads to event effective detection of sports team video, which is not possible by single medium.

II.   RELATED WORK

R. Fergus, L. Fei-Fei, P. Peronaet al,[1] proposed new model TSI-pLSA which is the extension of pLSA to include spatial information in translation and models were evaluated based on some standard sets. Also addressed the issues like the choice of features, how to pick the informative topics and number of topics to use.

W. Hsu, L. Kennedy and S.F. Chang [2] presented video search reranking via information bottleneck principle ,searching a video from video database has become complicated task to solve this they proposed a generic framework to find videos in large database using feature annotations and extraction. Video frames are extracted first then the low level features of the frames are extracted to store in video database and then related and valid keywords of the video are stored in the data base. Based on particular feature proposed system retrieve the relevant video from database.

P. Wilkins and A. F. Smeaton[3] proposed multimodal fusion for retrieval of video information and important of modalities is determined by change of score in the list, it differentiate relevant from irrelevant items.

L. Kennedy, S. F. Chang, and A. Natsev[4] proposed query–adaptive fusion for multimodal retrieval for discovery of query class. Query classes are predefined and weights are known by query class level. While searching given query is routed into one of the predefined classes and the known weights are applied for fusion. This proposal is effective only when query classes are clearly defined and enough of weights are known. Query classes are defined through a clustering process.

R. Yan, J. Yang, and A. Hauptmann[5] explained how multimodalities play an critical role for video retrieval without any query expansion and user feedback whereas existing system utilizes query independent combination or user weighting. User query is classified into one of the four predefined categories and then the retrieval result is aggregated with query-class-associated weights. There was also similar performance between query-class dependent weights and query dependent weights

T. Mei et al,[6] explained how to improve search performance by reordering the initial ranked document ,optimization framework. They proposed how to optimize video search reranking from novel view point of information. To solve optimization problem they also proposed a new algorithm called minimum incremental information loss (MIIL) reranking.

Y. Liu, T. Mei, and X.S. Hua[7]explained the concept of crowd reranking , visual search reranking focus mainly on mining information within search result. They proposed a new visual search reranking technique called crowd reranking which mines relevant visual pattern from images retrieved by using search engine available in the internet. Different images are retrieved from search engine and by using crowd reranking technique only relevant images mined.

T. Yao, T. Mei, and C.-W. Ngo[8]for searching images they proposed an idea of co-reranking by exploring textual and visual information. There was mutual exchange of information among the modalities. Random walk was conducted on one modality and was exchanged to the constraints of random walk of another modality this helped in image reranking by identifying the dominant and similar image pattern and also shows how MSRA-MM data set demonstrate that co-reranking outperforms existing approaches which treats each modality independently for reranking.

III.   PROPOSED TECHNIQUE

Image retrieval technique is commonly used to browse, search or to retrieve images. In this paper architecture is proposed, which tell how relevant images ranked and are retrieved using circular reranking technique. This is done by adding metadata such as caption or keyword in search engine.

Then all the images that relates to caption or keyword are collected. The retrieved images are modelled as graph, such as based on features space, nodes and edges. Then images are ranked by giving scores those images and random walk is performed which consider feature space independently.
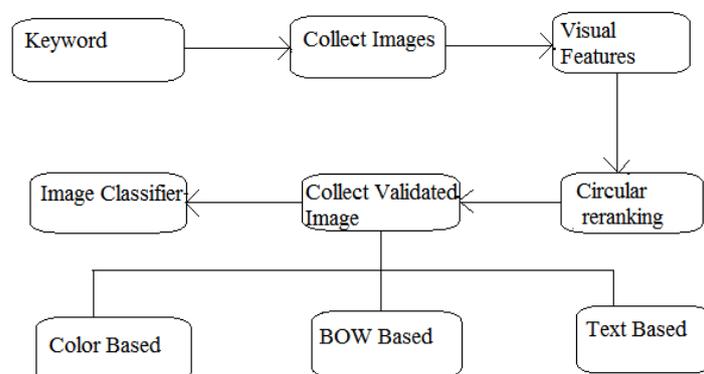

Figure 1:Proposed Circular Reranking Technique

For performing random walk there is mutual exchange of modalities. Finally circular reranking technique iteratively updates the rank of images by circular mutual reinforcement.

From the best performed modality the final ranked list are selected. The images which as similar color, bag of visual word and text space feature are collected and considered the valid images.

IV. CONCLUSION

Retrieval of images based on reranking technique which was proposed by various researchers is explained in this paper. A discussion on circular reranking technique is done which helped in development of new method called circular reranking algorithm for effective development in the area of image processing. Comparative study is done which tell circular reranking algorithm is more efficient and effective.

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