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A Study on Web Image Re-Ranking

Mohammadi Aiman & Dr. Ruksar Fatima
[1]M. Tech Student KBNCE, Kalaburagi
[2]CSE Dept., KBNCE, Kalaburagi

Abstract:

Image re-ranking, as an effective way to improve the results of web based image search. This have been adopted by current commercial search engines. The query-specific semantic signature is also striking in this application, where it is crucial to reduce the semantic gap when computing the similarities of images. Due to the ambiguity of query keywords, there may be multiple semantic categories under one keyword query. These approaches cannot absolutely capture user's search intention without query images selected by users. The visual features of images are projected into their related visual semantic spaces to get their semantic signatures.

Keywords

Semantic signatures, Search engines

1. Introduction

Image searching is the process of finding relevant images on web search engines. A huge database has been maintained to store and retrieve images at server side. The image search has become an important feature of multimedia. It plays an important role in daily life. Some image search query results are satisfactory and some are unsatisfactory. The web image search mostly depends on the surrounding text of the image. It is difficult to understand the user intention only by query keywords and this leads to irrelevant image search results. In this literature survey the methods developed by different researchers in web image search are reviewed. These methods vary from textual information search to user feedback. Also, some methods are depending on the visual similarities between the images. To improve the result of web image search, strategies like keyword expansion, active re-ranking is also used. This paper focuses on the methods introduced. A. Old Image Re-Ranking Framework: Most of the web image search engines have adopted the strategy. A query keyword input by a user a pool of images relevant to the query keyword are retrieved by the search engine. The response as a result to this is according to a stored word-image index file by the user to select a query image which observes the user's search objective, from the set, the remaining images in the set are re-ranked based on their visual features are not selected and similarity scores of images are stored whenever a new image is added into the dataset and we must compute its similarities with existing images, then the visual features need be computed one more time and so on. If the visual features are discarded
Fig 1: System Architecture and only the similarity scores of images are stored, whenever a new image is added into the collection and we must compute its similarities with existing images, then the visual features need be computed again. It is popular in all types of search engines. But it gives ambiguities in result. Example user has entered query 'Sony', so as the entered query is not specific system can retrieve images like 'Sony logo','Sony TV' knowledge about query keyword else he can't get useful images.

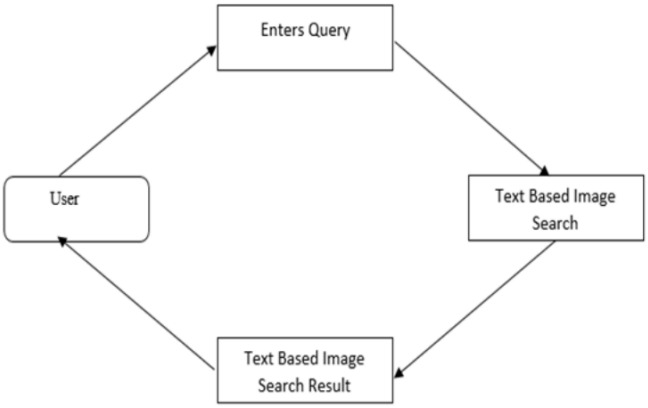

Fig 1: System Architecture

The semantic meaning of query keyword may be different than intended. The search engine provides additional text keyword suggestion when user enters the query its advantageous but it may possible that user may get diverted from its way., Sony Mobile', Sony company images' etc.

2. LITERATURE SURVEY

The author XiaongWang,KeLiu,Xiaou Tang describes the novel image reranking framework as well as gives the computational cost and SiddanagowdaGR,SantoshS,SandeepkumarS,Raghu M T talk about the how to use semantic signature for web image reranking as well as retrieval was performed as summarization of similarities of individual feature. The KirtiYadav,SudhirSingh,DiptiBartakke,ArchanaGulatiSay liBaxi, S. VDabhade introducesthe remarking images using various files such as video,Midifile,speech wave files etc. specific query semantic spaces are used get more improvised reranking of image also we studied not only the offline image search but also the novel internet image search approach which requires one click user feedback

intention specific weight schema is proposed to compute visual similarity.

3. EXISTING APPROACHES

1) Old Image Re-Ranking Framework Major web image search engines have adopted the strategy. A query keyword input by a user a pool of images relevant to the query keyword are retrieved by the search engine according to a stored word-image index file by the user to select a query image which observes the user's search objective, from the set, the remaining images in the set are re-ranked based on their visual similarities with the query image. The text-image index file and visual features of images are recalculated offline and stored visual features must be saved then the web image collection is dynamically upgraded. If the visual features are not selected and only the similarity scores of images are stored whenever a new image is added into the collection and we must compute its similarities with existing images, then the visual features need be computed again.
2) Text based image search: - Many large internet scale image search methods are text-based and are limited by the fact that query keywords cannot describe image content accurately. In paper an approach named ReSPEC (Re-rankingSets of Pictures by Exploiting Consistency), that is a hybrid of the two methods it is shown that visual consistencies in the output images can be find out and then used to rank the images according to their closeness to the visual object category. CBIR (Content-based image retrieval) uses visual features to evaluate image similarity. Many visual features were developed for image search in recent years. Somewhere global image features, such as GIST and HOG (Histogram of Oriented Gradient) Kevinproposed GIST which exploit visual context, by which we mean a low-dimensional representation of the whole image. Some local image features such as SIFT Davidproposed a method for extracting distinctive invariant features form

4. RELATED WORK

People regularly interact with different representations of Web pages. A person looking for new information may initially find a Web page represented as a short snippet rendered by a search engine. When he wants to return to the same page the next day, the page may instead be represented by a link in his browser history. Previous research has
explored how to best represent. Web pages in support of specific task types, but, consistency in representation across tasks is also important.

The related work [2] is all about exploring how different representations are used in a variety of contexts and present a compact representation that supports both the identification of new, relevant Web pages and the refinding of previously viewed pages. The visual snippet generation process involves four steps:

1. Cropping and scaling the salient image. The image is cropped manually along one dimension to an aspect ratioof 4x3 and scaled to 120x90. If no salient image is identified, a snapshot of the page is used instead, appropriatelyscaled.

2. Scaling the logo. The logo is scaled to fit within a 120x45 rectangle while preserving its original aspect ratio.The logos scale is chosen so that it either falls half of the height or the full width of the visual snippet. If no logo is available, it is omitted.

3.Cropping the title. 30-39 letters to be necessary to provide medium quality.

To provide satisfying summarized search result, they [3] a two-step ranking process. Considering both relevance and diversity in ranking object categories and the object layout was considered while selecting the most representative image for each category. The authors also believed that focusing on object queries is a promising direction for further advancing image search reranking and they envision the work in the future as follows: First, they will systematically classify queries into different domains regarding the possibility of image search reranking, and then develop algorithms to solve them respectively. Second, motivated by the object bank image representation they may combine the object vocabulary discovered for the query and the objects from the collection to seek a more comprehensive representation of images and queries. Finally, identify and address the system challenges so as to most efficiently integrate this algorithm into a real-world image search engine.

Web image ranking is a tedious task because of the huge number of images in web and sparse click logs. Click logs [1] are used to know the relevancy of images under a query based on the number of clicks. Click logs of images are said to be sparse as users usually prefer clicking on web images. Thus, the very first point is to enrich the click logs by finding images that has similar features with that of existing images in the click log. Secondly, using sparse coding scores, the images are ranked. Finally, from the ranked image's metadata unique keywords are extracted and used for query recommendation. Image reranking is effective for improving the performance of a text-based image search. However, existing reranking algorithms are limited for two main reasons: 1) the textual meta-data associated with images is often mismatched with their actual visual content and 2) the extracted visual features do not accurately describe the semantic similarities between images. Recently, user click information has been used in image reranking, because clicks have been shown to more accurately describe the relevance of retrieved images to search queries. However,

a critical problem for click-based methods is the lack of click data, since only a small number of web images have actually been clicked on by users. Therefore, the aim to solve this problem by predicting image clicks...

5. CONCLUSION

We have reviewed an Internet based image search approach. After a review of existing techniques related to web image re-ranking, we point out that these methods are not powerful enough to retrieve images efficiently by its including semantic concepts.

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