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Inferring Multiple Search Goals Under the Implicit Guidance of Users

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Abstract: In this paper we propose a method to get the exact output for the query what a user enters, Since the search process becomes in-effective nowadays. To overcome this problem we can subdivide inferring process into different steps. When the query is submitted to the search engine, the query is forwarded to analyse. Analysing process is based on number of search results for that particular query and click through log is obtained. A framework is discovered from user click through log to cluster feedback session. From feedback session pseudo documents are generated to cluster search goals. Then CAP is formulated to evaluate the performance of inferring user search goal.

Keywords: Click-through Log, Feedback session, Pseudo Document, Calculate Average Precision.

I. INTRODUCTION

In web search application, when a user submits his/her query to the search engine, the user may not exactly get what the user needs. Same query will have different number search goals. Since the keywords may be polysemous or cover a broad topic and users tend to formulate short queries rather than to take the trouble of constructing long and carefully stated ones. Fig. 1 shows some example user image-search goals discussed in this paper. Each goal in Fig. 1 is represented by an image example. From Fig. 1 and based on the user search query we find that users have different search goals.

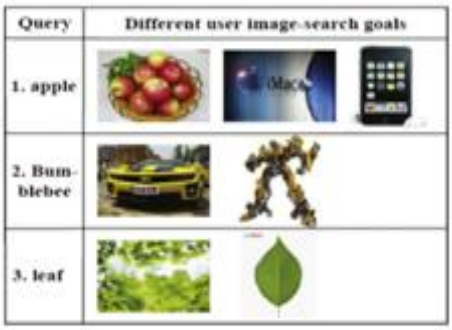

Fig1. Different Search Goal for a query

II. RELATED WORK

A. Inferring User's Image-Search Goals with Pseudo-Images

User search goals in image search are captured, which helps in mining the data obtained in single session. User click through log which helps in reflecting the information needs of user. Another proposal is based on determination of number of user search goals for different number of queries. Its effectiveness is demonstrated with help of experimental results.

B. The Effect of Specialized Multimedia Collections on Web Searching

In this work, we report the results of a research study evaluating the effect of separate multimedia Web collections on individual searching behaviour. The Alta-vista search engine has a collection of multimedia data and used tabs for certain data sets. It is based on two motivations (1.) multimedia searching characteristics in Alta-vista and (2.) separate multimedia collection based on the effects in searching data.

C. Searching For Multimedia: Analysis of Audio, Video and Image Web Queries

In this work, the images are represented in the form of textual data, based on information needs with textual queries, or with representing retrieved multimedia documents as short textual abstracts. To express the textual terms to get information needs, the user can take on an additional data based on the features. In order to make relevance judgments, inspections are done by the users to get visual report of the full record in order to know if the retrieved document contains the requested multimedia information.

D. Hierarchical Clustering of Www Image Search Results Using Visual, Textual and Link Information

In this work, a method is described to organize WWW image search results. Three proposals are done based on the visual features, web image representation and features induced from graph of image link, based on the web context. To cluster the common search results, spectral techniques are used based on different semantics. Dissimilar images are selected based on its image ranks and representative images which help to enable quick understanding for the user based on the search result.

E. Learn From Web Search Logs to Organize Search Results

In this work, two deficiencies are proposed (1) To organize search results based on the topic from search log obtained from the users perspective. (2) Meaningful labels of cluster are generated with help of past query words entered by users. Proposed methods are based on the log data obtained from commercial search engine.

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III. OVERVIEW OF THE SYSTEM

In this system, different number of search goals are discovered for a query and depicting each goal with some keywords automatically.

The step involved in overall system is:

1) We first propose a novel approach to infer user search goals for a query by clustering our proposed feedback sessions.
2) Then, we propose a novel optimization method to map feedback sessions to pseudo-documents which can efficiently reflect user information needs. The feedback session in our system consists of both clicked and un-clicked URLs and ends with the last URL that was clicked in a single session.
3) Then we cluster these pseudo documents to infer user search goals and depict them with some keywords.

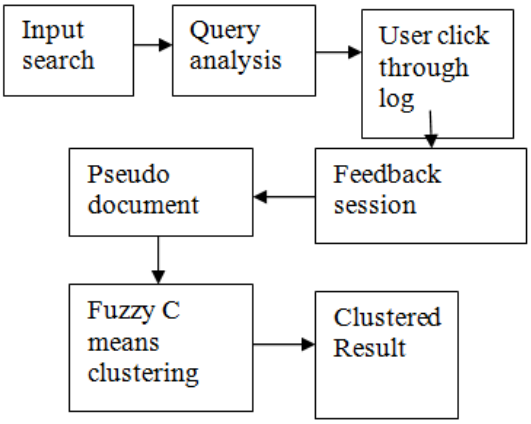
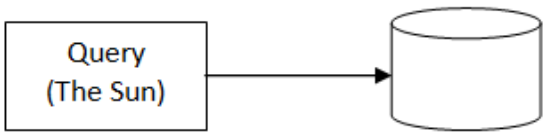


Fig2. Block Diagram

1) At last, we propose this novel criterion "Classified Average Precision" to evaluate the cluster results. From on the proposed method, the method to select the best cluster number may also be described.

A. Ambiguous Query

An Ambiguous Query



User click through logs

Queries are submitted to search engines to represent the information needs of users. However, queries sometimes may not exactly represent users' specific information needs since many ambiguous queries may cover a broad topic and different users may want to get information on different aspects when they submit the same query.

B. Restructure Web Search Results

We need to restructure web search results according to user search goals by grouping the search results with the same search goal users with different search goals can easily find what they want. When some keywords are entered to represent users search gaol, it can be utilized in query recommendation. When a user search goal is distributed, it helps in applications such as reran king web search results that contain different user search goals.

Due to its usefulness, many works about user search goals analysis have been investigated. They can be summarized into three different classes: classification of query, reorganization of search result, and detection of session boundary.

C. Feedback Sessions

The feedback session consists of both clicked and un-clicked URLs and ends with the last URL that was clicked in a previous session. Before the last click it is motivated that all users can evaluate and scan the URLs. Data from the feedback session helps us to know what a user requires and what the user doesn't needs.

Search result	click sequence
www.thesun.co.uk	0
www.solarviews.com/sun.html	1

Fig3. Feedback session

D. Pseudo Document

In this paper, we need to map feedback session to pseudo documents User Search goals. Pseudo-document is formed with help of two steps. One is representing the URLs from the feedback session. URL in a feedback session is represented by a small paragraph that consists of its title and snippet. Then, implementation of some textual process to those paragraphs, such as all the letters are transformed to lowercases, stemming and removing stop words are performed.

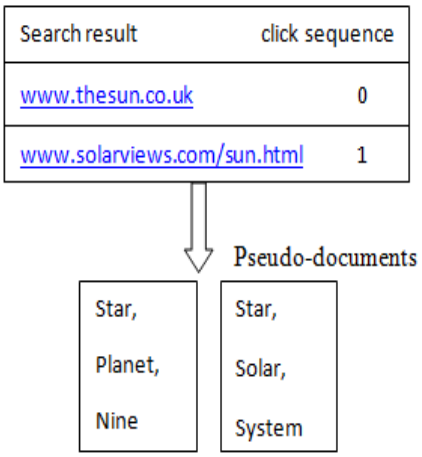


Fig 4.Pseudo document

E. Fuzzy C-Means Clustering

Fuzzy C-means algorithm is a self constructing algorithm that is useful in classifying the feature of the image and finally clusters the data based on similarity. And it is also a powerful method to reduce the features based on

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dimensionality of text classification. Characterization is based on the membership function with values of statistical mean.

F. User Search Goals

Pseudo-documents are clustered with help of FCM clustering which is simple and efficient. Since the exact number of user search goals is not known for each query, we set number of clusters to be five different values and perform clustering based on these different values, respectively.

After clustering all the pseudo-documents, there must be one user search goal for each cluster. In a cluster, its centre point is computed as the average of the vectors of all the pseudo-documents in the cluster.

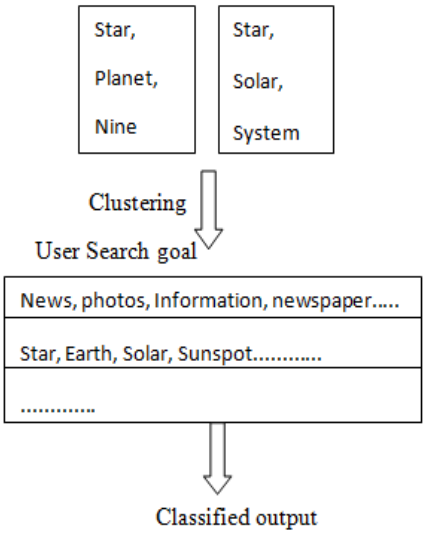

Fig5. User search goal

IV. RESULTS AND ANALYSIS

This method was tested with several user search queries. The proposed system was uncomplicated to understand and it is implemented with the help of C#.Net and run on desktop PC with 3.09 GHz Intel and 1.09 GB RAM. The output is more accurate and thus we can significantly improve the performance of inferring user search goal.

V. CONCLUSION

Inferring user search goal is useful and it becomes more efficient if it is extended for new query. The Proposed method is focussed on analysing the different search query that is being entered by user.

VI. FUTURE ENHANCEMENT

The running time is usually short. In reality the process can also be done in offline to discover user search goals for some popular queries. Then, when users submit their queries, the search engine can return the search results that are categorized based on the user search goals online. Thus, users can find what the user needs. Our approach can be enhancing by applying both offline and online process in this concept. Where offline approach can be reached by our default searched user logs along with the feedback sessions. Which proves lots of efficiency in our approach?

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