

A Comparative Study of Context-Based Information Refinding

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Abstract: We present a comparative study of query analysis for efficient context-based information refinding system. Refinding what we have done before is a common behavior of human in real life. According to the human natural recall characteristics, users allow to refinding web pages which have seen before. Psychological studies show that context under which information was accessed can help as a powerful cue for information recall. Here context including time, place and concurrent activity could serve as a useful information recall clue. We build a recall based query model, linking to the previous accessed information contents. We explore the use of context cluster and association to efficiently process the context-based refinding queries. In context memory dynamically evolve in life cycles; there are memory's decay and reinforcement phenomena. Thus take contextual information refinding of various papers and make comparison of how to contextual cues to refind the WebPages effectively.

Keywords: Information refinding, Context cue, refinding queries

1. INTRODUCTION

1.1 Web Mining

The World Wide Web has been dramatically increased due to the use of internet. The web acts as a medium where large amount of information can be obtained at lower cost. Web mining can be defined as the discovery and analysis of useful information from the World Wide Web data. It is one of the data mining techniques to automatically extract the information from web documents. WWW provides a rich set of data for data mining.

The web is dynamic and very high dimensionality. A web page contains three forms of data, structured, unstructured and semi structured data. Data sets available in the web can be very large and occupy ten to hundred of terabytes, need a large farm of servers.

1.2 Background

The user are collecting different kinds of information from the global web for both read and writing purpose. In the global web, search is an important activity then only considered to an email. Tremendous growth of web, every second millions of information added in the global web. Users are finding and refinding the web information in the

global web everyday [9]. People revisit the information that have ever been come across occasionally or intentionally. Refinding webpages is typically better than to initially finding the webpage. Achieving efficient and accurate information retrieval is a challenging task.

Refinding is a common task is difficult when previously viewed information is modified, moved or removed. How information refinding is different from information finding? There is a uncertainty in the later process because users do not know get enough information, while information refinding is a more directed process as users have already seen the information before. Information refinding is not the process of finding again [7].

A general way to support information refinding is to maintain access log [10], recording what users have ever seen based on their revisit frequencies. When refinding, users might prefer to have a search the results prioritized by pages that have been seen before. One way to refinding the information using contextual cues [3][2], inspired from the human memory approach.[8].

1.3 Contextual Clues

The people use lot of keywords to search the information. To remember the keyword after a few months ago what we

have seen before it is difficult and time consuming task. Because original queries were wrongly remembered most of that time due to their loss of memory. According to cognitive science literature, human memory is predicted on contextual cues to refinding the information.

To get the information for users query exactly even a month or year ago hard to remember that keyword. But the time, place and concurrent activity associated with the happening of that access event may leave a deeper impression. Contextual information could helps as powerful clues to remember the key word. Contextual clues helps to users have seen the already viewed information.

2. RELATED WORK

Efficient context-based information refinding and page ranking

In this paper [1], present query analysis for efficient context-based information refinding and page ranking system. Refinding what have done before is a common behavior of human in real life. According to the human natural recall characteristics, users allow to refinding web pages which have seen before. Psychological studies show that context under which information was accessed can helps as a powerful cue for information recall. Here context including time, place and concurrent activity could serves as a useful information recall clues. In this system not only considered to find the refinding queries. But also implement feedback system, so that webpage can be ranked by the multiple user feedback.

Refinder: A context-based information refinding system

In this paper [2], to refinding the information from the web, they could not remember the keyword and their related information after a couple of months. It based on the human recall characteristics, allows user to refinding WebPages according to the previous access context. The system was implemented offering some contextual information on the query results. Memory context is also considered in personal information refinding. Based on Inspiration from human memory mechanism, the context-based refinding framework was developed.

Contextual Web History: Using visual and contextual cues to improve Web Browser History:

Most modern web browsers offer web history functionality few people use it to revisit previously viewed web pages. In this paper [3], they developed Contextual Web history (CWH), which improves the visibility of the history feature and greatly reduced the time and effort required to find and revisit webpage. Contextual Web History (CWH) goal is to

improve the usability and utility of the history feature in web browsers. CWH provides a richer set of clues about the content of the page, including time of visit, visual appearance and text search and quickly find previously visited web page again. Revisitation is a key part of web browsing. Contextual web History gives to understand the right set of basic features to support the process of refinding information very fastly. We implement contextual web history using two iterative prototypes built as firefox extension. User study is conducted from the recall and recognition tasks.

Tasks	Potential Memory Cues
Recall	color, structure, time visited, logos, content, title, url of the web page
Recognition	Size of the thumbnails

An evaluation of landmarks for refinding information on the web:

In this paper[4], present an extension to traditional bookmarks called landmarks, a user-directed technique that aid users in returning to specific content within a previously visited webpage. The use of traditional bookmarks allows users to return to a previously visited page, it can be hard to re-find facts within that page. Here we investigate the efficiency of landmarks for refinding of information on webpages. Landmark allow users to mark information on a webpage that they may want to return to a later date by highlighting the text and adding a landmark in the same fashion as they would a favorite in IE. Landmarks are not meant as a replacement for the bookmarking facility but as an enhancement that help users return directly to previously visited information, giving context to the marked pages.

YouPivot: Improving Recall with contextual search

During recall tasks, contextual cues are important component of human memory. In this paper [5], they present new interaction technique, pivoting, that allows users to search for contextually related activities and find target piece of information. YouPivot demonstrates how principles of human memory can be applied to enhance the search of digital information. Contextual cues could be one way to improve information recall in our digital lives. YouPivot used the calendar entry's lifespan as the pivot time period. Time Marks allowing a user to access all activity that was ongoing at a particular moment.

Table: Comparison of Various Context-Based ReFinding Paper

Reference number	Author	Title of the paper	Issues	Techniques used	Re-finding result	Disadvantage
[11]	A.P.Nivethitha	Efficient context-based information re-finding and page ranking	To build recall based query model to re-find the information using contextual cues and feedback visited by the user.	Re-finder and page ranking	Efficiently revisit of the web page using contextual cues and multi user feedback.	All the user not given the feedback. So can not ranking the webpage properly.
[2]	Tangjian Deng, Liang Zhao, Hao Wang, Qingwei Liu, and Ling Feng	Refinder: A context-based information refinding system	To build query-by context model, Context are the powerful cue (place, time, concurrent activity) for information refinding.	Re-finder	On average 15.53 seconds are needed to refinder complete the refinding request and 84.42 seconds with other existing methods.	In Refinder, not implement user feedback for visited web pages.
[3]	S. Won, J. Jin, and J. Hong,	Contextual Web History: Using visual and contextual cues to improve Web Browser History	To develop Contextual Web History (CWH) improves the visibility of the history feature and helps people find previously visited web pages.	Contextual Web History	Greatly reduced the time and effort required to refinding the web pages.	In CWH, re-finding a webpage older than x days too many pages for the user to browse.
[4]	B. MacKay, M. Kellar, and C. Watters	An Evaluation of Landmarks for Re-finding Information on the Web	To implement Landmark which is an extension of traditional bookmarks. Landmark is a user-directed technique that aids users in returning to specific content within previously visited webpage	Landmark	Using Landmarks revisit the webpage significantly faster.	The users can only make landmarks for textual information, not expand this functionality to include images and other media.
[5]	J. Hailpern, N. Jitkoff, A. Warr, R. Karahalios, K. Seseck, and N. Shkrob	YouPivot: Improving Recall with Contextual Search	To allow users to search for contextual related activities (using timemarks) and find a target piece of digital information.	YouPivot	Using YouPivot greatly improve the quality and speed of recall	Users own contextual cues is difficult to design

3. CONCLUSION

We have studied the comparison of various papers of context_based information refinding. The aim of this study was how the results of the information retrieval technique to efficiently refinding the web pages could be improved by contextual cues shown in above table.

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