

AN ADAPTIVE DESIGN SUPPORT SYSTEM FOR INTERACTIVE IMAGE SEARCHING WITH DATA MINING METHODOLOGY

HONG-SHENG CHEN, LIU, CHAN-JUI
*Graduate School of Computational Design, National Yunlin
University of Science and Technology.
Yunlin, Taiwan.
chsh@ntu.edu.tw*

1. Introduction

This study explores a domain where the use of pictures is essential [Sabrina Kacher 2002]. Designers need a way to rapidly get image. Recent years, there are more and more companies start to store and sale images for designers. They try to use hypermedia or website system to support designers when they need images.

2. Exploration

This study focuses on the design of image source support website system. The goal of this research is to design a prototype system that expands image source supporting website with customization concept from each of designer before his choice. And to verify that is practicably an adaptive system supporting category of customization in design image source support tool. This research also proposed an implementation of system framework.

3. Review

Previous researches could be categorized into five issues: Data-Mining [Fayyad et al, 1996], Web Mining [Koutri et al., 2002], On-Line Analytical Processing (OLAP), Adaptive User Interfaces [Borrowne et al. 1990], and customized web application, we want to apply those concepts and develop a supporting tool for designer.

4. Methodology

MULTI- SEARCH SYSTEM (MSS)

Our research focus on how to help designer rapid gets image in the image source website via Multi-Search System (MSS). For achieving the goal described above, the first step is to record and analyze the interactive behaviors. The MSS analyses each basket of user and allow user rank which image is approach he project now (Figure 1)

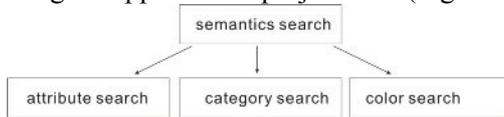


Figure 1 Multi- Search System concept

For achieving the goal described above, the first step is to record and analyze the interactive behaviors. We have written a spider program to mine the website server of Veryimage Company (<http://www.veryimage.com>) which sells images for customers' accounts.

Each of images has its own type (e.g. photographic, illustration, 3D image) and category (e.g. people, nature, travel, food...). We obtain an account's shopping basket to analyze image's type and category which were most picked up. The website adapts index of image for the account from his chose. For example, Figure 1 type (B) and category (c) were most chosen. Therefore the image be adapted to first place which has type (B) and category (c) (Figure 2)

Pick up record of an account

First be pick up images	A _b	B _c	B _d	D _f	C _g	E _h
Second be pick up images	B _i	A _m	E _e	B _f	C _m	
Third be pick up images	B _g	A _e	E _f	D _j	A _k	
Fourth be pick up images	C _s	E _d	D _b	A _c		
Fifth be pick up images	C _c	D _s	B _g			

Analyzing from record

Image Type	Image Category
A,B,B,D,C,E,	b,c,d,f,g,h,
B,A,E,B,C,	i,m,e,f,m
B,A,E,D,A,	g,e,f,j,k,
C,E,D,A	a,d,b,c,
C,D,B	c,e,g

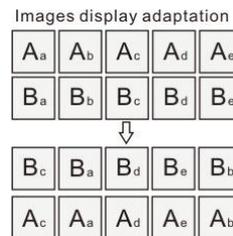


Figure 2 illustrate analyze procedure

Figure3 Adaptation image

5. Implementation

Adaptive website for client side: The website adjusts the organization of images when a user searches a type or a category. The changes are based on user image preference in order to approach user need and reducing search time. The system continually record user's choosing onto the database for the next organization of image index. Therefore the image index will more and more approach the user's need and classification by the user.

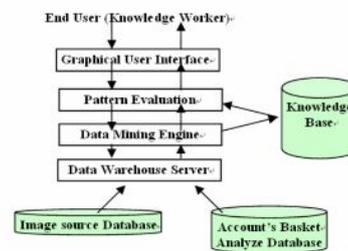


Figure4 System architecture

6. Conclusion

The purpose of the paper is to propose an adaptive system for users, easier access to websites. The system calculates user preference images based on user participation and provides a solution in two ways: supporting relation image for user or reducing selection time to user.

References

- Han, J. and Kamper, M., 2001, *Data Mining: Concepts and Techniques*, San Francisco: Morgan Kaufmann.
- Yehuda E. Kalay., 1978, *Computability of design*, John Wiley and Sons, Inc, Canada
- Karel Vredenburg, Scott Isensee and Carol Righi, 2002, *user-centered design an integrated approach* Prentice-Hall, Inc
- Abranham Silberschatz, Henry F. Korth, and S.Sudarshan., 2002, *Database Systemconcepts*, fourth edition, McGraw-Hill Education, Singapore
- Koutri, M., Daskalaki, S. and Avouris, N., 2002, "Adaptive Interaction with Web Sites: an Overview of Methods and Techniques", in *Proceedings of the 4th International Workshop on Computer Science and Information Technologies*, Patras, Greece,
- Raskin, J., 2000, *The Humane Interface –New Directions for Designing Interactive Systems–*, ACM Press,
- Mao- Lin Chiu, 2003, *CAAD talks 2*, 田園城市, p, 37-56