

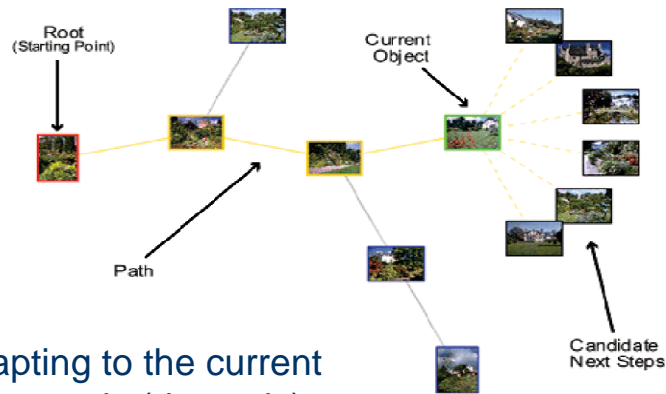
Adaptive Retrieval Systems Issues & Challenges

Joemon Jose
University of Glasgow

Adaptive Systems

- User need – Current
 - Query expansion
 - Adapting the presentation
- Long-term user Interests
 - User modelling
- User environment
 - task, work setting etc
 - Time, location/place
- Devices
 - Phones, PDAs, laptops etc.
- Collection
 - Types of documents

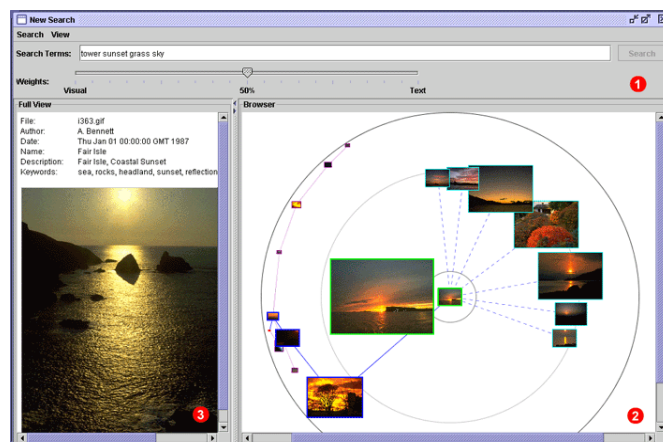
Ostensive Browsing



Adapting to the current user needs (dynamic)

3

OB Interface



4

Ostensive Browsing in Web Search

How to Create a Dust-Free Bedroom, NIAID Fact Sheet

If you are **allergic** to dust mites, you could also be **allergic** or develop an **allergy** to cats, dogs, or other animals. Although these steps may seem difficult ...

How to Create a Dust-Free Bedroom If you are dust sensitive, especially if you have allergies and/or asthma, you can reduce some of your misery by creating a "dust-free" bedroom.

Dust may contain molds, fibers, and dander from dogs, cats, and other animals, as well as tiny dust mites.

In addition to getting medical care for your dust allergy and/or asthma, the National Institute of Allergy and Infectious Diseases suggests the following guidelines.

Dust mite allergy usually produces symptoms similar to pollen allergy and also can produce symptoms of **asthma**.

Carpets trap dust, dust mites, skin, pet dander, mold, spores, pollen, and chemicals that can trigger allergies or asthma like symptoms.

Dust allergy can also make people with asthma experience wheezing, coughing and shortness of breath.

Consult your allergist to determine the most effective treatment method for you, and you can gain control of your dust mite allergy and achieve relief from allergy symptoms.

Carpets trap dust, dust mites, skin, pet dander, mold, spores, pollen, and chemicals that can trigger allergies or asthma like symptoms.

You can gain control of your dust mite allergy and achieve relief from allergy symptoms.

<http://www.niaid.nih.gov/factsheets/dustfree.htm> - 11K - Cached - Similar pages

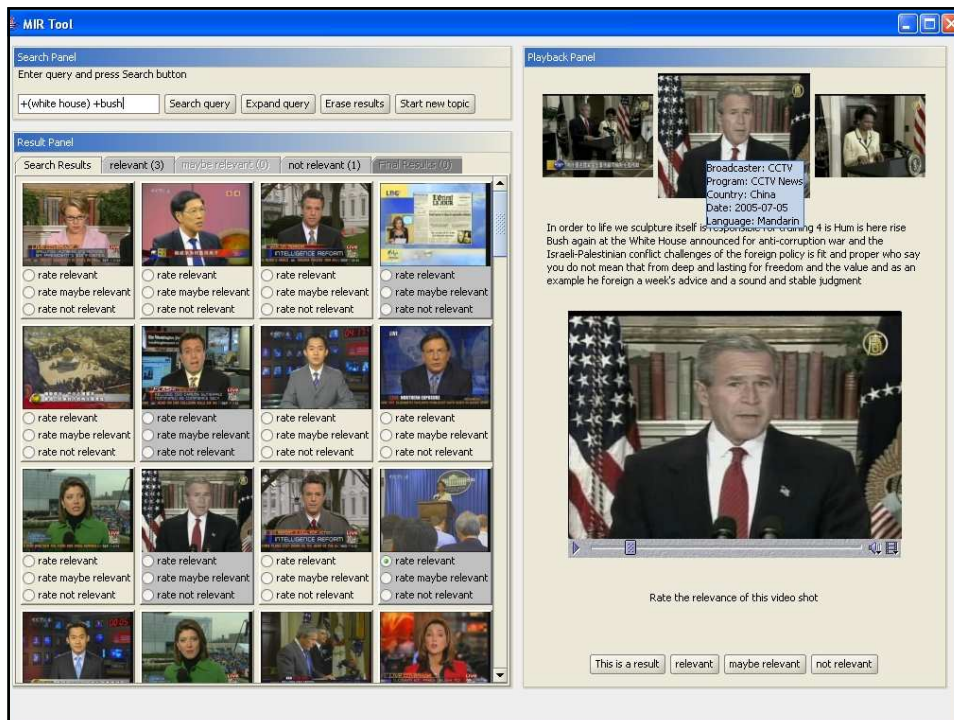
5

Search System based on Implicit Feedback

The screenshot displays a search system interface with the following components:

- Search Results List:** A list of 10 search results. The 9th result, "Information Retrieval", is highlighted in red. The 10th result, "Text Retrieval Conference (IREC) Home Page", is also highlighted in red.
- Document Summary:** A pop-up window showing a summary of a document. It includes a red box highlighting a sentence: "This chapter has been included because I think this is one of the most interesting and active areas of research in information retrieval." Other text in the summary includes: "I have tried to give a middle course and not optate with the broad theories of Information Science and", "My greatest debt is to Karen Sparck Jones who taught me to research information retrieval as an experimental science.", and "Finally, I am grateful to the Office of Scientific and Technical Information for having made the early experimental work on which this book is based to the Drug College Research Centre for providing me with an environment in which I could think, and to the Department of Information Science at MIT for providing me with the facilities for writing it."
- Top Ranking Sentences:** A window showing several sentences ranked by relevance. The top sentence is: "The major change in the second edition of this book is the addition of a new chapter on probabilistic retrieval. This chapter has been included because I think this is one of the most interesting and active areas of research in information retrieval. There are still many problems to be solved so I hope that the particular chapter will be of some help to those who want to advance the state of the art." Other sentences include: "to Chemistry Team.", "Belgian Information Retrieval Workshop, December 6.", "to information retrieval.", "sollen Begriffe erfaßten bzw. verschiedene Sichten auf die Effizienz eines", "of chapters, the content and organization of this book have been carefully a cohesive view of all the important aspects of modern information", "thems that relies on people to categorize their ideas will at best be limited, the nature of intellectual capital.", "Algen des Retrieval aus, was bei der Aufbereitung und", "Dial-Abfragebergung für erweiterbare Dokumentenansatz und in der Datenbank gespeichert wurde, bildet", "und die Grundlage für die Suche nach relevanten Dokumenten.", "In order to try and fully represent the importance of the Medica Index book had to include some background information upon the Italian Renaissance and additional information focusing on the achievements of the Medici.", "This chapter has been included because I think this is one of the most interesting and active areas of research in information retrieval.", and "My greatest debt is to Karen Sparck Jones who taught me to research information retrieval as an experimental science."
- Search Interface:** At the bottom, there is a search bar with the text "Search Internet for..." and buttons for "Submit" and "Reset".

6



Summary

- Adaptation based on capturing user's evolving needs
- Underlying Retrieval model
 - Often developed on top of standard retrieval models
 - Binary voting model
 - Jeffrey's approach
 - Dempster-Shafer model
- Interaction sequences vary from user to user

Slicing and dicing approach

9

dust allergy Search [New Search](#)

Results 1 - 10 of about 2,040,000

Main Result

[How to Create a Dust-Free Bedroom, NIAID Fact Sheet](#)
If you are **allergic to dust mites**, you could also be **allergic** or develop an **allergy** to cats, dogs, or other animals. Although these steps may seem difficult ... [Show this in Workspace](#)
www.niaid.nih.gov/factsheets/dustfree.htm - 11k

Dust allergy - Allergy Advice
Benadryl **allergy** treatment advice, including hayfever treatment advice, the latest pollen count forecast, children's **allergy** solutions and antihistamines ... [Show this in Workspace](#)
www.allergyadvice.co.uk/en/dust-allergy.asp - 16k

Dust allergy treatment - Allergy Advice
Benadryl **allergy** treatment advice, including hayfever treatment advice, the latest pollen count forecast, children's **allergy** solutions and antihistamines ... [Show this in Workspace](#)
www.allergyadvice.co.uk/en/article.asp?id=42 - 14k

House Dust Allergies
No, a dirty house can make a house **dust allergy** problem worse, ... If you think you may have an **allergy** to house **dust mites**, consult the **Allergy Clinic**. ... [Show this in Workspace](#)
darkwing.uoregon.edu/~uoshc/Housedustmites.html - 12k

Dust Allergy. Acupuncture Today, August 2004
Dust allergy is quite common. Common-sense approaches to **allergies** usually involve avoidance of allergens; **dust**, however, is impossible to

Workspace

[How to Create a Dust-Free Bedroom, NIAID Fact Sheet](#)
If you are **allergic to dust mites**, you could also be **allergic** or develop an **allergy** to cats, dogs, or other animals. Although these steps may seem difficult ...
www.niaid.nih.gov/factsheets/dustfree.htm - 11k

Keywords from the above result:
animals [Bedroom\(4\)](#) + [cats\(2\)](#) + [Create\(2\)](#) + develop difficult [dogs\(2\)](#) + [Fact\(2\)](#) + [Free\(4\)](#) + [mites\(30\)](#) + NIAID [seem\(2\)](#) + [Sheet\(2\)](#) + [steps\(5\)](#) +

dust allergy + [Bedroom](#)

Bedroom (4) in the top 100 results

[How to Create a Dust-Free Bedroom, NIAID Fact Sheet](#)
If you are **allergic to dust mites**, you could also be **allergic** or develop an **allergy** to cats, dogs, or other animals. Although these steps may seem difficult ... - [Make this active](#)
www.niaid.nih.gov/factsheets/dustfree.htm - 11k

[TheAllergyClinic.com - Allergy Information -](#)
If you are **allergic to dust mite**, you need to pay special attention to the **bedroom** which most people spend 1/3 of their lives in. ... - [Make this active](#)
www.theallergyclinic.com/library/da.html - 16k

Fetch Interface

10

FETCH

Fetch

Search 1

Results 1 - 10 (of about 1270)

[Web Information - Clancy](#)
<http://www.ltrweb.org/gloss.cfm> - 26k

[Finnish Museums On the Semantic Web](#)
[http://www.2003.semanticweb.org/track/2003.semanticweb.14...20k](http://www.2003.semanticweb.org/track/2003.semanticweb.14...)

1 We argue that semantic web technologies offer a promising **ontology** facilitating homogeneous, semantic information retrieval based on heterogeneous databases on the web. To take a step towards this goal, the Finnish Museums on the Semantic Web FMS system **2** collects data from a virtual semantic web space. The creation of **ontology** semantic links between topics of interest is based on 1. the collection domain ontologies classes and their relations and 2 on actual collection data instance data. Ontological search engine for Finnish search engine **3** is being developed for generating rd lists in the same fashion as search engines on the WWW. However, our engine will understand and make use of the semantic relationships between keywords.

[DigiWiki Links to XML, Interoperability, semantic web](#)
<http://www.digilib.adfhost.de/links.php?n=10> - 20k

[SPRIT - Spatially-Aware Information Retrieval on the Internet](#)
http://www.cit.uci.edu/~barnes/B_JonesSPRITSummary.pdf - 20k

[Semantic Web - Web Applications 2003](#)
http://p40db.cc.wisc.edu/~w303semweb/paper_w303.html - 20k

[Semantic Web: semantic standards for information management](#)
[http://www.fao.org/ag/infoc/w303/semweb_ACS05/abstracts...20k](http://www.fao.org/ag/infoc/w303/semweb_ACS05/abstracts...)

P R E V N E X T

Query Editor

reselect differe Additional Terms

web internet Information

info information Information

web web page Search 8

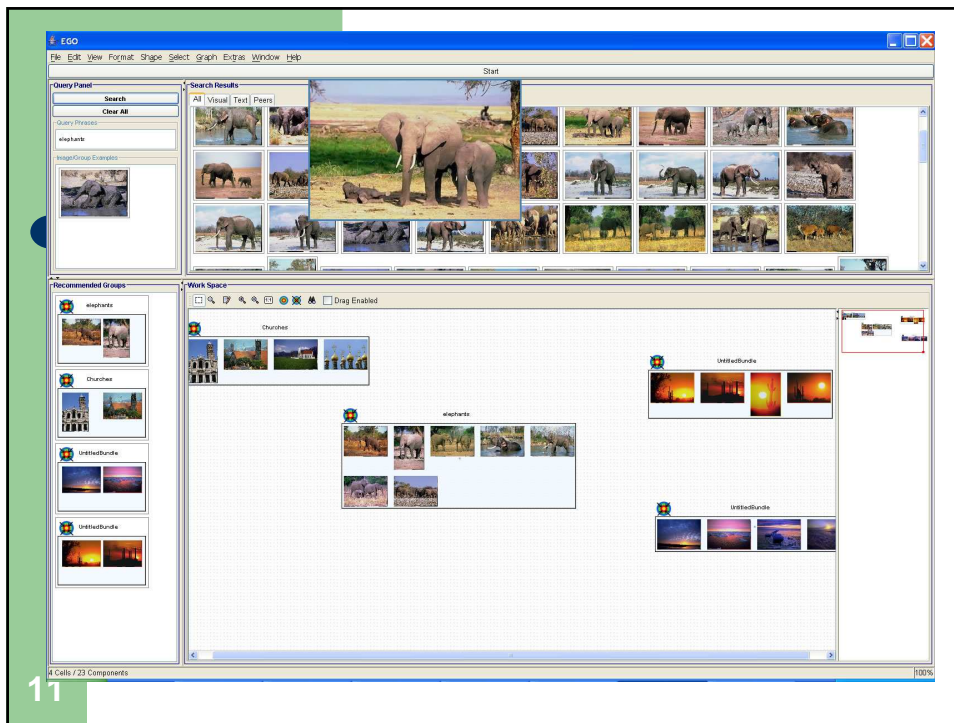
4

5

6

7

8



11

Personal Information Agent

Welcome to your PIA homepage, **Ioannis Psarras**

information retrieval	xbox hardware
<p>Access percentage : 67% edit delete</p> <p>Information Retrieval Conferences Information Retrieval Conferences: Calls for Participation Calendar List Calls for Papers Calendar List Past Events [2005 2004 2003 ... http://www.is.informatik.uni-duisburg.de/igir/conferences/] unbookmark delete</p> <p>Text REtrieval Conference (TREC) TREC-7 Proceedings The Seventh Text REtrieval Conference (TREC 7) ... For additional information on these utilities, please reference the [help] file. ... http://rec.nist.gov/pubs/trec7/t7_proceedings.html bookmark delete</p> <p>Text REtrieval Conference (TREC) Home Page An annual information retrieval conference and competition, the purpose of which is to support and further research within the information retrieval ... http://trec.nist.gov/ unbookmark delete</p> <p>ACM SIGIR Special Interest Group on Information Retrieval Home Page TREC: Experiment and Evaluation in Information Retrieval. EM Voorhees and DK Harman (Eds). ... Upcoming Conferences held in Cooperation with SIGIR ... http://www.sigir.org/ bookmark delete</p>	<p>Access percentage : 33% edit delete</p> <p>AnandTech: Microsoft's Xbox 360, Sony's PS3 - A Hardware Discussion Microsoft's Xbox 360, Sony's PS3 - A Hardware Discussion ... Leaving us with two contenders: Microsoft's Xbox 360, due out by the end of this year, ... http://www.anandtech.com/video/showdoc.aspx?i=2453 unbookmark delete</p> <p>The Xbox 360 System Specifications - Xbox 512 MB GDDR3 RAM, 700 Mhz DDR, Unified memory architecture ... Fusing powerful hardware, software, and services, Xbox 360 fully engages you in a gaming ... http://hardware.teamxbox.com/articles/xbox1144/The-Xbox-360-System-Specifications1 unbookmark delete</p>

12

Summary

- User modelling component
 - User profiles and their facets
- Adaptation model
 - Long-term information needs
- Other
 - Semantic gap reduction in image retrieval
 - User interest specification and monitoring their evolving needs
- Evaluation
 - User-centric evaluation
 - Laboratory based
 - Simulated tasks
- Results
 - All systems found to be better than the corresponding baselines
 - So?
 - What about the components of the system?
 - Are they optimal?

13

Issues

- How to evaluate them
 - Laboratory based & user-centred
 - Simulated work-task
- Adaptive Models
 - Simulated evaluation
 - Standard collections
 - User-interaction data for search simulation
 - On the interaction data provided
- General
 - No strong methodologies
 - Measures
 - Ad-hoc and weak!

14

Future Information Retrieval Systems

- Situation sensitive (or smart information access)
 - Information is accessed and delivered to the situation



15

Challenges

- Evaluation Infrastructure
 - Test collections and methodology
 - Methodology for building quick and cheap test collections?
- Interaction based test set?
 - Yes! *The way forward is to create large test-beds with a number of interaction based test-sets*
- Integrated retrieval models
 - Ad-hoc search mechanisms versus integrated retrieval models
 - Techniques to infer user intentions based on context

16