

Automatic identification of user interest

SIGML Seminar 3

An example

The screenshot shows a Google search for the word "iris". The browser window title is "Iris - Google Search". The search bar contains the word "iris" and the search button is labeled "Search". The search results are displayed below the search bar, showing a list of results for "iris" with a total of 51,700,000 results found in 0.09 seconds. The results include:

- .I.R.I.S. - OCR software and Document Management solutions**
IRIS develops OCR solutions for PC and Mac OS that convert paper information into editable documents: Readiris, the IRISPen, Cardiris and the Business Card ...
www.irislink.com/ - [Cached](#) - [Similar](#)
- IRIS Software**
IRIS is the largest private software provider in the UK, providing business and accounting solutions to 60000 UK customers.
www.iris.co.uk/ - [Cached](#) - [Similar](#)
- IRIS - Incorporated Research Institutions for Seismology**
IRIS is a university research consortium dedicated to exploring the Earth's interior through the collection and distribution of seismographic data.
www.iris.edu/ - [Cached](#) - [Similar](#)
- IRIS Seismic Monitor**
Recent earthquakes or seismic events, are displayed on an interactive earthquake map server GMT educational WILBER seismicity observation map of earthquakes ...
www.iris.edu/seismon/ - [Cached](#) - [Similar](#)

There is also a "Sponsored Links" section on the right side of the results, containing:

- IRIS Document Management**
Powerful document management, storage and archiving solutions.
www.irislink.com
- Radiostyrning bommar**
Industriell radiostyrning
Industrial remote control
www.radiosmd.se

Below the search results, there is a section for "See results for: [iris lyrics](#)". This section includes:

- GOO GOO DOLLS - IRIS LYRICS**
Goo Goo Dolls **iris lyrics** in the Dizzy Up The Girl Album. These **iris lyrics** are performed by Goo Goo Dolls And I'd give up forever to touch you 'Cause.
www.metrolyrics.com/iris-lyrics-goo-goo-dolls.html
- Goo Goo Dolls - Iris Lyrics**
May 27, 2008 ... Verse 1 · And I'd give up forever to touch you · Cause I know that you feel me somehow · You're the closest to heaven that I'll ever be ...
www.lyrics007.com/Goo%20Goo%20Dolls%20Lyrics/Iris%20Lyrics.html

The bottom of the screenshot shows the Windows taskbar with the Start button, several open applications (iris - Google Search, Unread - Opera, Microsoft PowerPoint), and the system tray with the time 2:41 PM.

Another one

iris biometrics - Google Search x

http://www.google.com/search?hl=en&q=iris+biometrics&aq=f&oq=&aq=g1g-m3

Web Images Videos Maps News Shopping Gmail more

Search settings | Sign in

Google iris biometrics Search Advanced Search

Web Show options... Results 1 - 10 of about 2,860,000 for **iris biometrics**. (0.25 seconds)


Iris Recognition Software Sponsored Link
www.fulcrumbiometrics.com US distributor of **iris** recognition software and **biometric** products.

Iris biometrics
iris recognition **biometric** system. ... **Iris biometrics**. Principles of **iris biometrics**. The **iris** is the elastic, pigmented, connective tissue that controls ...
www.biometricnewsportal.com/iris_biometrics.asp - [Cached](#) - [Similar](#)

Individual Biometrics - Iris Scan
The International **Biometrics** Group pages on **Iris Scan** · The Webpage of John Daugman, Cambridge University · E-Court Conference 2002.
ctl.ncsc.dni.us/biomet%20web/BMIris.html - [Cached](#) - [Similar](#)

Iris recognition - Wikipedia, the free encyclopedia
Zhaofeng He, Tieniu Tan, Zhenan Sun and Xianchao Qiu, "Towards Accurate and Fast **Iris** Segmentation for **Iris Biometrics**", In: IEEE Transactions on Pattern ...
en.wikipedia.org/wiki/Iris_recognition - [Cached](#) - [Similar](#)

Image results for **iris biometrics** - [Report images](#)



Biometrics and other Security Systems Products available at...
Panasonic **Biometrics** relies on the complex and intricate patterns in the **iris** of the eye, which are unique to each individual. With a specialized Panasonic ...
www.panasonic.com/business/security/.../biometrics.asp - [Cached](#) - [Similar](#)

Iris Biometrics Pioneer AOptix Technologies Recognized With Frost ...
14 Oct 2008 ... **Iris Biometrics** Pioneer AOptix Technologies Recognized With Frost & Sullivan Best Practices Award for Technology Innovation from Business ...

start iris biometrics - Googl... Unread - Opera Microsoft PowerPoint ... 2:43 PM

Issues with data collection

- Explicit feedback
 - Annoying because of extra effort
 - Users don't have any idea themselves
 - Is it better?
- Implicit feedback
 - Watching over users shoulder
 - Browsing history, Query history, Web communities
 - Desktop files, emails, proxy server logs

Implicit feedback –Pros & Cons

- Unobtrusive
- Shifting in interests
- Privacy issues esp. for server side personalization
- Software installation

Some background

- Page Rank
 - Scoring & Link structure intuition
 - $u \text{-----} \rightarrow v$
 - Random surfer model view
 - Slight modification

Some background

- Topic Sensitive Page Rank **TSPR**
 - Multiple scores instead of just one
 - Based on importance of page w.r.t. topic
 - Random surfer model view biased by topic
 - Performance improvement if search engine estimates the topic well

User Preference Representation

- **An example** Soccer enthusiast's preference for cricket pages
- Topic Preference Vector **T**
- Page preference Vector **P**

User Model

- Topic Driven Random Surfer Model
 - Example [Arts 0.8 Sports 0.2]
 - Visit Probability Vector \mathbf{V}
 - Influence of search results
- Topic Driven Searcher Model
 - Result by Cho et al

Learning Topic Preference Vector

$$\mathbf{V} = \sum_{i=1}^m T(i) \cdot \mathbf{TSPR}_i^{9/4}$$

Learning Topic Preference Vector

- Linear Regression
- Maximum-likelihood Estimator

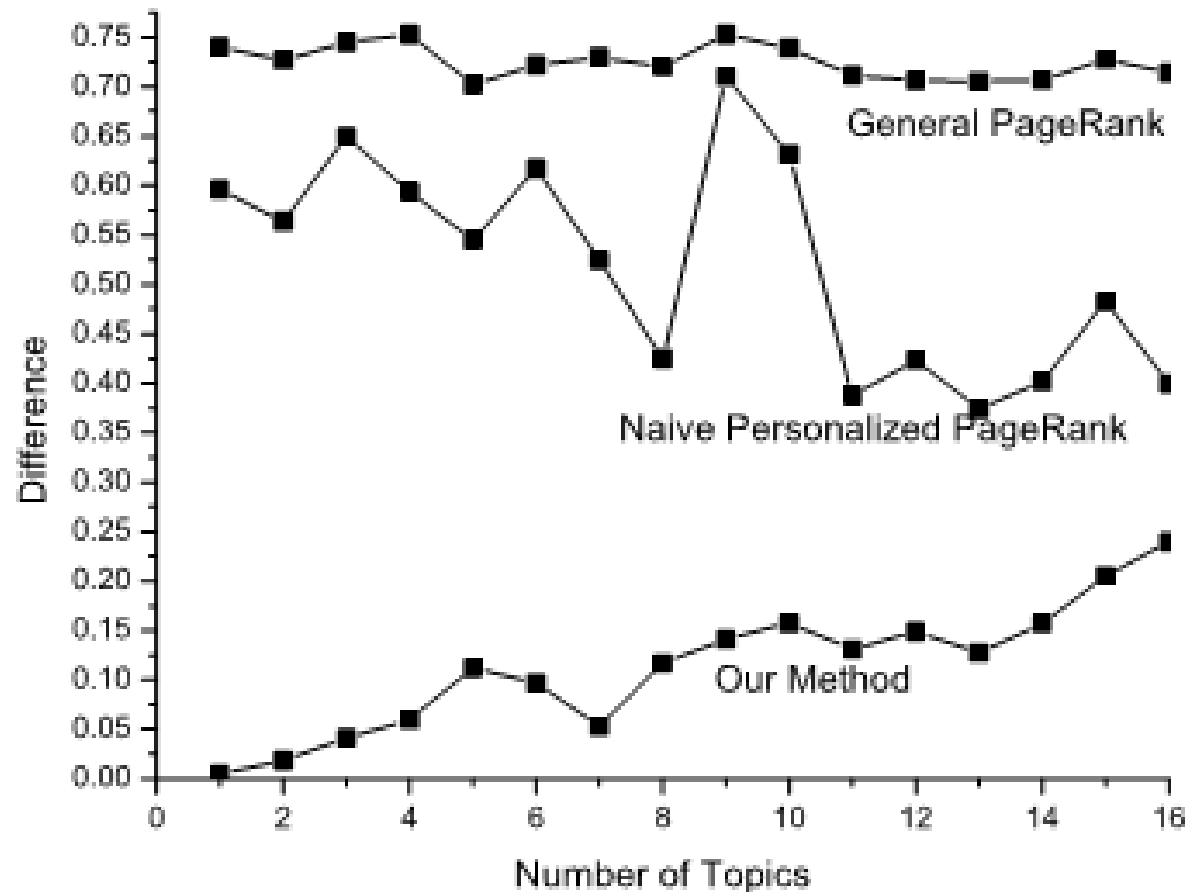
Personalized Page Rank

- Estimate $\Pr(T(i) | q)$
- $PPR = \sum \Pr(T(i) | q) \cdot TSPR_i(p)$

Evaluation Metrics

- Accuracy of Topic Preference Vector
 - Relative Error
- Accuracy of Personalized Ranking
 - Kendall τ distance

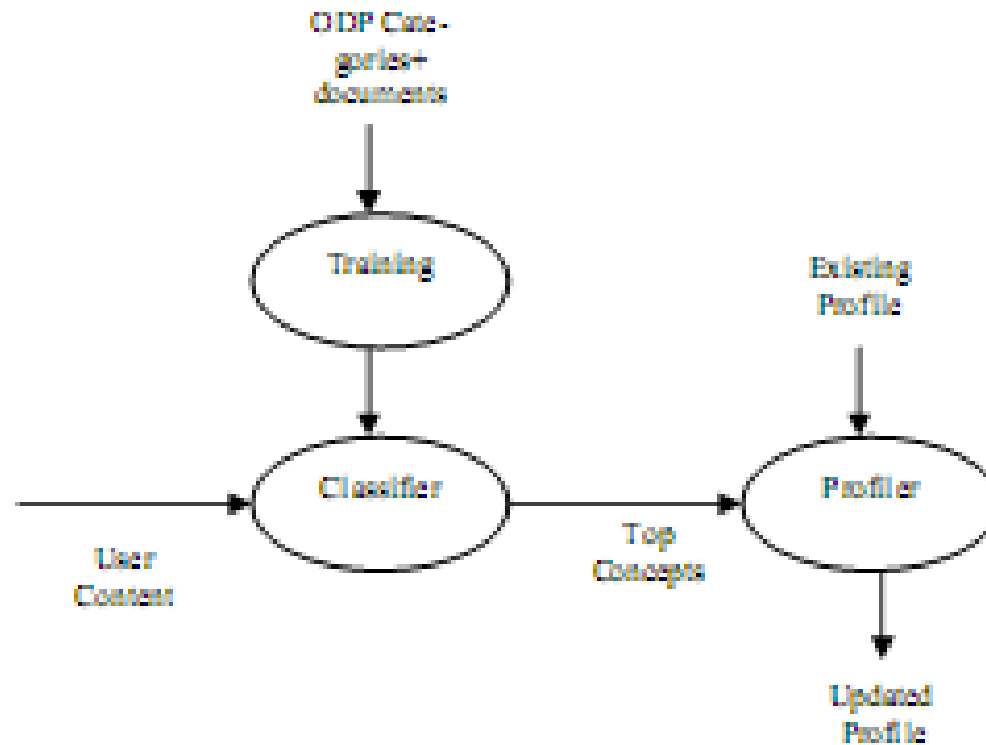
Comparison with PR & TSPR



Other Approaches

- Weighted Keywords
- Weighted Concepts

Weighted Concepts



Thank You