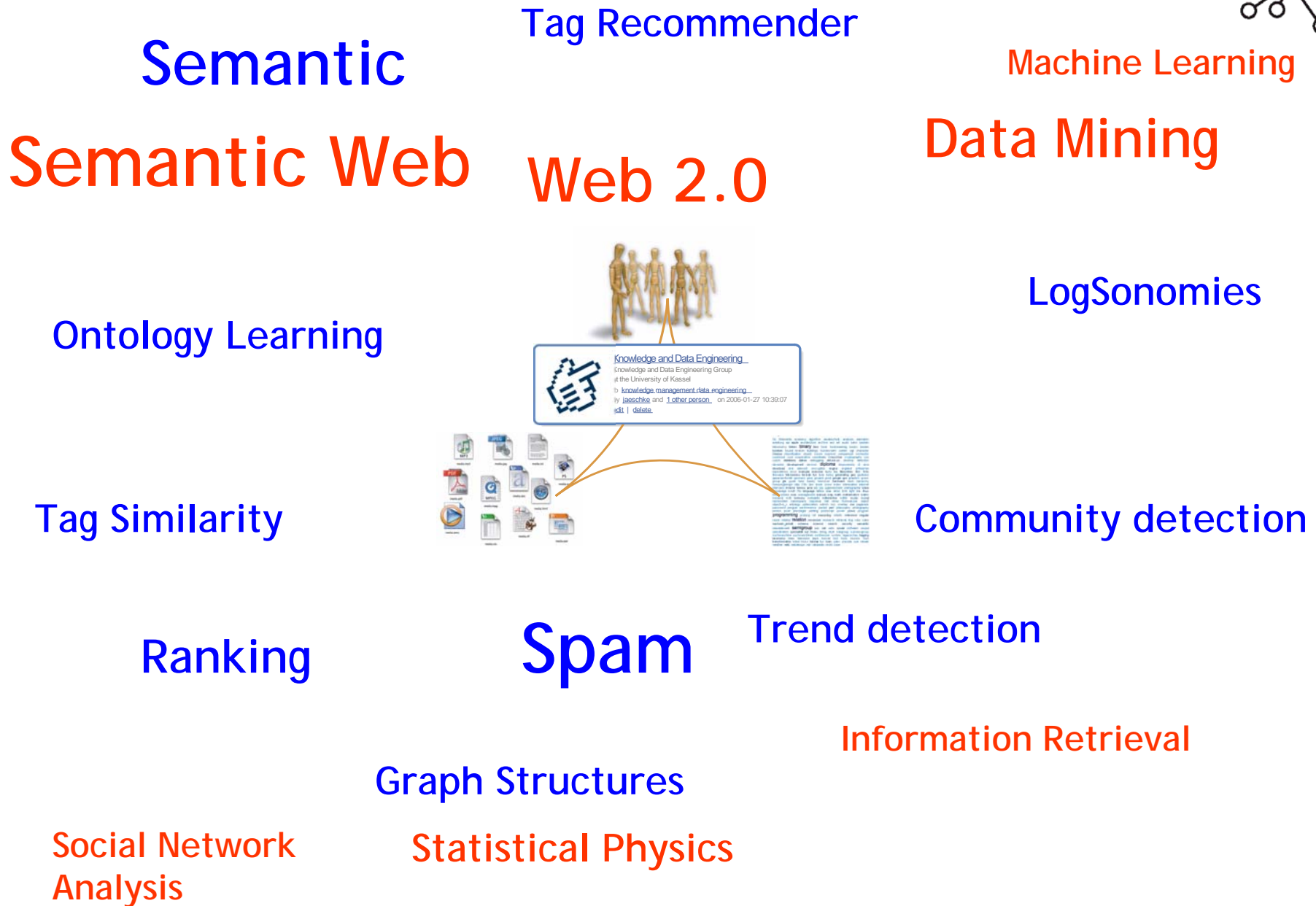


Tag Recommendations in Theory and Practice

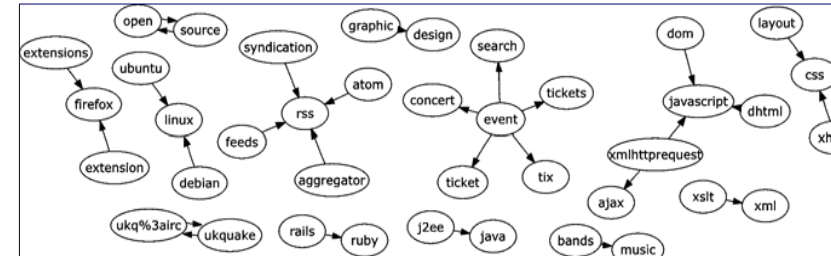
Andreas Hotho, University of Kassel



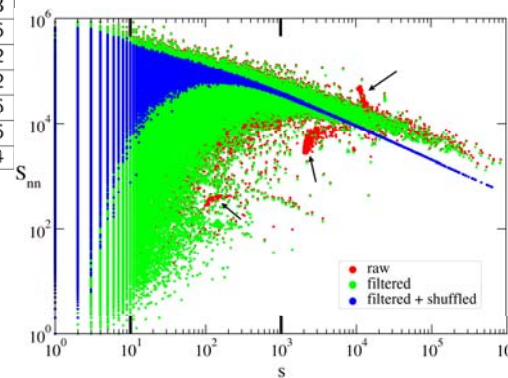
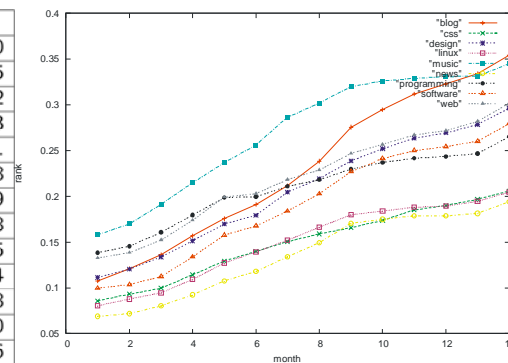
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994





BibSonomy::edit bookmark - Opera

File Edit View Bookmarks Feeds Tools Help

Open Save Print Find Home Panels Tile Cascade Voice

Bib ... p... p... G... @ h... s... N... kde N... km ... s... ... CUL P... iQ B... p... p... g... Bi...

New page Transfers BibSonomy::edit boo...

http://www.bibsonomy.org/ShowBookmarkEntry?url=http%3a%2f%2fmaya.cs.depaul.edu Google search 100%

BibSonomy :: edit bookmark

A blue social bookmark and publication sharing system.

tags · groups · popular myBibSonomy · post bookmark · post bibtex

logged in as hotho · help · faq · blog
14 picked to download · friends · settings · logout

Feel free to edit your bookmark

url*

title*

description, comment

tags* space separated

suggested

viewable for

Posting a new bookmark/publication:

- Tags can be chosen arbitrarily
- No predefined catchword catalogues.
- Information Extraction supports easy posting of publications.

tags
list | cloud

**** 1999 2.0 2000 2001 2002 2003 2004

2005 2006 aaaa abstract academics access acm acquisition adaptive address admin agent aggregation agrovoc ai aifb ajax akkd aktuell alexa algorithm alignment alphaworks amazon amd analyse analysis analyze analyzer anmeldung annotation answer answering ant antispam antwort api applet application approach arbeiten arbeitszeit arbeitszeiten arbitrary architecture article artificial arzt association atom attach attack atto attribute aufnehmen Auktionen auskunft author authoring authoritative auto automated automatic award back background bahn bank base based bases basteln batch bayes Bayesian becker befehle berry beschaffung beschreibung best bewegung bewertung bib bibliographic bibliography Bibliothek bibliothek bibsonomy bibtex biclustering billig binding bio Bioinformatics biocious biological biology bisec blink blog blogspot bluetooth book bookmark bookmarking bookmarks boosted boosting browsing buch builder building bus business c** cache calc calculator calendar calender camera career castle catalog categorization cd cem center cfp challenges channel characterization cikm cinema citation citations citeseer citeulike class classification clef click clickthrough climbing clone cloud cluster clustering clustern co coclustering code coffee cognitive collaborative color combination command

BibSonomy::user::hotho - Opera

File Edit View Bookmarks Feeds Tools Help

Open Save Print Find Home Panels Tile Cascade Voice

Bib ... p... p... G... @h... s... N... kde N... ...

New page Transfers BibSonomy::user::hot...

http://www.bibsonomy.org/user/hotho

RSS Google search 100%

BibSonomy :: user :: hotho ::

A blue social bookmark and publication sharing system.

tags · groups · popular
myBibSonomy · post bookmark · post bibtex

logged in as hotho · help · faq · blog
14 picked to download · friends · settings · logout

bookmarks (604)

previous | 1 2 3 | next

Bamshad Mobasher - Publications
to recommender attack security on 2006-05-04 11:16:09

Main Page - LIO-Wiki
to aifb wiki as kde on 2006-05-04 07:57:21

Cheatsheet - Meta
to mediawiki wiki markup on 2006-05-04 07:51:48

The 2006 IEEE / WIC / ACM International Conference on Data Mining (ICDM 2006)
Electronic submission of full papers: July 5, 2006
to 2006 data conference mining on 2006-05-03 17:17:25

SimPack
to java ontology library similarity and 1 other person on 2006-05-03 14:31:50

alexadex.com | bibsonomy.org
to alexa trade bibsonomy on 2006-05-03 11:45:43

publications (338)

previous | 1 2 3 | next

Evaluating Collaborative Filtering Recommender Systems
J.L. Herlocker and J.A. Konstan and L.G. Terveen and J.T. Riedl.
ACM Transactions on Information Systems (2004)
to recommender evaluation and 2 other people on 2006-05-04 11:44:14

Using Encyclopedic Knowledge for Named Entity Disambiguation
Razvan Bunescu and Marius Pasca. *Proceedings of the 11th Conference of the European Chapter of the Association for Computational Linguistics (EACL-06), Trento, Italy* (2006)
to SVM named disambiguation folksonomy entity kernel wikipedia and 3 other people on 2006-04-30 13:07:43

Folksonomies: power to the people
Emanuele Quintarelli. (2005)
to folksonomy and 4 other people on 2006-04-27 15:06:35

Learning Object Identification Rules for Information Integration

Filter:

tags
list | cloud

**** 1999 2.0 2000 2001 2002 2003 2004

2005 2006 aaaa abstract academics access
acm acquisition adaptive address admin agent
aggregation agrovoc ai aifb ajax akkd aktuell
alexa algorithm alignment alphaworks amazon
amd analyse analysis analyze analyzer
anmeldung annotation answer answering ant
antispam antwort api applet application approach
arbeiten arbeitszeit arbeitszeiten arbitrary
architecture article artificial arzt association atom
attach attack atto attribute aufnehmen Auktionen
auskunft author authoring authoritative auto
automated automatic award back background
bahn bank base based bases basteln batch
bayes Bayesian becker befehle berry
beschaffung beschreibung best bewegung
bewertung bib bibliographic bibliography
Bibliothek bibliothek bibsonomy bibtex
biclustering billig binding bio Bioinformatics
biolicious biological biology bisec blink blog
blogspot bluetooth book bookmark
bookmarking bookmarks boosted boosting
browsing buch builder building bus business c**
cache calc calculator calendar calender camera
career castle catalog categorization cd cem
center cfp challenges channel characterization
cikm cinema citation citations citepeer citeulike
class classification clef click clickthrough
climbing class cloud clats clustering

A user page

- entries are ordered by date
- tag cloud is ordered alphabetically
- size of tag indicates its frequency

Folksonomies

- Folksonomies allow **users** to assign **tags** to **resources**.

BibSonomy

tags :: popular
myBibSonomy :: post bookmark :: post bibtex

bookmarks

previous | next

my_backup.cmd
to mysql backup differential as public by schmitz on 2006-01-25 09:25:03.0 [edit](#) [delete](#)

Parameter für über 200 Kartenbezugssysteme
to transformation datum gps geo map coordinate as public by jaeschke on 2006-01-25 08:00:46.0 [copy](#)

BibTeX

previous | next

Providing \$k\$-Anc Mining
Arik Friedman and Assaf Sc to imported as public by ran. 09:23:07.0 [pick](#) [copy](#) BibTeX

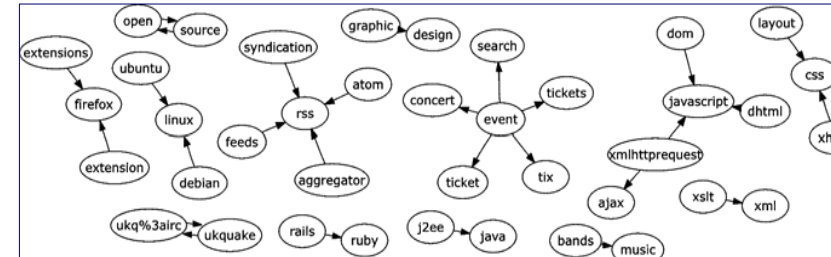
Local L2-Threshold Mining in Peer-to-
R. Wolff and K. Bhaduri and

- A *folksonomy* is a tuple $\mathbf{F} := (U, T, R, Y, \prec)$ where
 - U , T , and R are finite sets, whose elements are called *users*, *tags* and *resources*,
 - $Y \subseteq U \times T \times R$, called set of *tag assignments*,
 - $\prec \subseteq U \times T \times T$ is a user-specific sub-tag/super-tag relation.
- The *personomy* \mathbf{P}_u of user u is the restriction of \mathbf{F} to u .

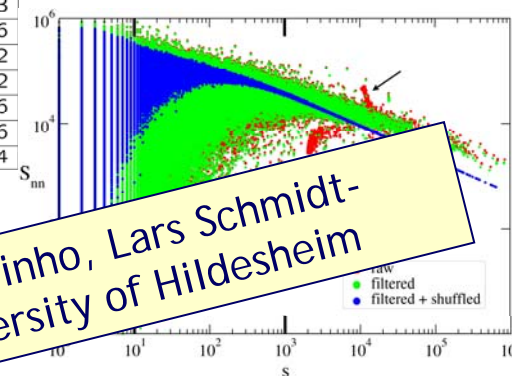
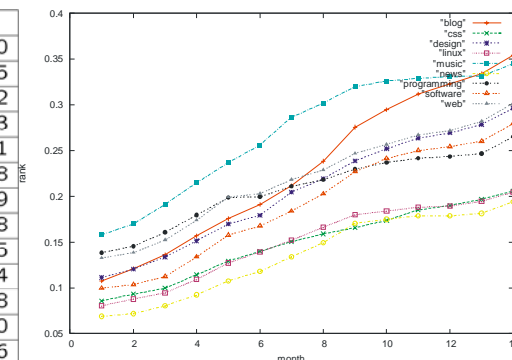
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



with Leandro Marinho, Lars Schmidt-Thieme, University of Hildesheim

Personalized Tag Recommendation



BibSonomy::edit bookmark - Opera

File Edit View Bookmarks Widgets Tools Help

Bi... po... po... KDE fav ad... todo kill... Po... Bi... pB... pP... Bi... pP... pB... ad po... Cu... Mi... Üb...

New tab BibSonomy::edit bookmark

3A%2F%2Fdict.leo.org%2F&description=LEO%20Deutsch-Englisches%20W%C3%B6rterbuch&extended= Google search

BibSonomy :: edit bookmark all <fulltext search here> search

A blue social bookmark and publication sharing system.

tags · groups · relations · popular
myBibSonomy · post bookmark · post bibtex · myRelations

logged in as hotho · help · blog · about
7 picked in basket · edit tags · friends · settings · logout

Feel free to edit your bookmark

url* http://dict.leo.org/
title* LEO Deutsch-Englisches Wörterbuch
description, comment
tags* deutsch dictionary english german wörterbuch

recommendation: tools search web german dictionary english reference language

suggested

viewable for public save

tags
list | cloud

**** ***** 16 1999 2.0 2000 2001 2002
2003 2004 2005 2006 2007 3.0 30d
3mode 400d 501 academic access acm
acquisition activation adaptive adaware addon
address admin adtree agent aggregation
aggregator agrovoc ai aifb aircrack ajax akkd
aktuell alexa algebra algorithm alignment
alphaworks amazon analysis analytics
analyze analyzer ankündigung anmeldung
annotation annotations answer answering ant
anti antispam antwort aol apache api applet
application arbeiten architecture archive arm
article artificial arxiv arzt ask association attach
attack atto attribute audio aufladen aufnehmen
Auktionen auskunft ausschreibung author
authoritative auto automated automatic
Automation automatisierung avi avm award
awic back background backup bahh bank base
beach beach beach bet betah beach beausien

space separated

Personalized Tag Recommendation



BibSonomy::url - Opera

File Edit View Bookmarks Widgets Tools Help

New tab BibSonomy::url

omy.org/url/19fc52037a85d618a2a1c1d23ab673e4 Google search

BibSonomy :: url ::

A blue social bookmark and publication sharing system.

[tags](#) • [groups](#) • [relations](#) • [popular](#) **logged in as** [hotho](#) • [help](#) • [blog](#) • [about](#)
[myBibSonomy](#) • [post bookmark](#) • [post bibtex](#) • [myRelations](#) **7 picked in** [basket](#) • [edit tags](#) • [friends](#) • [settings](#) • [logout](#)

bookmarks (24) [RSS](#) [XML](#)

[previous](#) | 1 | [next](#) [edit](#)

LEO Deutsch-Englisches Wörterbuch
to Sprache deutsch dictionary englisch
english german language reference
translation by timo on 2007-03-12 23:50:16
[copy](#)

LEO Deutsch-Englisches Wörterbuch
to dictionary tools translation by cschenk on
2007-01-29 18:11:20 [copy](#)

LEO Deutsch-Englisches Wörterbuch
to Wörterbuch by schrang on 2007-01-12
19:47:53 [copy](#)

tag cloud

deutsch Deutsch-Englisch
dictionary Dictionary
englisch english english-
german fremdsprache german
lang:de leo LEO reference
Sprache tools translate
translation Wörterbuch
wörterbuch Übersetzung



Collaborative Filtering

- m users and n objects
- user profiles are represented in a user-object matrix $\mathbf{X} \in \mathbf{R}^{m \times n}$

$$\mathbf{X} := [\vec{x}_1, \dots, \vec{x}_m]^\top \text{ with}$$

$$\vec{x}_u := [x_{u,1}, \dots, x_{u,n}], \text{ for}$$

$$u := 1, \dots, m$$

- reduction to two 2-dim projections $\pi_{UR}Y$ or $\pi_{UT}Y$
- the k -neighborhood N_u^k of a user u is one of the projections
- set of n recommended tags for a given user u and a resource r

$$\tilde{T}(u, r) := \arg \max_{t \in T} \sum_{v \in N_u^k} \text{sim}(\vec{x}_u, \vec{x}_v) \delta(v, t, r)$$



■ Datasets

dataset	$ U $	$ T $	$ R $	$ Y $	$ P $	date	k_{\max}
del.icio.us	75,245	456,697	3,158,435	17,780,260	7,698,653	2005-07-30	77
Last.fm	3,746	10,848	5,197	299,520	100,101	2006-07-01	20
BibSonomy	1,037	28,648	86,563	341,183	96,972	2007-04-30	7

- Pruning the graph based on the post degree (compute the p -core at level k , cf. Batagelj and Zaversnik 2002)

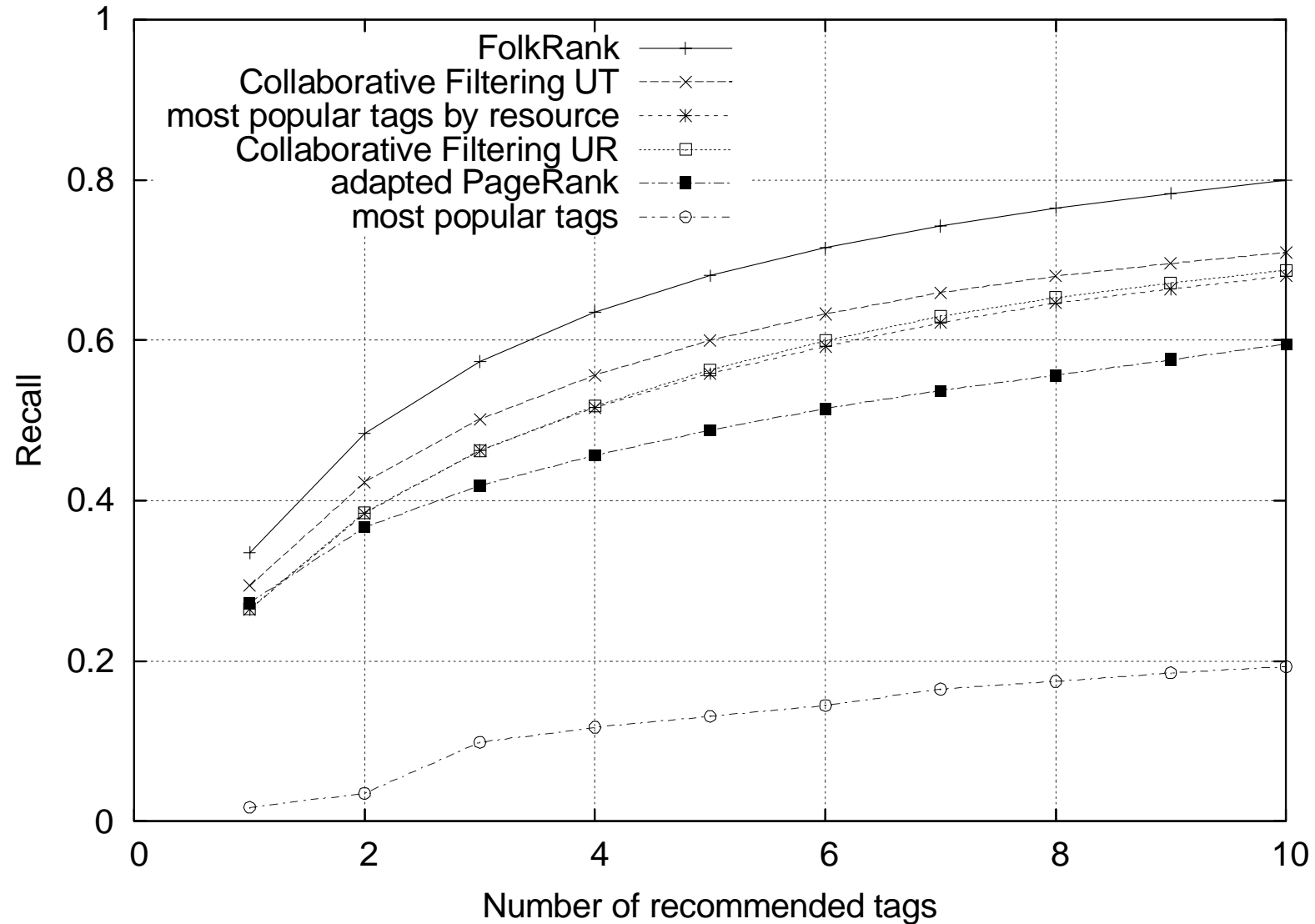
Characteristics of the p -cores at level k .

dataset	k	$ U $	$ T $	$ R $	$ Y $	$ P $
del.icio.us	10	37,399	22,170	74,874	7,487,319	3,055,436
Last.fm	10	2,917	2,045	1,853	219,702	75,565
BibSonomy	5	116	412	361	10,148	2,522

Personalized Tag Recommendation



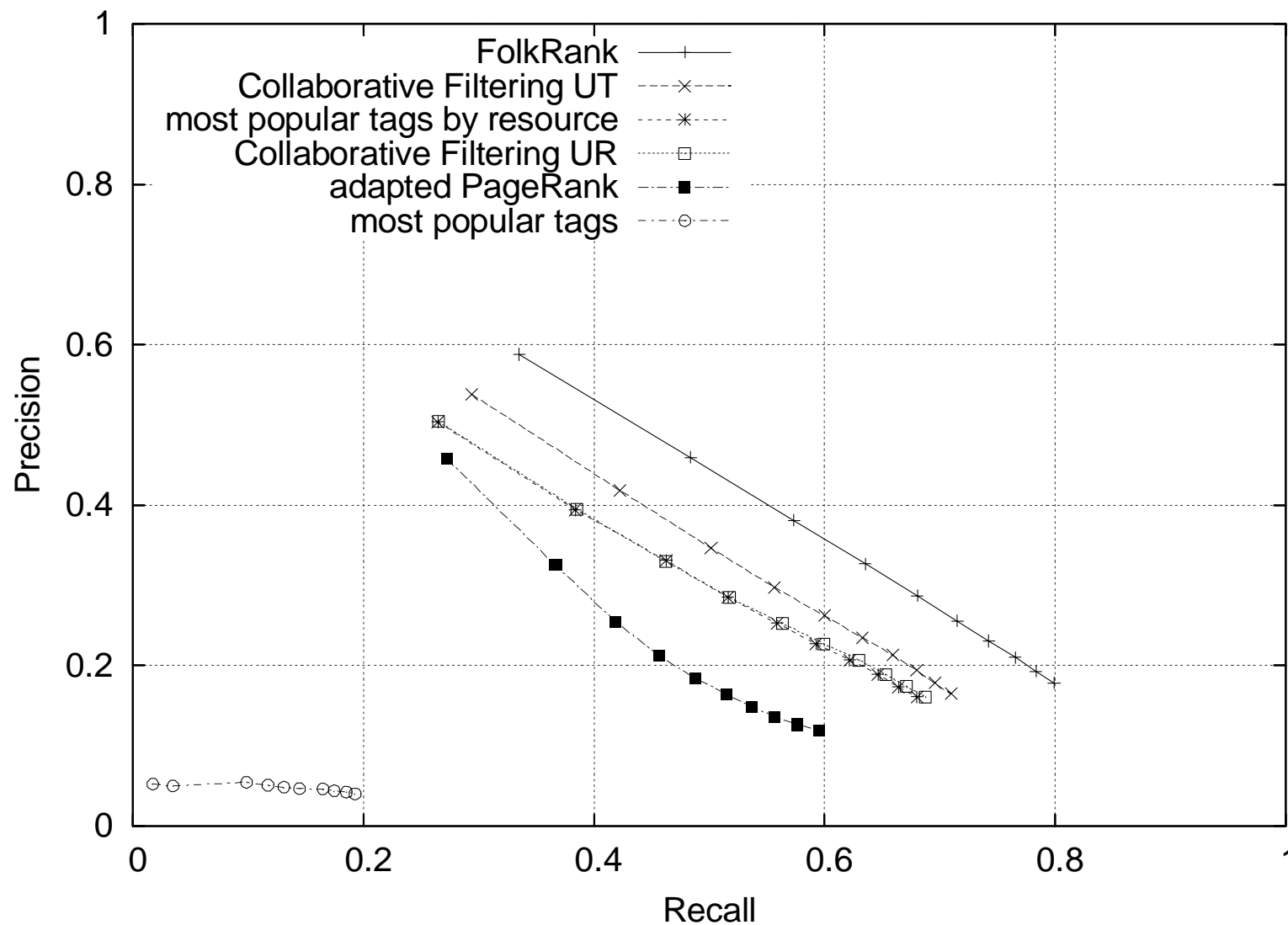
- Results delicious: Recall p-post-core at level 10



Personalized Tag Recommendation



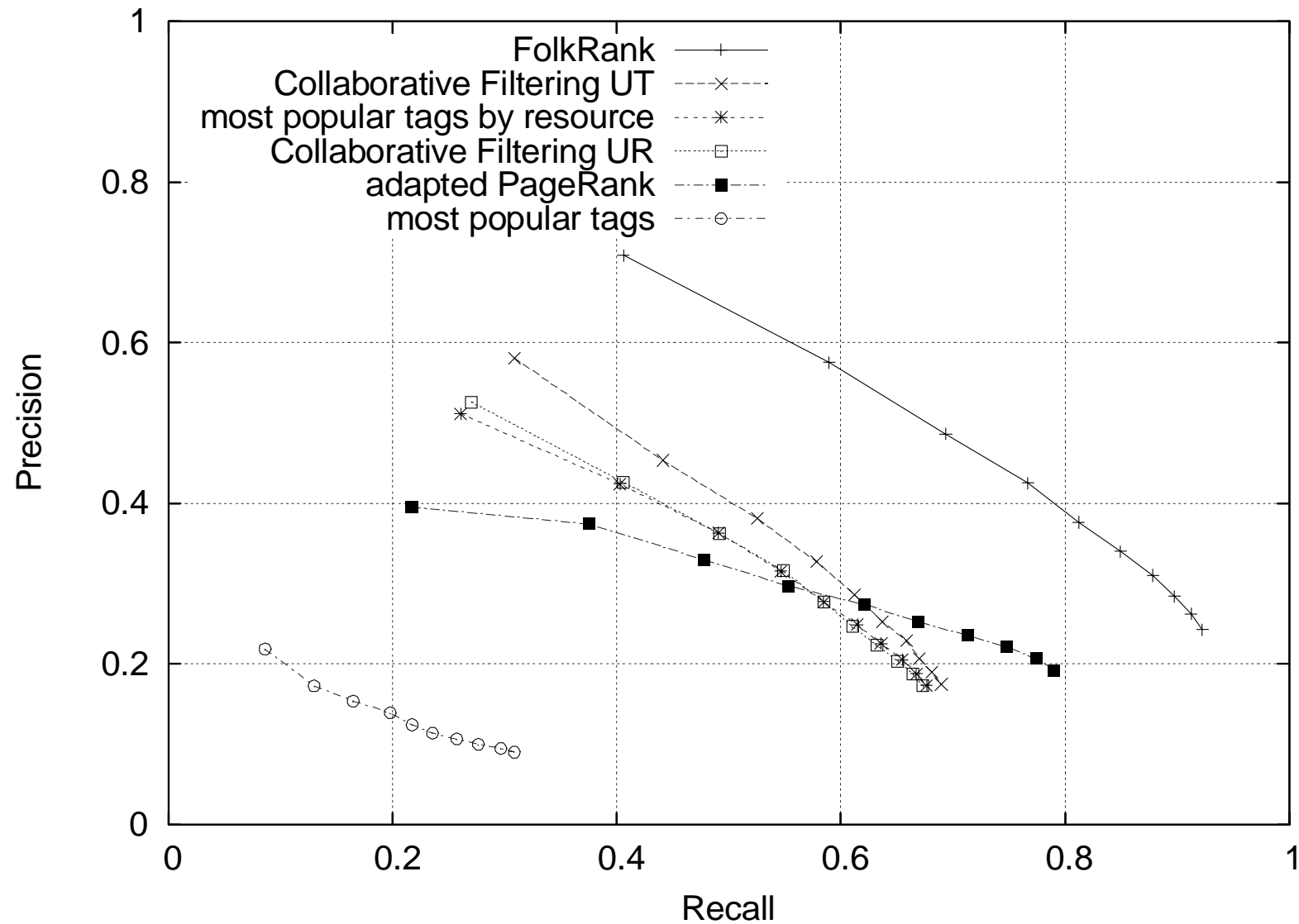
- Results delicious: 10-post core precision/recall plot



Personalized Tag Recommendation



Results LastFM



Personalized Tag Recommendation



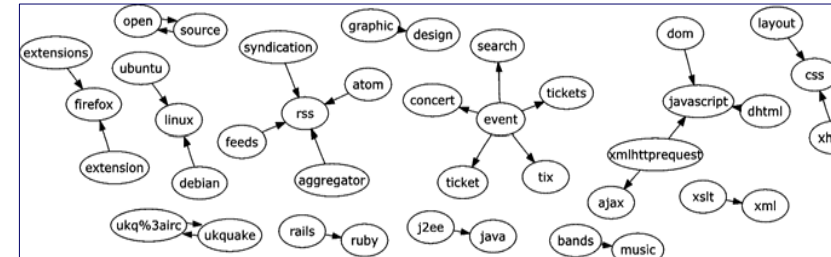
■ Results Bibsonomy: Precision for p -core at level 5

Number of recommended tags	1	2	3	4	5	6	7	8	9	10
FolkRank	0.724	0.586	0.474	0.412	0.364	0.319	0.289	0.263	0.243	0.225
Collaborative Filtering UT	0.569	0.483	0.411	0.343	0.311	0.276	0.265	0.257	0.243	0.235
most popular tags by resource	0.534	0.440	0.382	0.350	0.311	0.288	0.267	0.250	0.241	0.234
Collaborative Filtering UR	0.509	0.478	0.408	0.341	0.311	0.285	0.267	0.252	0.241	0.234

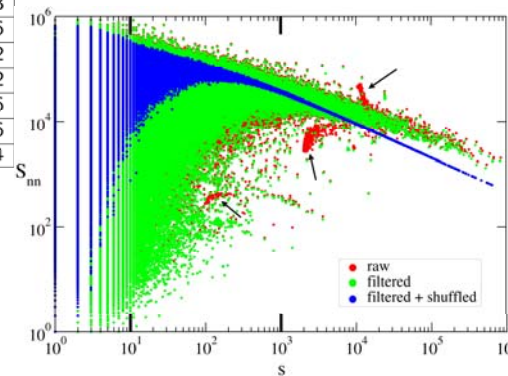
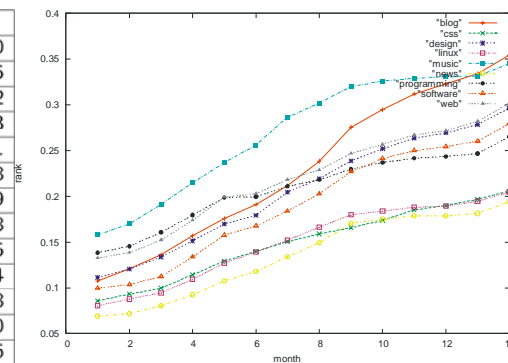
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook

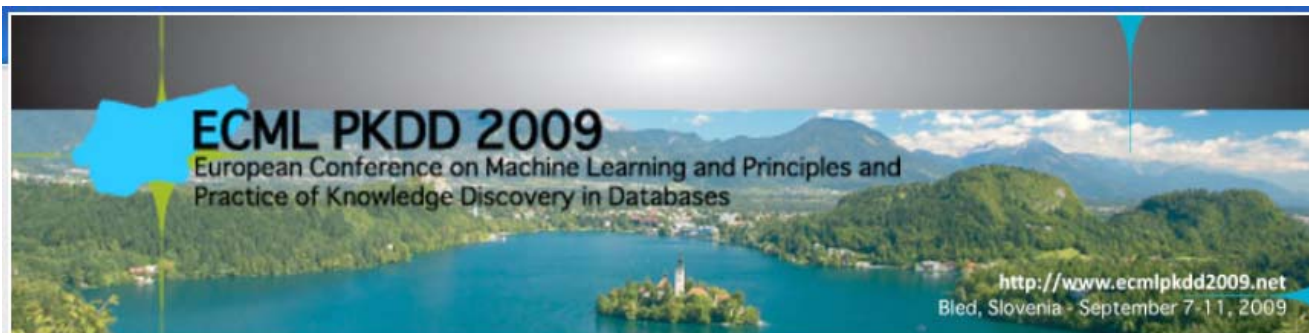


Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



Discovery Challenge @ ECML PKDD 2008

- Website: <http://www.kde.cs.uni-kassel.de/ws/rsdc08/>
- Dataset:
 - Social bookmarking data from BibSonomy
<http://www.bibsonomy.org>
 - Training data released on May 5th, 2008 – complete snapshot
 - Test data released on July 30th, 2008 – 1.5 months snapshots
 - 48h time to compute results on test data
- Submissions:
 - 150 registered mailing list users (= access to training data)
 - 18 result submissions (13 spam detection
+ 5 tag recommendation)
 - 13 paper submissions – 11 accepted



Discovery Challenge

Home

- ▶ Latest News
- ▶ Introduction
- ▶ Tasks
- ▶ Key Dates
- ▶ Organization
- ▶ Submission
- ▶ Results
- ▶ Program

Dataset

- ▶ Files
- ▶ Description
- ▶ FAQ

Evaluation



Main Conference

Home

ECML PKDD Discovery Challenge 2009

Welcome to this year's ECML PKDD Discovery Challenge. At [last year's challenge](#) for the first time a dataset from the Web 2.0 was used. Researchers from all over the world tried to solve the two tasks *spam detection* and *tag recommendation*. As lot of researchers missed the first challenge but continuously work on similar tasks, we were asked for a second round of the challenge to give them a chance to apply their latest research results this year. As last year's spam detection task was very well addressed, we decided to focus on a setup with three different tag recommendation tasks.

Latest News

Evaluation details

📅 Apr 22th 2009

Today we released [details on the evaluation](#) for the offline tasks. We describe the test data file formats, the result data file formats, the evaluation measures and provide sample data and the evaluation program.

If you have any questions regarding the evaluation, don't hesitate to [contact us](#), or discuss it on the [mailing list](#).

Updated datasets

📅 Apr 8th 2009

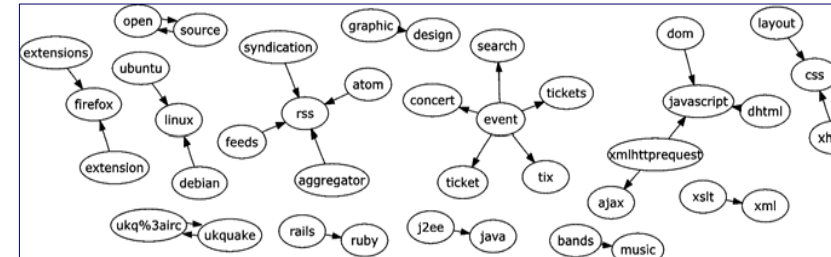
We have found an error in our cleansing procedure to generate the dumps for the challenge. As described [here](#), we first clean the tags and then remove empty tags or tags which match one of the tags *imported*, *public*, *systemimported*, *nn*, *customimported*. Unfortunately, we accidentally checked against the tags *imported*.



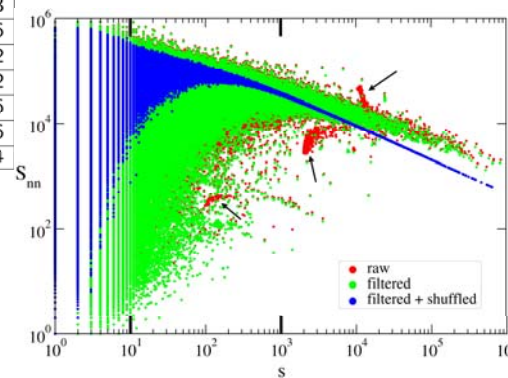
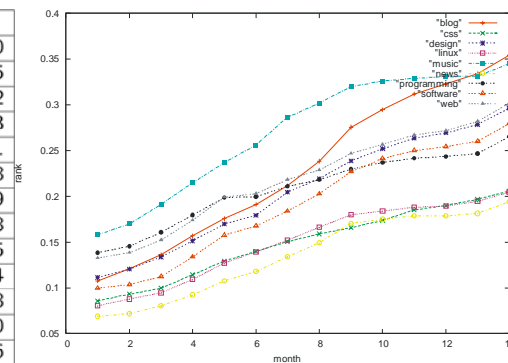
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



Clicklogging in BibSonomy

- Logging of every clicked anchor element
- Can be disabled by users (privacy)
- Logging of:
 - Clicked link (attributes like href, title, id, class)
 - DOM path with ids and classes
 - Mouseposition at clickevent
 - Anchorposition in a list of links

Clicklogging in BibSonomy

Client – Browser

- Use of Javascript
- Analyse every click
- Collect data
- Send data asynchronous to server without user notification

Server – Tomcat

- Use of Java
- Retrieves data
- Get additional data from http-request
- Compute additional values from data
- Store to database

Clicklogging in BibSonomy

The screenshot displays the BibSonomy web application. On the left, a DOM tree overlay shows the structure of the page, with elements like `div #main`, `div #sidebar`, and `ul #tagbox` highlighted. The main content area features a search bar, navigation tabs (post bookmark, post publication, tags, authors, relations, groups, popular), and a list of publications. The first publication is titled "Final Report from the Institute of Healthcare Leadership Proof of Concept Consortium" by DoH June 2008. The second is "EDiL : Project Description" (2006). On the right, a "filter:" section shows a "busy tags" cloud with terms like "blog", "google", "community", "folksonomy", "2009", "design", "facebook", "germany", "analysis", "api", "architecture", "berlin", "bibliothekswesen", "blogs", "china", "collaboration", "comics", and "communication". The "design" tag is highlighted with a red box and a tooltip indicating "5 posts".

Clicklogging in BibSonomy

- Can be used to measure user acceptance of various features
 - Recommended tags
 - Flag users as spammers
- Can answer questions like
 - Was anchor visible without scrolling page?
 - Do users search and then click an ext. Link?

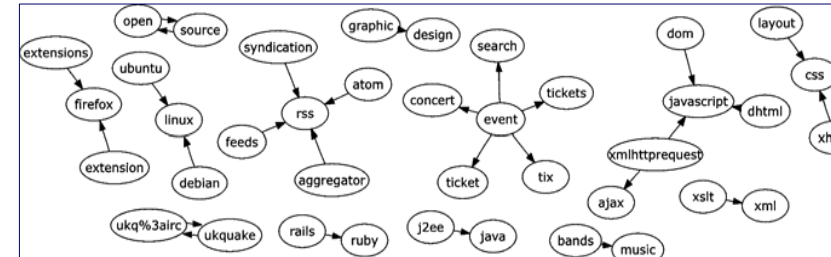
Clicklogging in BibSonomy

- ½ million records in 7 months
- app. 800 MB
- 70,000 records per month
- 2,456 records per day
- 53,000 external / 446,000 internal links
 - 28,400 clicks on tagbox links
 - 75,300 on bookmarks / 64,900 on publ.

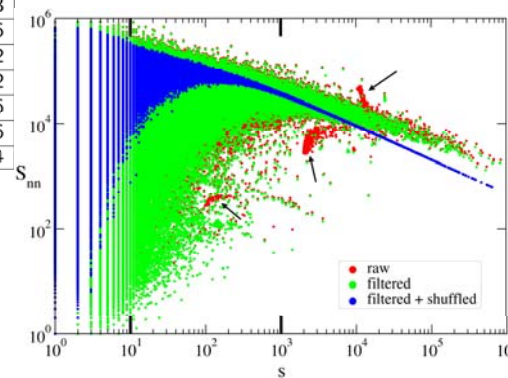
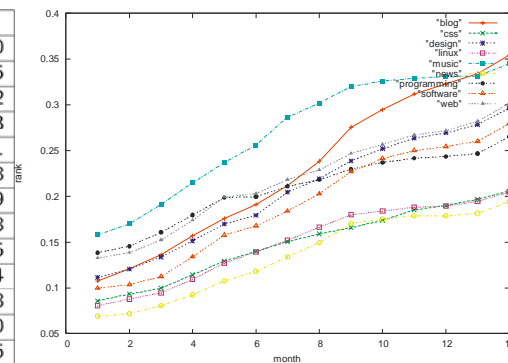
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



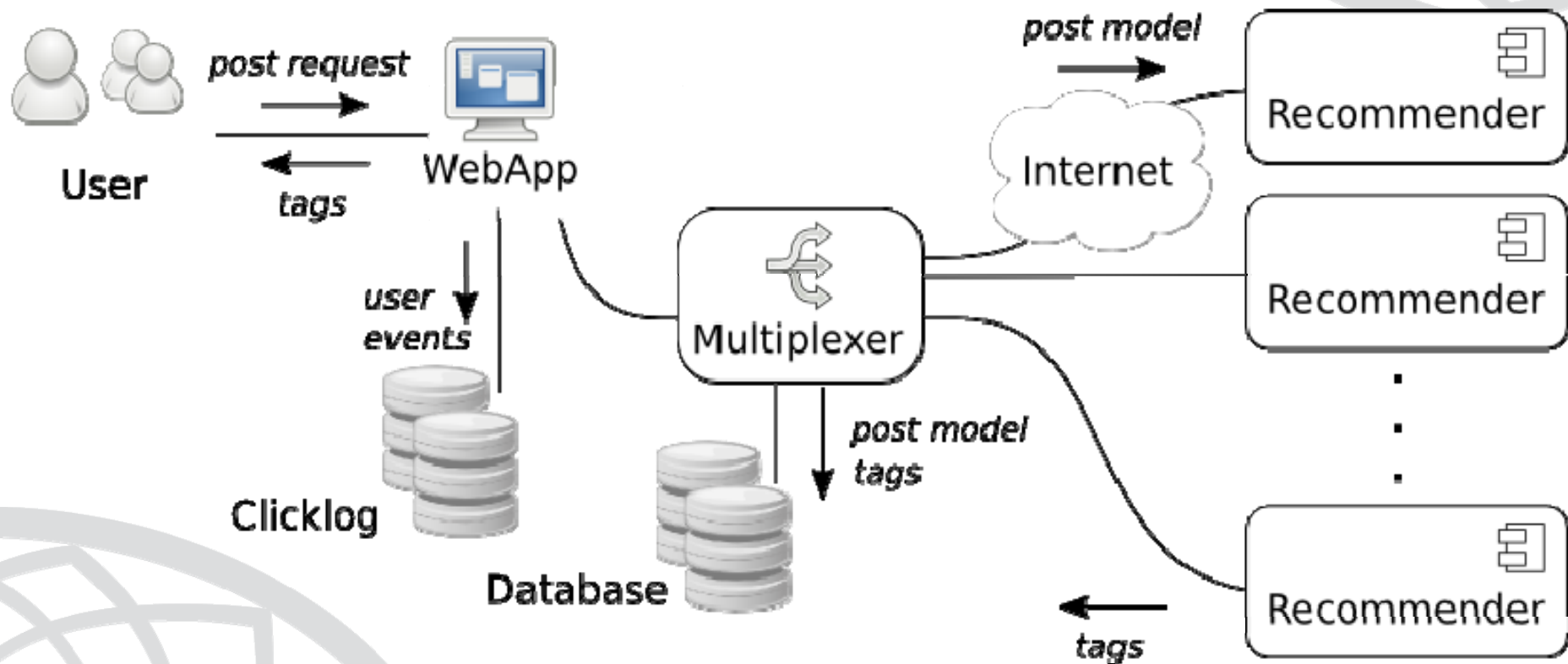
Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



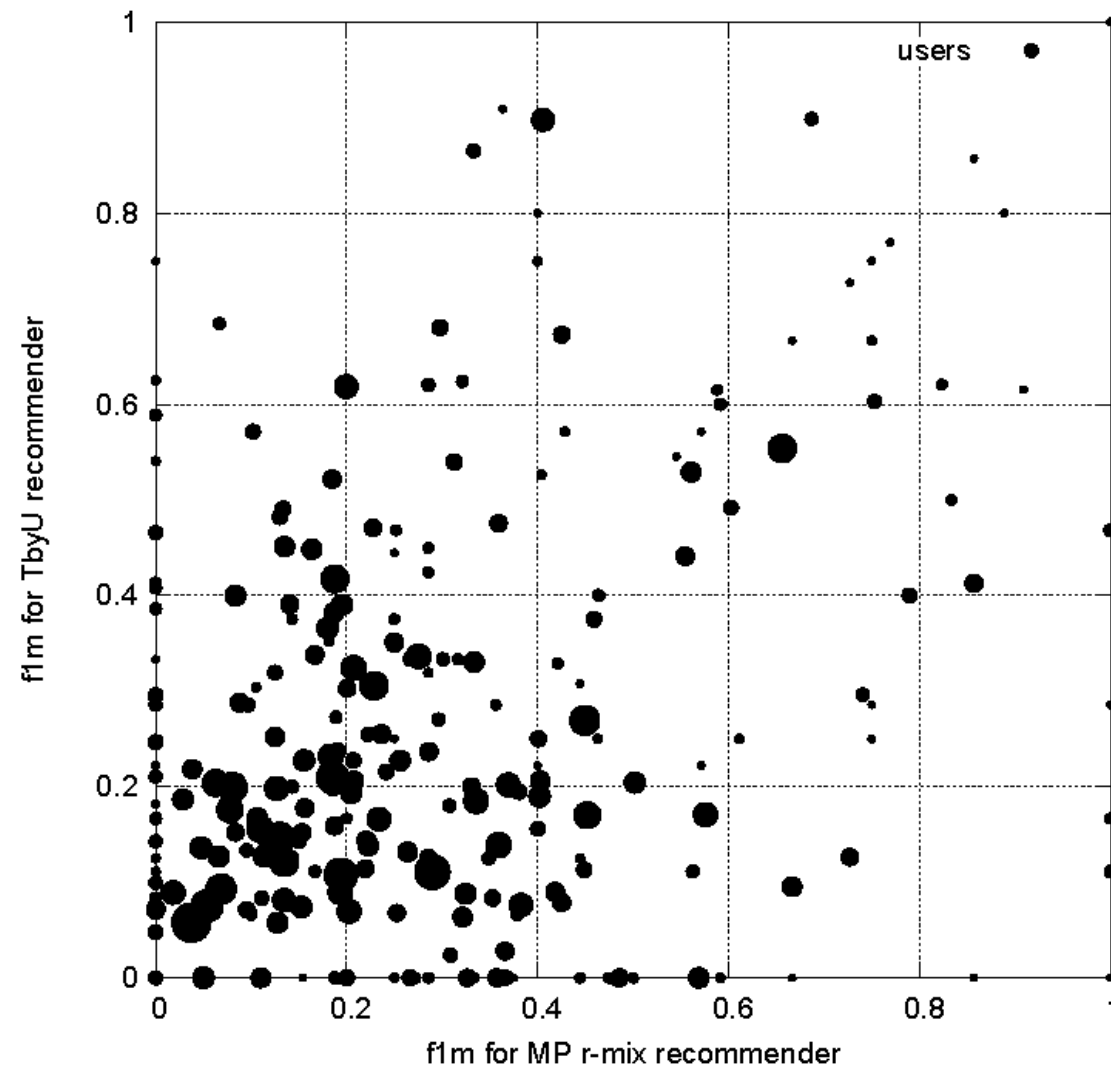
Online Recommender Evaluation

- flexible framework for including several recommendations in the online system
- ECML PKDD Challenge 2009

Online Recommender Evaluation



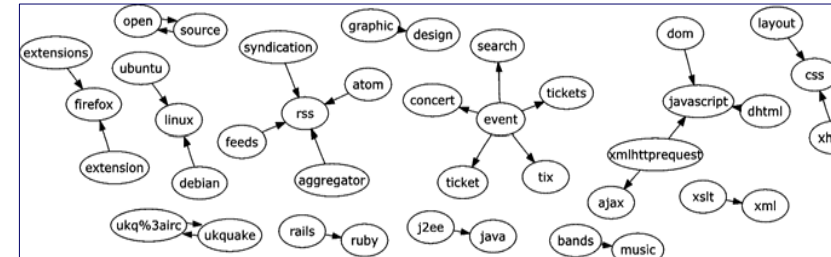
Online Recommender Evaluation



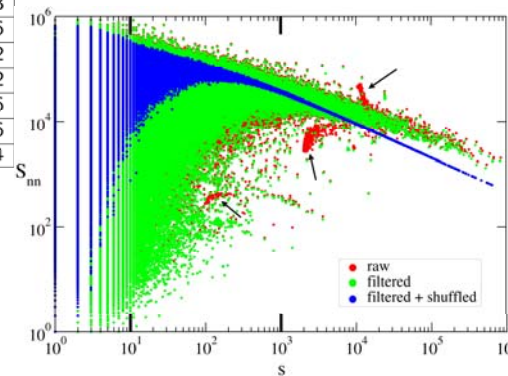
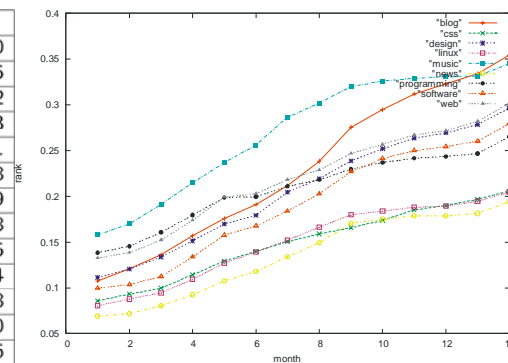
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



Community and Personalized Ranking

logged in as [dbenz](#) · [settings](#) · [logout](#) · [help](#) · [blog](#) · [about](#) ·  

2 picked in basket · [edit tags](#)

BibSonomy :: ▼ user :: dbenz ::

A blue social bookmark and publication sharing system.

Home **▼ myBibSonomy** [bookmark](#) [post publication](#) [tags](#) [authors](#) [relations](#) [▼ groups](#) [popular](#)

bookmarks (366)

[RSS](#) [XML](#)

<< < 1 | 2 | 3 > >>

[edit](#)

Cleancode.org >> Projects >> email

Email is a program for the Unix environment that sends messages. You may think that this has already been done, and it has, but not with the quality and en...

to [commandline email tool](#) by [dbenz](#) on May 29, 2009, 4:50 PM

[edit](#) | [delete](#) | [spam](#)

Autojar

Autojar dient dazu, jar-Archive minimaler Größe aus unterschiedlichen Quellen (eigenen Klassen, Verzeichnissen, Archiven) zu erzeugen.

Ausgehend von einer o...

to [autojar extract files jar minimal size](#) by [dbenz](#) on May 29, 2009, 1:18 PM

[edit](#) | [delete](#) | [spam](#)

Axel Jung» Blogarchiv » Javascript und CSS komprimieren mit Jawr

Jawr ist ein Java Servlet zum komprimieren der Javascript und CSS Dateien auf dem Webserver. Dieses Komprimieren geschieht serverseitig und der Entwickler...

to [css javascript komprimieren](#) by [dbenz](#) and 1 other person on May 28, 2009, 10:18 PM

[edit](#) | [delete](#) | [spam](#)

Aigaion - A web-based bibliography management software

Both for individual researchers as for research groups or projects, it is of

publications (166)

[RSS](#) [BibTeX](#) [RDF](#) [more](#)

<< < 1 | 2 > >>

[edit](#) | [pick](#) | [unpick](#)

Current Practices in Measuring Ontological Concept Similarity

Duy Ngan Le and A.E.S. Goh *page266-269. Oct.2007.*

to [concept ontology similarity toread](#) by [dbenz](#) on Apr 26, 2009, 2:23 PM

[pick](#) | [edit](#) | [delete](#) | [BibTeX](#) | [spam](#)

Graphs from Search Engine Queries

Ricardo Baeza-Yates *SOFSEM 2007: Theory and Practice of Computer Science(2007)*

to [baeza_yates graphs query_log_mining sofsem2007](#) by [dbenz](#) and 7

[other people](#) on Apr 24, 2009, 10:33 AM

[pick](#) | [edit](#) | [delete](#) | [URL](#) | [BibTeX](#) | [spam](#)

Clustering the tagged web

Daniel Ramage and Paul Heymann and Christopher D. Manning and Hector Garcia-Molina *WSDM '09: Proceedings of the Second ACM International Conference on Web Search and Data Mining, page54-63. New York, NY, USA, ACM, (2009)*

to [clustering tagging toread wsdm2009](#) by [dbenz](#) and 2 other people on Apr 24, 2009, 10:19 AM

[pick](#) | [edit](#) | [delete](#) | [URL](#) | [BibTeX](#) | [spam](#)

Visual language modeling for image classification

Lei Wu and Mingjing Li and Zhiwei Li and Wei-Ying Ma and Nenghai Yu *MIR '07: Proceedings of the international workshop on Workshop on*

filter:

[relations](#) **more**

(show all | hide all)

↓ [diploma_thesis](#) ← [closely_related](#)
evaluation_methods
folksonomy_background_widely_related
↓ [folksonomy](#) ← [flickr_tags](#)
↓ [newRelation2](#) ← [newRelation1](#)

[similar users](#) **more...**

dbenz_test

hotho

steff83

stumme

bugsbunny

schmitz

decembre

cschenk

lysander07

msn

[tags](#)

(alpha | freq) (cloud | list) (minfreq 1 | 2 | 5)

1.0 1.1 4.1 4.2 0180 2006 2007 2008
2009 2.bundesliga 2008ws A4 a4 a49
abfallkalender abfrage abholung accounts
acl acm adapter addon admin adressbook

Technikgen

on your personal site

list of users with similar interests

Community and Personalized Ranking

site of user steff83, personalized for me

BibSonomy :: user :: steff83 (personalized)

A blue social bookmark and publication sharing system.

Home ▾ myBibSonomy post bookmark post publication tags authors relations ▾ groups popular

personalized ranking of bookmarks & bibtexs

The following bookmark and bibtex posts of user steff83 might be interesting for you:

bookmarks (395)

RSS XML

publications (81)

RSS BibTeX RDF more

<< < 1 | 3 > >>

edit << < 1 | 3 > >>

edit | pick | unpick

Folksonomies: power to the people

to folksonomy folksonomy_background master_thesis tagging by steff83 4.96
and 15 other people on Oct 14, 2008, 5:06 PM
copy | spam

improve: Taxonomien und Folksonomien - Tagging als neues HCI-Element, i-com 1/2007 4.96

Community-Portale bieten immer häufiger kollaborative Tagging-Systeme zur zusätzlichen Auszeichnung ihrer Informationen an. Damit etabliert sich gerade ein...
to folksonomy folksonomy_background master_thesis tagging taxonomien by steff83 and 1 other person on Oct 13, 2008, 12:24 AM
copy | spam

Folksonomy :: vanderwal.net 4.96

This page is a static permanent web document. It has been written to provide a place to cite the coinage of folksonomy. This is response the request from m...
to folksonomy folksonomy_background master_thesis tagging by steff83 and 4 other people on Oct 12, 2008, 10:34 PM
copy | spam

Mensa Wilhelmshöher Allee 4.97

to kassel mensa speiseplan uni unik by steff83 and 7 other people on Aug 22, 2007, 1:47 PM
copy | spam

Collaborative Tagging as a Knowledge Organisation and Resource Discovery Tool 5.65

George Macgregor and Emma McCulloch *Library Review*(2006)
to collaborative_tagging folksonomy folksonomy_background master_thesis ontology by steff83 and 18 other people on Sep 20, 2008, 8:29 PM
pick | copy | URL | BibTeX | spam

Harvesting social knowledge from folksonomies. 5.39

Harris Wu and Mohammad Zubair and Kurt Maly *Hypertext, page111-114. ACM, (2006)*
to closely_related folksonomy knowledge master_thesis social topics by steff83 and 28 other people on Sep 16, 2008, 1:51 PM
pick | copy | URL | BibTeX | spam

tagging, communities, vocabulary, evolution 5.32

Shilad Sen and Shyong K. Lam and Al Mamunur Rashid and Dan Cosley and Dan Frankowski and Jeremy Osterhouse and F. Maxwell Harper and John Riedl *CSCW '06: Proceedings of the 2006 20th anniversary conference on Computer supported cooperative work, page181-190. New York, NY, USA, ACM, (2006)*
to communities community evolution folksonomies folksonomy folksonomy_background master_thesis tagging vocabulary by steff83 and 24 other people on Sep 16, 2008, 12:59 PM
pick | copy | URL | BibTeX | spam

steff83's interesting tags for me

logged in as dbenz · settings · logout · help · blog · about ·  

2 picked in basket · edit tags

filter:

☒ Interesting Tags of user steff83 for you:

(alpha | freq) (cloud | list)

addon ajax algorithmus analysis
annotation apache api bands
bibliography bibliothek
bibtex bibsonomy bibsonomy
bookmark bookmarking browser buch
calendar centrality citeulike
classification client
closely_related
clustering collaboration collaborative
collaborative_tagging computer
concept conference converter css cvs
database dataset datenbank
del.icio.us delicious design
development documentation draw dvd
eclipse editor email evaluation
evaluation_methods
evaluation_strategies excel extension
fachgebiet file firefox flickr flux
folkcrank folksonomies
folksonomy
folksonomy_back
format forum free fun game gforge
google graph graphics guitar help
history hochschulsport howto html
image improve_tags install internet

Community and Personalized Ranking

BibLicious :: user :: stumme (personalized) - Mozilla Firefox

http://www.biblicious.org/personalized/user/stumme?userSimilarityRef=FOLKCRANK_3

logged in as: aho · settings · logout · help · blog · about · 2 picked in basket · edit tags

BibLicious :: user :: stumme (personalized)

A blue social bookmark and publication sharing system.

Home ▾ myBibLicious post bookmark post publication tags authors relations ▾ groups popular purpose tags

The following bookmark and bibtex posts of user stumme might be interesting for you:

bookmarks (212)

RSS XML

<< < 1 | 3 > >> edit

NEPOMUK - The Social Semantic Desktop ☆
to fp6 nepomuk semantic european sna Social web web2.0 social Semantic project eu ontologies3.00
Desktop networks ip network ec desktop by stumme and 4 other people on Sep 20, 2006, 10:33 AM
copy | spam

PR 2.0: Introducing The Conversation Prism ☆
to 2.0 categories classification conversation prism web web2.0 by stumme on Oct 2, 2008, 12:04 PM
copy | spam

Ikoru ☆
to bookmarking folksonomy ikoru social tagging tagora by stumme on Jul 23, 2007, 3:02 PM
copy | spam

3rd European Semantic Web Conference 2006 ☆
The 3rd Annual European Semantic Web Conference will be held in Budva, Montenegro from the 11th - 14th June, 2006. It will present the latest results in re...
to web 2006 eswc european conference semantic by stumme on Jun 13, 2006, 11:23 AM
copy | spam

ICWSM || International Conference on Weblogs and Social Media, 2008 ☆
to conference log logs media social web web2.0 www by stumme and 3 other people on Dec 5, 2007, 11:02 AM
copy | spam

ebpractice.eu ☆

publications (967)

RSS BibTeX RDF more

<< < 1 | 3 > >> edit | pick | unpick

Analysis of the Publication Sharing Behaviour in BibSonomy ☆
Robert Jäschke and Andreas Hotho and Christoph Schmitz and Gerd Stumme *Proceedings of the 15th International Conference on Conceptual Structures (ICCS 2007), volume 4604 of Lecture Notes in Artificial Intelligence, page 283-295. Berlin, Heidelberg, Springer-Verlag, July 2007.*
to 2007 BibSonomy bibsonomy bookmarking fca folksonomy iccs 13s myown publication sharing social trias by stumme and 14 other people on Oct 31, 2007, 2:01 PM
pick | copy | BibTeX | spam

Semantic Analysis of Tag Similarity Measures in Collaborative Tagging Systems ☆
Ciro Cattuto and Dominik Benz and Andreas Hotho and Gerd Stumme *Proceedings of the 3rd Workshop on Ontology Learning and Population (OLP3), Patras, Greece, July 2008.*
to 2.0 2008 collaborative folksonomies folksonomy myown semantic systems tagging web web2.0 by stumme and 9 other people on Jun 9, 2008, 2:05 PM
pick | copy | URL | BibTeX | spam

The Anti-Social Tagger - Detecting Spam in Social Bookmarking Systems ☆
Beate Krause and Andreas Hotho and Gerd Stumme *Proc. of the Fourth International Workshop on Adversarial Information Retrieval on the Web, (2008)*
to 2.0 2008 bookmarking folksonomies folksonomy myown social spam systems tagger tagorapub web web2.0 by stumme and 5 other people on Jun 9, 2008, 9:10 PM
pick | copy | URL | BibTeX | spam

Semantic Web Mining ☆
G. Stumme and A. Hotho and B. Berendt (eds.). *Freiburg, September 3rd, 2001.*
to web proceedings ecml 2001 myown pkdd semantic mining kdd workshop by stumme and 4 other people on Sep 20, 2006, 7:19 PM

filter:

Interesting Tags of user stumme for you:

(alpha | freq) (cloud | list)

2.0 2007 bibsonomy
bibtex blog bookmark
bookmarks data ecml eswc
folksonomy knowledge
mining nachrichten news
semantic social software tag
tagging test tools web
web2.0 workshop

stumme's similar users more...

grahl
hotho
iccs
threemode
jaeschke
schmitz
jonducrou
nepomuk
prolearn
pchirita

Personalized Ranking

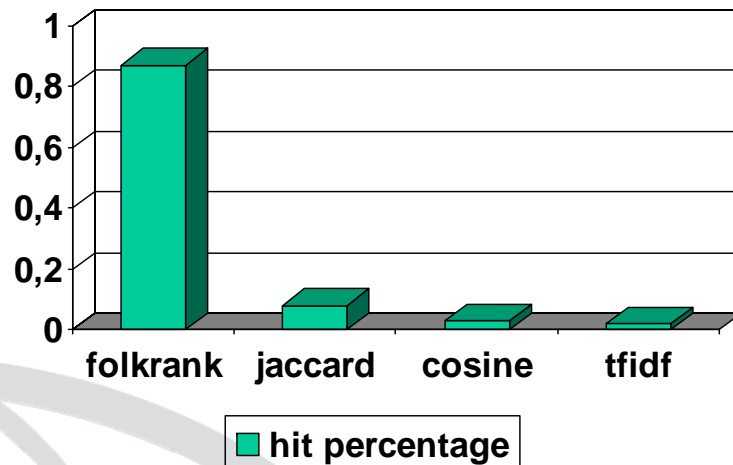
- Ranking of user B's tags / resources personalized for user A
- tf/idf-like scheme for tag t in tag overlap of user A and B:

$$\text{rank}(t) = \text{freq}_A(t) * \log (\text{freq}_{\max} / \text{freq}_{\text{global}}(t))$$

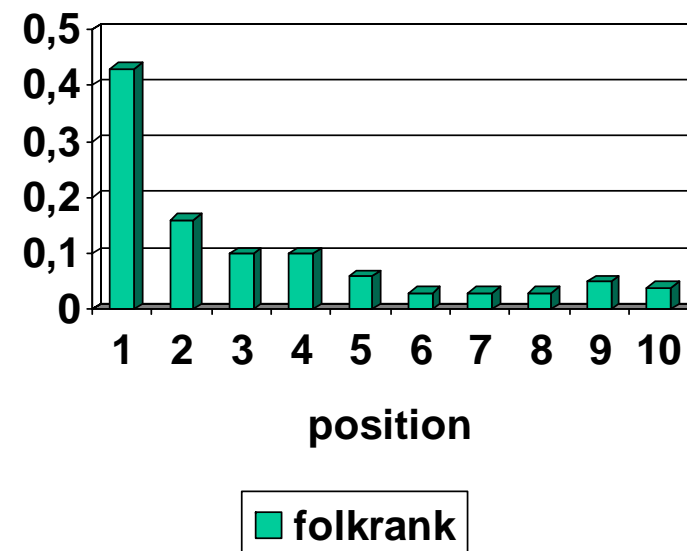
- Ranking for resources by summing up the tag ranks

First Usage Results

user similarity measures clicked



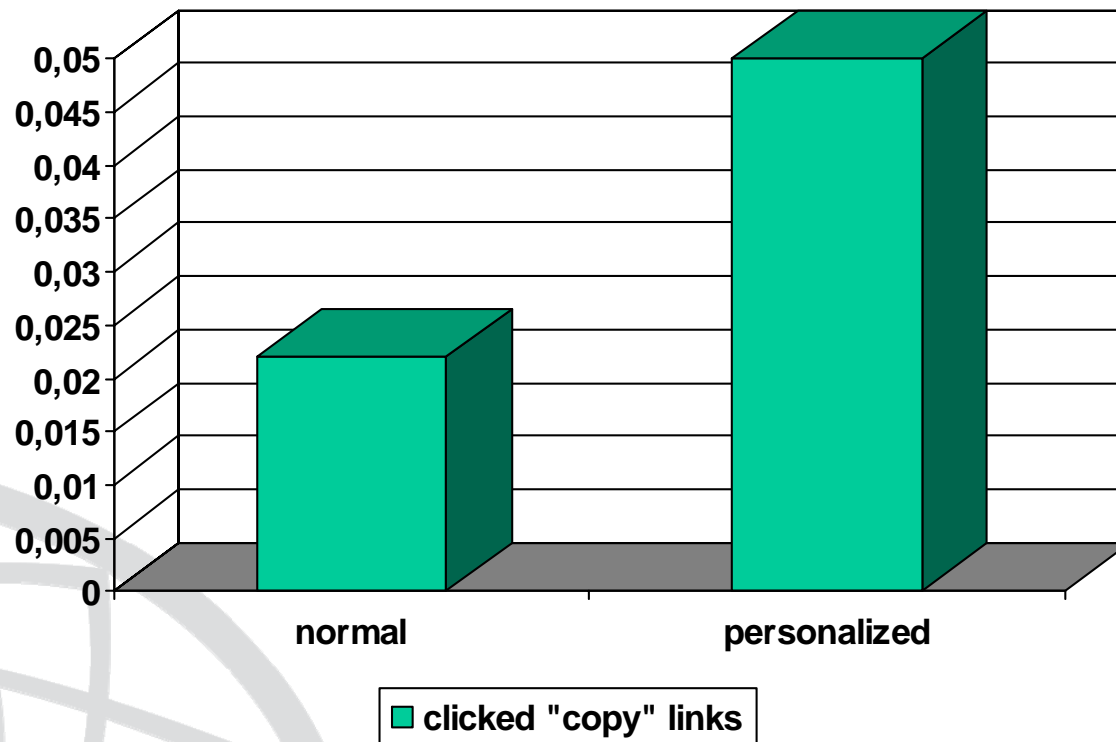
Clicked positions (folkrank)



Total nr. of hits of personalized pages: 381 (2009/06/26)

First results

Percentage of clicked "copy" links

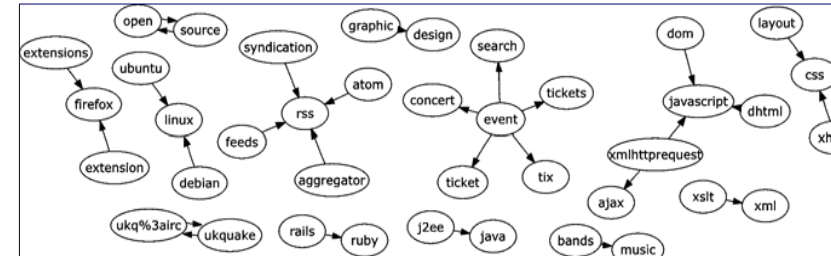


Total nr. of clicks on normal/personalized pages: 217321/381 (2009/06/26)

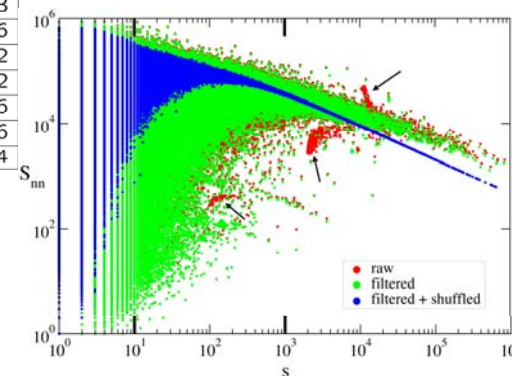
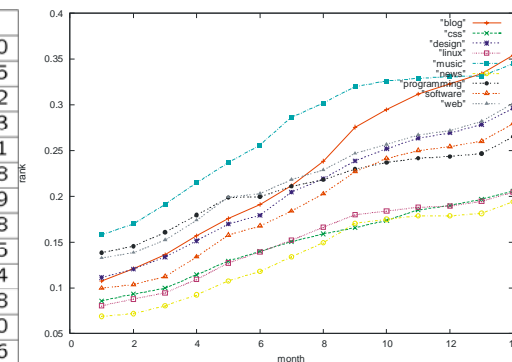
Agenda



- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



Tag	FolkRank
semanticweb	0,0207820
semantic	0,0121305
web	0,0118002
semantic.web	0,0071933
rdf	0,0044461
semweb	0,0039308
resources	0,0034209
community	0,0033208
portal	0,0022745
xml	0,0022074
research	0,0020378
imported-bo...	0,0018920
en	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



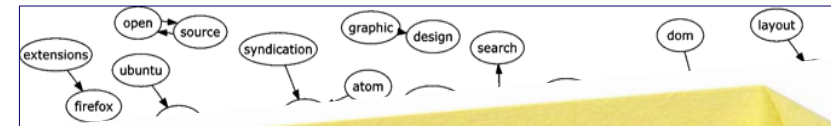
Summary and Outlook

- Tag recommendation is an interesting and important topic for social bookmarking systems
- Graph based approaches outperform classical collaborative filtering approaches
- The click log and evaluation framework are a good basis for the upcoming ECML PKDD discovery challenge.
- Personalized ranking reveals interesting new items to the user.

Agenda



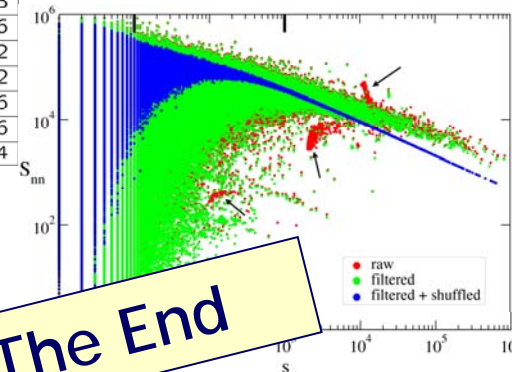
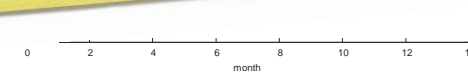
- BibSonomy - a social bookmark and publication sharing system
- Tag Recommendation
- Discovery Challenge
- Click Log
- Online Recommender Evaluation
- Personalized Ranking
- Summary and Outlook



Try it yourself:

www.bibsonomy.org

	0,0018536
.idate2005-04-11	0,0017555
newfurl	0,0017153
tosort	0,0014486
cs	0,0014002
academe	0,0013822
rfd	0,0013456
sem-web	0,0013316
w3c	0,0012994



The End