What is Social Search?

- **Social Information Access**
  - a stream of research that explores methods for organizing users’ past interaction with an information system (known as explicit and implicit feedback), in order to provide better access to information to the future users of the system

- **Social Search: a set of techniques focusing on**
  - collecting, processing, and organizing traces of users’ past interaction
  - applying this “community wisdom” in order to improve search-based access to information
Variables Defining Social Search

- Which users?
  - Creators
  - Consumers
- What kind of interaction is considered?
  - Browsing
  - Searching
  - Annotation
  - Tagging
- What kind of search process improvement?
  - Off-line improvement of search engine performance
  - On-line user assistance

The Case of Google PageRank

- Which users?
- Which activity?
  - What is affected?
  - How it is affected?
  - How it improves search?
How Search Could be Changed?

- Let’s classify potential impact by stages

**Before search**

**During search**

**After search**

Improving Search Engine Work

- Search Engine = Crawling + Indexing + Ranking
- Can we improve crawling?
- Can we improving indexing?
- Can we improve ranking?
Improving Indexing

- What is the problem with the classic approach to indexing?
- How indexing can be improved?

Social Indexing: Some Ideas

- Use social data to expand document index (document expansion)
- What we can get from page authors?
  - Anchor text provided on a link to the page
- What we can get from searchers?
  - Page selection in response to the query (Scholer, 2002)
  - Query sequences (Amitay, 2005)
- What we can get from other page visitors?
  - Page annotations (Dmitriev et al., 2006)
  - Page tags (Yanbe, 2007)
Improving Search Engine Ranking

- What we can get from page authors?
  - *Links* (Page Rank)
- What we can get from searchers?
  - Page selection in response to the *query* (DirectHit)
- What we can get from page visitors?
  - *Page tags* (Yanbe, 2007; Bao, 2007)
  - *Page annotations*
  - *Page Tweets* (Yokie – Phelan, 2011)
    - *Page visit count*
- Combined approaches
  - PageRate (Zhu, 2001), (Agichtein, 2006)

How We Can Help Before Search?

- Query checking - now standard
- Suggesting related queries
  - How it can be done?
  - Example: query networks (Glance, 2001)
- Query refinement and query expansion
  - Using past queries and query sequences - what the user is really looking for (Fitzpatrick, 1997; Billerbeck, 2003; Huang, 2003)
  - Using anchors (Kraft, 2004)
  - Using annotations, tags
How We Can Help After Search?

- Better ranking (re-ranking)
  - Link ordering
- Suggesting additional sources
  - Link generation
- Annotating results
  - Link annotation
- Post-search system can provide better help by using more data

Some Advanced Approaches

- Improving precision by considering more similar users
  - “Quest” approach
  - Community-based search
  - Combining community-based search and navigation
- Adjusting the precision to the quality of data
  - Site-level recommendation
“Quest” Approach

- Quests establish similarities between users
- Relevance between documents and quests is provided by explicit feedback
- Similar approach: SERF (Jung, 2004)
  - Results with recommendations were shown on over 40% searches.
  - In about 40% of cases the users clicked and 71.6% of these clicks were on recommended links! If only Google results are shown users clicked in only 24.4% of cases
  - The length of the session is significantly shorter (1.6 vs 2.2) when recommendations are shown
  - Ratings of the first visited document are higher if it was recommended (so, appeal and quality both better)
Quest-Based Approach

- What is good/important?

- Critique?

I-SPY: Community-Based Search
I-SPY: Mechanism

- User similarity defined by communities and queries
- Result selection provide implicit feedback

I-Spy Approach

- What is good/important?
- Critique?

From iSpy to Heystaks: Folders

http://www.heystaks.com/
Social Search + Social Navigation


ASSIST Architecture

Site-Level Search: Social Ways


Site-level search

- What Kinds of Social Wisdom?

- How Social Wisdom is Used?