Social Navigation

folksonomies

lurking   Privacy   Web 2.0

content management systems

Recommender system   economics

History of social web

content tagging   online communities   Social networks

Education and the Social Web

parti

wikis   Art and the Social Web   social search

Political Activism & the Social Web

social capital   blogs   relationships

Ethics of participation   AJAX

community awareness and visualization   Trust and reputation

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Social Navigation in Real World

"…without knowing much, we joined the longest existing queue formed for a sushi restaurant. looking at faces of people (both young and old) filled with expectations despite the long wait in the cold weather, we were sure that the food would be worth every minute of waiting time. well, it was". (A comment on Flickr image, used in Rosta Farzan's Thesis)

Social Navigation in Real Life

What would you do…?

- Walking by the cinema you feel like watching a movie, but none of the movies seems familiar
- You missed a lecture and want to do your readings. You have a textbook and 100 assigned pages to read, but do not know what was most important in the lecture and what can be skipped
- You are hiking along a trail to a famous waterfall. You reached an unmarked road split and you have no map

Social Navigation

- Natural tendency of people to follow each other
  - Making use of "direct" and "indirect cues about the activities of others
  - Following trails
    - Footsteps in sand or snow
    - Worn-out carpet
  - Using dogears and annotations
  - Giving direction or guidance
- Navigation that is conceptually understood as driven by the actions from one or more advice provider

Social Navigation vs. General Navigation

Walking down a path in forest

Walking down a road in a city

Reading a sign at the airport to find the baggage claim

Talking to a person at the airport help desk to find the baggage claim

The Lost Interaction History

What is the difference between walking in a real world and browsing the Web?
– Footprints
– Worn-out carpet
– People presence

What is the difference between buying and borrowing a book?
– Notes in the margins
– Highlights & underlines
– Dog-eared pages
– Opens more easily to more used places

Social Navigation in Information Space

Synchronous
Communication in real time

Asynchronous
Using the Interaction of past users

Direct
Direct communication between people

Indirect
Relying on user presence and traces of user behavior

	Synchronous	Asynchronous
Direct	Chats	Forums
Indirect	Presence of other people	History-enriched environments

Direct Asynchronous SN

Asynchronous discussion forums

Recommending information to friends and community

Directly asking questions for getting information

Sharing bookmarks with others

Umtella: Direct Asynchronous SN

EDUCO: Synchronous, Indirect SN

CoMeT: Indirect, Asynchronous

SN in Information Space:The History

History-enriched environments
– Edit Wear and Read Wear (1992)
– Social navigation systems
  • Footprints, Juggler, Kalas

Collaborative filtering
– Manual push and pull
  • Tapestry, LN Recommender
– Modern automatic CF recommender systems
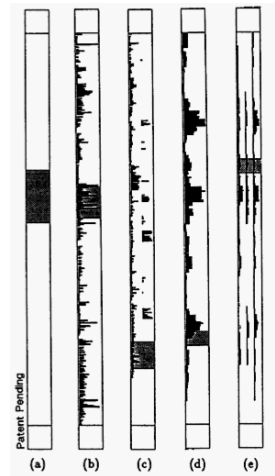
Social bookmarking
– Collaborative tagging systems

Social Search

Edit Wear and Read Wear (1992)

The pioneer idea of asynchronous indirect social navigation

Developed for collaborating writing and editing

Indicated read/edited places in a large document

The Pioneers: *Footprints*

Wexelblat & Maes, 1997

Allowing users to create history-rich objects

Providing History-rich navigation in complex information space

Contextualizing Web pages

- – Maps
- – Path view
- – Annotations
- – Signposts

Footprints: Maps

Showing the traffic through a website

Nodes
- Documents

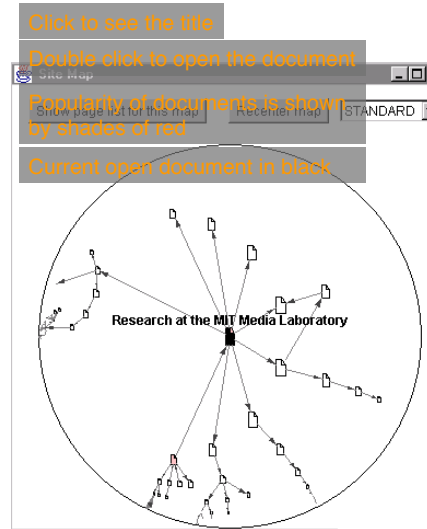Links
- Transition between them

Tracking transition from all possible sources
- Selecting a link
- Typing a URL
- Selecting a bookmark

Externalization of users' mental model

Click to see the title

Double click to open the document

Popularity of documents is shown by shades of red

Current open document in black

Research at the MIT Media Laboratory

Footprints: Annotations

Showing what percentage of users have followed each link

Link-centric social navigation approach

Research Groups

- Aesthetics and Computation **(8%)**
- Affective Computing
- Electronic Publishing
- Epistemology and Learning
- Explanation Architecture
- Gesture & Narrative Language
- Interactive Cinema
- Machine Listening
- Machine Understanding **(8%)**
- Micromedia
- Object-Based Media
- Opera of the Future
- Personal Information Architecture
- Physics and Media
- Sociable Media
- Software Agents

Document: Done

Footprints: Signposts

Allowing users to enter feedback

On pages

On paths

"go this way for software agents; go that way for artificial life"

Viewing comments left by other users

How we can classify this social navigation?

The Pioneers: *Juggler*

Dieberger, 1998

Textual virtual environment (MOO)

History-enriched environment

Showing access-counter for rooms

Recognizing URLs in the output of a communication tool

Hiding it from user

Popping out the page

Integrating with social navigation

Supporting interaction between teachers and students

Ideas for Social Navigation on WWW

Awareness of presence of other users
- – Discussion of an article
- – Location attracting large crowds of users

Relevant objects
- – Links visited by similar users
- – Items appreciated by similar users

Recency
- – How long ago the page was created/visited

Attitude
- – What other users did/thought about an item

Example: CoWeb
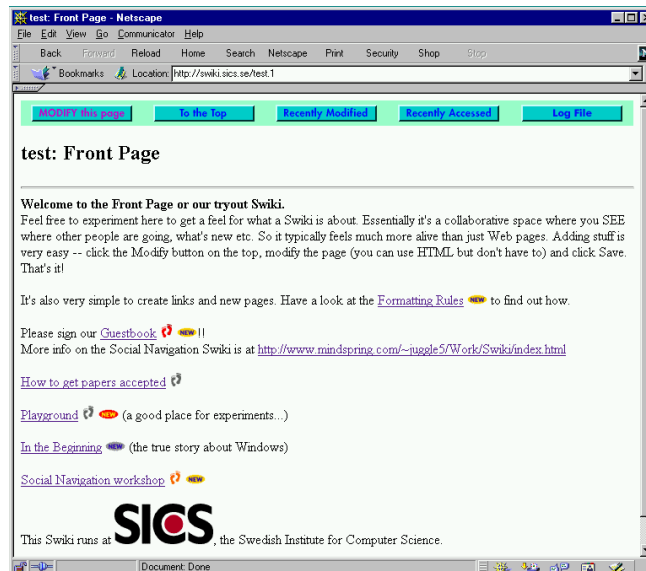
Advancing SN: Beyond Click

Clicks are not reliable signs of interest!
What other kinds of user activities can be tracked?
- Annotation
- Bookmarking
- Sending e-mail
- Solving a problem
- Downloading
- Purchasing
- Rating and liking

Advancing SN: One Size Fits All?

Which users' actions are taken into account for social navigation?
- All users
- Coherent, like-minded group of users

Group-level social navigation
- KnowledgeSea II, Progressor – a class
- CourseAgent – users with similar goals
- CoFIND
- Facebook – social network
- Amazon - context

Facebook: Propagation of Likes

Amazon: Context-based SN

• Compare with an Amazon review: "the remake of this movie is horrible, I recommend to watch the original version instead"

Knowledge Sea II

Assisting students finding educational resources on the web

Social Navigation

- Traffic based
  - Using intensity of colors to present footprints of other students
    - Distinguishing the most and the least visited pages
- Annotation based
  - Using visual cues to present students' annotation activity
    - magnitude of group annotation activity
    - presence of learners annotation
    - magnitude of individual annotation activity

Knowledge Sea: Map

Knowledge Sea: Cells & Pages

Social Navigation in Progressor

CourseAgent

Adaptive community based course recommendation system
- Provides personalized access to course information
- Provides social recommendation about courses

Recommendation in the form of in-context adaptive annotation
- Visual cues
  - Expected course workload
  - Expected relevance to students' career goals
- Course Schedule
- Course Catalog

Course Schedule

Course Catalog

Challenges

- Concept drift
- Snowball effects
- Bootstrapping

Concept Drift

Old history information becomes less relevant

- History decay
  - different for a very popular and a less popular information

Shift of Interest

Snowball effect

Just one visit before the current visit can turn the page into 'hot'

- The page could be useful or useless
- Next users follow the same path

Snowball gets bigger and bigger

Bootstrapping

Social navigation works with many users

- What if there are very few users?
- How to match a new user against already populated system?
- How to encourage users to leave their trails (commenting, …)?
- How to make the new information visible in already populated system?