TUTORIAL 10

Creating Web Sites to Support Social Interactions

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http://www.webcollab.com/course/

Agenda

9:00	- 9:45	Introduction
9:45	- 10:30	Design strategies and relevant research
10:30	- 11:00	Break
11:00	- 11:45	Design strategies and relevant research (cont'd)
11:45	- 12:30	Exercise 1
12:30	- 2:30	Lunch
2:30	- 3:30	Social Web architecture
3:30	- 4:00	Examining design strategies in the context of CHIplace
4:00	- 4:30	Break
4:30	- 5:00	Examining design strategies in the context of CHIplace (cont'd)
5:00	- 5:45	Exercise 2
5:45	- 6:00	Summary

Tutorial Abstract

Developments in information and communication technologies have increased the opportunities and means for coupling technology with certain social practices (e.g., town hall meetings, support networks) that would influence people's ability to act together and enable people to interact with each other. The Web is one such technology with the affordances for sharing information and for connecting people to people. This tutorial examines what social interaction Web sites are, what the challenges are in developing them, and what some of the socio-technical components are for seeding such sites. We introduce the issues with fostering online relationships and social interaction, review existing design principles for social interaction environments, and examine several social relations facilitated by technology (i.e., socio-technical components). We examine how socio-technical components can be built using a three-tier Web-based development infrastructure consisting of social, computational, and content and data management elements. We demonstrate how Web technologies such as Java, Servlets, JavaServer Pages, and XML can be used to develop the socio-technical components and discuss constraints, extensions, and flexibility with the Web approach.

Instructor Biographies

Andreas Girgensohn, **PhD**, Senior Research Scientist, FX Palo Alto Laboratory, Palo Alto, California. Andreas has been developing tools to support developers and end users. In the last seven years, this effort has been directed in the area of using the Web to design and develop collaborative and interactive applications. At FX Palo Alto Laboratory, he is working on Web-based video editing and indexing applications and a Java application for organizing photos. Prior to that, he worked at NYNEX Science & Technology on task-oriented user interface design and development, on support for software developers, and on tools for improving communication and collaboration using the World Wide Web and Lotus Notes. Together with Alison Lee, he designed, developed, and maintained the CHI 2002 social interaction site, CHIplace. Andreas has delivered papers and tutorials on collaborative applications and innovative user interaction techniques at a number of conferences, including CHI, CSCW, GROUP, Hypertext, INTERACT, UIST, WWW, and Multimedia.

Alison Lee, **PhD**, Research Staff Member, IBM TJ Watson Research Center, Hawthorne, New York. Alison has been designing, developing and evaluating tools to support human-computer interaction and human-human communication and collaboration. At IBM Research, she is exploring new paradigms for collaboration (e.g., collaborative customer care) and designing, developing, and evaluating solutions and systems that productively combined social and computational elements to foster and support online social groups. From 1992 to 1997, she worked at NYNEX Science & Technology on user interface design and evaluation, on tools and methodologies to improve communication and collaboration amongst distributed work groups, and on tools to support developers of Web applications and services. Alison created the social interaction sites CHIplace and Portkey, a site for the IBM Research Summer 2001 co-ops; the former was a collaborative effort with Andreas Girgensohn and the latter was a collaborative effort with Catalina Danis. Alison has published papers, participated in workshops, and presented papers related to her user interface research at numerous conferences, including CHI, CSCW, DIS, Group, Hypertext, INTERACT, and WWW.

Table of Contents

Tutorial Goals

- Provide insights into
  - Social, design, and technical elements for Social Web sites
  - Issues and challenges with designing, developing, and maintaining such sites
  - Social, technical, and socio-technical approaches for enabling functionality in such sites
- Gain an understanding of how to
  - Apply design guidelines to create Social Web sites
  - Use the software concepts, components, and architecture of the Web to build such sites
  - Leverage human and system resources to grow, nurture, monitor and maintain such sites

Tutorial Topics

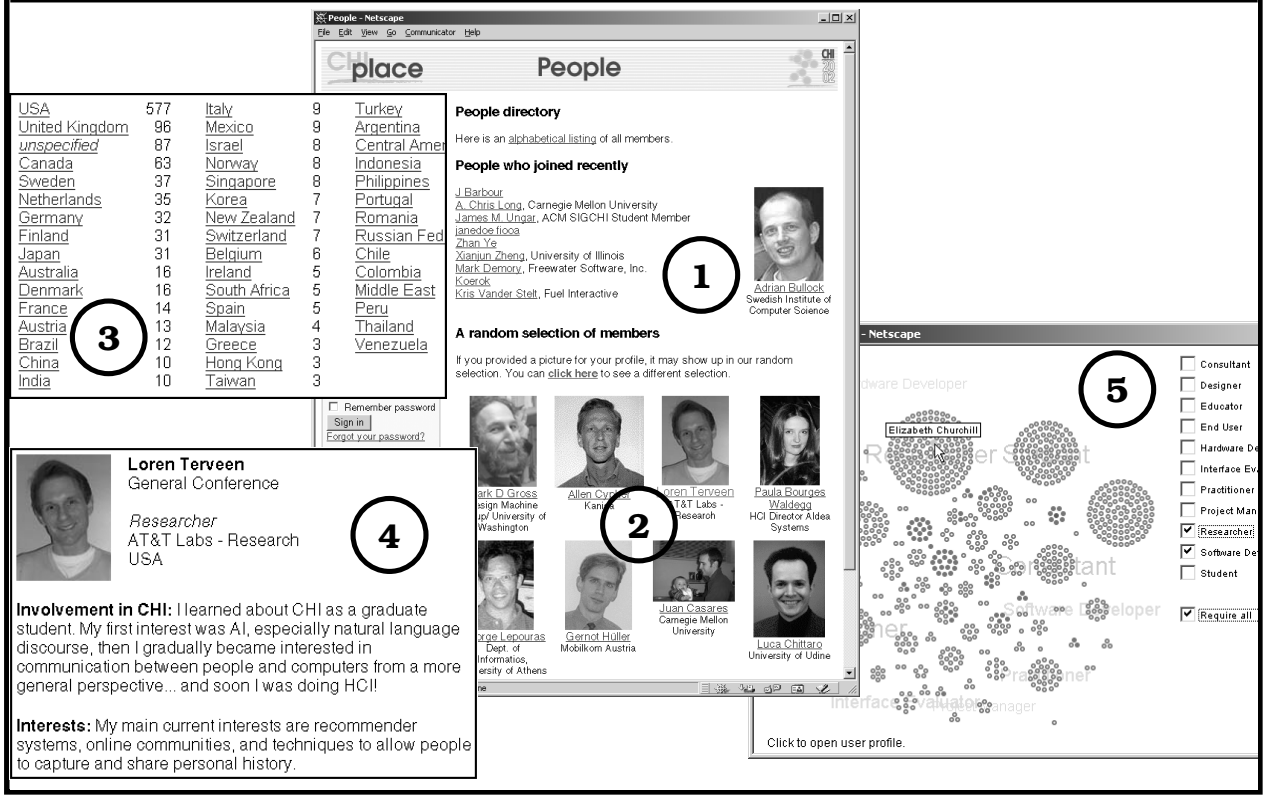
- Characterize social interaction Web sites — Social Web
- Review various sets of design strategies
- Highlight behavioral intent to consider in creating and sustaining Social Web sites
- Examine social and technical functionality that can support behavioral intent
- Introduce software concepts, technologies, and architecture of Web used to develop such sites
- Present a three-tier architecture for constructing and managing such sites

Examples

- eBay — World's Online Marketplace
- Slashdot — News for Nerds
- Tapped In — Teacher Professional Development Institute
- CHIplace — CHI 2002 Online Interactions Site
- Portkey — IBM Summer 2001 Co-op Site

eBay — The World's Online Marketplace	http://www.ebay.com/
Slashdot: News for nerds, stuff that matters	http://www.slashdot.org/
TAPPED IN	http://www.tappedin.org/
CHIplace (CHI 2002 version archived)	http://chiplace.fxpal.com/
CHIplace interactive discussion forum (current and CHI 2003 version)	http://www.chiplace.org/
IBM Summer Coop 2001 (password access required)	http://portkey.watson.ibm.com/

Discover and Explore Members



1. Main People page contained a list of people that joined most recently together with a randomly selected picture of one of those people.

2. Main People page also contains a gallery of eight randomly selected pictures of members.

3. People directories sorted, for example, by country.

4. People profile page contains information about the person's photograph, name, HCI role(s), affiliation, home country, involvement in CHI, HCI interests, and possibly the person's CHI 2002 role, email address (shown to those logged in) and link to Web page with more information.

5. A lightweight people browser that visually grouped the CHIplace members with similar HCI roles. Each members was represented as a dot. Rolling over the dot revealed the name of the person and clicking on the dot led the user to the person's profile. Users can also highlight people with particular HCI roles.

Design Strategies for Social Spaces

- Amy Jo Kim
  - Practitioner with 10 years of building online communities
  - Points to scaffolding, maintaining feedback, empowering
- Jenny Preece
  - Researcher brings an HCI perspective of understanding users, tasks, and their environment
  - Points to importance of usability and sociability
- Peter Kollock
  - Sociology researcher on cooperation, social dilemmas
  - Points to importance of robust (repeated) social interaction
- Girgensohn and Lee
  - Synthesis based on above and other research
  - Focus on fostering social interactions

Amy Jo Kim (2000) — Community Building on the Web: Secret Strategies for Successful Online Communities.

Jenny Preece (2000) — Online Communities: Designing Usability, Supporting Sociability.

Peter Kollock (1996) — Design Principles for Online Communities.

Girgensohn and Lee (2002) — Making Web Sites Be Places for Social Interaction.

Build Gathering Places

- Experience from MUDs, MOOs and Media Spaces
  - Providing flexible, extensible, persistent workspace for:
    - Information management: repository for shared artifacts
    - Spaces that structure and organize social interaction
  - Successful building of online workspaces
    - Provide tools for awareness of activity and people
    - Support for appropriation
    - Incorporate spatial models to move beyond repositories to notion of inhabited spaces where people act
  - Transformation of spaces into places
    - When imbued with social meaning, spaces become places
    - Places provide behavioral framing through norms and cultural expectations
    - Occurs through activity of people
  - Places are not designed but arise from member activities

Information management: repository for shared artifacts produced or collected by group

Support for appropriation: provide tools that enable all to contribute and to modify the environment

Online places cannot be designed; can design a space which promotes evolution into a place through activities of inhabitants

See Harrison and Dourish (1996), Oldenburg (1989).

Identity and Accountability

- Robust, recognizable, and verifiable identity
  - Real-life, verifiable pseudonym, registered anonymity
- Accountability or governance — attaching consequences and sanctions
- Reputations — socio-technical mechanism
  - Negative reputation systems are “mark and avoid bad” systems, e.g., blacklists
    - Subject to mistakes and manipulation
    - On Internet, easy to shed identity and assume a new one
  - Positive reputation systems are “mark and seek good” systems, e.g., eBay’s cumulative score
    - Track both positive and negative feedback
    - History is a key operational element
    - Built over time — disincentive to shed
    - Care about spoofing (e.g.,“free-riding”) or damage

See Kollock (1999b), chromatic et al. (2002), and Kelly et al. (2002).

Girgensohn and Lee

- Synthesis of research, experience and practice
  - Promoting visibility of people and their activities
  - Encouraging user participation
  - Fostering social interactions
  - Designing for usability
  - Maintaining the site with minimal resources
- Emphasis on people and social interactions — life-blood of a social space
- Leveraging technology to facilitate social relations
  - Identifying and combining social and computation elements to foster and support online social groups
- Focus is on a Social Web and Web technologies

Girgensohn and Lee (2002)

Social Visualization

- Visual representation of people and activities in which they are engaged
- Provides opportunity to explore and observe others in interaction
- Examples of systems
  - Chat Circles — identity, presence, activity, conversational clusters, and history of synchronous interactions
  - PeopleGarden — portraits of contributors and patterns of past interactions at bulletin boards
  - ePlace — concept design for online social spaces
  - eTree visualization in Portkey

See Erickson and Kellogg (2000), Jung and Lee (2000), Maglio and Barrett (1998), Viegas and Donath (1999), Xiong and Donath (1999), and Zhang and Lee (2002).

Web Application Functionality

- Focus on Java and Java-enabled technologies
- Server- and client-side functionality
- Use of standards for access to large audience, interoperability, rapid prototyping, and evolution
- Dynamically generated Web pages
  - Printing from servlets
  - Template pages (JSP, ASP, PHP)
- Transformations from XML to XHTML with XSLT
- Leverage higher-level abstractions and capabilities of Web application server
- Applets and dynamic HTML for client-side interactions
- Network communication among clients and servers

Generating Dynamic Web Pages

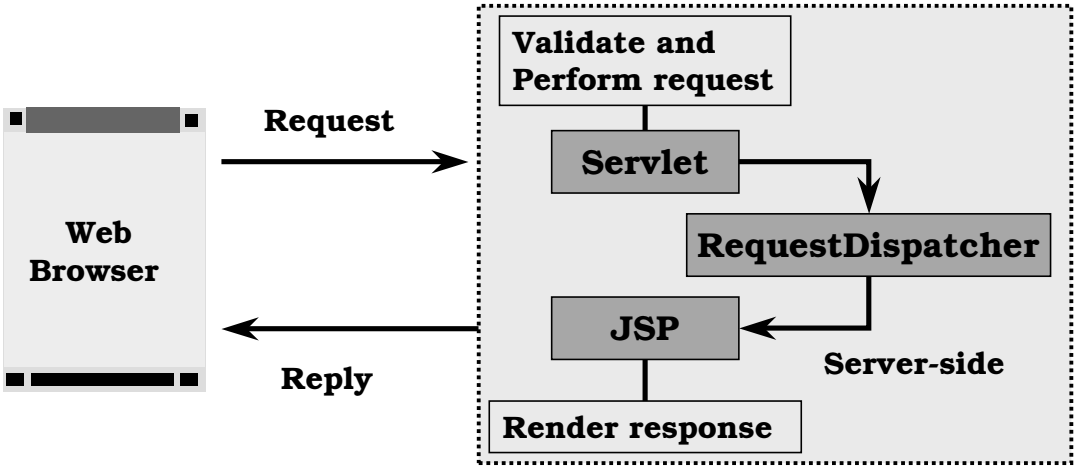
- Necessary for most parts of a social interaction site
  - User profiles
  - Discussion forums
  - Customized content
- Different technologies for generating pages
  - Print statements, e.g., Java Servlets
  - Templates, e.g., JavaServer Pages, Active Server Pages, PHP Hypertext Preprocessor
  - Transformations, e.g., from XML to XHTML
- Different means for storing data
  - Database
  - Plain text
  - XML-formatted text

Common and dynamic elements (generated by different means)

```
<html>
 <head><title>Discussion Page</title></head>
 <body>
 <h1>Discussion Page</h1>
 <p>Select board to view</p>
 <ul>
  <li><a href="view?id=1">General Discussion</a></li>
  <li><a href="view?id=2">Blind Reviewing</a></li>
  <li><a href="view?id=3">Improvements</a></li>
 </ul>
 </body>
</html>
```

Hybrid Servlet and JSP Approach

- Servlet intercepts request, performs data & logic functions (e.g., retrieve data, validate form)
  - javax.servlet.RequestDispatcher
  - Delegates control — server-side forwarding and including
- JSP renders pages; ideally using custom tags and no Java mixed with HTML



javax.servlet.RequestDispatcher

- Interface that defines an object that receives requests from the client and sends them to any resource (such as a servlet, HTML file, or JSP file) on the server.

- The servlet container creates the RequestDispatcher object, which is used as a wrapper around a server resource located at a particular path or given by a particular name.

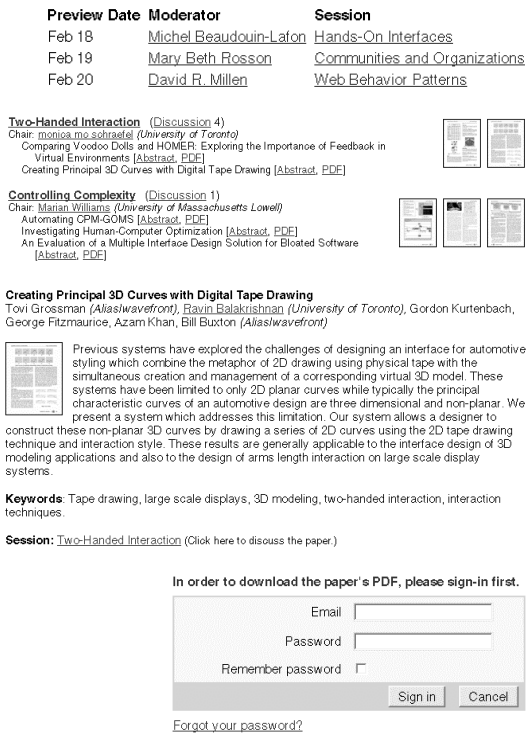
- Intended to wrap servlets, but a servlet container can create RequestDispatcher objects to wrap any type of resource.

Main issue with this approach is between having one large servlet that intercepts all requests, a separate servlet per page, or helper classes reponsible for processing individual pages. Housekeeping issue (organizing and maintaining consistency).

See Burke (2001).

Putting Technologies Together

- CHIplace paper preview
- Session schedule and content
  - MySQL database with sessions, papers, and authors
  - JDBC interface to use in Java
  - Thumbnail images for PDF file (named after paper number)
  - JavaServer Pages displaying the database query results
- Paper abstract page
  - Same database (different query)
- Restricted access to PDF
  - User database from Jive
  - Servlet session to store login



Preview Date	Moderator	Session
Feb 18	Michel Beaudouin-Lafon	Hands-On Interfaces
Feb 19	Mary Beth Rosson	Communities and Organizations
Feb 20	David R. Millen	Web Behavior Patterns

Two-Handed Interaction (Discussion 4)
Chair: monica mo schraefel *(University of Toronto)*
Comparing Voodoo Dolls and HOMER: Exploring the Importance of Feedback in Virtual Environments [Abstract, PDF]
Creating Principal 3D Curves with Digital Tape Drawing [Abstract, PDF]

Controlling Complexity (Discussion 1)
Chair: Marian Williams *(University of Massachusetts Lowell)*
Automating CPM-GOMS [Abstract, PDF]
Investigating Human-Computer Optimization [Abstract, PDF]
An Evaluation of a Multiple Interface Design Solution for Bloated Software [Abstract, PDF]

Creating Principal 3D Curves with Digital Tape Drawing
Tovi Grossman *(Alias|wavefront)*, Ravin Balakrishnan *(University of Toronto)*, Gordon Kurtenbach, George Fitzmaurice, Azam Khan, Bill Buxton *(Alias|wavefront)*

Previous systems have explored the challenges of designing an interface for automotive styling which combine the metaphor of 2D drawing using physical tape with the simultaneous creation and management of a corresponding virtual 3D model. These systems have been limited to only 2D planar curves while typically the principal characteristic curves of an automotive design are three dimensional and non-planar. We present a system which addresses this limitation. Our system allows a designer to construct these non-planar 3D curves by drawing a series of 2D curves using the 2D tape drawing technique and interaction style. These results are generally applicable to the interface design of 3D modeling applications and also to the design of arms length interaction on large scale display systems.

Keywords: Tape drawing, large scale displays, 3D modeling, two-handed interaction, interaction techniques.

Session: Two-Handed Interaction (Click here to discuss the paper.)

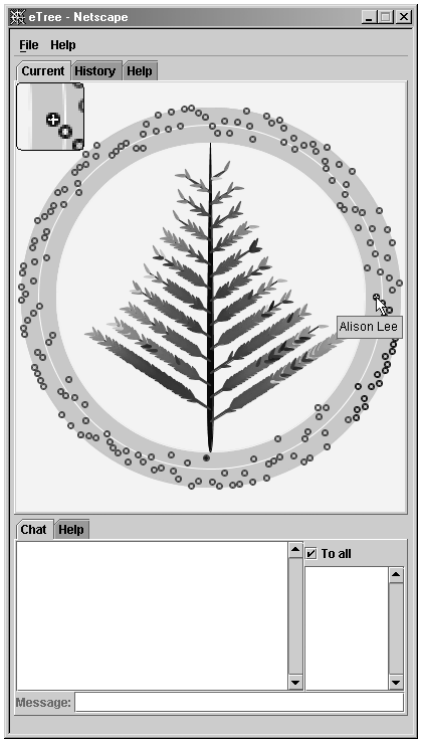
In order to download the paper's PDF, please sign-in first.

Email
Password
Remember password
Sign in Cancel

Forgot your password?

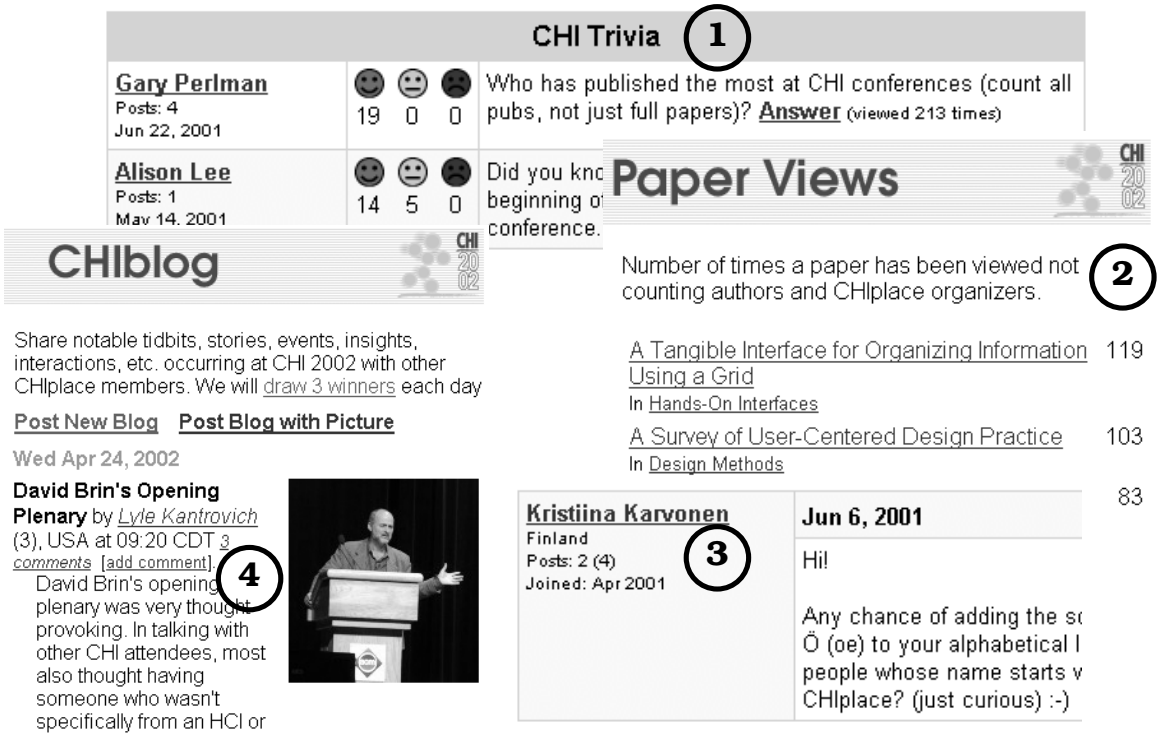
Portkey eTree

- Visualizes discussion forum activity and people's locations on discussion pages
- Indicates volume of people's discussion contributions
- Combined with chat system
- Shows locations of chat participants
- Implemented as Java applet
  - Uses socket connections and serialized objects for communication with central server



See Zhang and Lee (2002).

CHIplace Awareness



Trivia — Encourage CHI veterans to share tidbits about CHI and CHI's history to newcomers. Provides various indicators based on explicit and implicit traces of involvement and peripheral participation.

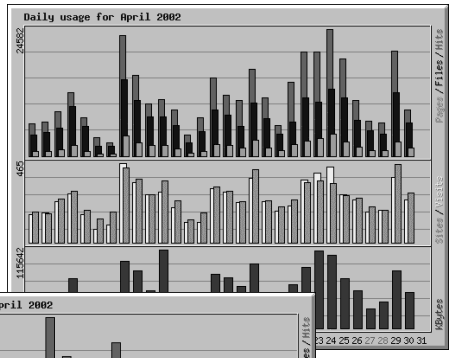
Paper Preview — View counts of papers being previewed.

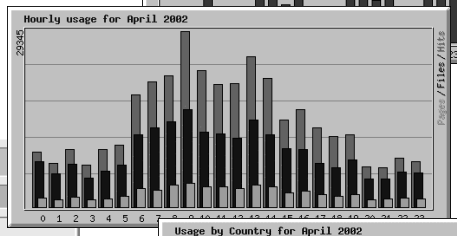
Discussion — Information about poster (e.g., country, date joined) and discussion activity (#posts in current forum (# discussion posts overall)).

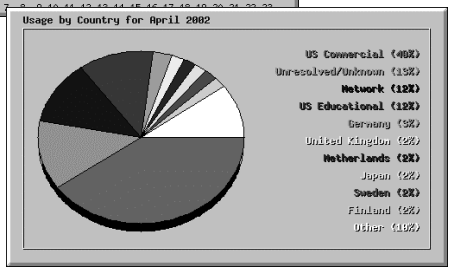
CHIblog — CHI 2002 attendees write about interesting tidbits, stories, events, insights, interactions, etc. occurring at CHI 2002. Information about CHIblogger (e.g., # of CHIblogs written) and # of comments about the particular CHIblog.

Monitoring Site Traffic

- Webalizer to visualize traffic
  - Run incrementally every hour to get current information
  - Filter out requests from spiders and site administrators
  - Increase category size and string length to see more
  - Shows emerging patterns quickly







Top 50 of 1222 Total URLs

#	Hits		KBytes		URL
1	8397	2.39%	83355	4.78%	/people/show-profile.jsp
2	4843	1.38%	70279	4.03%	/
3	2799	0.80%	29354	1.68%	/discussion/view-thread.jsp
4	2489	0.71%	31553	1.81%	/people/
5	2153	0.61%	27874	1.60%	/onsite/
6	2017	0.57%	32266	1.85%	/people/directory.jsp
7	1644	0.47%	31836	1.82%	/people/country-directory.jsp
8	1529	0.44%	5595	0.32%	/login.jsp
9	1483	0.42%	20343	1.17%	/discussion/forum-summary.jsp
10	1422	0.40%	16306	0.93%	/preview/paper-abstract.jsp

Webablizer http://www.mrunix.net/webalizer/

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Resources

Social Web Sites

eBay The Worlds Online Marketplace	http://www.ebay.com/
eBays Feedback rating	http://pages.ebay.com/help/basics/g-stars.html
Slashdot: News for nerds, stuff that matters	http://www.slashdot.org/
TAPPED IN	http://www.tappedin.org/
IBM Summer Coop 2001 (password access required)	http://portkey.watson.ibm.com/
CHIplace 2003	http://www.chiplace.org/
CHIplace 2002	http://chiplace.fxpal.com/
CHIplace 2002 People Browser	http://chiplace.fxpal.com/people/browser.jsp
CHIplace 2002 Trivia	http://chiplace.fxpal.com/trivia/
CHIplace source	http://chiplace.fxpal.com/open-chiplace.tgz
Yahoo! Groups	http://groups.yahoo.com/
eRoom Technology	http://www.eroom.com/
eRoom Technology v6 Tour	http://www.eroom.com/Flash/V6/flash/mainfile.html
Lotus Quick Place	http://www.lotus.com/home.nsf/welcome/quickplace
BSCW The KnowledgeManagement System of OrbiTeam	http://www.bscw.de/index_en.html
BSCW 4.0 Help	http://www.bscw.de/bscw_help-4.0/english/
ThruPort HotOffice	http://www.hotoffice.com/
ActiveBass	http://www.activebass.com/
WholeNote	http://www.wholenote.com/
About Chat Circles	http://chatcircles.media.mit.edu/about.html

Web Technologies

The World Wide Web Consortium	http://www.w3.org/
Uniform Resource Locators (URL)	http://www.w3.org/Addressing/rfc1738.txt
HTTP - Hypertext Transfer Protocol Overview	http://www.w3.org/Protocols/
Hypertext Transfer Protocol -- HTTP/1.1	http://www.w3.org/Protocols/rfc2616/rfc2616.html
HTTP/1.1: Response	http://www.w3.org/Protocols/rfc2616/rfc2616-sec6.html
HTML Home Page	http://www.w3.org/MarkUp/
java.sun.com - The Source for Java Technology	http://java.sun.com/
Archive: Java Technology Products Download	http://java.sun.com/products/archive/
Java Servlet Technology	http://java.sun.com/products/servlet/
Servlet documentation	http://java.sun.com/products/servlet/2.3/javadoc/
JavaServer Pages	http://java.sun.com/products/jsp/