

The Era of Social Computing

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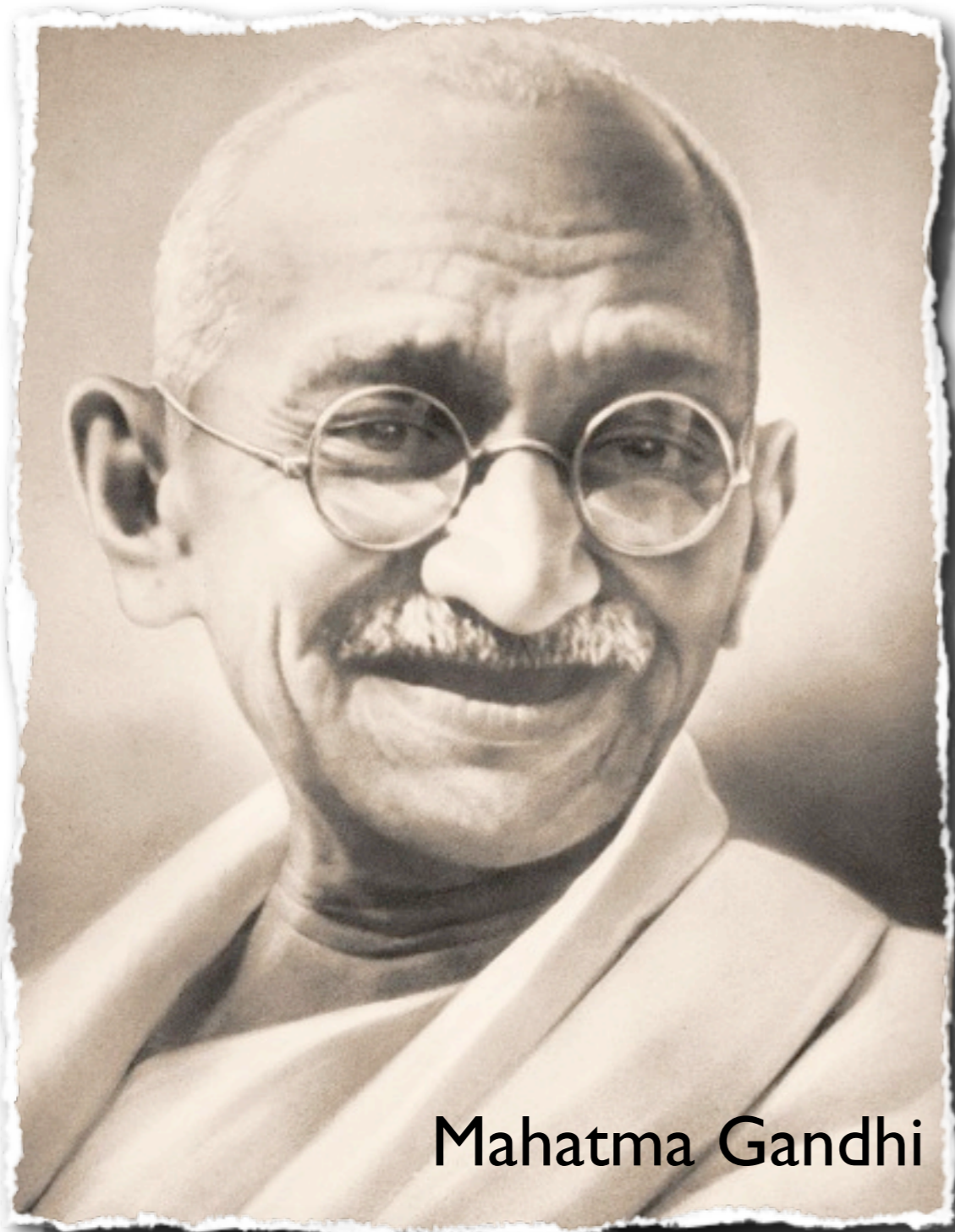
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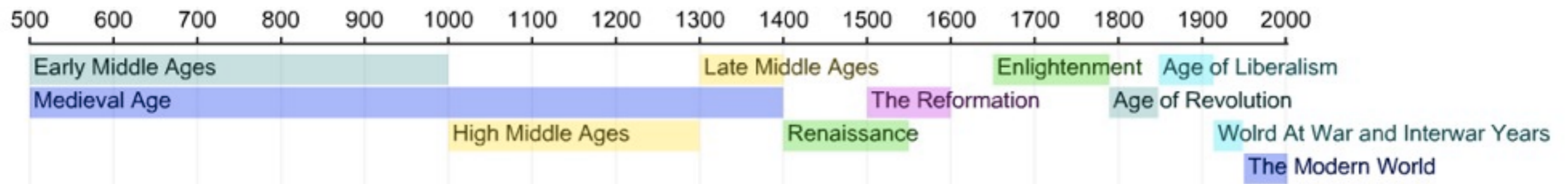
Mahatma Gandhi

Interdependence is and ought to be as much the ideal of man as self-sufficiency.

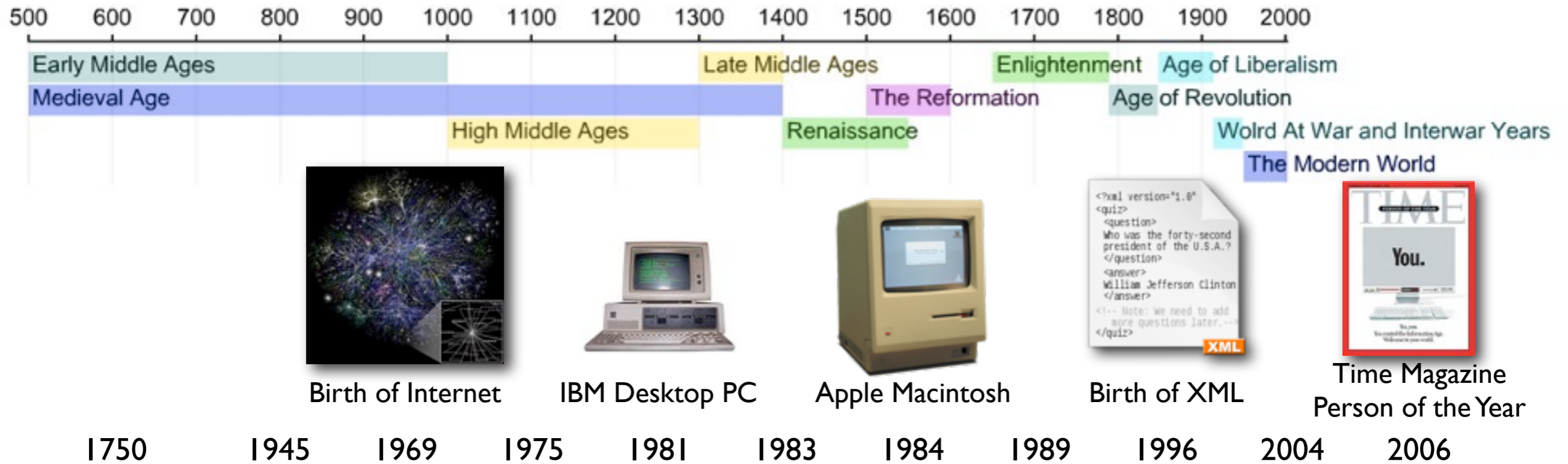
Man is a social being.



A Brief History of the World



A Brief History of the World



**Industrial
Revolution**

**Information
Age**

**Internet
Age**

**www
Age**

**Attention
Age**

ENIAC



The MITS Altair
Apple II



Time Magazine
Person of the Year



Birth of WWW



Birth of Web 2.0



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intel.

revolution in evolution

Highlights from the Journey to 1 Billion PCs



1971 - Intel, founded by Robert Noyce, Gordon Moore and Andy Grove, introduces the world's first microprocessor and calls it the Intel® 4004.

1974 - Intel introduces the 8080 microprocessor, which was used in the first commercially successful personal computer - the Altair.

1976 - Apple Computer, Inc. releases the Apple I, the first single-board computer. The following year, the company introduces the Apple II, the first for a personal computer, the Apple II featured color graphics.

1977 - Intel introduces the 8085 microprocessor.

1980 - IBM PC/XT introduces the IBM format PC featuring an Intel processor, Microsoft DOS and a hard drive as the most popular personal computing platform.

1981 - IBM introduces the first personal computer featuring the Intel® 8088 microprocessor. Equipped the PC revolution and set industry standards that still exist today. The IBM platform enabled hardware makers and software programmers to develop programs and add-on accessories. IBM then, most PCs had been cloned and proprietary.

1982 - Lotus Development Corporation introduces Lotus 1-2-3, which becomes a best-seller application.

1983 - Shugart Associates introduces the hard drive, bringing high-capacity data storage to the PC.

1984 - Apple introduces the Macintosh with a GUI. A GUI is a graphical user interface that provides visual representation for what was previously lines of code, making PCs more usable for non-technical people.

1985 - Intel introduces the 386™ microprocessor featuring 275,000 transistors - more than 100 times as many as the original 4004. The 386™ microprocessor was a 32-bit chip that brought "multi-tasking" capabilities to the PC.

1986 - Microsoft ships the Windows® operating system with a graphical user interface. America Online is founded.

1987 - Toshiba introduces the T1080 laptop PC, making portable computing more widely available.

1988 - The number of PCs shipped worldwide reaches nearly 64 million and a 15-year period of continuous growth begins.

1989 - Microsoft introduces the Windows 3.11 operating system, providing a solid multimedia platform for consumer games and learning applications. Increased processing capabilities, coupled with the availability of affordable CD-ROM drives and sound cards, usher in multimedia on the PC.

1990 - In Geneva, Switzerland, Tim Berners-Lee develops a new technique for distributing information on the Internet, eventually called the World Wide Web.

1991 - Intel introduces the Pentium™ processor and Microsoft introduces Windows® 3.1, providing a solid multimedia platform for consumer games and learning applications.

1992 - Creative Labs introduces a Multimedia Upgrade Kit containing a CD-ROM drive, Sound Blaster™ Pro sound, speakers and multimedia software.

1993 - Intel introduces the Pentium® processor and Microsoft introduces Windows® 3.11, providing a solid multimedia platform for consumer games and learning applications. Increased processing capabilities, coupled with the availability of affordable CD-ROM drives and sound cards, usher in multimedia on the PC.

1994 - Intel introduces the Pentium® processor and Microsoft introduces Windows® 95, providing a solid multimedia platform for consumer games and learning applications. Increased processing capabilities, coupled with the availability of affordable CD-ROM drives and sound cards, usher in multimedia on the PC.

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For more information, please visit <http://www.intel.com>



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Billionaires' Shuffle

2007



2008



Facebook in 2004.02

2008

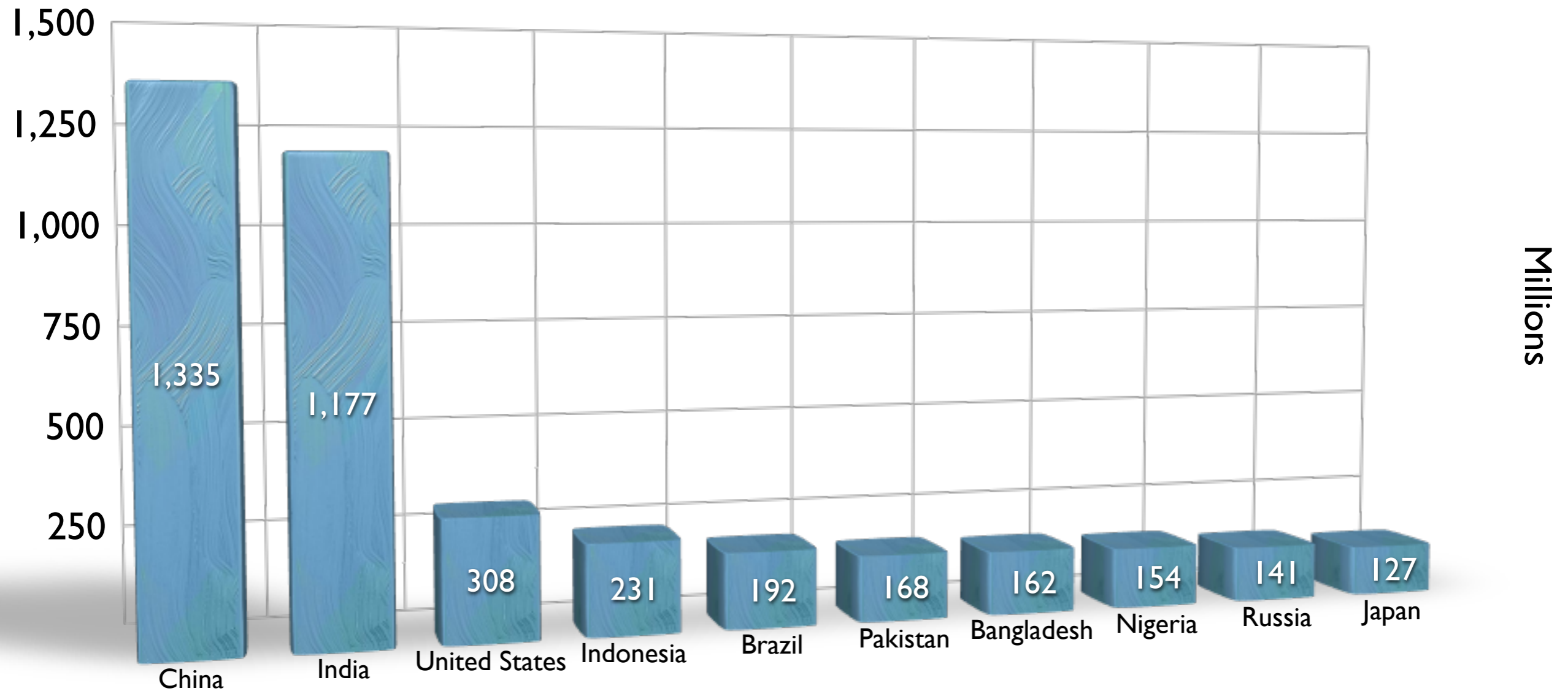
at **23** and **\$1.5** billion later...

Computing, Irwin King, Technologies and Application
(TAAI2010), November 18-20, 2010, Hsinchu, Taiwan



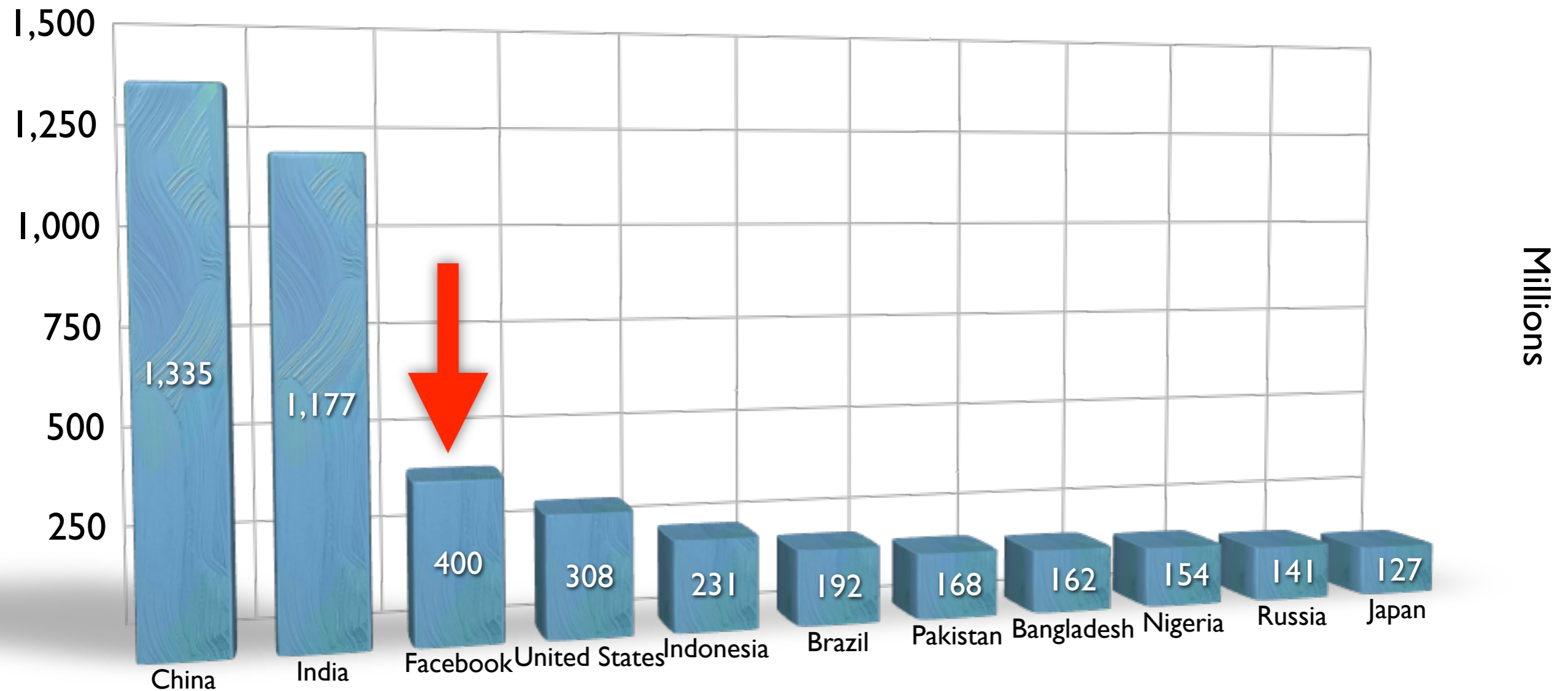
Top 10 Most Populated Countries

as of July 2009



Top 10 Most Populated Countries

as of February 2010



Facebook's Global Audience

Global Audience: 316,402,840

Data for 11/03/2009



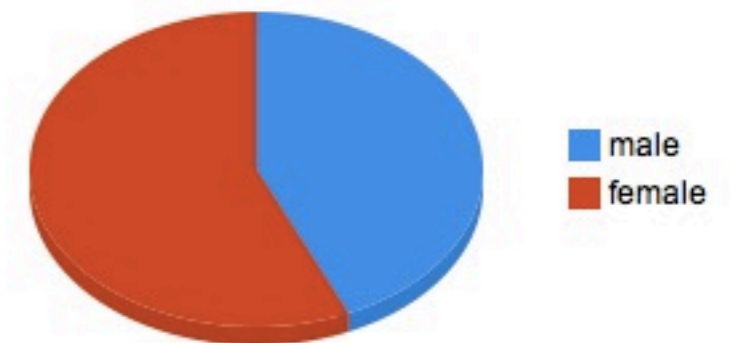
United States

Country Audience: 94,748,820

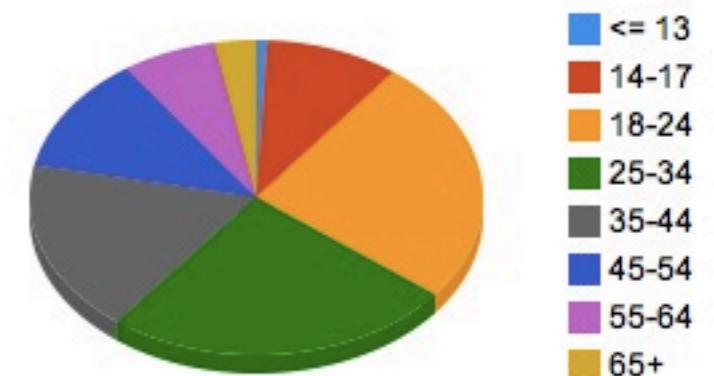
Percent of Global Audience: 29.95%

Share This Site 1543 retweet

United States Male / Female



United States Age Distribution



Facebook's Growth Stats

Statistics

Company Figures

More than 400 million active users
 50% of our active users log on to Facebook in any given day
 More than 35 million users update their status each day
 More than 60 million status updates posted each day
 More than 3 billion photos uploaded to the site each month
 More than 5 billion pieces of content (web links, news stories, blog posts, notes, photo albums, etc.) shared each week

10 Largest Countries

1. United States	94,748,820
2. United Kingdom	22,261,080
3. Turkey	14,215,880
4. France	13,396,760
5. Canada	13,228,380
6. Italy	12,581,060
7. Indonesia	11,759,980
8. Spain	7,313,160
9. Australia	7,176,640
10. Philippines	6,991,040

10 Fastest Growing Over Past Week

1. Poland	12.46 %	137,900
2. Thailand	10.96 %	161,300
3. Portugal	9.81 %	80,040
4. South Africa	9.25 %	189,080
5. Taiwan	7.82 %	367,400
6. Romania	7.65 %	28,060
7. Germany	7.54 %	350,240
8. Malaysia	7.43 %	236,840
9. Indonesia	6.84 %	752,640
10. Iraq	6.72 %	6,380



Global Internet Traffic

Alexa as of May 2009	China	USA	Japan	India	Brazil	Global
1	Baidu	Google	Yahoo.jp	Google.in	Google	Google
2	QQ	Yahoo	FC2	Google	Orkut.br	Yahoo
3	Sina	Facebook	Google.jp	Yahoo	Windows Live	YouTube
4	Google.cn	YouTube	YouTube	Orkut.in	Universo Online	Facebook
5	Taobao	Myspace	Rakuten	YouTube	YouTube	Windows Live
6	163	MSN	Livedoor	Blogger	Globo	MSN
7	Google	Windows Live	Ameblo.jp	Rediff	MSN	Wikipedia
8	Sohu	Wikipedia	mixi	Facebook	Google	Blogger
9	Youku	Craigslist	Wikipedia	Wikipedia	Yahoo	Baidu
10	Yahoo	EBay	Google	Windows Live	Terra	Myspace



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Global Internet Traffic

Alexa as of Oct 2010	China	USA	Japan	India	Brazil	Global
1	Baidu	Google	Yahoo.jp	Google.in	Google.br	Google
2	QQ	Facebook	Google.jp	Google	Google	Facebook
3	Taobao	Yahoo!	FC2	Facebook	Orkut.br	YouTUBE
4	Sina	YouTUBE	YouTUBE	Yahoo!	YouTUBE	Yahoo
5	Google HK	Amazon	Ameblo.jp	YouTUBE	Universo Online	Windows Live
6	163	Wikipedia	Rakuten	Blogger	Windows Live	Baidu
7	Sohu	Twitter	Google	Orkut.in	Globo	Wikipedia
8	Google	eBay	Livedoor	Wikipedia	Blogger	Blogger
9	Soso	Craigslist	Wikipedia	Twitter	Yahoo!	Twitter
10	Youku	Blogger	mixi	Rediff	Terra	QQ



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Topics in Social Computing

- Social Behavior Analysis and Modeling
- Social Media
- Social Network Theory and Models
- Link Analysis/Graph Mining/
Large Graph Algorithms
- Learning to Rank
- Recommender Systems/
Collaborative Filtering
- QA/Sentiment Analysis/
Opinion Mining
- Human Computation/
Crowdsourcing
- Risk, Trust, Security, and
Privacy
- Monetization of Social
Computing
- Software Tools and
Applications
- and many, many more...



Web 2.0

- Web as a medium vs. **Web as a platform**
- Read-Only Web vs. **Read-and-Write Web**
- Static vs. **Dynamic**
- Restrictive vs. **Freedom & Empowerment**
- Technology-centric vs. **User-centric**
- Limited vs. **Rich User Experience**
- Individualistic vs. **Group/Collective Behavior**
- Consumer vs. **Producer**
- Transactional vs. **Relational**
- Top-down vs. **Bottom-up**
- People-to-Machine vs. **People-to-People**
- Search & browse vs. **Publish & Subscribe**
- Closed application vs. **Service-oriented Services**
- Functionality vs. **Utility**
- Data vs. **Value**



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The Brave New Words

博客

維基

AVATAR

tag cloud

推特

unfriend

tweet

blogsphere

twitterati

defriend

hashtags

SEXTING

Folksonomy

Twisdom

頭像



Social Analytics/Informatics

Social Informatics

Contact : [Slovenian](#) : [FDV](#)



Search

[Advanced search](#)

Login

[New user](#) [Lost password](#)

[SOCIAL INFORMATICS](#)

[STUDY PROGRAMS](#)

[RESEARCH CENTRES](#)

[BIBLIOGRAPHY](#)

Introduction

- [Concept](#)
- [History](#)

Relevant Fields

- [Social Informatics](#)
- [Web Content Structure](#)
- [Survey Methodology](#)
- [Marketing Research](#)
- [Social Science Methods](#)
- [Applied Statistics](#)
- [Official Statistics](#)
- [Data Collection](#)
- [Library Science](#)
- [Information Society](#)
- [HC Interaction](#)
- [Information Systems](#)
- [Social ICT Applications](#)
- [Data Modeling & Simulations](#)
- [Media & Communication](#)
- [Science & Technology](#)
- [Arts & Informatics](#)

The notion of social informatics relates to the interaction between society and ICT (information-communication technologies). In its broadest sense it covers:

1. the social consequences of ICT at micro (e.g. social aspects of ICT applications at personal and organisational level) as well as at macro level (e.g. information society studies);
2. the application of ICT in the area of social sciences and social/public sector;
3. the use of ICT as a tool for studying social phenomena (within social science methodology).

Graphical presentation is [here](#)>>

News

- 07.12.09 [Information Society Free Virtual Library](#)
- 02.12.09 [Job offer: Professor in Social Informatics](#)
- 01.12.09 [Call for papers to "New technologies and data collection in social sciences"](#)
- 09.11.09 [Call for Papers "IASSIST 2010"](#)
- 27.10.09 [Job offer: Associate Professor Position - Department of Social Informatics](#)

[archive](#)

Blogs

- [Social Informatics by Michael Tyworth](#)
- [Social Informatics - a knol by Per Arne Godejord](#)
- [Pixelcharmer Field Notes: Social Informatics](#)
- [Journal of Social Informatics Blog](#)
- [Social Informatic - International Blog](#)

[more](#)

Associations

- [The European Survey Research Association](#)
- [Council of American Survey Research Organizations \(CASRO\)](#)
- [Marketing Research Association](#)
- [International Communications](#)



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Politics

The screenshot shows the homepage of The Washington Times. At the top, the masthead reads "The Washington Times" in a large, black, serif font. To the right of the masthead are links for "Subscribe", "Times News Services", "RSS", "Mobile Headlines", and "e-edition". Below these are "E-MAIL ALERTS", "REGISTER", and "LOG IN" links, along with social media icons for Google, Yahoo!, Facebook, and a dropdown menu.

Below the masthead is a navigation bar with links for "Home", "News", "Opinion", "Sports", "Culture", "Themes", "Communities", "Marketplace", "Videos", and "Podcasts". A "Google Custom Search" box is located on the right side of this bar.

The main content area features a dark blue header with four featured stories:

- POLITICS**: EXCLUSIVE: Pence: Obama's lost focus
- LOCAL**: Marion Barry in hospital again
- POLITICS**: Iran sanctions still work in progress
- SPORTS**: Nats want a lot from a little

The main article is titled "EDITORIAL: Iran's Twitter revolution" with the subtitle "Witnessing a new chapter in the quest for freedom". It is dated "Tuesday, June 16, 2009". To the right of the article title is a "Rate this story" section with a five-star rating system, showing "Average 0.00 after 0 votes" and a link to "Login or register to rate this story".

Below the article title are social sharing options: "Font Size", "Print", "Email", "Comment", "Tweet this!", "Yahoo! Buzz", and "Share". There are also tabs for "Article", "Comments (1)", and "Videos".

The article's main image shows a group of people in a public square, some running and some on the ground. The text of the article begins with "By" followed by a paragraph: "The spirit of liberty finally arrived at Tehran's Freedom Square. Hundreds of thousands of Iranians demonstrated Monday against Friday's election, which handed President Mahmoud Ahmadinejad an improbably lopsided victory." A second paragraph starts with "The mass protests followed a weekend of street demonstrations, rioting and other expressions of discontent. These events".

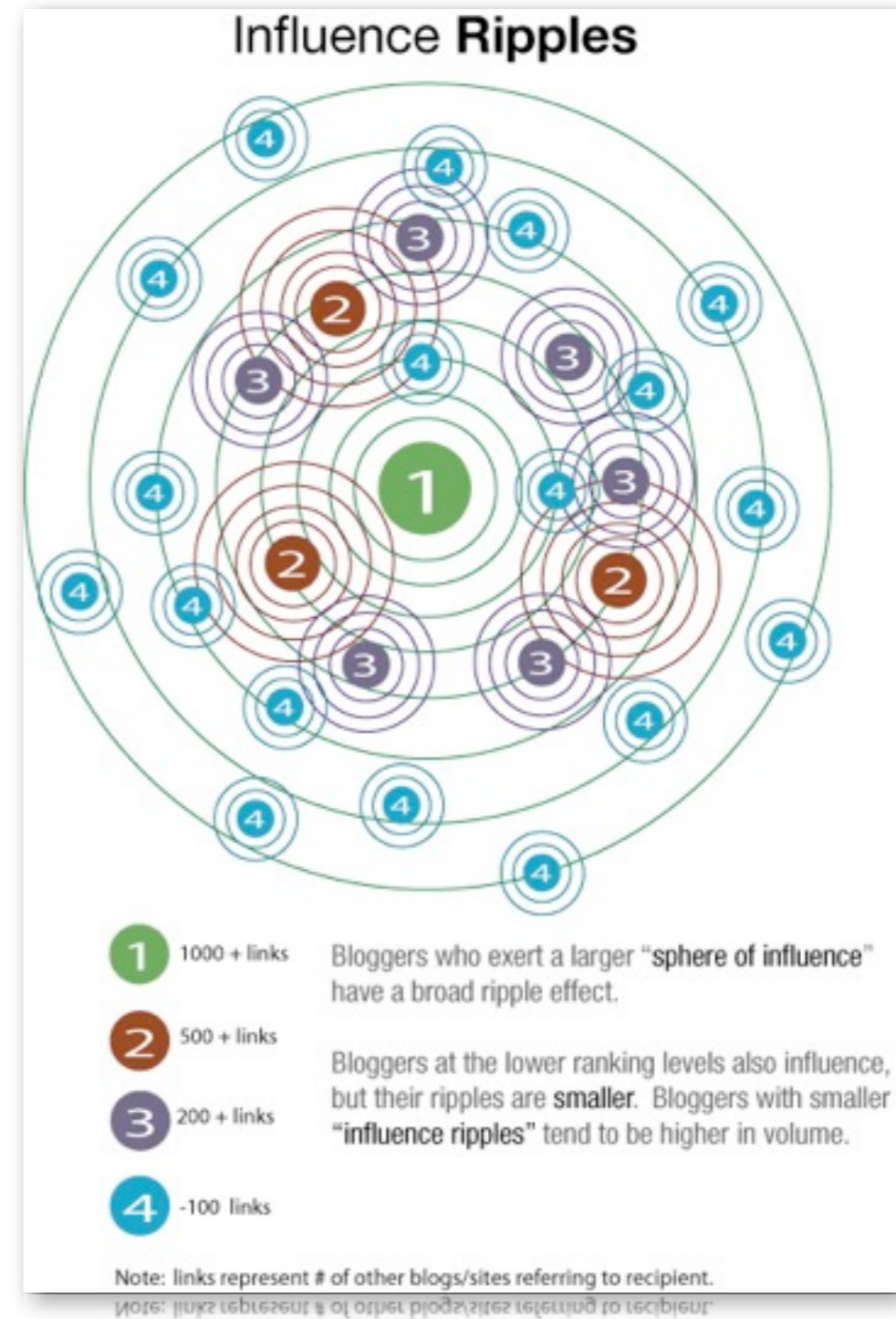
On the right side of the page, there is a "Sign up for Email Alerts" box with a "REGISTER" button. Below this is a large advertisement for "internaxx OFFSHORE ONLINE BROKER" featuring a laptop screen with the text "SIGN UP NOW WWW.INTERNAXX.LU".

At the bottom right, there is a "Top Stories" section with a "Most Read" sub-section containing one item: "1. Study: Bernanke, Paulson misled".



Commerce

- Social marketing
- Who are the **brokers**?
- Who can exert the **most influence** on buying/selling?
- How **much** should one advertise?



Public Health

- People's **behavior** can be monitored
- What is on people's mind translates to **search queries**
- Google predicts flu trends...

2007–2008 U.S. Flu Activity - Mid-Atlantic Region

ILI percentage

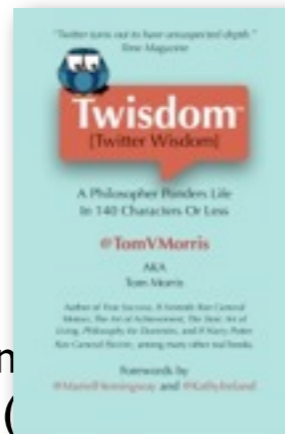


Twitter Pop Culture

- Twisdom: Twitter Wisdom
 - A Philosopher Ponders Life in 140 Characters or Less
 - “I don’t know the key to success, but the key to failure is trying to please everybody.” Bill Cosby Do what you know in your soul is right!
 - It is a miserable state of mind to have few things to desire, and many things to fear. – Francis Bacon
- The Longest Poem In the World-the awesome twitter poem! 956,644 verses this morning and ~4,000 a day!



The Era of Social Con



King, Technology
November 18-20,



elligence



The YouTube Generation

THE ACADEMY
OF MOTION PICTURE ARTS AND SCIENCES

VISIT OSCARS.ORG
BECOME A FAN
SIGN UP FOR NEWS

Oscar®
Oscars's Channel

Subscribe Uploads Favorites

Search

Date Added | Most Viewed | Top Rated

Opening Number at the 2010 Oscars®
303 views - 4 hours ago

"The Hurt Locker" winning Best Picture
303 views - 4 hours ago

John Hughes Tribute at the Oscars®
301 views - 5 hours ago

Kathryn Bigelow winning the Oscar® for Directing
301 views - 5 hours ago

Sandra Bullock winning Best Actress
309 views - 5 hours ago

Jeff Bridges winning Best Actor
334 views - 5 hours ago

Steve Martin and Alec Baldwin hosting the
312 views - 6 hours ago

Editing Oscar® Nominees
27,246 views - 4 days ago

Steve Martin and Alec Baldwin hosting the Oscars® 61 ratings ★★★★★
From: Oscars | March 10, 2010 | 312 views
Steve Martin and Alec Baldwin, co-hosts of the 82nd Academy Awards®, in their opening monologue.

View comments, related videos, and more



The Age of FaceBook

The screenshot shows the Facebook interface for Barack Obama's official page. At the top, the Facebook logo and navigation links (Home, Profile, Account) are visible. The page header includes a search bar and a 'Become a Fan' button. The main content area features a large profile picture of Barack Obama and a navigation menu with tabs for Wall, Info, Boxes, Events, Notes, and Photos. Below the navigation, there are three posts:

- Post 1:** A text post by Barack Obama stating: "8: the number of people every minute who are denied coverage, charged a higher rate, or otherwise discriminated against because of a pre-existing condition." It includes a link to "Health Reform by the Numbers: 8" on www.whitehouse.gov and mentions it was shared 27 minutes ago with 4,913 views.
- Post 2:** A video post titled "Barack Obama Speaking about health insurance reform this morning at Arcadia University - starting at 11:00 a.m. ET." It features a "LIVE" icon and a link to "President Obama Speaks on Health Insurance Reform" on www.whitehouse.gov, dated yesterday at 12:21am with 12,287 views.
- Post 3:** A video post titled "Barack Obama I need your help in urging all Americans who want health reform to make their voices heard." It includes a link to "President Obama's message to supporters: 'We need you in this final march for reform'" on www.youtube.com, dated March 5 at 8:14am with 22,867 views.

On the right side of the page, there is a sidebar with a "Create an Ad" section and a "Connect With More Friends" section featuring an envelope icon and a Facebook 'f' logo. The sidebar also includes a "More Ads" link.

On the left side, there is a section titled "Add to My Page's Favorites" and "Suggest to Friends". Below that, a text box explains that the page is run by Organizing for America, the grassroots organization for President Obama's agenda for change. It provides a link to the White House Facebook page: <http://bit.ly/2bVCm>. It also mentions that OFA is a special project of the Democratic National Committee.

At the bottom left, there is an "Information" section with a "Current Office" entry: "Office: President of the United States".



Social Networking Sites

- Example of Social Networking Sites: FaceBook, MySpace, Blogger, QQ, etc.



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Social Search

- Social Search Engine
- Leveraging your social networks for searching

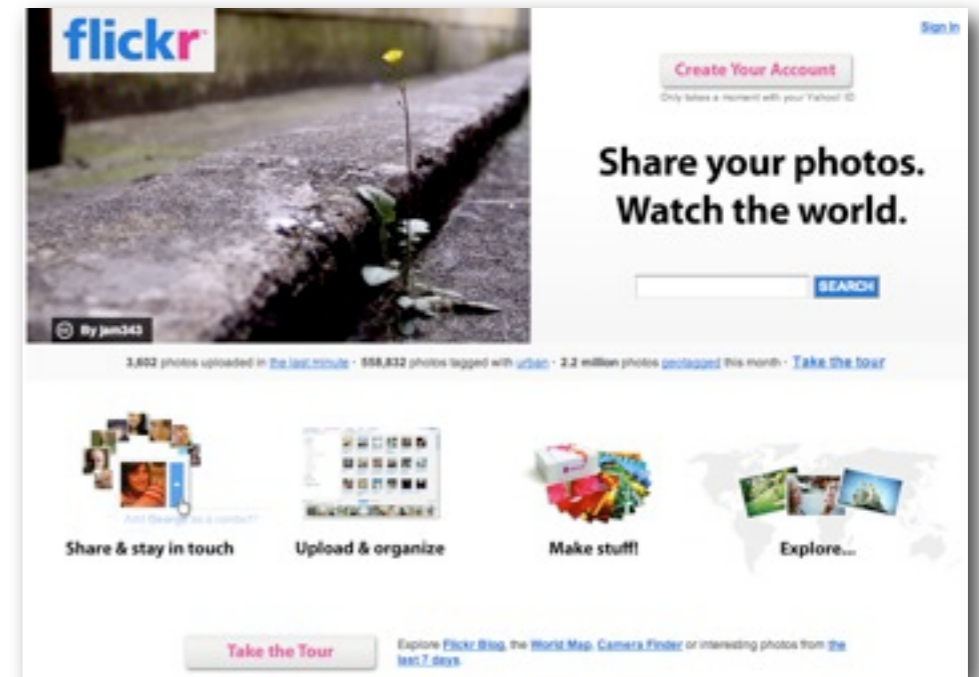
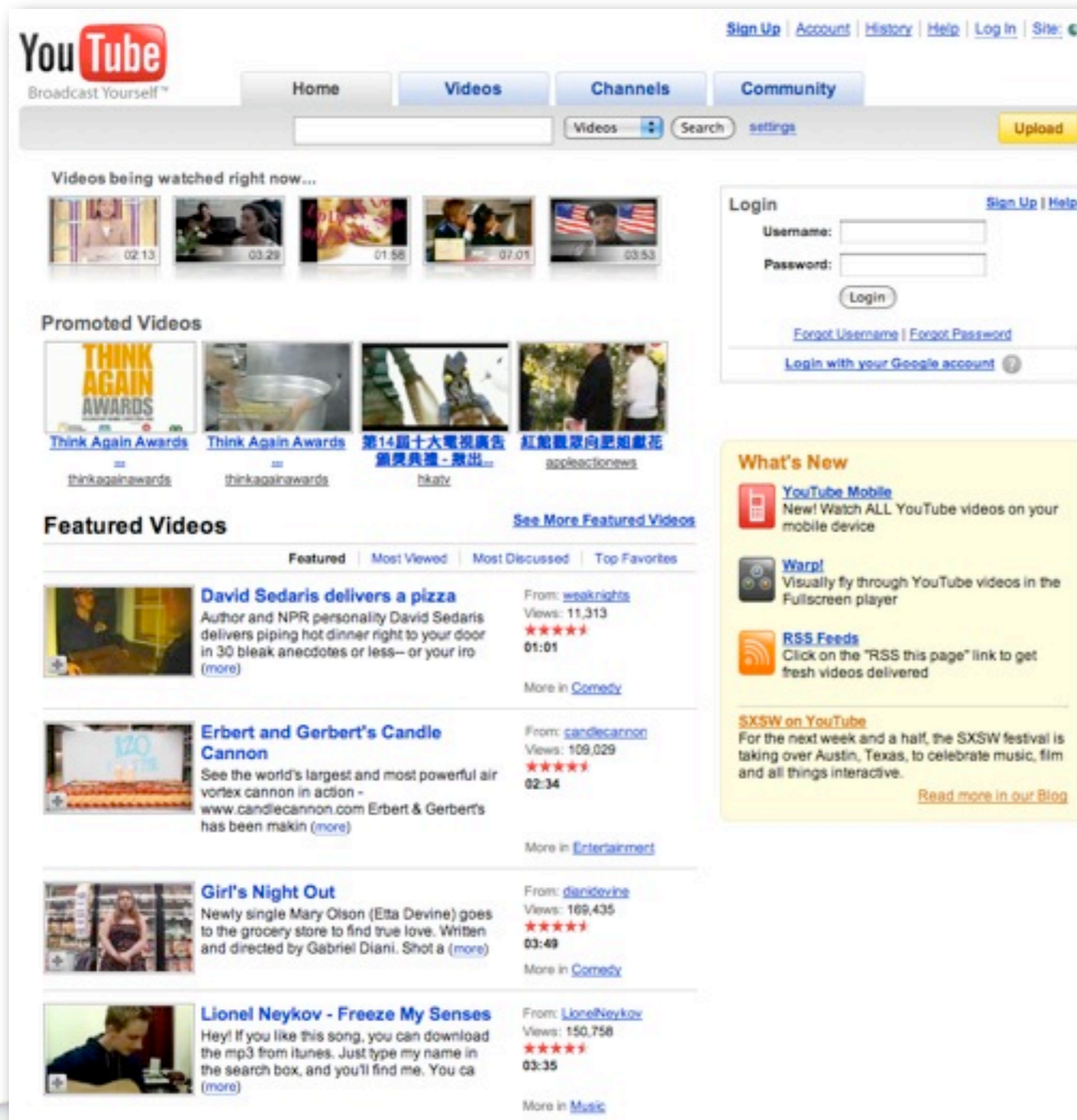
The screenshot shows the Eurekaster Swicki website. At the top, there's a navigation bar with links for 'build new swicki', 'swicki directory', 'about swickis', and 'about eurekaster'. Below this is a search bar with the text 'Search and vote for your faves' and a 'swicki search' button. The main content area features a large banner with the text 'a custom search portal around the topic of your choice powered by your community'. Below the banner, there are two columns of content. The left column is titled 'Build a swicki!' and includes a description of what a swicki is, a list of features (Choose from text, multimedia or video content; Customize the swicki widget look and feel; Share your swicki widget with your community), and a 'Build a swicki' button. The right column is titled 'Eurekaster news' and lists several news items, including 'Now out of beta!', 'Come join the network for swicki builders', 'Swicki Users Go Green', 'CEO Speaking at SES New York', and 'Get swicki illustrated'. Below the news section, there's a 'Browse the directory' section with a search bar and a list of categories: 'Recently created', 'Top swickis', 'DIY: home improvement swicki showcase', 'Computers', 'Business', 'Home', and 'Regional'. Each category has a list of related swickis and a 'More >' link.

The screenshot shows the Delver social search engine interface. At the top, there's a logo for 'delver:: liad agmon edit' and a navigation bar with links for 'My Profile' and 'My Network'. Below this is a search bar with the text 'Your friends are the best source of information! Look for information, media and people within your network' and a '(Go)' button. The main content area features a network graph with several user profiles connected by lines. One profile is highlighted, showing a photo and a bio. Below the profile, there are several options: 'This is me!', 'I know this person', 'Add as Connection', and 'Send Message'.

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Social Media



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Social Bookmarking

The screenshot shows the Delicious website with a blue header and navigation links. A prominent banner reads "The tastiest bookmarks on the web. Save your own or see what's fresh now!". Below this is a search bar and a "Fresh Bookmarks" section featuring a list of recent bookmarks, including "The Associated Press: Text of Obama's Nobel Peace Prize speech" and "BBC News - Barack Obama set for Oslo Nobel Peace Prize ceremony".

The screenshot displays the BibSonomy website, which is described as "A blue social bookmark and publication sharing system." It features a search bar, navigation tabs for "Home", "tags", "authors", "relations", "groups", and "popular", and a "filter" sidebar on the right. The main content area includes a description of the system and a list of publications, such as "Twitter Guide Book – How To, Tips and Instructions by Mashable" and "The probability of topological concordance of gene trees and species trees".

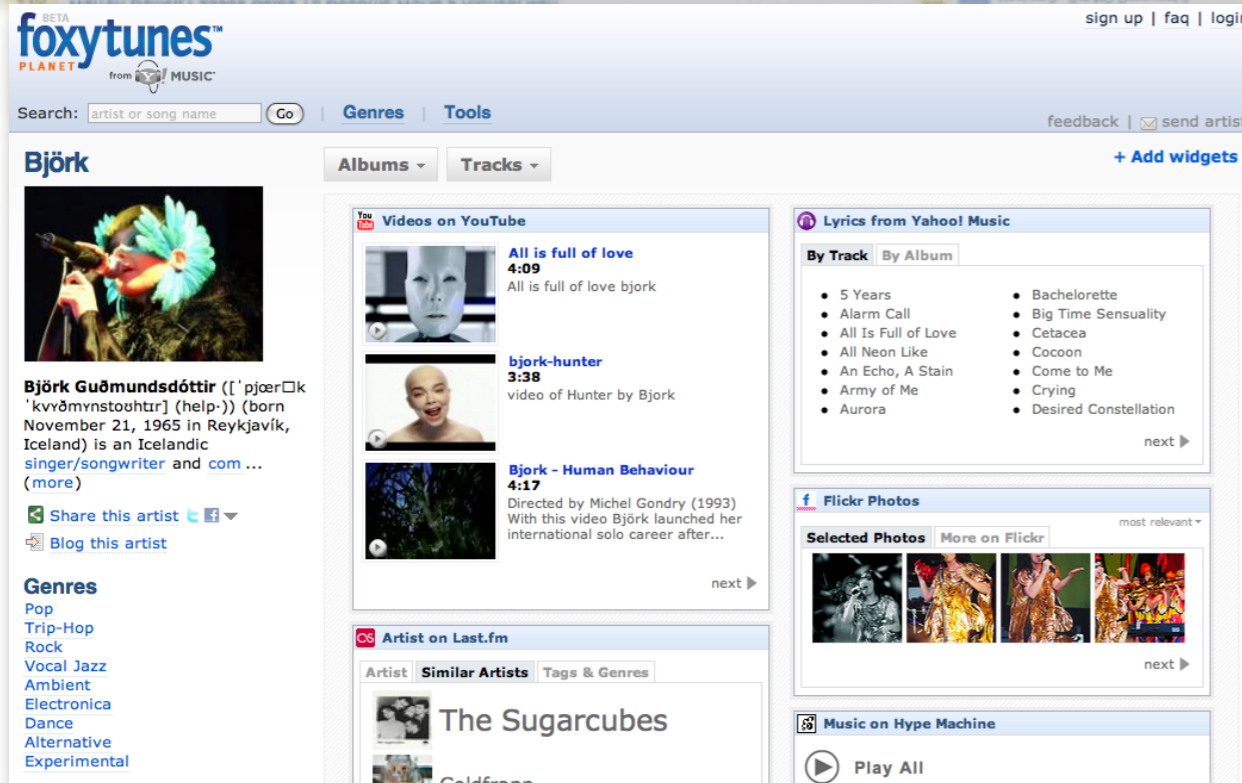
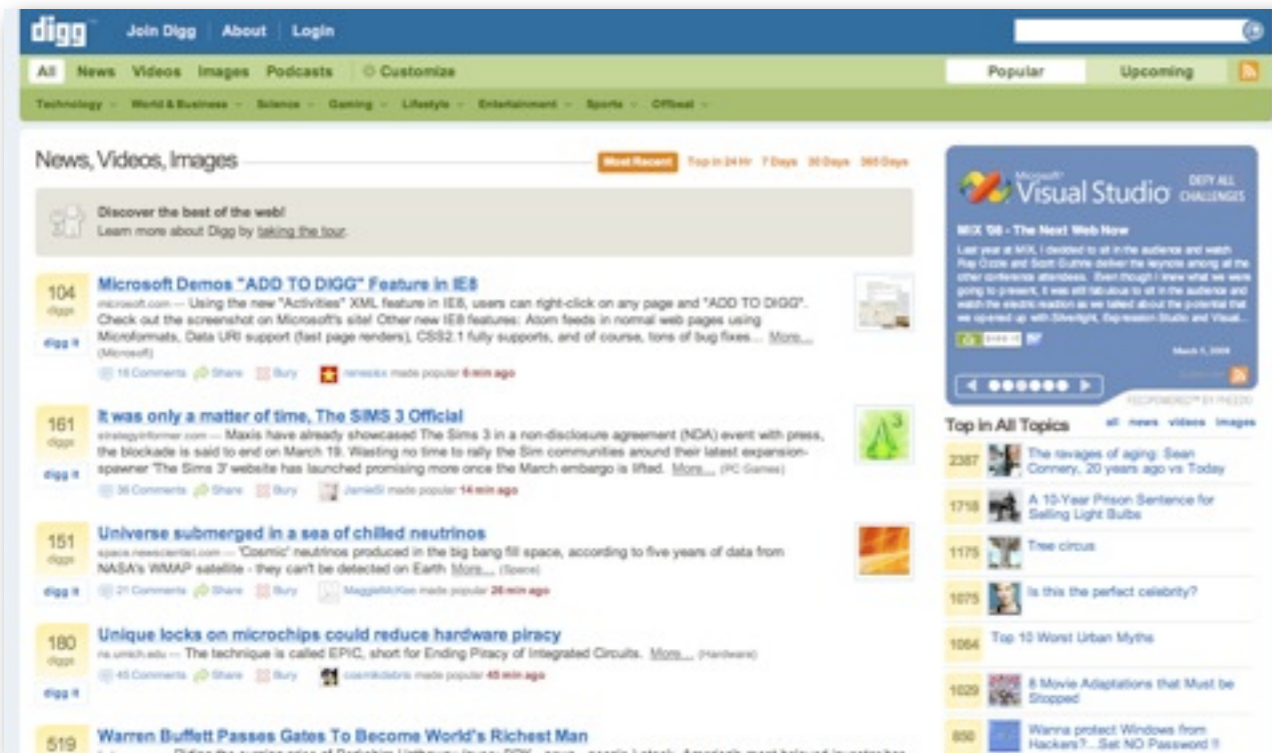
The screenshot shows the citeulike website, which is a free service for managing and discovering scholarly references. It features a search bar, a list of features, and a "Join now" button. The features include: "Easily store references you find online", "Discover new articles and resources", "Automated article recommendations^{NEW}", "Share references with your peers", "Find out who's reading what you're reading", and "Store and search your PDFs".



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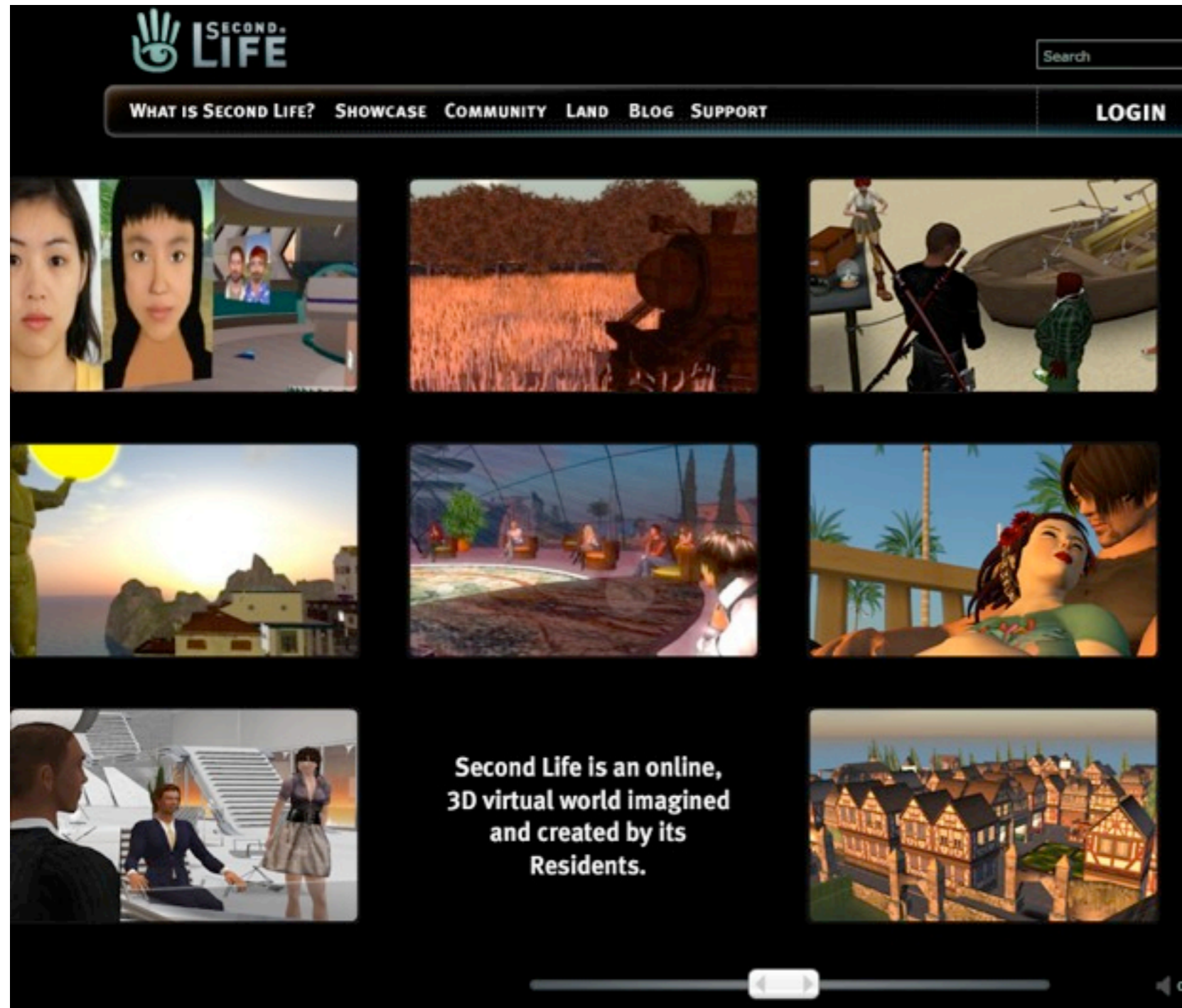
Social News/Mash Up



The Era of Social Computing, Irwin King, Technologies and Applications of Artificial Intelligence (TAAI2010), November 18-20, 2010, Hsinchu, Taiwan



On-line Games and Virtual Communities



The Era of Social Computing, Irwin King, Technologies and Applications of Artificial Intelligence (TAAI2010), November 18-20, 2010, Hsinchu, Taiwan



Social Entertainment

The screenshot shows the Swoopo website header with the logo, navigation links (Home, My Swoopo, Help, Register), and a login form. Below the header is a large banner for kitchenware. The banner features a kitchen scene with a stand mixer, knives, and vegetables. A red starburst says "Starting NOW". The main text reads "CALPHALON, HENCKELS & KITCHENAID". A dark blue box on the right says "REGISTER NOW FOR FREE" and "BUY BIDS AND BID WITHOUT RISK!". A link "Browse Kitchenware" is at the bottom right of the banner.

The screenshot shows a section titled "Bid now - these auctions are about to end" with five auction cards. Each card displays the item name, a timer, the current bid price, and a "BID" button.

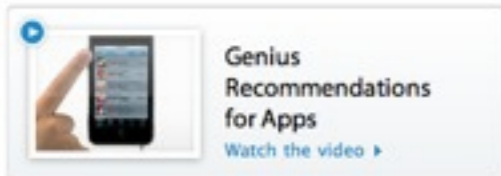
Item	Timer	Current Bid	User
300 Bids Voucher	00:00:18	\$117.90	Nirajzala
MySims Agents (Nintendo DS)	00:02:05	\$0.24	Bb4kids
Samsung UN46B6000 46-Inch 1080p LED HDTV	00:00:15	\$102.00	Julia30
Wii Nintendo Console + Wii Sports	00:00:15	\$32.04	Bearboy66
Apple MacBook Pro MB991LL/A 13.3-Inch Laptop	00:45:27	\$12.42	Jamesham



Social Recommendations

Genius Recommendations for Apps NEW

There are tens of thousands of apps in the App Store, with more added every day. A new feature of iPod touch makes finding cool new apps even easier. It's Genius for apps, and it works just like Genius for your music. Tap the Genius icon and get recommendations for apps that you might like based on apps you and others have downloaded.



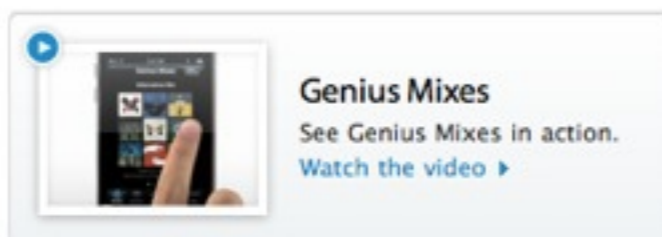
Genius Playlists

Say you're listening to a song you really like and want to hear other tracks that go great with it. The Genius feature finds other songs on your iPod touch that sound great with the one you were listening to and makes a Genius playlist for you. Listen to the playlist right away, save it for later, or even refresh it and give it another go. Count on Genius to create a mix you wouldn't have thought of yourself.



Genius Mixes NEW

Now the Genius feature is even more powerful. Introducing Genius Mixes. All you do is sync iPod touch to iTunes, and Genius automatically searches your library to find songs that sound great together. Then it creates multiple mixes you'll love. These mixes are like channels programmed entirely with your music.



Social Knowledge Sharing

WIKIPEDIA

English
The Free Encyclopedia
2 268 000+ articles

Deutsch
Die freie Enzyklopädie
718 000+ Artikel

Français
L'encyclopédie libre
631 000+ articles

日本語
フリー百科事典
474 000+ 記事

Nederlands
De vrije encyclopedie
414 000+ artikelen

Español
La enciclopedia libre
339 000+ artículos

Svenska
Den fria encyklopedin
277 000+ artiklar

Polski
Wolna encyklopedia
477 000+ hasel

Italiano
L'enciclopedia libera
421 000+ voci

Português
A enciclopédia livre
364 000+ artigos

search · suche · rechercher · szukaj · 検索 · ricerca · zoeken · busca
buscar · sök · поиск · 搜索 · søk · haku · suk · cerca · căutare · ara

English

KNOL™
BETA

Welcome to Knol

Share what you know

Write and post a knol (nōl) — a unit of knowledge.

Create
easy to write and manage

Search
searchable through popular search engines

Control
each knol is owned by you, the author

Ελληνικά

πύσση · σόκ · поиск · 搜索 · sök · haku · suk · cerca · căutare · ara

ημε σπρηοι
εαση κνοι ιε ομωεφ ρλ λοπ'
COUFOI



Social/Human Computation

Security Check: Enter both words below, separated by a space. What's This?
Can't read this? Try another.
Try an audio captcha

discharge **carolina**

Text in the box:

I have read and agree to the Terms of Use and Privacy Policy

Sign Up

Problems signing up? Check out our help pages

Security Check: Enter both words below, separated by a space. What's This?
Can't read this? Try another.
Try an audio captcha

discharge **tesbiten**

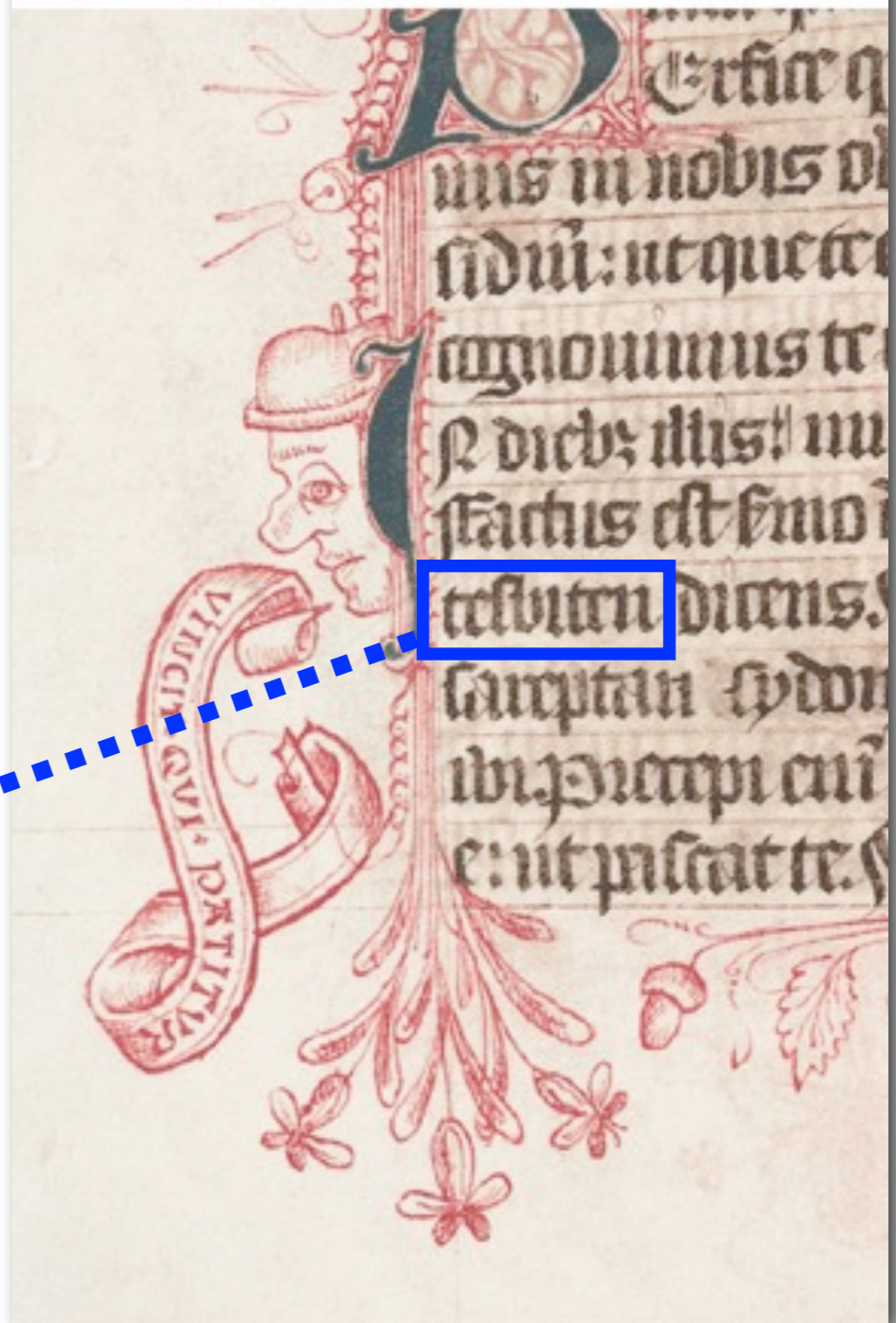
Text in the box:

I have read and agree to the Terms of Use and Privacy Policy

Sign Up

Problems signing up? Check out our help pages

MS. Don. b. 6, fol. 48v (detail) © Bodleian Library, University of Oxford

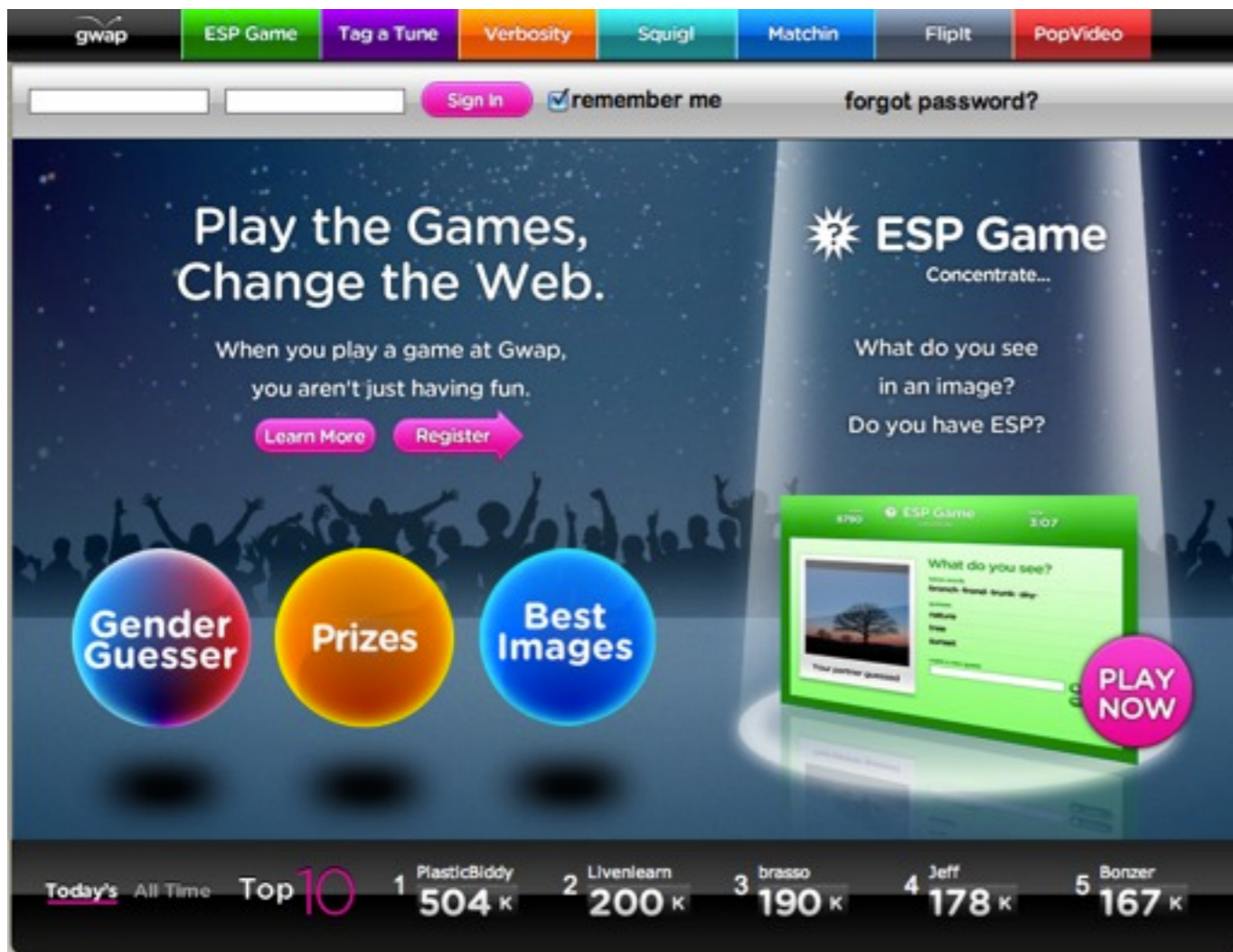


Human Computation

The screenshot shows the Google Image Labeler interface. At the top left is the Google logo with 'Image Labeler BETA' and 'Google Image Labeler' text. On the top right are links for 'Help' and 'Sign In'. Below the header, there is a 'time left' section showing '01:17', a 'score' of '0', and 'passes' of '0'. A central text box says 'Your partner has suggested 10 labels.' To the right of this text are 'label' and 'pass' buttons. Below the text is a photograph of a lake and mountains. Underneath the photo is a 'zoom out' button. On the right side of the interface, there are two sections: 'off-limits' with a list of labels (sky, water, blue, lake, mountain) and 'my labels' which is currently empty. Red starburst shapes are overlaid on the interface, highlighting the 'label' and 'pass' buttons, the 'off-limits' list, and the 'my labels' section.



Games With A Purpose (GWAP)



- **ESP**
 - Image tagging
- **Tag a Tune**
 - Song tagging
- **Verbosity**
 - Database of common knowledge description
- **Squigl**
 - Image segmentation
- **Matchin**
 - Image search by aesthetic value
- **Flipt**
 - Finding similar image pairs
- **PopVideo**
 - Video tagging



Crowdsourcing

amazonmechanical turk
Artificial Artificial Intelligence

Your Account

HITs

Qualifications

Already have an account?
Sign in as a [Worker](#) | [Requester](#)

[Introduction](#) | [Dashboard](#) | [Status](#) | [Account Settings](#)

Mechanical Turk is a marketplace for work.

We give businesses and developers access to an on-demand, scalable workforce. Workers select from thousands of tasks and work whenever it's convenient.

110,262 HITs available. [View them now.](#)

Make Money by working on HITs

HITs - *Human Intelligence Tasks* - are individual tasks that you work on. [Find HITs now.](#)

As a Mechanical Turk Worker you:

- Can work from home
- Choose your own work hours
- Get paid for doing good work



Get Results from Mechanical Turk Workers

Ask workers to complete HITs - *Human Intelligence Tasks* - and get results using Mechanical Turk. [Register Now](#)

As a Mechanical Turk Requester you:

- Have access to a global, on-demand, 24 x 7 workforce
- Get thousands of HITs completed in minutes
- Pay only when you're satisfied with the results



Foldit: Protein Folding Game

foldit BETA
Solve Puzzles for Science

00:33:18 GMT

[BLOG](#) [PUZZLES](#) [GROUPS](#) [PLAYERS](#) [RECIPES](#) [CONTESTS](#)
[FEEDBACK](#) [FORUM](#) [WIKI](#) [FAQ](#) [ABOUT](#) [CREDITS](#)

The Science Behind Foldit

Foldit is a revolutionary new computer game enabling *you* to contribute to important scientific research. This page describes the science behind Foldit and how your playing can help.

Page Contents:

- [What is protein folding?](#)
- [Why is this game important?](#)
- [News Articles about Foldit](#)
- [Rosetta@Home Screensaver](#)

What is protein folding?

What is a protein? Proteins are the workhorses in every cell of every living thing. Your body is made up of trillions of cells, of all different kinds: muscle cells, brain cells, blood cells, and more. Inside those cells, proteins are allowing your body to do what it does: break down food to power your muscles, send signals through your brain that control the body, and transport nutrients through your blood. Proteins come in thousands of different varieties, but they all have a lot in common. For instance, they're made of the same stuff: every protein consists of a long chain of joined-together amino acids.

Folded up Puzzle 48 (+) [Enlarge This Image](#)

RECOMMEND FOLDIT

GET STARTED: DOWNLOAD

[Win Beta](#) [Mac Beta](#) [Linux Beta](#)

Win XP/Vista Intel OS X 10.4 or later Linux

USER LOGIN

Username: *

Password: *

- [Create new account](#)
- [Request new password](#)
- [Sign in using Facebook](#)

[Cooper et al, Nature 466, 756-760 (5 August 2010)]

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Social Location-based Services

The image displays two overlapping web pages. The top page is the Foursquare homepage, featuring a search bar with the text "Find places, people, tags" and a "SEARCH" button. Below the search bar is a blue banner with the text "CHECK-IN FIND YOUR FRIENDS UNLOCK YOUR CITY". The bottom page is the Yelp homepage, showing a search bar with "Business Name or Category" and "Berkeley, CA" entered. The search bar includes the text "Find a Business - By Name - By Phone Number" and "Find a Person | Maps & Directions". Below the search bar is a yellow banner with the text "CLICK LESS. LIVE MORE." and "Open Popular Categories". The main content area shows a search result for "Discover Berkeley, CA" with a large image of a roasted turkey and the text "Thanksgiving to Go". To the right of the turkey image is a weather widget for Berkeley, CA, showing "Today" with a high of 56°F and a low of 49°F, "Saturday" with a high of 52°F and a low of 45°F, and "Sunday" with a high of 52°F and a low of 41°F. Below the weather widget is a yellow banner with the text "LAST CHANCE HAVE A FAVORITE MOVIE THEATER? TELL US WHY AND YOU COULD WIN \$25,000." and a "LEARN MORE" button.



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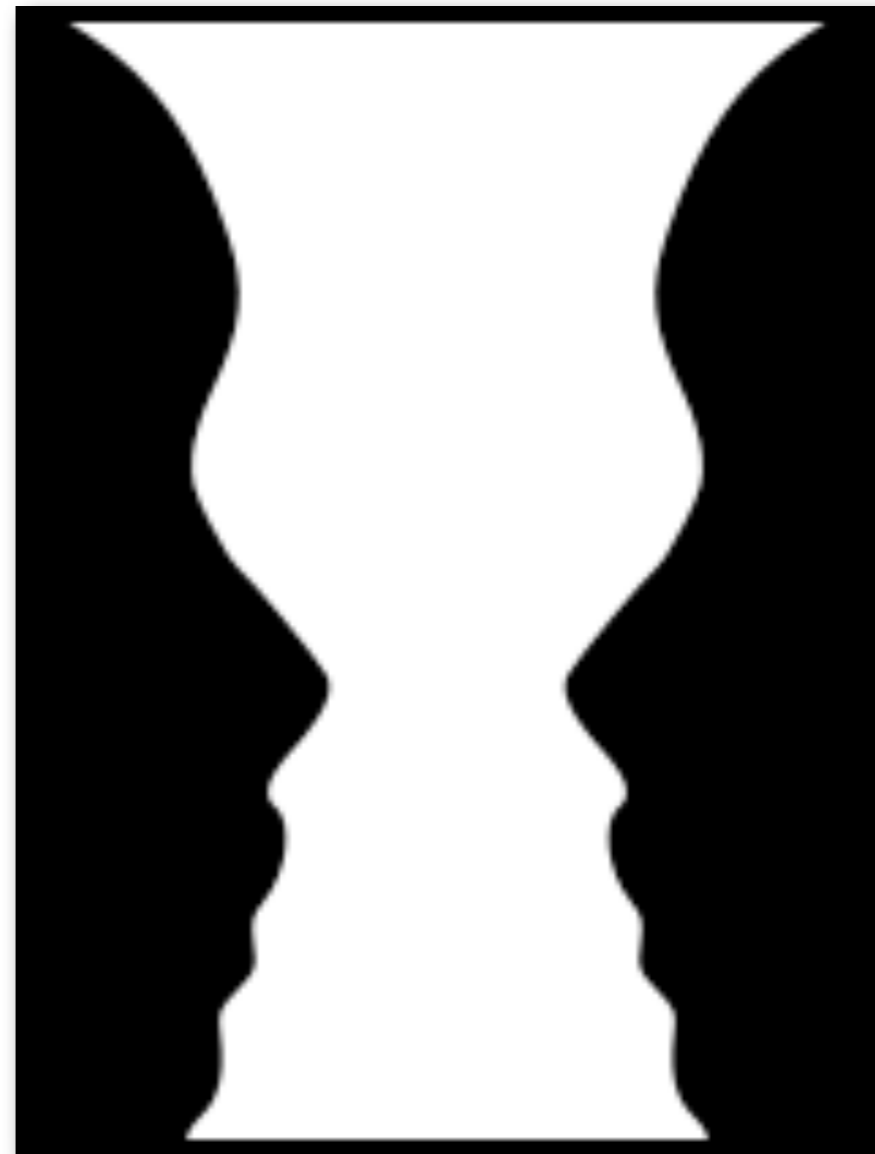
Web 2.0 Revolution

- **Glocalization**-think globally and act locally!
- **Weblication**-Web is the application!
- Three C's

Connectivity

Collaboration

Communities

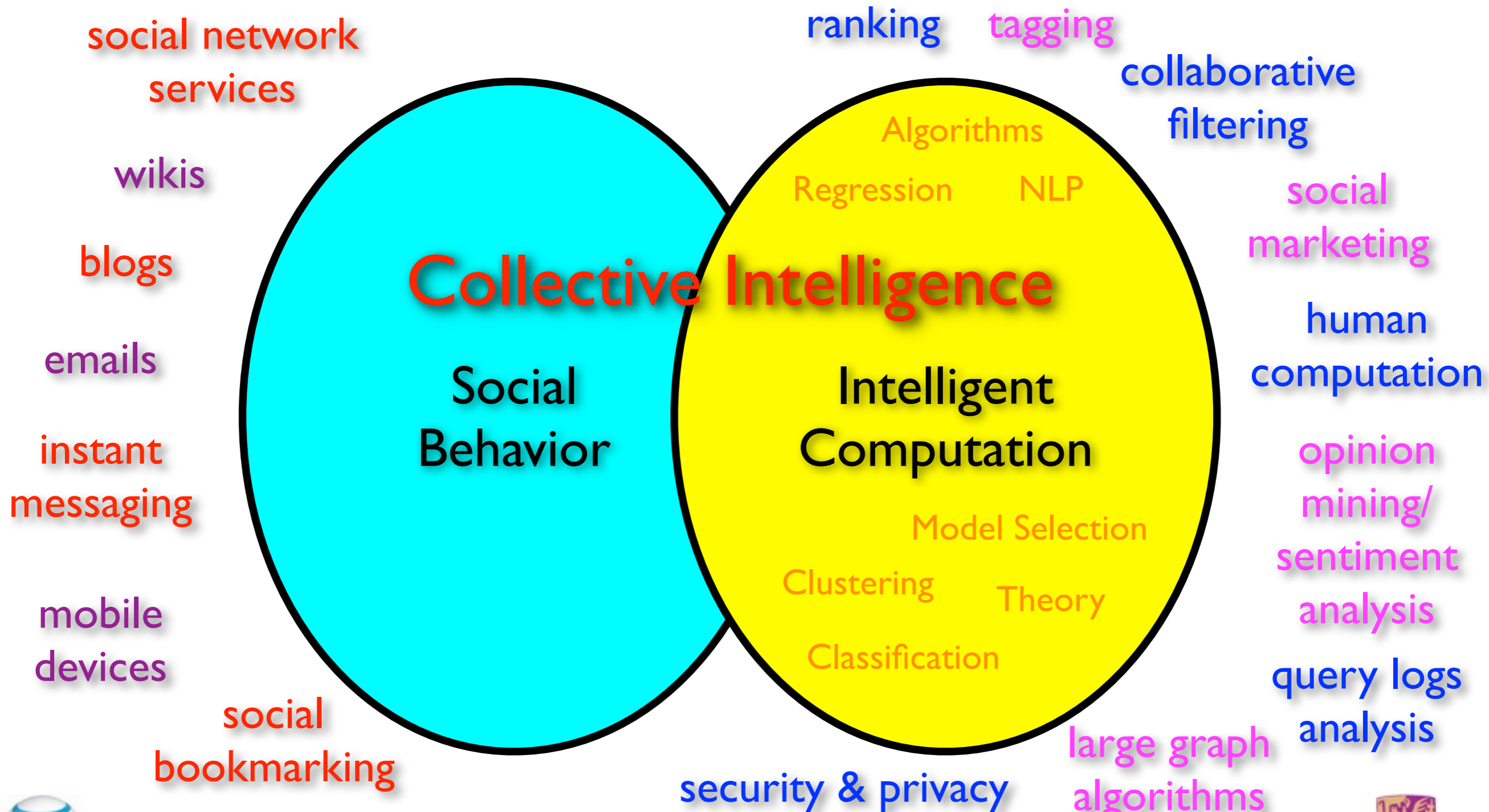


Social Relations

presence
identity
social role
reputation
expertise
trust
ownership
accountability
knowledge
crew
teams
populations
binary
cardinal
integer
real
squad
organizations
cohorts
markets
communities
partners
groups



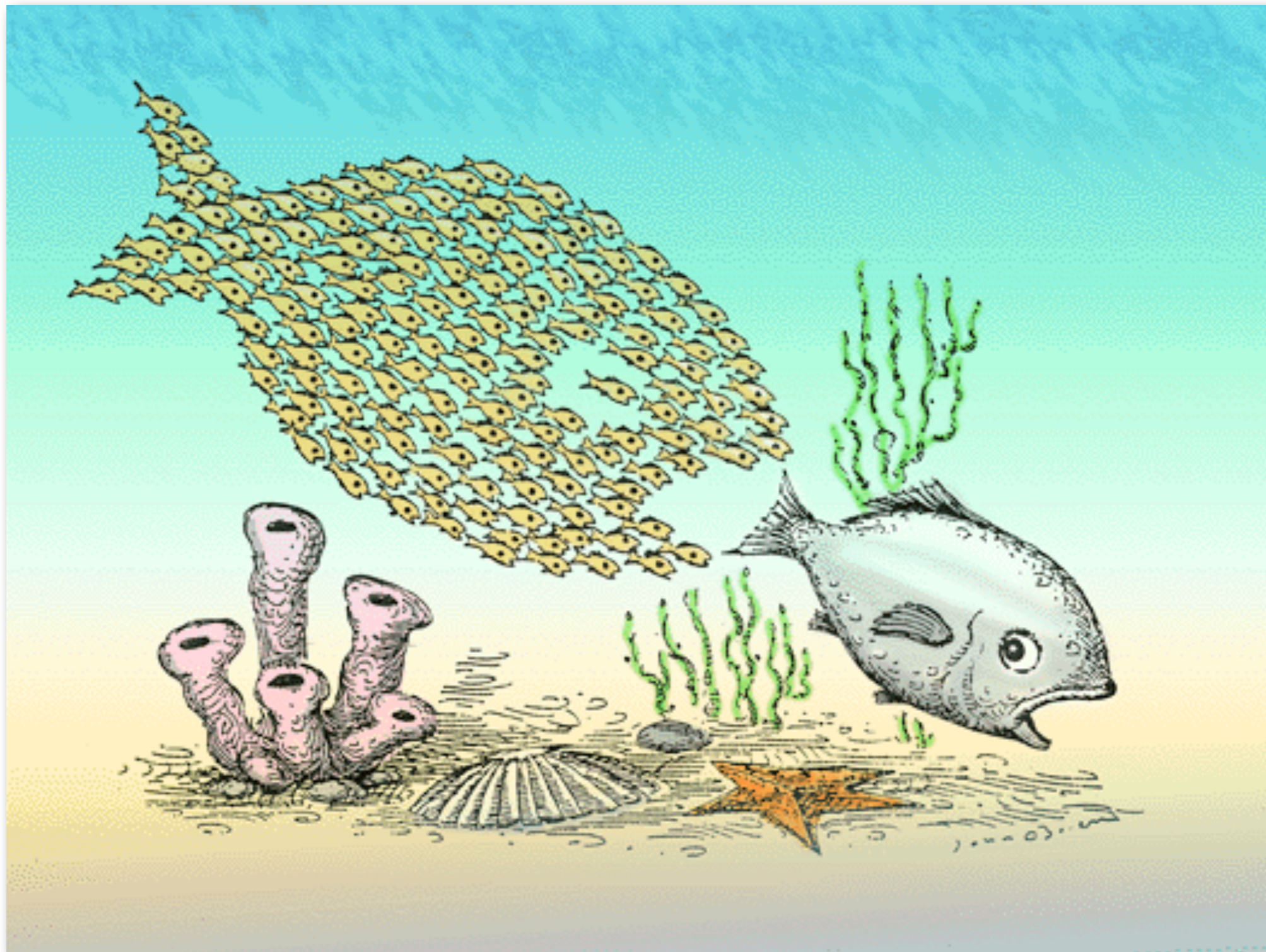
Social Computing



Definition of Social Computing [wiki]

- Any Computer-mediated communication and interaction
- In the weaker sense: **supporting any sort of social behavior**
 - blogs, email, instant messaging, wiki, social network services, social bookmarking
- In the stronger sense: **supporting “computations” that are carried out by a group of people**
 - collaborative filtering, online auctions, prediction markets, reputation systems, tagging, verification games





The Era of Social Computing, Irwin King, Technologies and Applications of Artificial Intelligence (TAAI2010), November 18-20, 2010, Hsinchu, Taiwan



Some of Our Work

- Social Recommendations
- Human Computation
- Query Suggestion
- Expert Finding



Social Recommendations

[Ma, SIGIR2007]

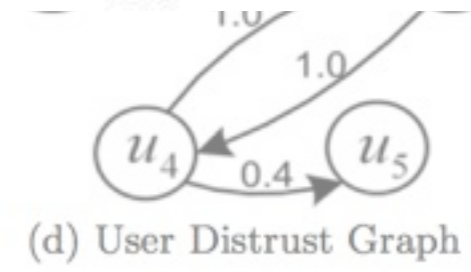
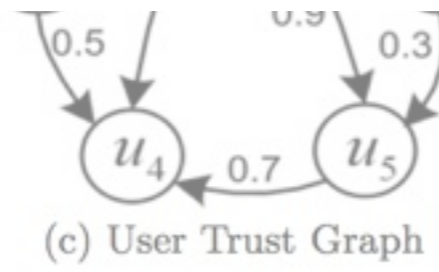
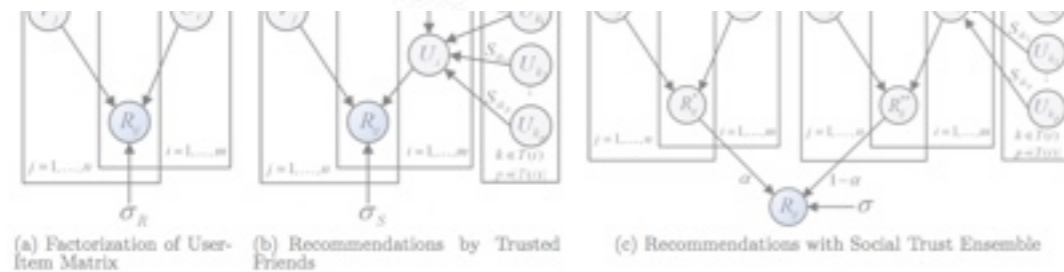
	i_1	i_2	i_3	i_4	i_5	i_6	i_7	i_8	i_9	i_n
u_1	$r_{1,1}$			$r_{1,4}$						
u_2		$r_{2,2}$						$r_{2,8}$		
u_3						$r_{3,6}$				
u_4				$r_{4,4}$						$r_{4,n}$
u_5			$r_{5,3}$				$r_{5,7}$			
u_6									$r_{6,9}$	
u_m			$r_{m,2}$							$r_{m,n}$

(a)

0.6

	i_1	i_2	i_3	i_4	i_5	i_6	i_7	i_8	i_9	i_n
u_1	$r_{1,1}$	0	$\hat{r}_{1,3}$	$r_{1,4}$	0	$\hat{r}_{1,6}$	0	$\hat{r}_{1,8}$	$\hat{r}_{1,9}$	0
u_2	0	$r_{2,2}$	0	$\hat{r}_{2,4}$	$\hat{r}_{2,5}$	0	$\hat{r}_{2,7}$	$r_{2,8}$	0	$\hat{r}_{2,n}$
u_3	$\hat{r}_{3,1}$	0	$\hat{r}_{3,3}$	$\hat{r}_{3,4}$	$\hat{r}_{3,5}$	$r_{3,6}$	0	$\hat{r}_{3,8}$	$\hat{r}_{3,9}$	0
u_4	$\hat{r}_{4,1}$	$\hat{r}_{4,2}$	0	$r_{4,4}$	$\hat{r}_{4,5}$	$\hat{r}_{4,6}$	$\hat{r}_{4,7}$	0	$\hat{r}_{4,9}$	$r_{4,n}$
u_5	$\hat{r}_{5,1}$	$\hat{r}_{5,2}$	$r_{5,3}$	0	$\hat{r}_{5,5}$	0	$r_{5,7}$	$\hat{r}_{5,8}$	$\hat{r}_{5,9}$	$\hat{r}_{5,n}$
u_6	$\hat{r}_{6,1}$	$\hat{r}_{6,2}$	0	$\hat{r}_{6,4}$	$\hat{r}_{6,5}$	$\hat{r}_{6,6}$	$\hat{r}_{6,7}$	0	$r_{6,9}$	$\hat{r}_{6,n}$
u_m	$\hat{r}_{m,1}$	0	$r_{m,2}$	$\hat{r}_{m,4}$	0	$\hat{r}_{m,6}$	0	$\hat{r}_{m,8}$	$\hat{r}_{m,9}$	$r_{m,n}$

(b)



[Ma, SIGIR2009]

[Ma, RecSys2009]

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Human Computation Systems

[Yuen, CSE2009]

TABLE I
CATEGORIZATION OF SOCIAL GAMES

Game Structure	Verification Method	Game Mechanism
Output-agreement	Symmetric	Collaborative or Hybrid
Input-agreement	Symmetric	Collaborative or Hybrid
Inversion-problem	Asymmetric	Collaborative or Competitive or Hybrid
Output-optimization	Symmetric or Asymmetric	Collaborative or Competitive or Hybrid

TABLE II
EXAMPLES OF SOCIAL GAMES

Game Structure	Verification Method	Game Mechanism	Player Requirement		Examples
			Num of Player	Game Play	
Output-agreement	Symmetric	Collaborative	2	Synchronous	ESP, Matchi, Squigl, OntoGame
		Hybrid	Multi-players	Synchronous	Common Consensus, Social Heroes
		Hybrid	Multi-players	Asynchronous	Gopher Game
Input-agreement	Symmetric	Collaborative	2	Synchronous	TagATune
		Hybrid	N/A	N/A	N/A
Inversion-problem	Asymmetric	Collaborative	1 or 2	Synchronous	Peekaboom, Verbosity
		Competitive	2	Asynchronous	Dogear, CyPRESS, CARS
		Hybrid	1 or Multi-players	Synchronous	Phetch
Output-optimization	Symmetric	Collaborative	2	Synchronous	Restaurant Game
		Competitive	N/A	N/A	N/A
		Hybrid	Multi-players	Synchronous	Diplomacy
	Asymmetric	Collaborative	N/A	N/A	N/A
		Competitive	N/A	N/A	N/A
		Hybrid	N/A	N/A	N/A



Improving Search Engines with Human Computation

[Ma et al., SIGIR'09, CIKM'09]

The screenshot shows the Bing Page Hunt game interface. The game is titled "PAGE HUNT" and is set on the Cheetah Conservation Fund website. The game timer is at 2:15, the score is 0, and the user has 0 of 2 correct answers. The search query is "cheetah fund". The search results show two incorrect results, both marked with a red X. The first result is "Cheetah Conservation Fund" and the second is "INTERNATIONAL LOCATIONS, PARTNERS, AFFILIAT". The background of the game shows the Cheetah Conservation Fund website with a cheetah image and the text "HELP US SAVE THE WILD CHEETAH!".

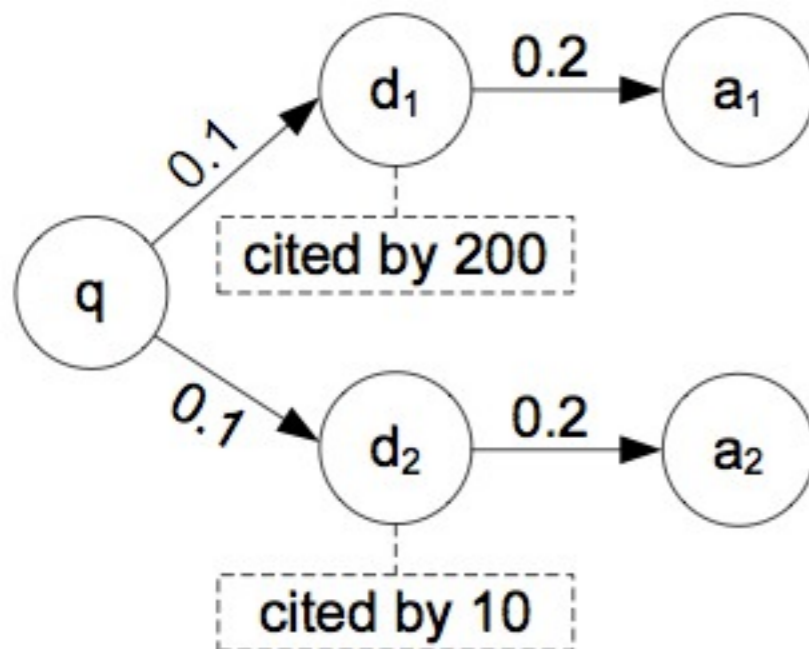


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Expert Finding Using DBLP

[Deng, ICDM2008]



- Weighted Statistical Language Model
- Topic-based Model
- Hybrid Model

Table 2. Statistics of DBLP and the topic collection.

Property	#of entities
DBLP:no_of_pub	953,774
DBLP:no_of_author	574,369
Topic:no_of_topic	2,498

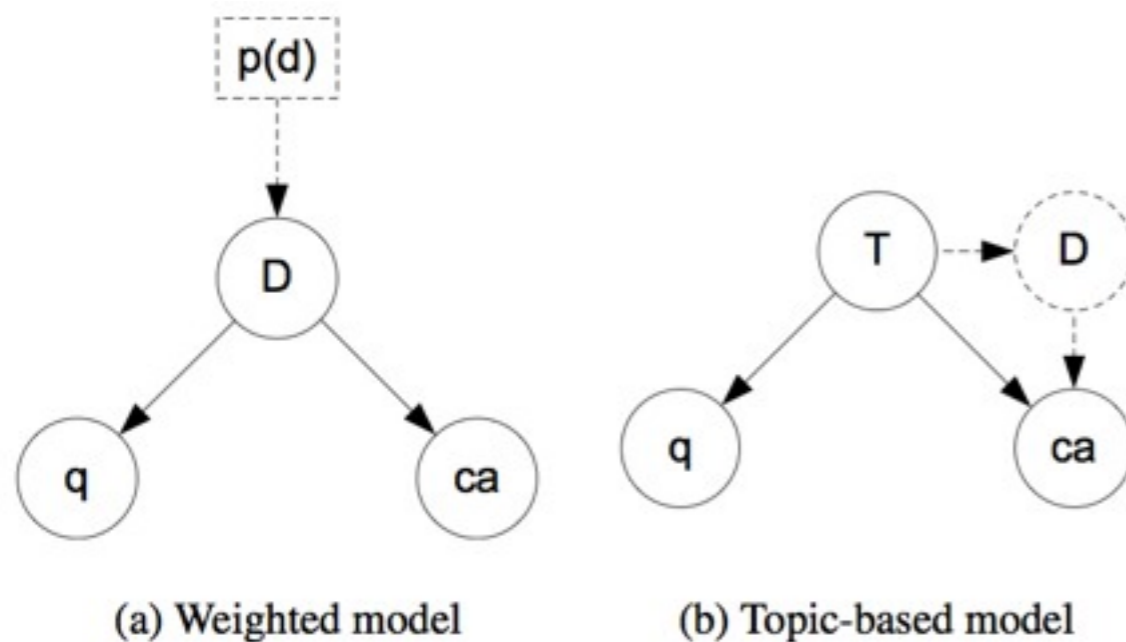


Table 3. Benchmark dataset of 7 topics.

Topic	#Expert
Information Extraction	20
Intelligent Agents	29
Machine Learning	42
Natural Language Processing	43
Planning	34
Semantic Web	45
Support Vector Machine	31

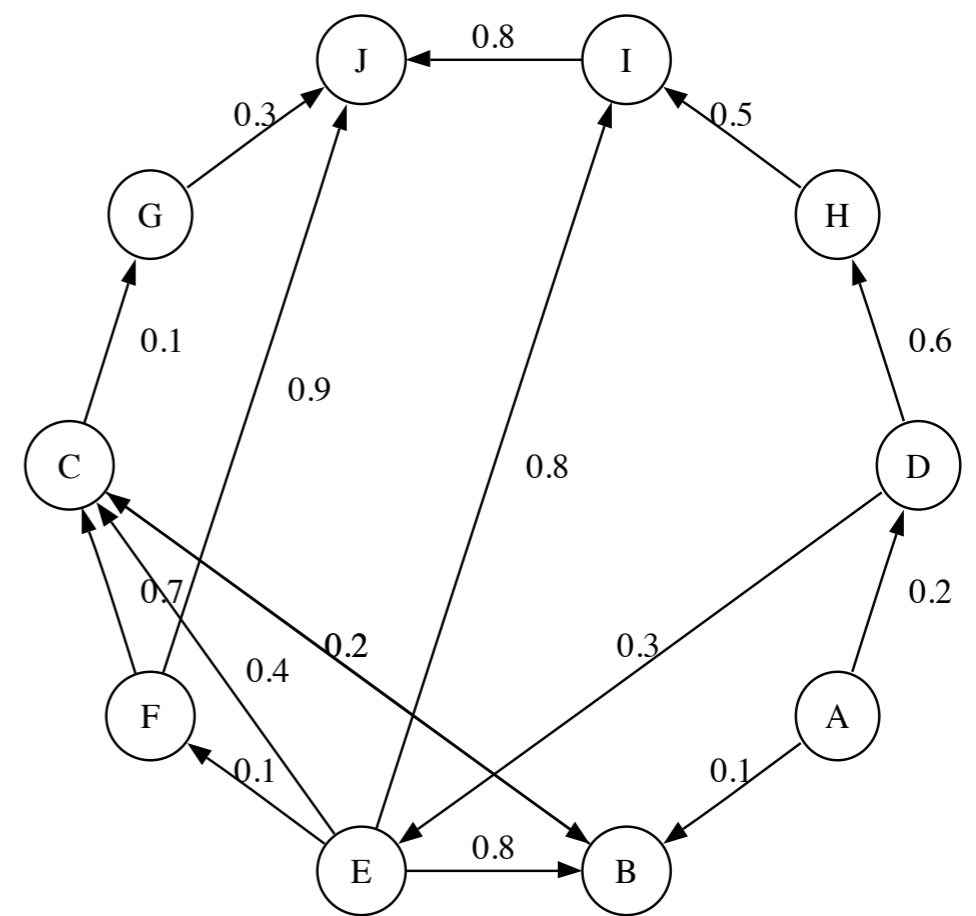
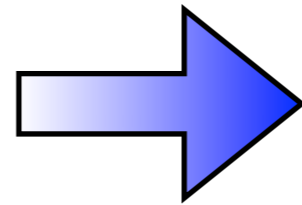
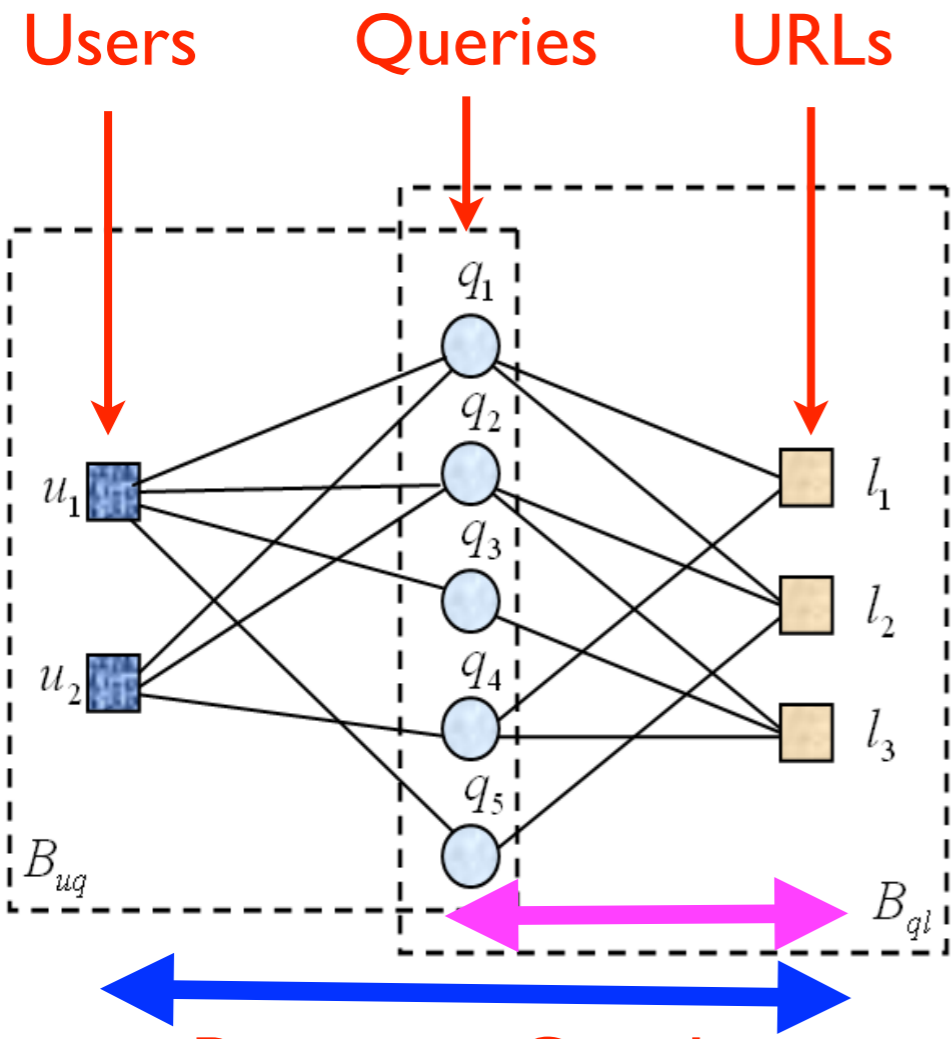


Query Suggestion

[Ma, CIKM2008]

Table 1: Samples of search engine clickthrough data

ID	Query	URL	Rank	Time
358	facebook	http://www.facebook.com	1	2008-01-01 07:17:12
358	facebook	http://en.wikipedia.org/wiki/Facebook	3	2008-01-01 07:19:18
3968	apple iphone	http://www.apple.com/iphone/	1	2008-01-01 07:20:36
...



Bipartite Graphs

Query Similarity Graph



Query Suggestions

Table 2: Examples of LSQS Query Suggestion Results ($k = 50$)

Testing Queries	Suggestions				
	$\alpha = 10$			$\alpha = 1000$	
	Top 1	Top 2	Top 3	Top 4	Top 5
michael jordan	michael jordan shoes	michael jordan bio	pictures of michael jordan	nba playoff	nba standings
travel	travel insurance	abc travel	travel companions	hotel tickets	lowest air fare
java	sun java	java script	java search	sun microsystems inc	virtual machine
global services	ibm global services	global technical services	staffing services	temporary agency	manpower professional
walt disney land	world of disney	disney world orlando	disney world theme park	disneyland grand hotel	disneyland in california
intel	intel vs amd	amd vs intel	pentium d	pentium	centrino
job hunt	jobs in maryland	monster job	jobs in mississippi	work from home online	monster board
photography	photography classes	portrait photography	wedding photography	adobe elements	canon lens
internet explorer	ms internet explorer	internet explorer repair	internet explorer upgrade	microsoft com	security update
fitness	fitness magazine	lifestyles family fitness	fitness connection	womens health magazine	family fitness
m schumacher	schumacher	red bull racing	formula one racing	ferrari cars	formula one
solar system	solar system project	solar system facts	solar system planets	planet jupiter	mars facts
sunglasses	replica sunglasses	cheap sunglasses	discount sunglasses	safilo	marhon
search engine	audio search engine	best search engine	search engine optimization	song lyrics search	search by google
disease	grovers disease	liver disease	morgellons disease	colic in babies	oklahoma vital records
pizzahut	pizza hut menu	pizza coupons	pizza hut coupons	papa johns pizza coupon	papa johns
health care	health care proxy	universal health care	free health care	great west healthcare	uhc
flower delivery	global flower delivery	online florist	flowers online	send flowers	virtual flower
wedding	wedding guide	wedding reception ideas	wedding decoration	unity candle	centerpiece ideas
astronomy	astronomy magazine	astronomy pic of the day	star charts	space pictures	comet



Acknowledgments

- Prof. Michael Lyu
- Mr. Patrick Lau
- Mr. Lam Cho Fung
- Mr. Ivan Yau
- Ms. Sara Fok
- Baichuan Li (M.Phil.)
- Zhenjiang Lin (Ph.D.)
- Hao Ma (Postdoc)
- Mingzhe Mo (M.Phil.)
- Dingyan Wang (M.Phil.)
- Wei Wang (M.Phil.)
- Haiqin Yang (Ph.D.)
- Connie Yuen (Ph.D.)
- Xin Xin (Ph.D.)
- Chao Zhou (Ph.D.)
- Yi Zhu (Ph.D.)



On-Going Research

Machine Learning

- Smooth Optimization for Effective Multiple Kernel Learning ([AAAI'10](#))
- Online Learning for Multi-Task Feature Selection ([CIKM'10](#))
- Simple and Efficient Multiple Kernel Learning By Group Lasso ([ICML'10](#))
- Online Learning for Group Lasso ([ICML'10](#))
- Heavy-Tailed Symmetric Stochastic Neighbor Embedding ([NIPS'09](#))
- Adaptive Regularization for Transductive Support Vector Machine ([NIPS'09](#))
- Direct Zero-norm Optimization for Feature Selection ([ICDM'08](#))
- Semi-supervised Learning from General Unlabeled Data ([ICDM'08](#))
- Learning with Consistency between Inductive Functions and Kernels ([NIPS'08](#))
- An Extended Level Method for Efficient Multiple Kernel Learning ([NIPS'08](#))
- Semi-supervised Text Categorization by Active Search ([CIKM'08](#))
- Transductive Support Vector Machine ([NIPS'07](#))
- Global and local learning ([ICML'04](#), [JMLR'04](#))

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On-Going Research

Web Intelligence/Information Retrieval

- Routing Questions to Appropriate Answerers in Community Question Answering Services ([CIKM'10](#))
- Diversifying Query Suggestion Results ([AAAI'10](#))
- A Generalized Co-HITS Algorithm and Its Application to Bipartite Graphs ([KDD'09](#))
- Entropy-biased Models for Query Representation on the Click Graph ([SIGIR'09](#))
- Effective Latent Space Graph-based Re-ranking Model with Global Consistency ([WSDM'09](#))
- Formal Models for Expert Finding on DBLP Bibliography Data ([ICDM'08](#))
- Learning Latent Semantic Relations from Query Logs for Query Suggestion ([CIKM'08](#))
- RATE: a Review of Reviewers in a Manuscript Review Process ([WI'08](#))
- MatchSim: link-based web page similarity measurements ([WI'07](#))
- Diffusion rank: Ranking web pages based on heat diffusion equations ([SIGIR'07](#))
- Web text classification ([WWW'07](#))



On-Going Research

Recommender Systems/ Collaborative Filtering

- Recommender Systems with Social Regularization ([WSDM'11](#))
- CMAP: Effective Fusion of Quality and Relevance for Multi-criteria Recommendation ([WSDM'11](#))
- UserRec: A User Recommendation Framework in Social Tagging Systems ([AAAI'10](#))
- Learning to Recommend with Social Trust Ensemble ([SIGIR'09](#))
- Semi-Nonnegative Matrix Factorization with Global Statistical Consistency in Collaborative Filtering ([CIKM'09](#))
- Recommender system: accurate recommendation based on sparse matrix ([SIGIR'07](#))
- SoRec: Social Recommendation Using Probabilistic Matrix Factorization ([CIKM'08](#))

Human Computation

- Collection of User Judgments on Spoken Dialog System with Crowdsourcing ([SLT'10](#))
- A Survey of Human Computation Systems ([SCA'09](#))
- Mathematical Modeling of Social Games ([SIAG'09](#))
- An Analytical Study of Puzzle Selection Strategies for the ESP Game ([VI'08](#))
- An Analytical Approach to Optimizing The Utility of ESP Games ([VI'08](#))



Emerging Issues

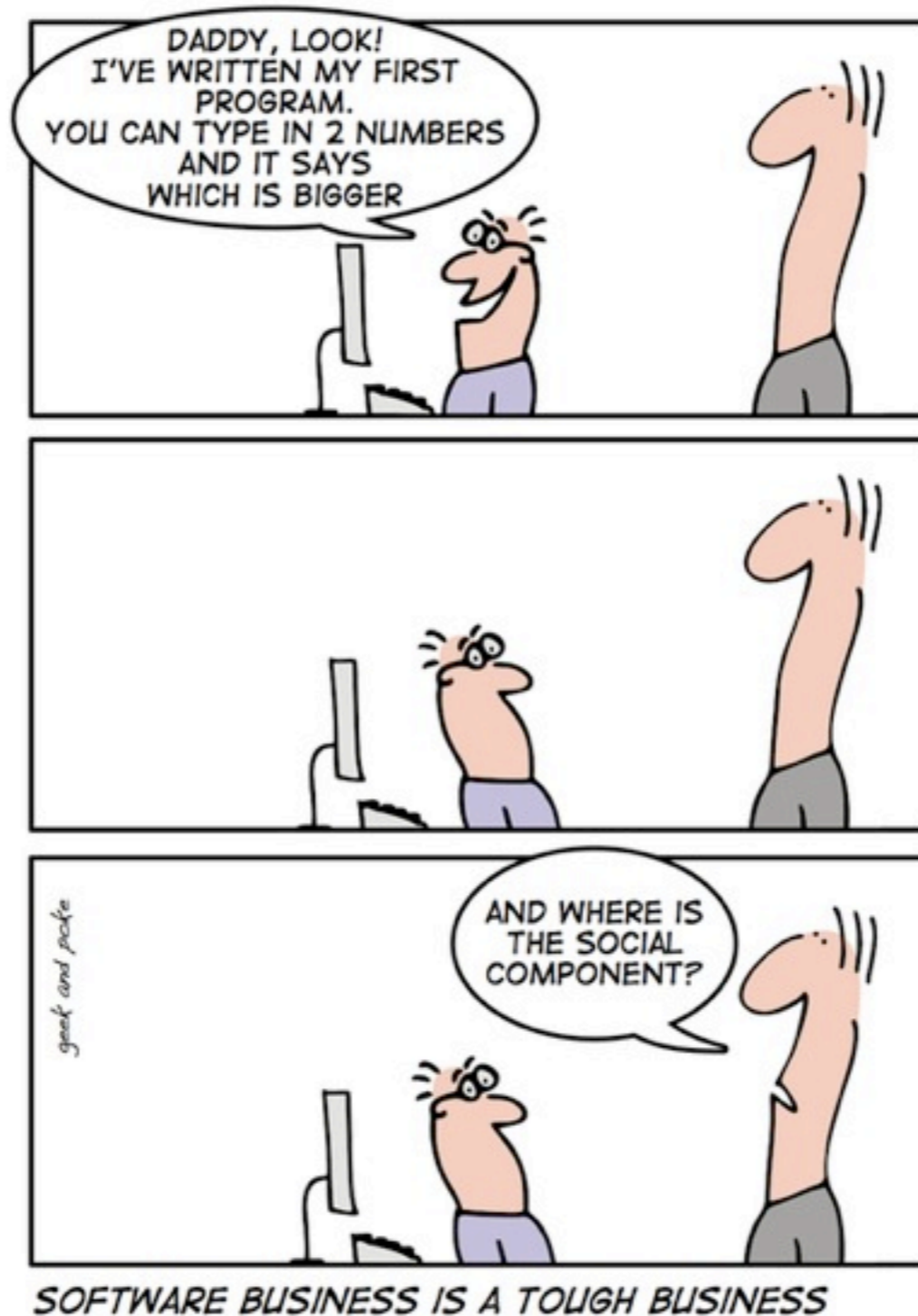
- **Theory** and models
- **Search, mining, and ranking** of existing information, e.g., **spatial** (relations) and **temporal** (time) domains
- Dealing with **partial** and **incomplete** information, e.g., collaborative filtering, ranking, tagging, etc.
- **Scalability** and **algorithmic** issues
- **Security, privacy, trust, and risk** issues
- **Monetization** of social interactions
- Service-based software **platforms** and development **tools**



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Are You Social Computing Ready?



WSDM2011

 Search

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Fourth ACM International Conference
on Web Search and Data Mining

9-12 February 2011
Hong Kong



WSDM2011

WSDM (pronounced "wisdom") is the premier international ACM conference covering research in the areas of search and data mining on the Web. The 4th ACM WSDM Conference will take place in Hong Kong, during February 9-12, 2011.

WSDM publishes original, high quality papers and presentations related to search and data mining on the Web and the Social Web, with an emphasis on practical but principled novel models of search, retrieval and data mining, algorithm design and analysis, economics implications, and in-depth experimental analysis of accuracy and performance.

Breaking News

QUICK LINKS

- [Workshop Information](#)

IMPORTANT DATES

- | | |
|--------|---------------------------------------|
| Jul-25 | Workshop-proposals |
| Aug-1 | Paper-submission |
| Aug-23 | Workshop-notification |
| Sep-1 | Tutorial-proposals |
| Oct 15 | Paper notification |

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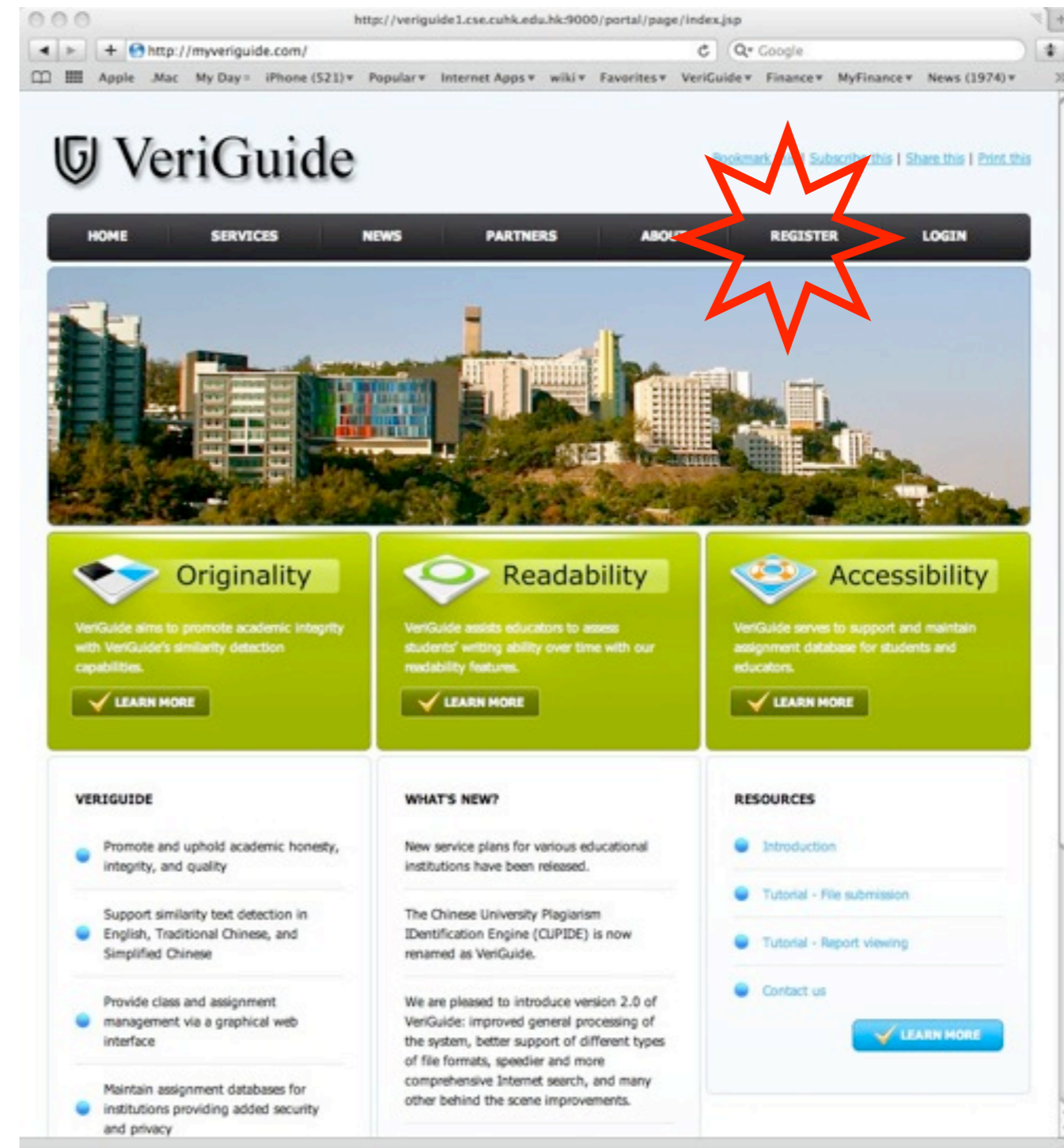


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Q & A



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