

# CSCI5070 Advanced Topics in Social Computing

## 01-Introductions

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# Course Information

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- <http://www.cse.cuhk.edu.hk/irwin.king/teaching/csci5070/2012>
- Office hours: M8 and T8 from 3:30 pm - 4:30 pm
- Tutor: Mr. Baichuan Li
- <http://www.cse.cuhk.edu.hk/~king/PUB/CSCI5070>



# A Quick Survey

- Programming languages and tools
  - Python (packages and APIs)
  - R or Matlab
  - Graphviz
  - Web crawler
  - NetworkX
- Machine learning and data mining
  - Classification and clustering algorithms
  - Graph theory
  - Matrix operations, linear algebra, etc.
  - Natural language processing
  - PageRank, HITS, etc.



# Grade Assessment Scheme

- Assignments (30%)
  - Written assignments
  - Optional quizzes
- Midterm Examination (30%)
- Project (40%)
  - Report (20%)
  - Presentations (20%)
- Extra Credit (There is no penalty for not doing the extra credit problems. Extra credit will only help you in borderline cases.)



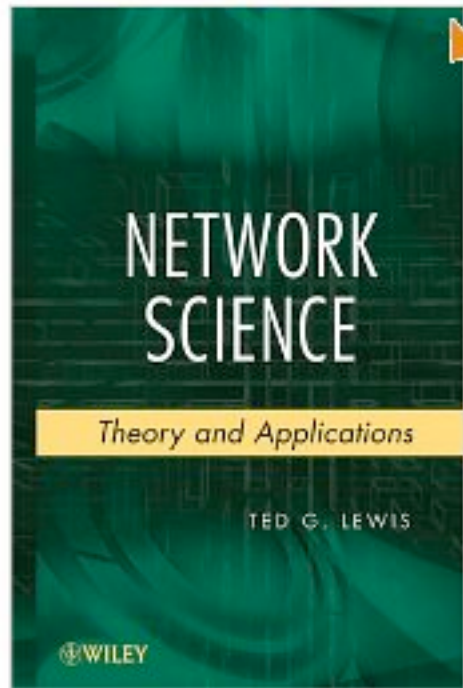


# Class Project

- Project is for everyone
- Up to two persons per project group
- Sept. 26 - Project proposal submission
- Oct. 2 - Project feedback
- Around Nov. 6 - Midterm check
- Around Dec. 4 or 11 - Project presentations



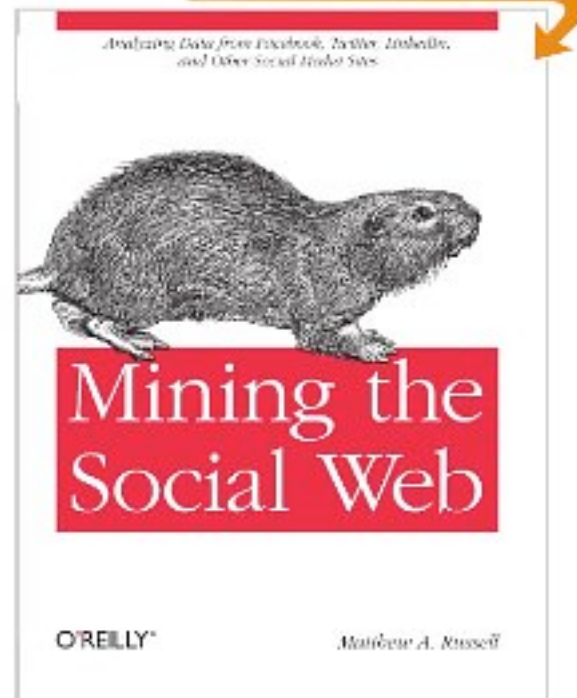
Click to **LOOK INSIDE!**



Network Science:  
Theory and Applications

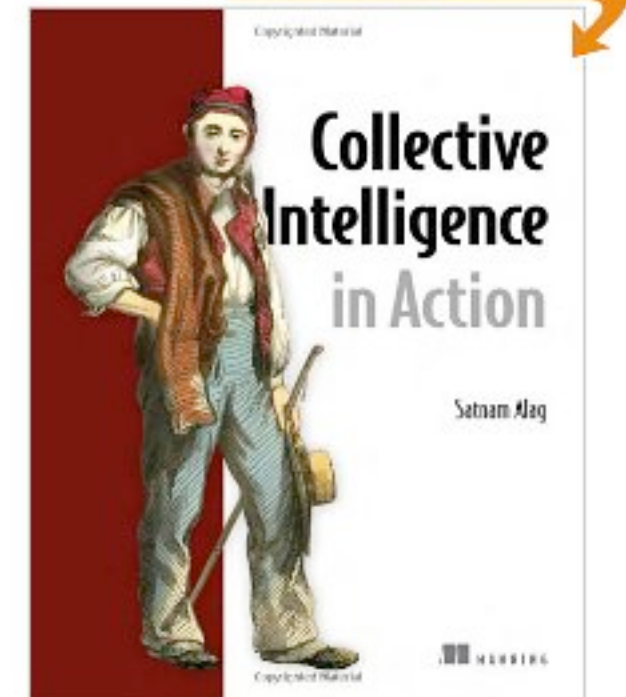
# References

Click to **LOOK INSIDE!**



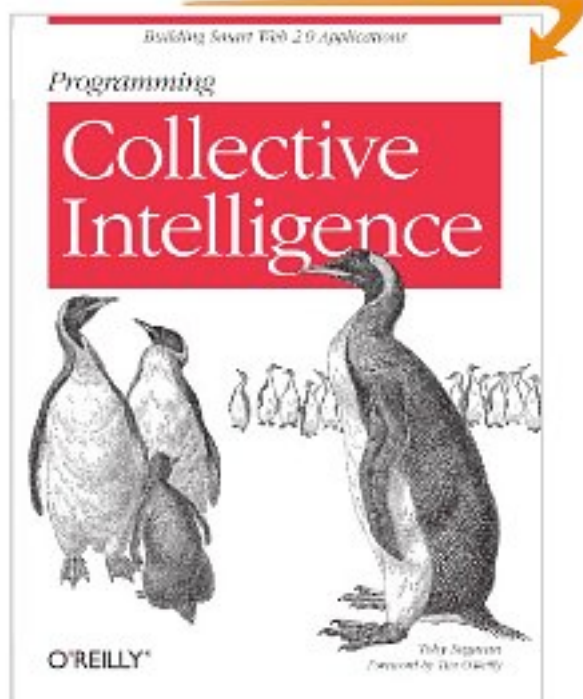
Mining the Social Web:  
Analyzing Data from  
Facebook, Twitter,  
LinkedIn, and Other Social  
Media Sites

Click to **LOOK INSIDE!**



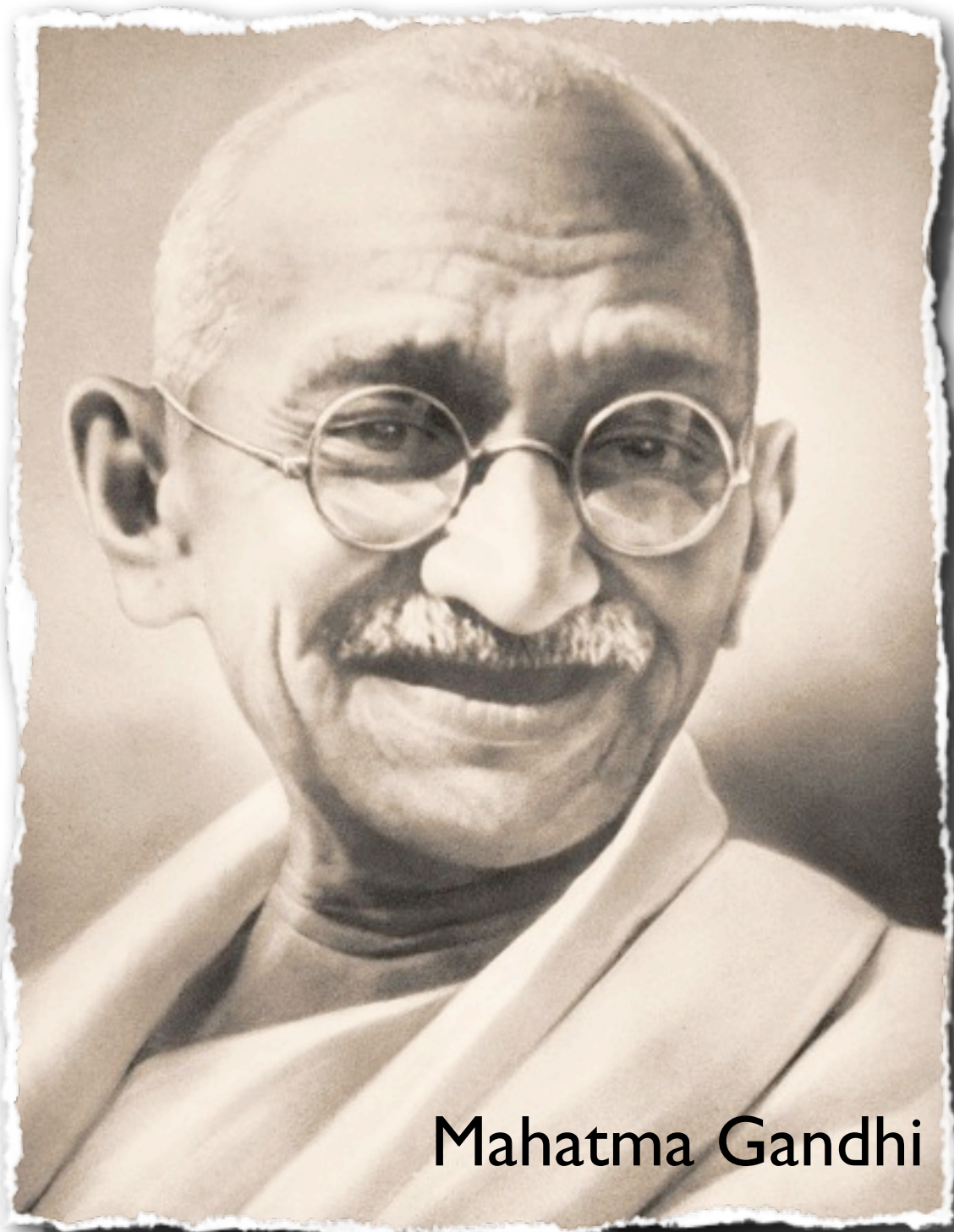
Collective Intelligence in  
Action

Click to **LOOK INSIDE!**



Programming Collective Intelligence:  
Building Smart Web 2.0 Applications





Mahatma Gandhi

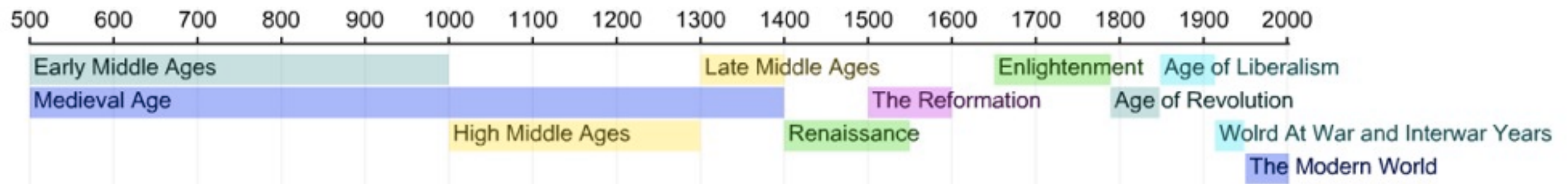
*Interdependence is and ought to be as much the ideal of man as self-sufficiency.*

*Man is a social being.*

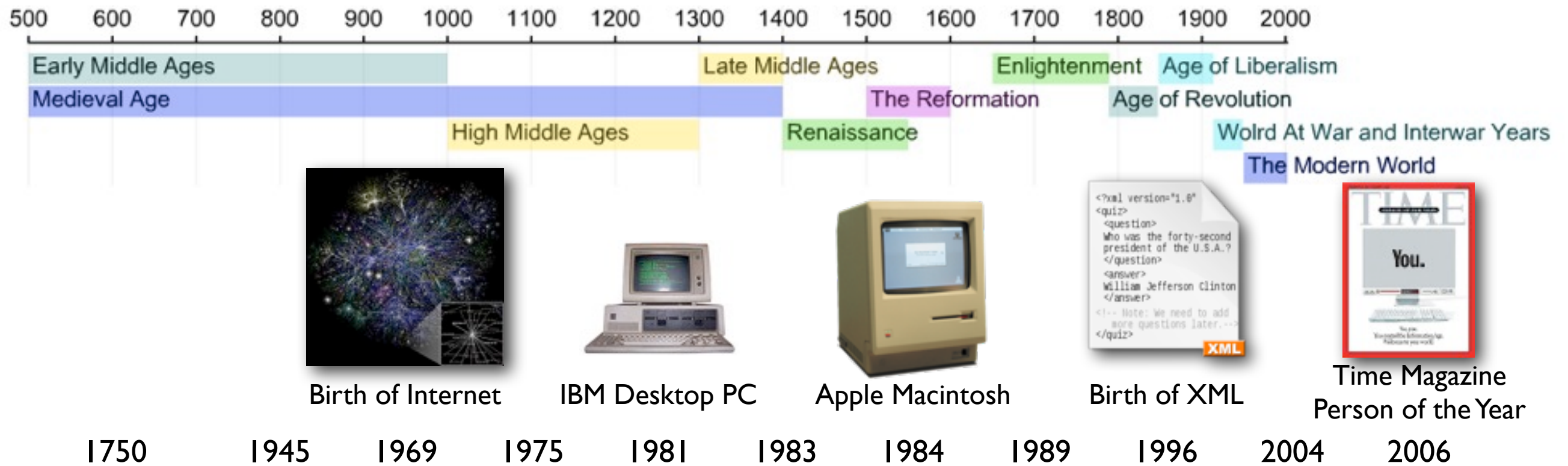




# A Brief History of the World



# A Brief History of the World



**Industrial  
Revolution**

**Information  
Age**

**Internet  
Age**

**www  
Age**

**Attention  
Age**

ENIAC



The MITS Altair  
Apple II



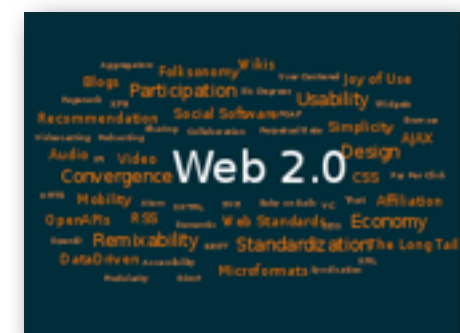
Time Magazine  
Person of the Year



Birth of WWW



Birth of Web 2.0







intel.

# revolution in evolution

Highlights from the Journey to 1 Billion PCs

1,000,000,000  
900,000,000  
800,000,000  
700,000,000  
600,000,000  
500,000,000  
400,000,000  
300,000,000  
200,000,000  
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700,000,000  
600,000,000  
500,000,000  
400,000,000  
300,000,000  
200,000,000  
100,000,000



**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 8008 microprocessor, which was used in the first commercially successful personal computer - the Intel 8008.

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



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

**1986** - The number of PCs shipped worldwide reaches nearly 64 million and a 15-year period of continuous growth begins.

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

**1988** - Removable CD-ROM discs become available.

**1991** - Creative Labs introduces a Multimedia Upgrade Kit containing a CD-ROM drive, Sound Blaster® Pro card, speakers and multimedia software.

**1992** - The number of PCs shipped worldwide reaches 200 million.

**1993** - The number of PCs shipped worldwide reaches 347 million.

**1994** - The number of PCs shipped worldwide reaches 580 million.

**1995** - The number of PCs shipped worldwide reaches 778 million.

**1996** - The number of PCs shipped worldwide reaches 965 million.

**1997** - The number of PCs shipped worldwide reaches 1.1 billion.

**1998** - The number of PCs shipped worldwide reaches 1.3 billion.

**1999** - The number of PCs shipped worldwide reaches 1.5 billion.

**2000** - The number of PCs shipped worldwide reaches 1.7 billion.

**2001** - The number of PCs shipped worldwide reaches 1.9 billion.

**2002** - The number of PCs shipped worldwide reaches 2.1 billion.

**2003** - The number of PCs shipped worldwide reaches 2.3 billion.

**2004** - The number of PCs shipped worldwide reaches 2.5 billion.

**2005** - The number of PCs shipped worldwide reaches 2.7 billion.

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

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\*Source: Intel Corporation  
\*\*Source: Intel Corporation  
\*\*\*Source: Intel Corporation  
\*\*\*\*Source: Intel Corporation  
\*\*\*\*\*Source: Intel Corporation





# Social Networking

*HOW TO USE WEB 2.0 IN THE ENTERPRISE*



*PART 1:  
COMMUNICATE WITH YOUR EMPLOYEES*



# Billionaires' Shuffle

2007



Facebook in 2004.02

**2008**

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



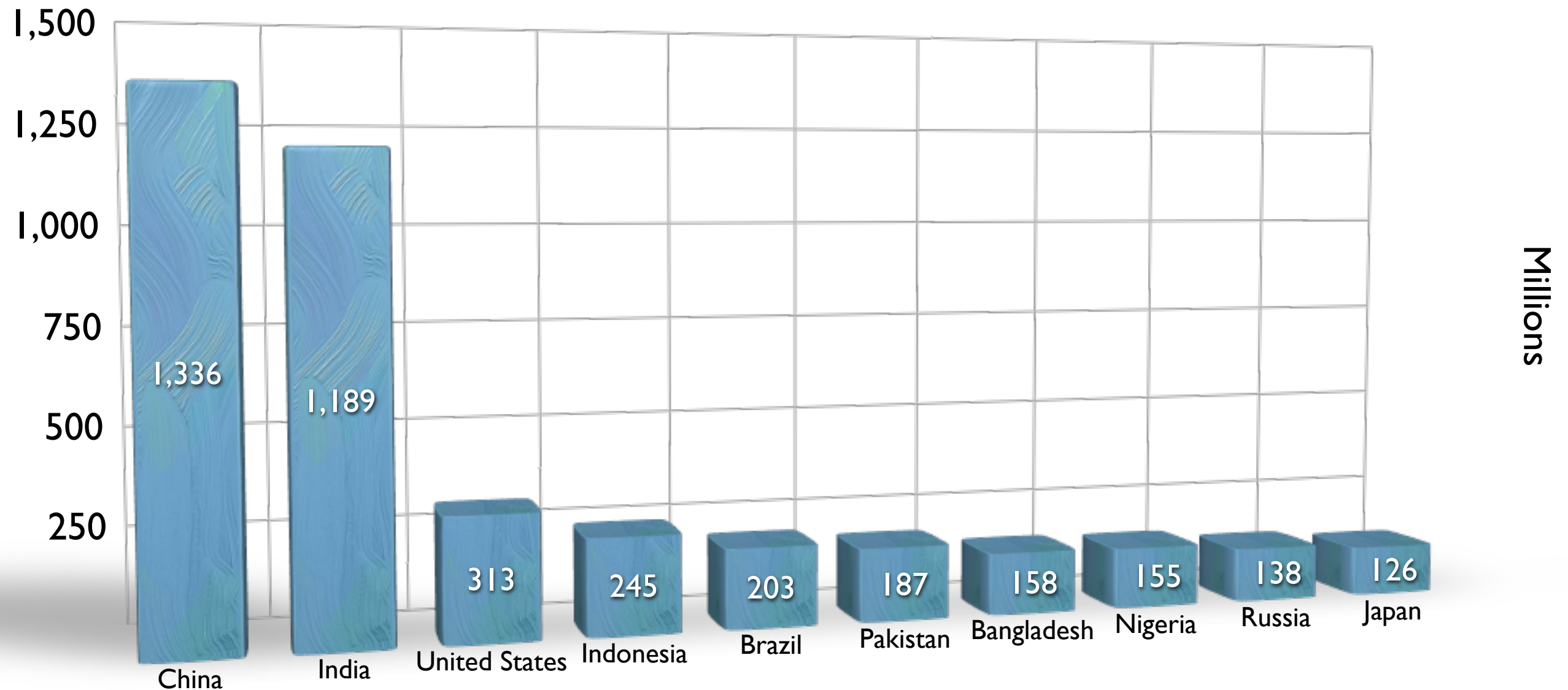
2008





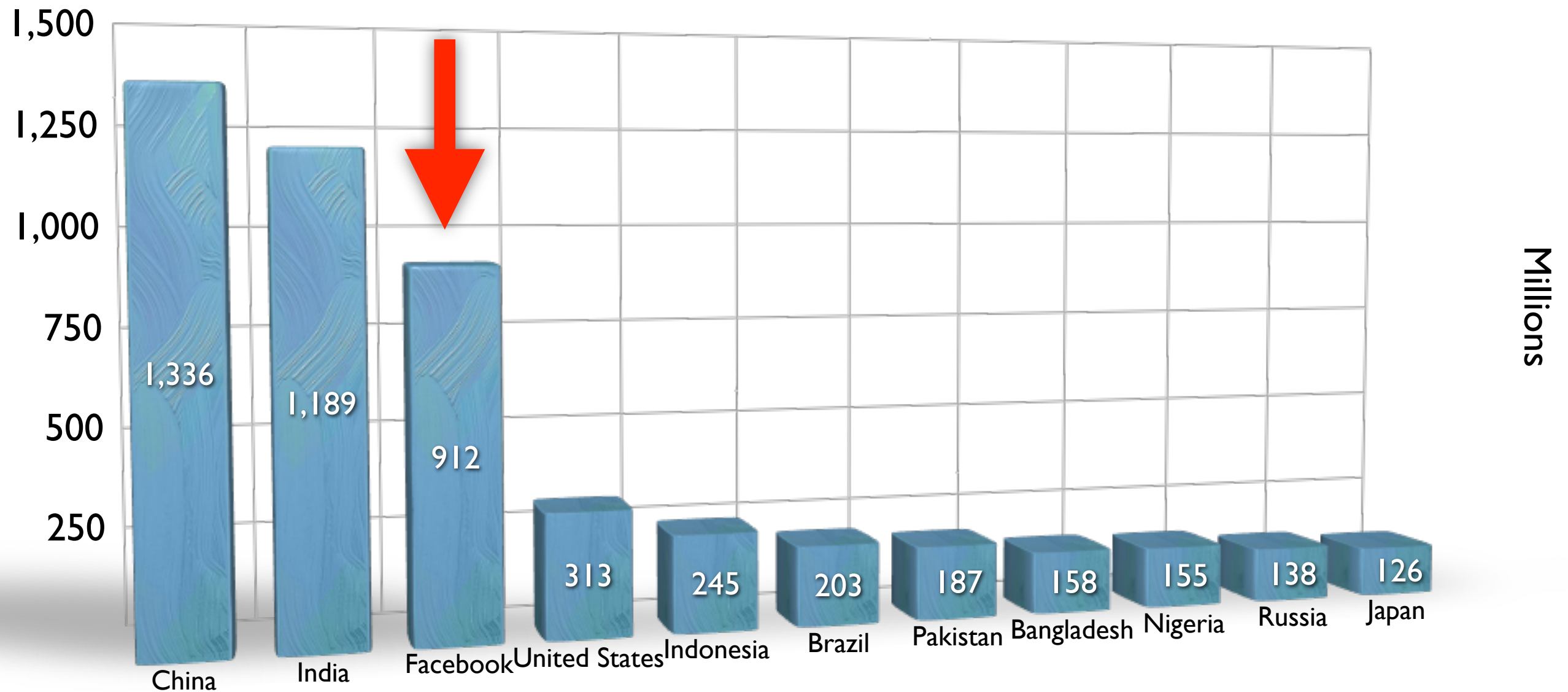
# Top 10 Populations by Countries

as of December 31, 2011



# Top 10 Populations by Countries

as of September 8, 2012



# Facebook's Global Audience

Global Audience: 316,402,840

Data for 11/03/2009



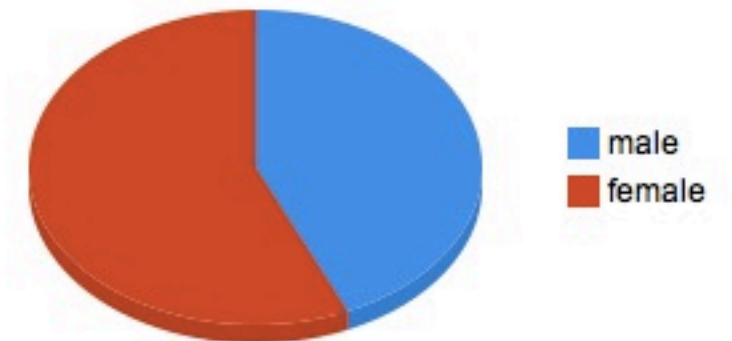
## United States

Country Audience: 94,748,820

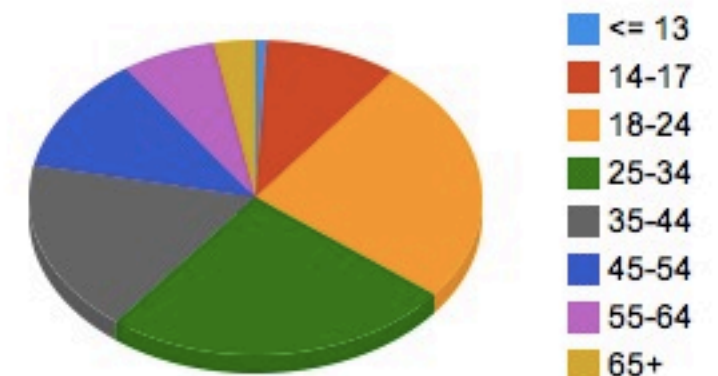
Percent of Global Audience: 29.95%

Share This Site 1543 [retweet](#)

United States Male / Female



United States Age Distribution





# Facebook's Global Audience

Global Audience: 912,496,580

Data for 09/08/2012

About CheckFacebook.com



Start monitoring your Facebook Page today!

- ✓ Analyze your competition
- ✓ Track most engaging content
- ✓ Compare your results with leaders

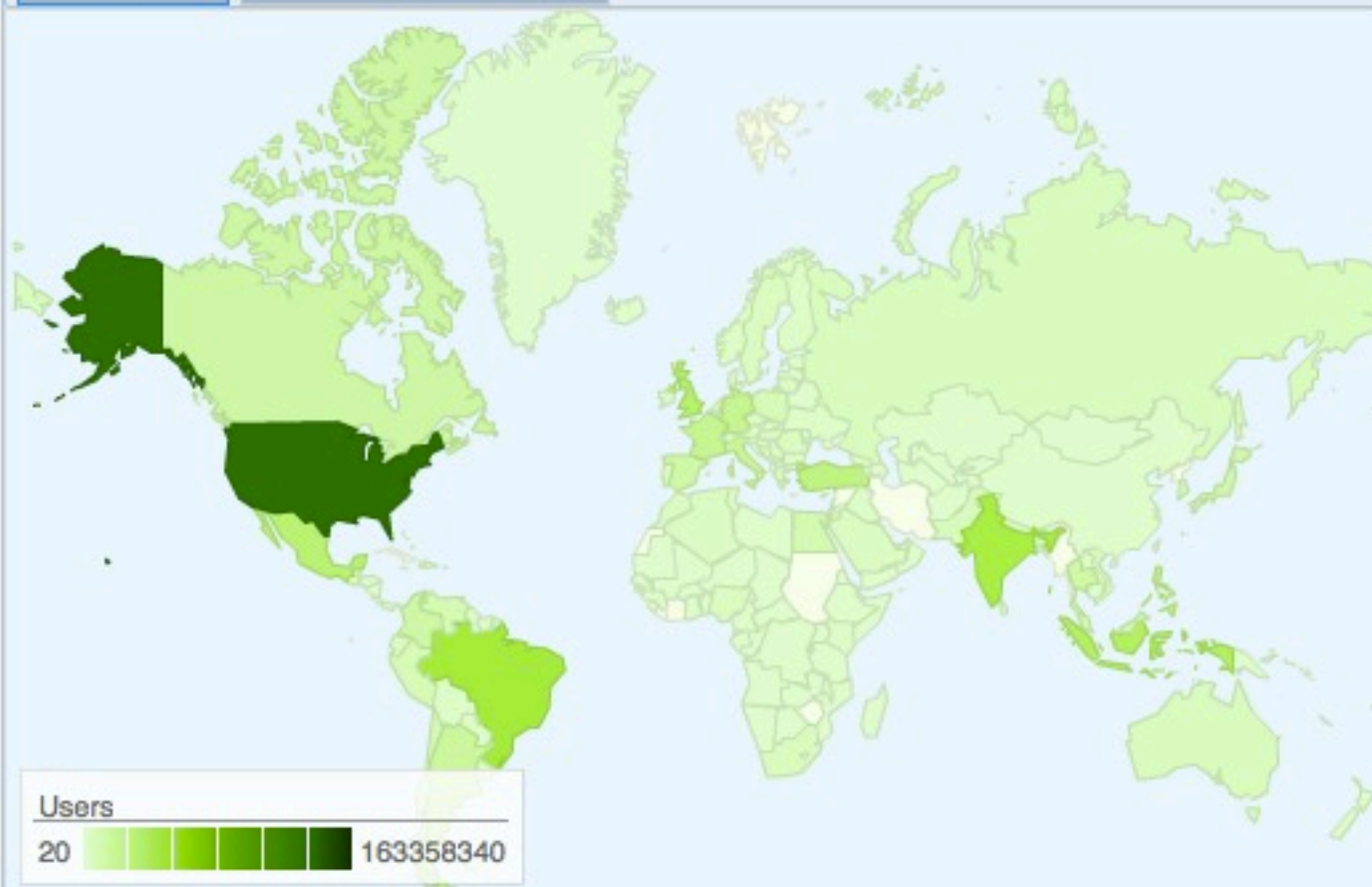
Most comprehensive analytics platform for Facebook out there

Start right NOW!

George May | DOB

Total Users

% Online Population



Not Pictured: Hong Kong, Maldives, Palestine, Singapore, Taiwan

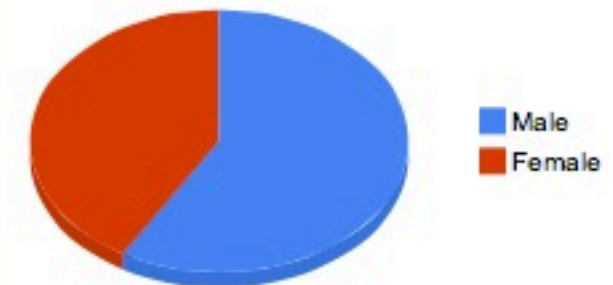
## China

Country Audience: 552,560

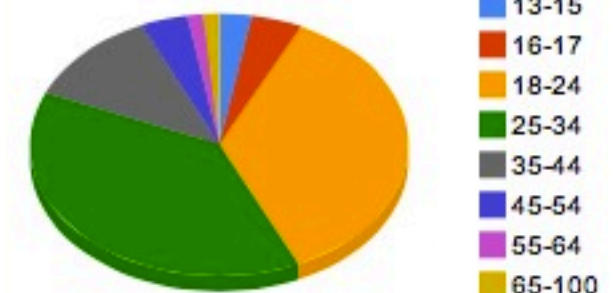
Percent of Global Audience: 0.13%

Share This Site 4163 retweet

China Male / Female



China Age distribution



PRO Analytics  
for facebook page!

- ✓ Local Industry benchmarks
- ✓ Discover what works
- ✓ Competitive reporting



# 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





# Facebook's Growth Stats

(as of September 2012)

## Statistics

955 million monthly active users at the end of June 2012.

Approximately 81% of our monthly active users are outside the U.S. and Canada.

552 million daily active users on average in June 2012.

543 million monthly active users who used Facebook mobile products in June 2012.

10 Largest Countries			10 Fastest Growing Over Past Week		
1.	United States	163,358,340	1.	Vietnam	100.09 % 3,598,480
2.	Brazil	56,804,900	2.	Brazil	0.18 % 100,060
3.	India	53,624,320	3.	Thailand	0.21 % 34,780
4.	Indonesia	44,156,440	4.	Colombia	0.19 % 32,060
5.	United Kingdom	40,036,380	5.	Romania	0.44 % 21,940
6.	Mexico	37,542,740	6.	Croatia	0.84 % 13,120
7.	Turkey	31,108,760	7.	Netherlands Antilles	12.76 % 9,720
8.	Philippines	29,136,040	8.	Canada	0.05 % 9,700
9.	France	24,639,540	9.	Chile	0.10 % 9,560
10.	Germany	24,300,340	10.	Jordan	0.37 % 8,980



# Global Internet Traffic

Alexa as of August 2011	China	USA	Japan	India	Brazil	Global
1	Baidu	Google	Yahoo.jp	Google.in	Google.br	Google
2	<b>QQ</b>	<b>Facebook</b>	Google.jp	Google	Google	<b>Facebook</b>
3	Sina	Yahoo!	<b>FC2</b>	<b>Facebook</b>	<b>Facebook</b>	<b>YouTUBE</b>
4	Taobao	<b>YouTUBE</b>	<b>YouTUBE</b>	<b>YouTUBE</b>	<b>YouTUBE</b>	Yahoo!
5	Google.hk	Amazon	Google	Yahoo!	Universo Online	<b>Blogger</b>
6	163	<b>Wikipedia</b>	<b>Ameblo.jp</b>	<b>Blogger</b>	Windows Live	Baidu
7	<b>Weibo</b>	<b>Blogger</b>	rakuten	<b>Wikipedia</b>	Globo	<b>Wikipedia</b>
8	Google	<b>Twitter</b>	<b>livdoor</b>	<b>LinkedIn</b>	<b>Orkut.com.br</b>	Windows Live
9	ifeng	eBay	<b>Facebook</b>	<b>Twitter</b>	Yahoo!	<b>Twitter</b>
10	Yahoo	Craigslist	<b>Wikipedia</b>	Rediff	<b>Orkut.com</b>	<b>QQ</b>



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

Alexa as of August 2011	China	USA	Japan	India	Brazil	Global
1	Baidu	Google	Yahoo.jp	Google.in	Google.br	Google
2	<b>QQ</b>	<b>Facebook</b>	Google.jp	Google	Google	<b>Facebook</b>
3	Sina	Yahoo!	<b>FC2</b>	<b>Facebook</b>	<b>Facebook</b>	<b>YouTube</b>
4	Taobao	<b>YouTube</b>	<b>YouTube</b>	<b>YouTube</b>	<b>YouTube</b>	Yahoo!
5	Google.hk	Amazon	Google	Yahoo!	Universo Online	<b>Blogger</b>
6	163	<b>Wikipedia</b>	<b>Ameblo.jp</b>	<b>Blogger</b>	Windows Live	Baidu
7	<b>Weibo</b>	<b>Blogger</b>	rakuten	<b>Wikipedi a</b>	Globo	<b>Wikipedi a</b>
8	Google	<b>Twitter</b>	<b>livedoor</b>	<b>LinkedIn</b>	<b>Orkut.co m.br</b>	Windows Live
9	ifeng	eBay	<b>Facebook</b>	<b>Twitter</b>	Yahoo!	<b>Twitter</b>
10	Yahoo	Craigslist	<b>Wikipedi a</b>	Rediff	<b>Orkut.co m</b>	<b>QQ</b>





# The Brave New Words

博客

維基

AVATAR

头像

tag cloud

推特

unfriend

tweet

blogsphere

twitterati

defriend

SEXTING

hashtags

Folksonomy




# Politics

HOME PAGE TODAY'S PAPER VIDEO MOST POPULAR TIMES TOPICS

**The New York Times**  
Friday, June 19, 2009

**News**

Search All NYTimes.com   

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION ARTS STYLE TRAVEL JOBS REAL ESTATE AUTOS


**The Lede**

[The New York Times News Blog](#)

June 2, 2009, 7:05 PM

## China's Great Firewall Blocks Twitter

By ROBERT MACKEY



Catherine Henriette/Agence France-Presse — Getty Images

Search This Blog

Previous Post: [Bloggers Ponder Last Message From Missing Jet's Computer](#)

Next Post: [Punditry From Bin Laden and Zawahiri on Obama's Trip to the Middle East](#)

**Recent Posts**

June 18 (38 comments) [Latest Updates on Iran's Disputed Election](#)  
To supplement reporting from New York Times correspondents inside Iran on Thursday, The Lede will continue to track the aftermath of Iran's disputed presidential election online.

June 17 (129 comments) [Wednesday: Latest Updates on Iran's Disputed Election](#)  
On Wednesday, The Lede will continue to track the aftermath of Iran's disputed presidential election online, to supplement reporting from New York Times correspondents inside Iran.

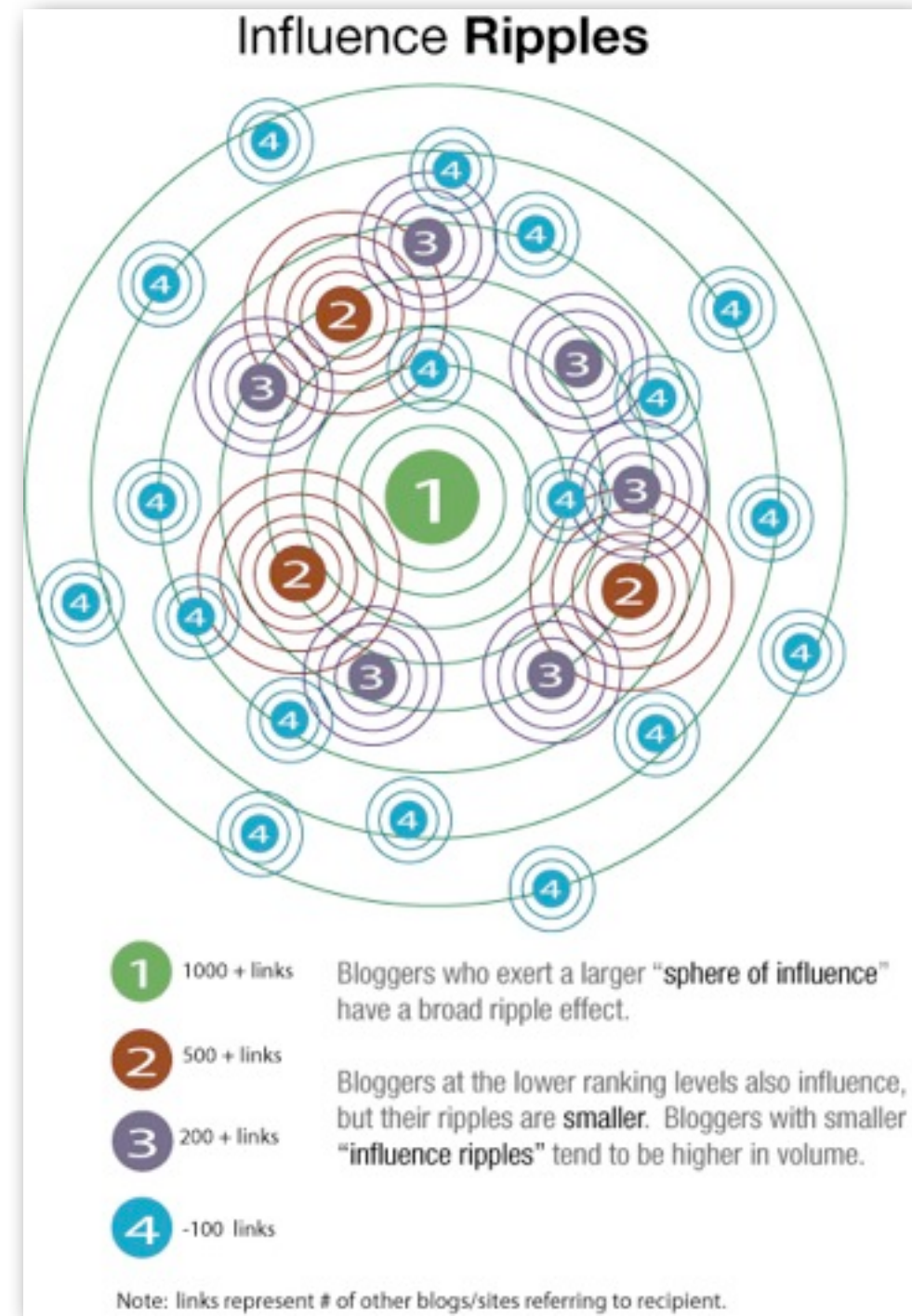
June 16 (198 comments) [Tuesday: Latest Updates on Iran's Disputed Election](#)  
To supplement reporting from New York Times correspondents inside Iran, The Lede





# 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...

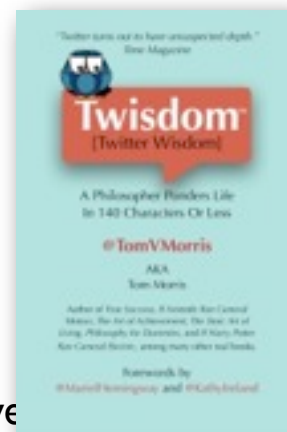
2007–2008 U.S. Flu Activity - Mid-Atlantic Region

ILI percentage



# 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 Social Media Generation

The screenshot shows the YouTube channel page for the Academy of Motion Picture Arts and Sciences. At the top left is the Oscar statuette logo. The channel name is "Oscar®" with the subtitle "Oscars's Channel". Navigation buttons include "Subscribe", "Uploads", and "Favorites". In the top right, there are links for "VISIT OSCARS.ORG", "BECOME A FAN", and "SIGN UP FOR NEWS".

The main video player displays a large, ornate stage with a blue and white color scheme, filled with people. Below the video is a player control bar showing "0:01 / 9:45" and "360p".

Below the video player are options for "Info", "Comments", "Favorite", "Share", "Playlists", and "Flag". The video title is "Steve Martin and Alec Baldwin hosting the Oscars®" with "61 ratings" and a five-star rating. The description reads: "From: Oscars | March 10, 2010 | 312 views. Steve Martin and Alec Baldwin, co-hosts of the 82nd Academy Awards®, in their opening monologue." A link says "View comments, related videos, and more".

On the right side, there is a search bar and a list of related videos:

- 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)





# The Age of FaceBook

The screenshot shows the Facebook interface for Barack Obama's page. The top navigation bar includes the Facebook logo, a search bar, and links for Home, Profile, and Account. The main header features Barack Obama's profile picture and a 'Become a Fan' button. Below this are tabs for Wall, Info, Boxes, Events, Notes, and Photos. The main content area displays a post from Barack Obama with the text: 'Barack Obama 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.' The post includes a large number '8' in a blue box, a link to 'www.whitehouse.gov', and a description: 'The White House is highlighting a new fact or figure each day to make the case for why we need to pass health reform now. Spread the word—share this with your family, friends and online networks.' The post is dated '27 minutes ago' and has 4,913 views. Below the main post are two more posts: one about a live broadcast of Obama speaking at Arcadia University, and another video post titled 'President Obama's message to supporters: "We need you in this final march for reform"'. The right sidebar contains a 'Create an Ad' section and a 'Connect With More Friends' section with an envelope icon. The left sidebar includes a note about the page being run by Organizing for America and an 'Information' section listing Obama's current office as 'President of the United States'.



# Outline

- Introduction to Social Computing
- Social Network Theory
- Graph mining
- Ranking and Link Analysis
- Recommender Systems
- Human Computation
- Opinion Mining/Sentiment Analysis
- Opinion mining and sentiment analysis
- Social Computing in Education
- Social Monetization
- and possibly 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**

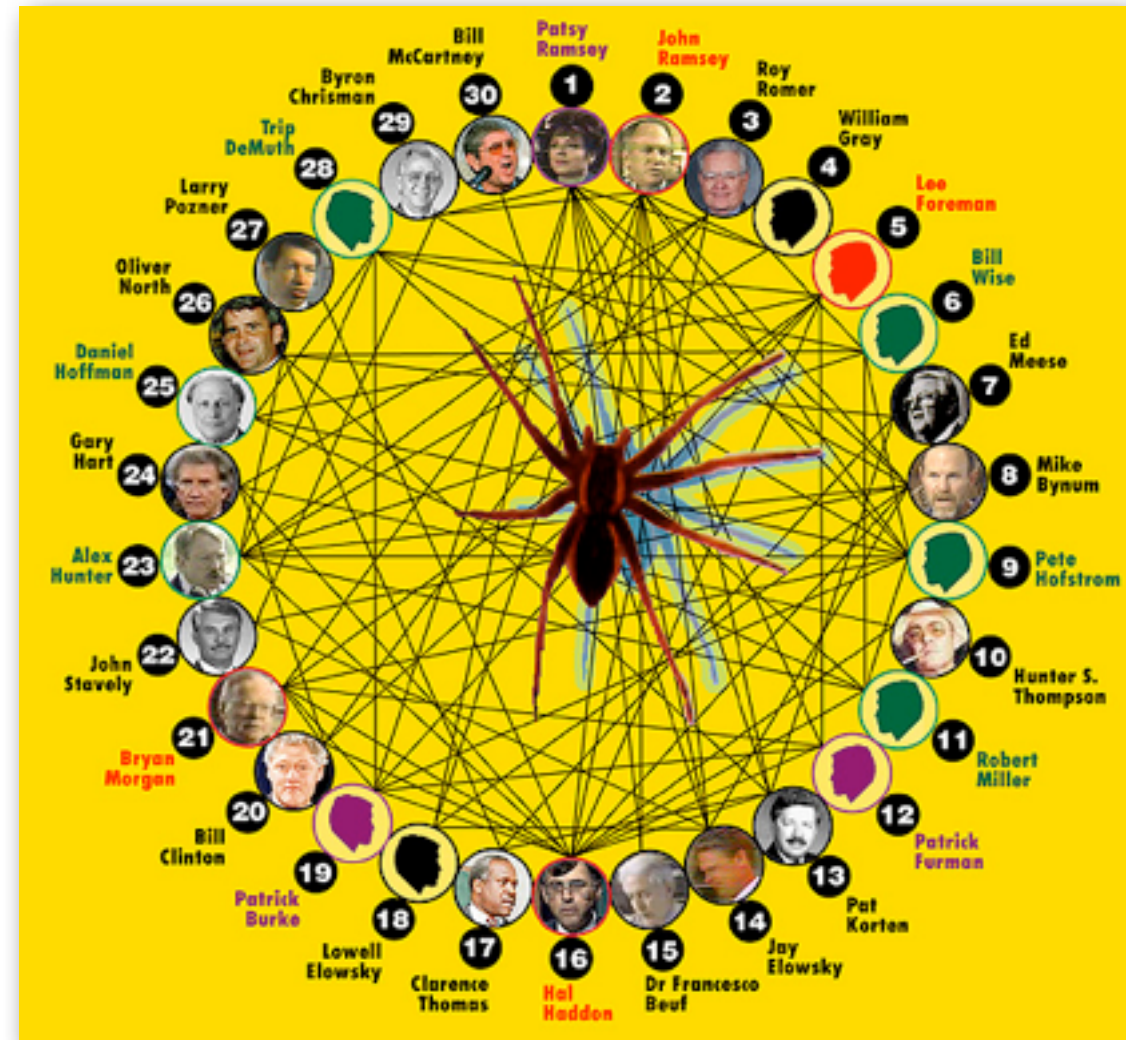


# Social Networks

Society:

**Nodes:** individuals

**Links:** social relationship  
(family/work/friendship/etc.)

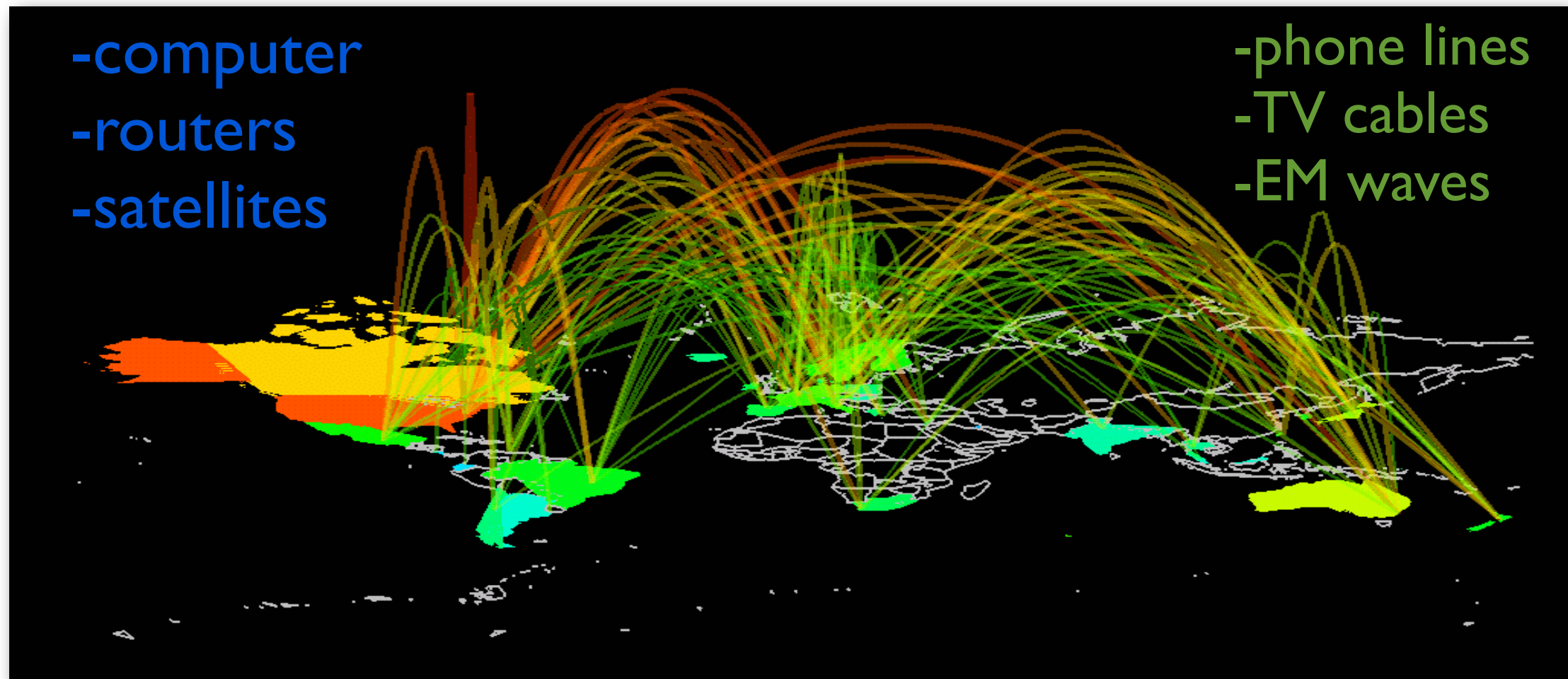


S. Milgram and John Guare: **Six Degree of Separation.**  
Social networks: Many **individuals** with diverse **social interactions** between them.



# Social Networks

- The Earth is developing an electronic nervous system, a network with diverse **nodes** and **links**.

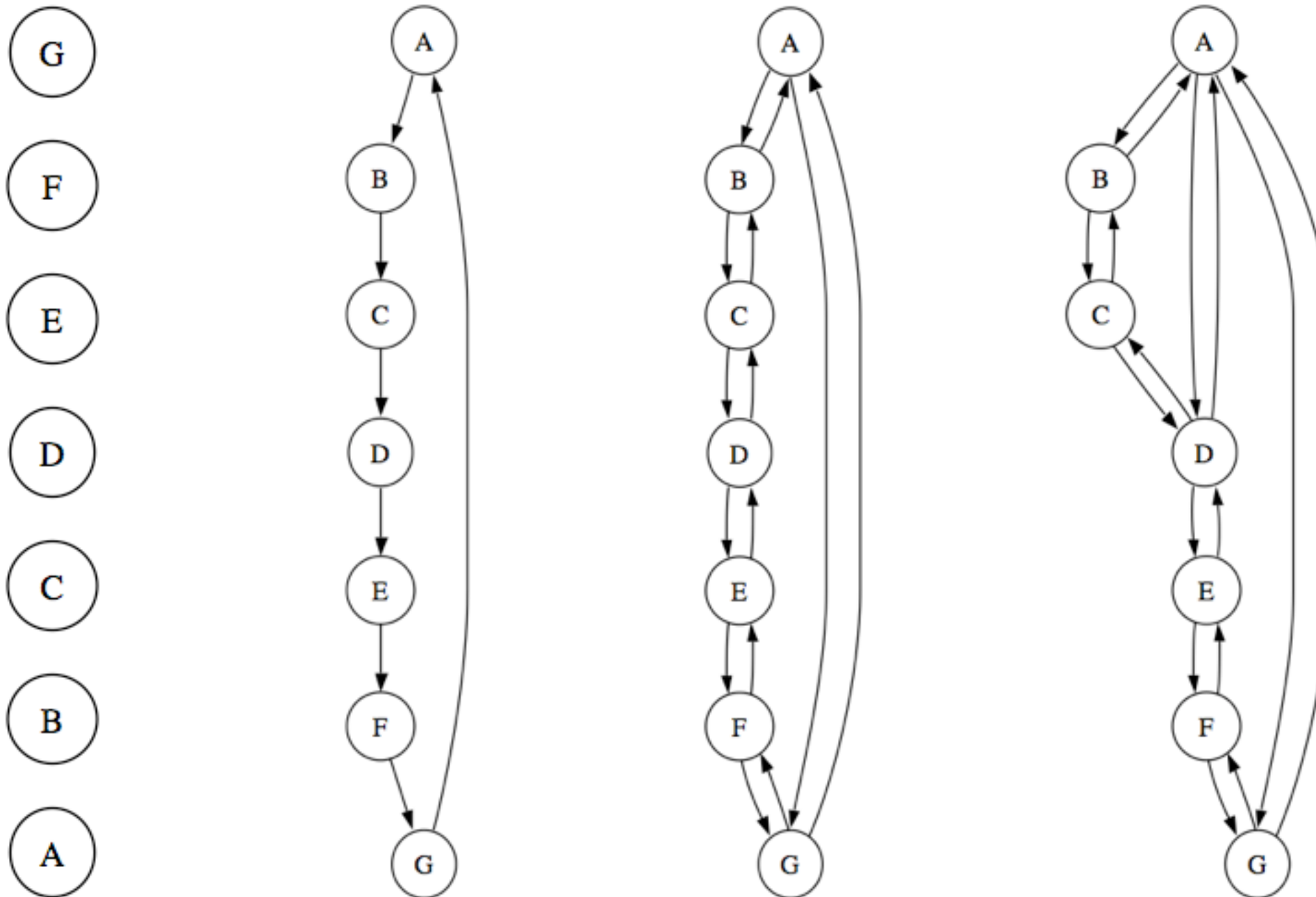


Communication networks: many non-identical components with diverse connections between them.

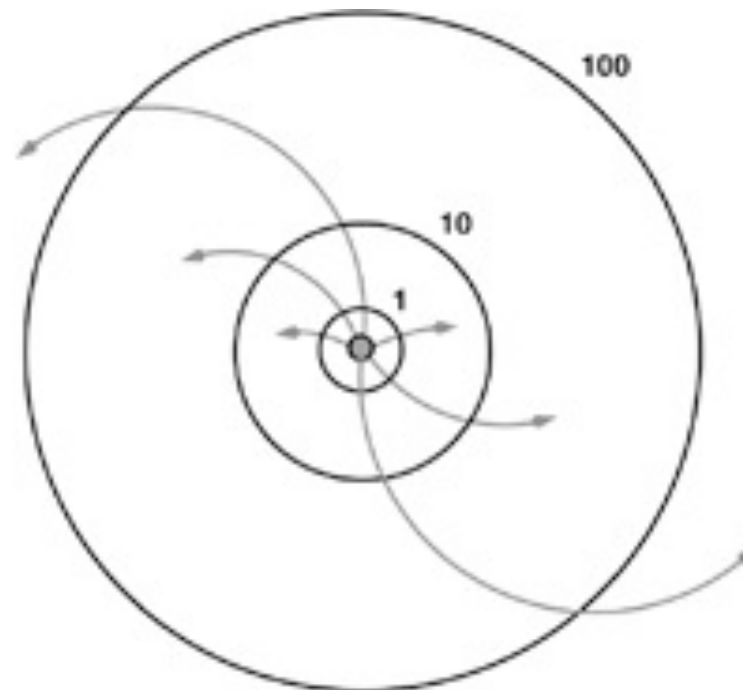
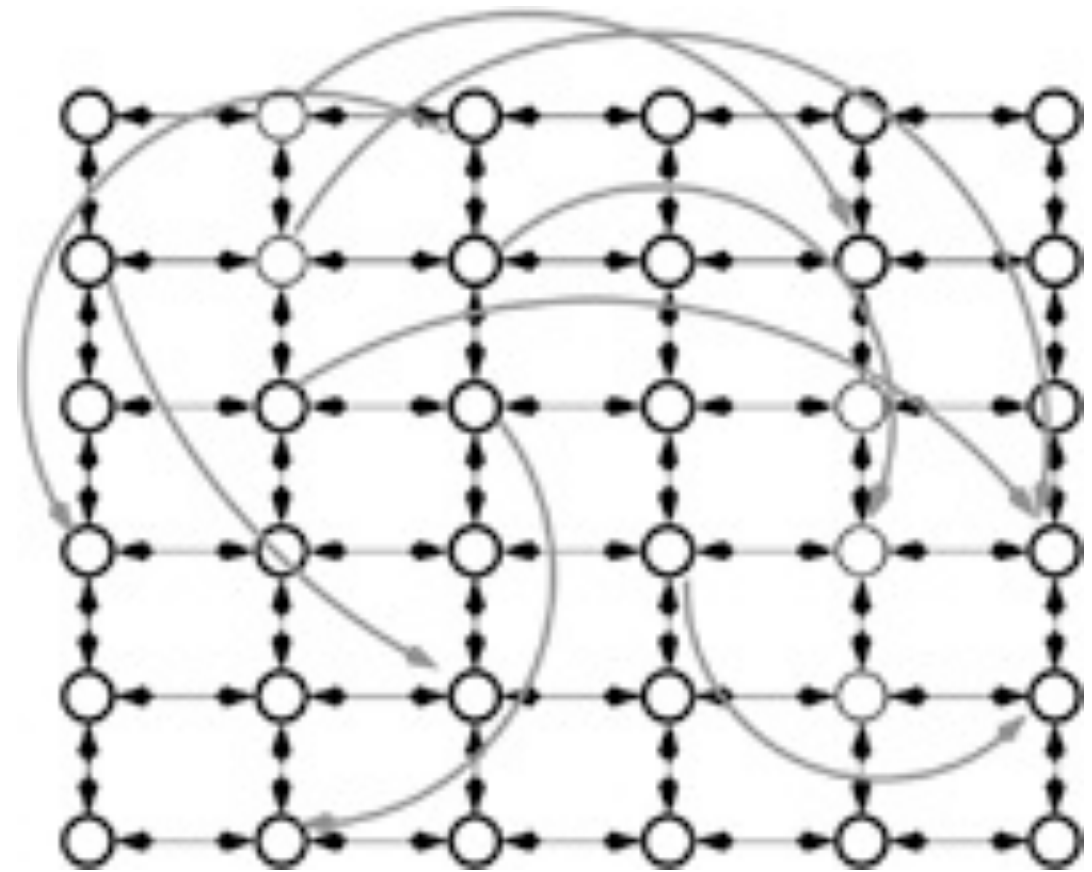
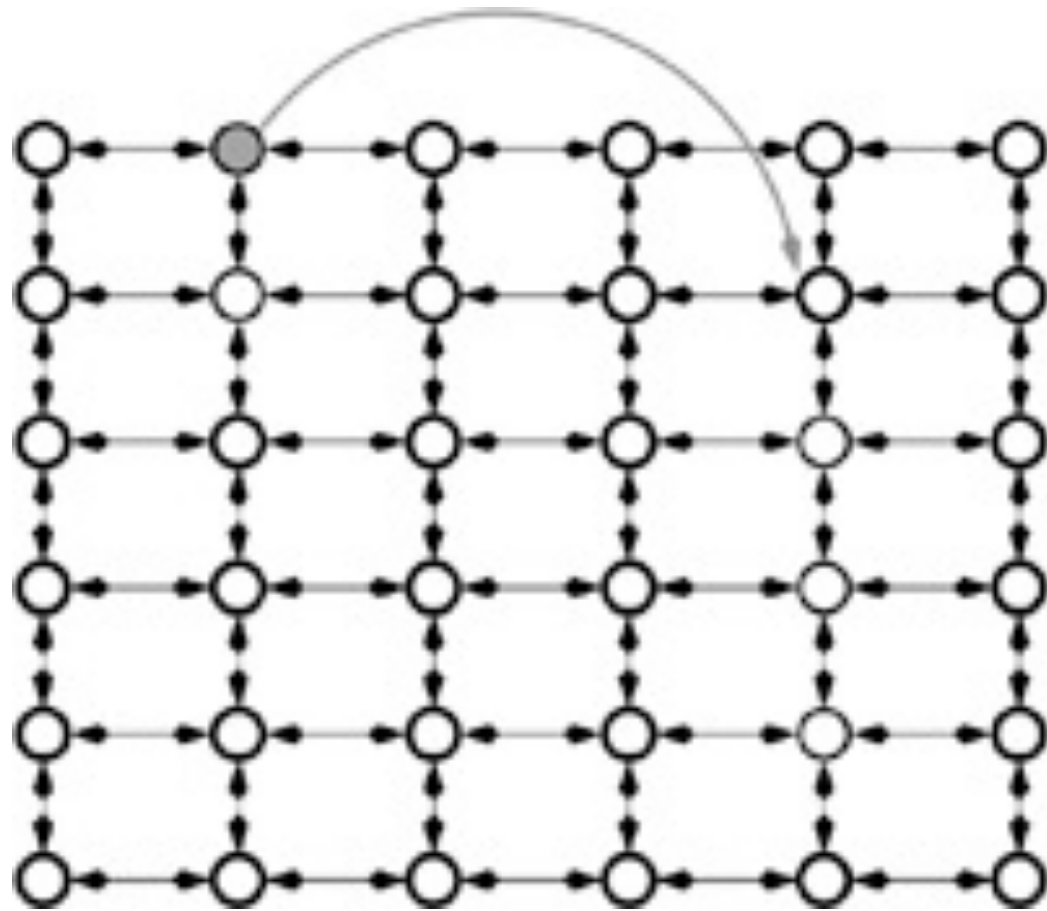




# The Flow of Information



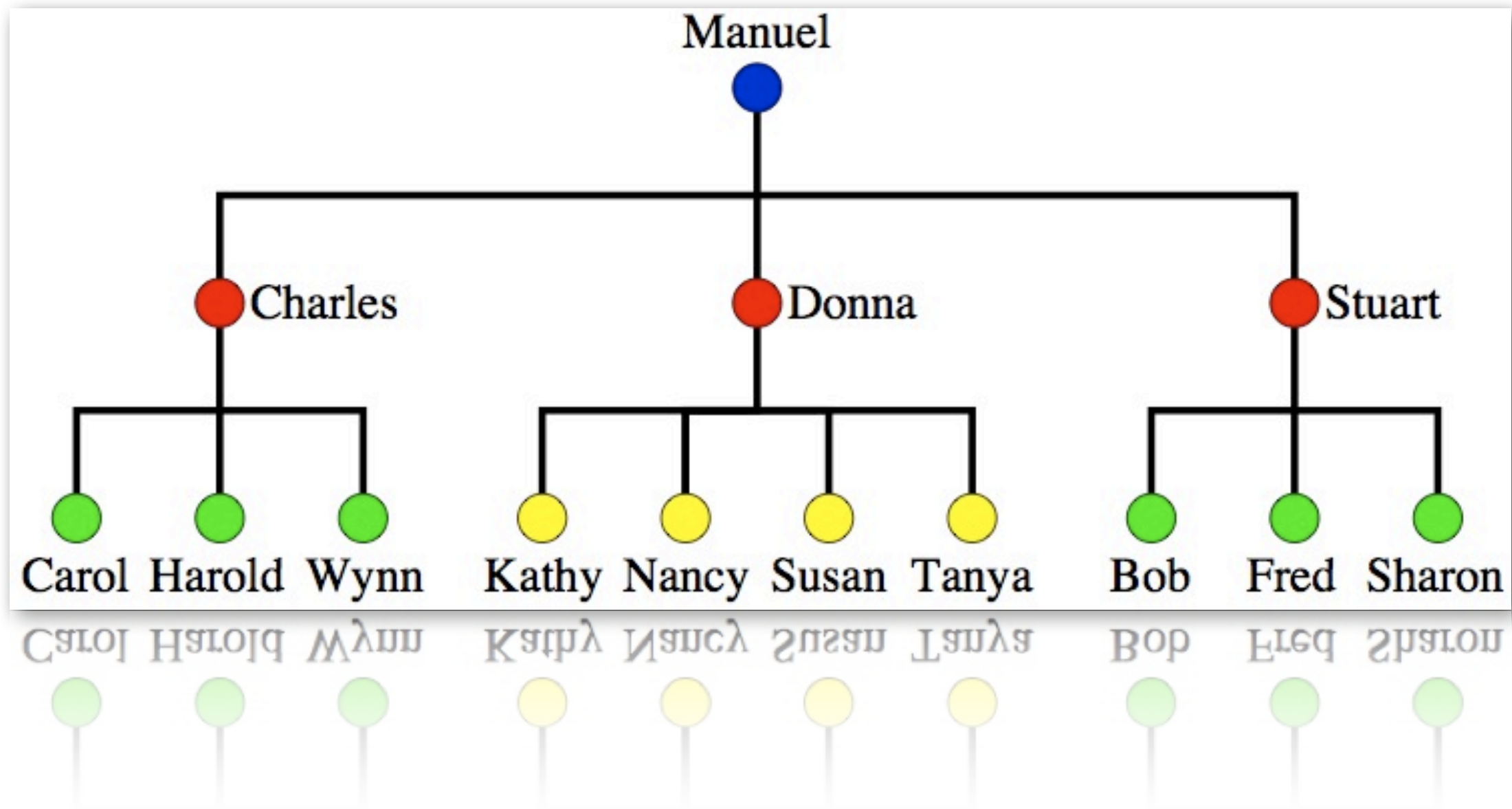
# Examples



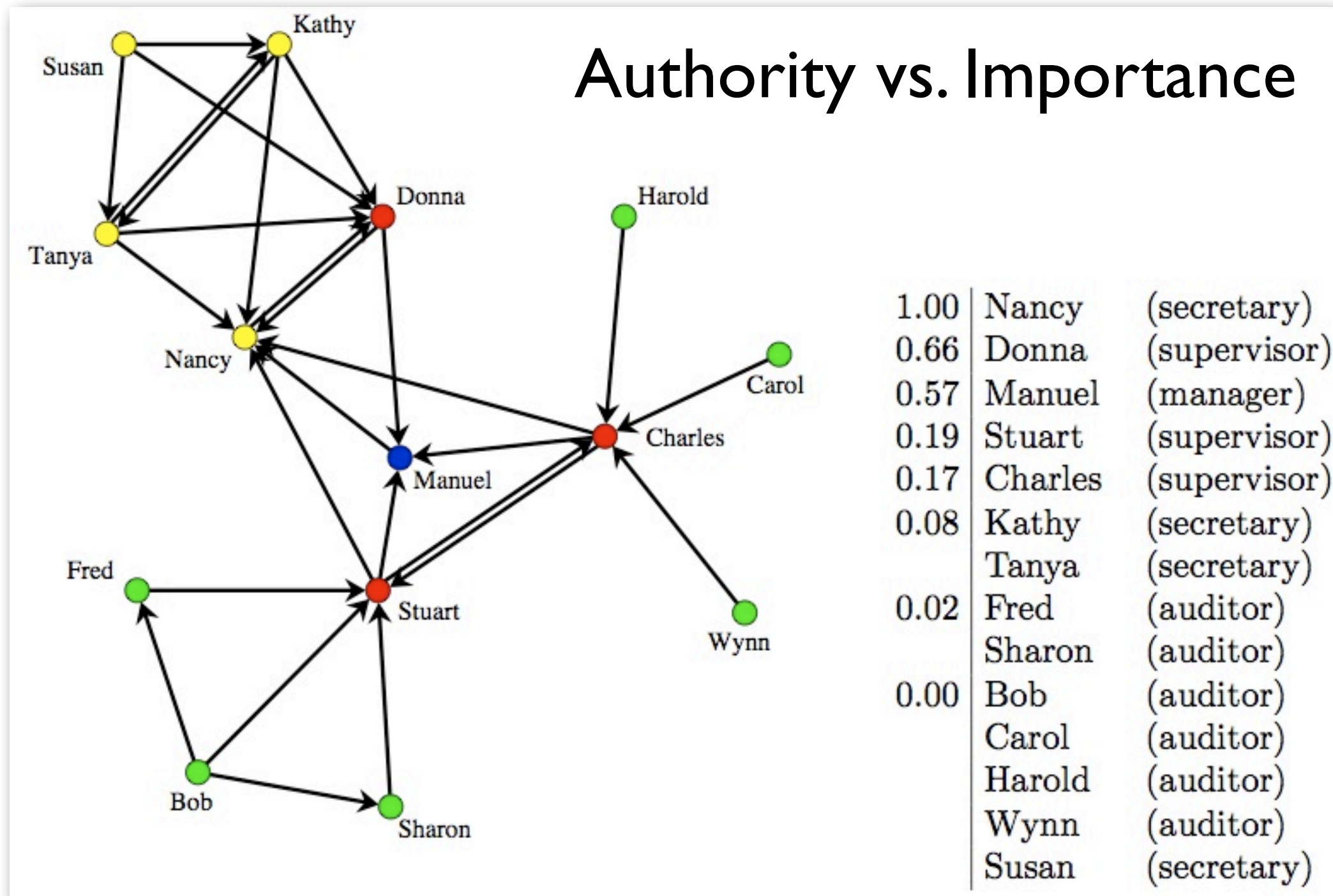
[Kleinberg 1999]



# Organizational Chart



# Social Network Chart





# Social Networking Sites

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





# Social Search

- Social Search Engine
- Leveraging your social networks for searching

**eurekasterswicki** login | sign up

build new swicki | swicki directory | about swickis | about eurekaster

Search and vote for your faves

swicki search

a custom search portal around the topic of your choice powered by your community

**Build a swicki!**

A swicki is a custom social search portal on the topic of your choice. With every search, vote and click, your swicki generates more relevant results and turns into a valuable asset for you and your community. Take a tour to find out more about how swickis work.

- Choose from text, multimedia or video content
- Customize the swicki widget look and feel
- Share your swicki widget with your community

[Build a swicki](#)

New! Even fresher swickis with RSS and Autodetect. [Learn More.](#)

**Eurekaster news**

Now out of beta!

- Come join the network for swicki builders
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**delver::** liad agmon edit

My Profile | My Network

Your friends are the best source of information!  
Look for information, media and people within your network

(Go)

**Noa Rabiner**  
Noa Rabiner is connected to you directly

- This is me!
- I know this person
- Add as Connection
- Send Message



# Social Media

The screenshot shows the YouTube homepage with the following elements:

- Header:** YouTube logo with the tagline "Broadcast Yourself™". Navigation tabs for Home, Videos, Channels, and Community. A search bar and an "Upload" button.
- Videos being watched right now...:** A row of five video thumbnails with their durations (02:13, 03:29, 01:58, 07:01, 03:53).
- Promoted Videos:** Four video thumbnails with titles like "Think Again Awards" and "第14屆十大電視廣告頒獎典禮 - 飛出...".
- Featured Videos:** A list of featured videos with titles and view counts:
  - David Sedaris delivers a pizza:** From [weaknights](#), Views: 11,313, 5 stars, 01:01. More in [Comedy](#).
  - Erbert and Gerbert's Candle Cannon:** From [candlecannon](#), Views: 109,029, 5 stars, 02:34. More in [Entertainment](#).
  - Girl's Night Out:** From [danidovine](#), Views: 169,435, 5 stars, 03:49. More in [Comedy](#).
  - Lionel Neykov - Freeze My Senses:** From [LionelNeykov](#), Views: 150,758, 5 stars, 03:35. More in [Music](#).
- What's New:** A yellow box containing:
  - YouTube Mobile:** New! Watch ALL YouTube videos on your mobile device.
  - Warp!** Visually fly through YouTube videos in the Fullscreen player.
  - RSS Feeds:** Click on the "RSS this page" link to get fresh videos delivered.
  - SXSW on YouTube:** For the next week and a half, the SXSW festival is taking over Austin, Texas, to celebrate music, film and all things interactive. [Read more in our Blog](#).
- Login:** A form with fields for Username and Password, a "Login" button, and links for "Sign Up | Help", "Forgot Username | Forgot Password", and "Login with your Google account".

The screenshot shows the Flickr homepage with the following elements:

- Header:** Flickr logo and a "Sign In" link.
- Main Content:** A large photo of a small plant growing from a crack in a sidewalk. Text reads: "Share your photos. Watch the world." Below this is a search bar and a "SEARCH" button.
- Statistics:** "3,802 photos uploaded in the last minute · 558,832 photos tagged with urban · 2.2 million photos uploaded this month · [Take the tour](#)".
- Navigation:** Four icons with labels: "Share & stay in touch", "Upload & organize", "Make stuff!", and "Explore...".
- Footer:** A "Take the Tour" button and a link to "Explore Flickr Blog, the World Map, Camera Finder or interesting photos from the last 7 days".

The screenshot shows the Second Life homepage with the following elements:

- Header:** Second Life logo with the tagline "Your World. Your Imagination." and a "Resident, Login | Join" link.
- Navigation:** Links for "What is Second Life?", "SHOWCASE", "COMMUNITY", "BLOG", and "SUPPORT". A search bar for "Search Second Life".
- Main Content:** A large image of a man and a woman flying through a blue sky. Text reads: "Get Started! Membership is FREE! Second Life is an online, 3D virtual world imagined and created entirely by its Residents." Below this is a link: "Discover a whole new world of friends, fashion, music, videos and fun! Explore the best of Second Life >>".
- Footer:** A section titled "Your Organization in Second Life!" with a link "Visit Second Life Now!".



# Social News/Mash Up

The screenshot shows the Digg website interface. At the top, there's a navigation bar with 'Join Digg', 'About', and 'Login'. Below that, there are tabs for 'All', 'News', 'Videos', 'Images', 'Podcasts', and 'Customize'. A secondary navigation bar lists categories like 'Technology', 'World & Business', 'Science', 'Gaming', 'Lifestyle', 'Entertainment', 'Sports', and 'Offbeat'. The main content area is titled 'News, Videos, Images' and features a list of articles. The first article is 'Microsoft Demos "ADD TO DIGG" Feature in IE8' with a score of 104. Other articles include 'It was only a matter of time, The SIMS 3 Official' (score 161), 'Universe submerged in a sea of chilled neutrinos' (score 151), 'Unique locks on microchips could reduce hardware piracy' (score 180), and 'Warren Buffett Passes Gates To Become World's Richest Man' (score 519). On the right side, there's a 'Visual Studio' advertisement and a 'Top in All Topics' section with various trending items like 'The ravages of aging: Sean Connery, 20 years ago vs Today'.

The screenshot shows the Twitter website homepage. At the top, there's a 'Select Language' dropdown. The main heading is 'What is Twitter?' with sub-sections for 'What?', 'Why?', and 'How?'. Below this is a large graphic of a yellow bird on a branch. To the right, there's a 'Watch a video!' button and a sign-in section with fields for 'user name or email address' and 'password', along with a 'Remember me' checkbox and a 'Sign in' button. Below the sign-in section, there's a link for 'Forgot password? Click here.' and a note for 'Already using Twitter from your phone? Click here.' The main content area features a '8 new tweets' notification and a 'twittervision' logo.

The screenshot shows the FoxyTunes website for the artist Björk. The page has a search bar and navigation tabs for 'Albums' and 'Tracks'. The main content area is divided into several sections: 'Videos on YouTube' featuring 'All is full of love' (4:09) and 'Björk - Hunter' (3:38); 'Lyrics from Yahoo! Music' listing tracks like '5 Years', 'Alarm Call', and 'Bachelorette'; 'Flickr Photos' showing a selection of images; and 'Artist on Last.fm' featuring 'The Sugarcubes' and 'Goldfrapp'. The page also includes a 'Share this artist' button and a 'Blog this artist' link.

The screenshot shows a Twitter map mashup. The map displays the United States and surrounding regions, with a pink bird icon indicating a tweet location. A tooltip for a tweet by 'Killane' is shown, stating 'I feel odd' and '17 minutes ago in North of Seattle'. The map is labeled with various geographical features like 'Chukchi Sea', 'Beaufort Sea', 'Baffin', 'Gulf of Alaska', and 'North Pacific Ocean'. The 'twittervision' logo is visible in the top right corner of the map area.





# Social News and Knowledge Sharing

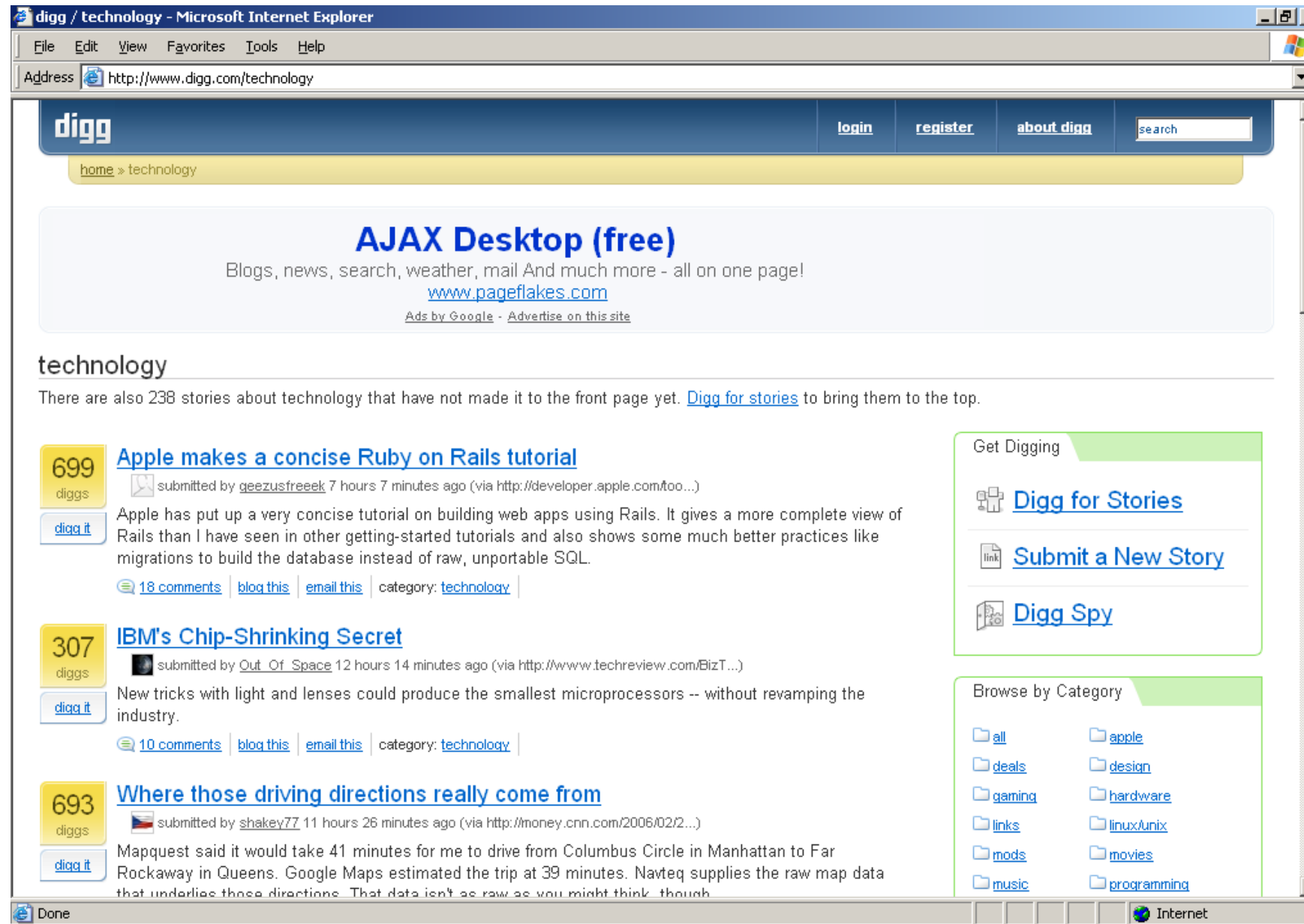
- Social news refers to websites where users can submit their own information. Users can also vote on news or other links to determine which links are presented



Wikis allow collaborative publishing.  
Anyone can create new articles or edit existing articles.  
All versions are kept.



# Social News and Knowledge Sharing



- **Digg.com** members “vote” for stories to appear on the home page





# Social News and Knowledge Sharing

- The notion that each individual contributes to a collective pool of knowledge is further realized in AnswerBus, Webclopedia, Yahoo's babelfish, etc.

**AnswerBus**

Type in your question in English, French, Spanish, German, Italian or Portuguese.

**Webclopedia**

*Targeted Delivery of Multilingual Information*

**YAHOO!** BABEL FISH



# Social News and Knowledge Sharing

- Question and answering

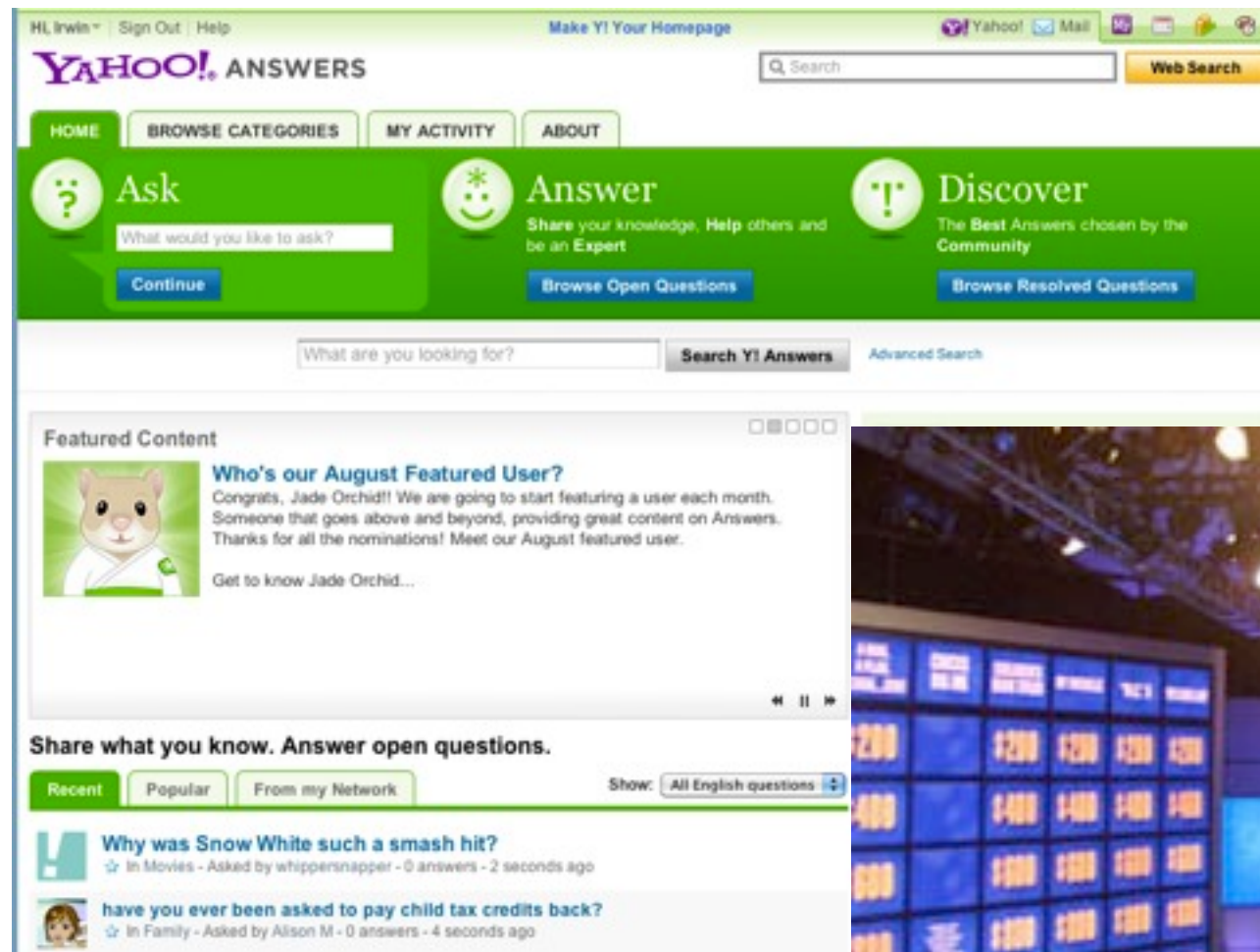


PHOTO: JULIANNE PEPITONE/CNNMONEY



# Social Bookmarking

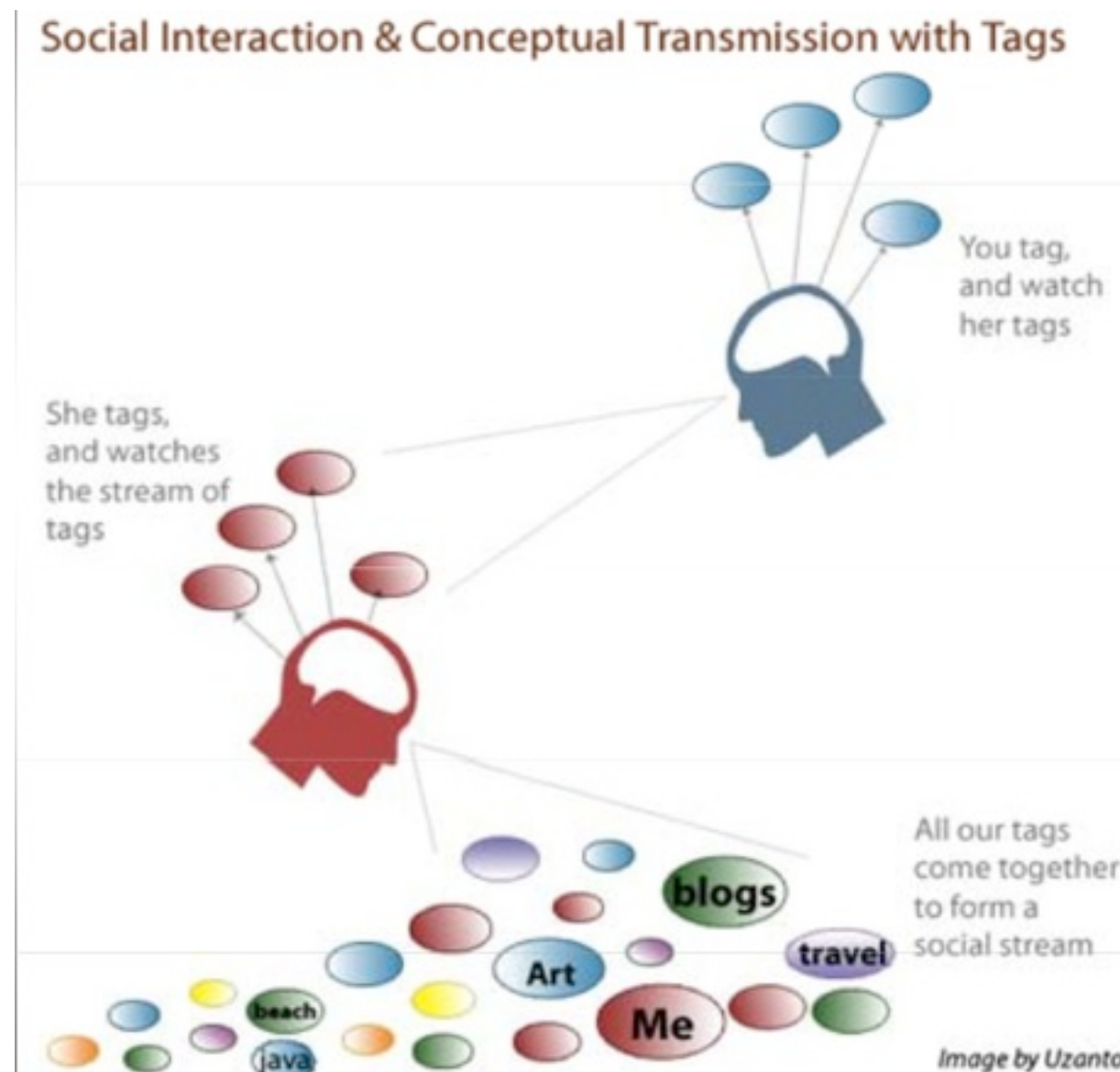
- **What is a tag?**
  - Descriptive metadata
  - A keyword or term associated with or assigned to a piece of information
  - User defined, created and shared
  - Many web users do it every day, with very little conscious awareness that they are “cataloging”
- **What gets tagged?**
  - Pictures, blog posts, video clips, catalog entries, just about anything...





# Social Bookmarking

- Share one's tags
- Make the individual browsing experience a social one

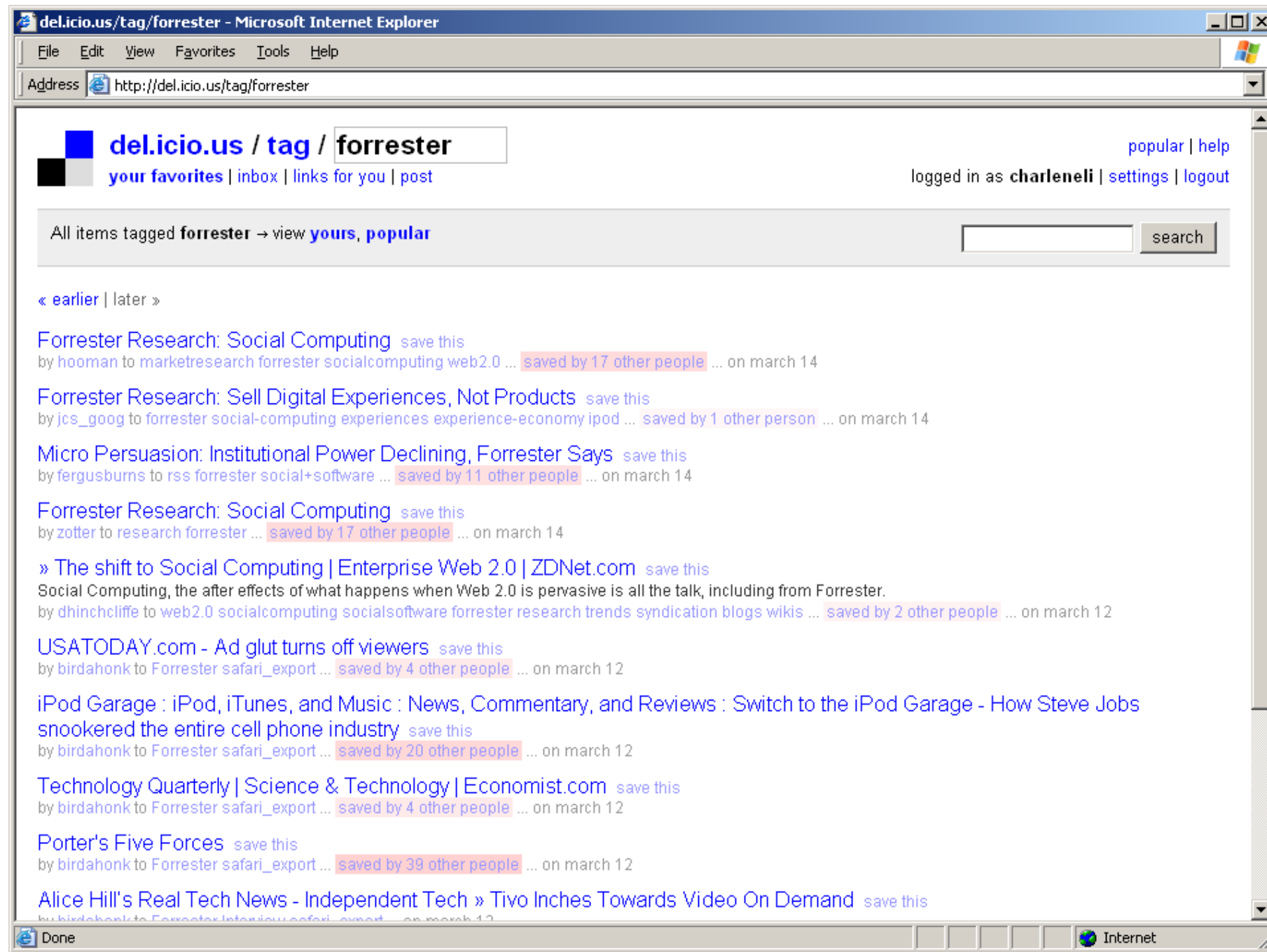


# Why users tag?

- Tagging means something specific to the user
- It is easy -- anyone can do it
- Finding things on the Internet
- Serendipitous discovery
- It is social
- New ways to share and discover



# Social Bookmarking in del.icio.us



The screenshot shows a Microsoft Internet Explorer browser window displaying the del.icio.us website. The address bar shows the URL <http://del.icio.us/tag/forrester>. The page header includes the del.icio.us logo, navigation links like 'your favorites', 'inbox', 'links for you', and 'post', and a user login status 'logged in as charleneli' with links for 'settings' and 'logout'. Below the header, there is a search bar and a list of bookmarked items. Each item includes a title, a 'save this' link, the user who saved it, the number of other people who saved it, and the date. The items listed are:

- Forrester Research: Social Computing [save this](#)  
by hooman to marketresearch forrester socialcomputing web2.0 ... [saved by 17 other people](#) ... on march 14
- Forrester Research: Sell Digital Experiences, Not Products [save this](#)  
by jcs\_goog to forrester social-computing experiences experience-economy ipod ... [saved by 1 other person](#) ... on march 14
- Micro Persuasion: Institutional Power Declining, Forrester Says [save this](#)  
by fergusburns to rss forrester social+software ... [saved by 11 other people](#) ... on march 14
- Forrester Research: Social Computing [save this](#)  
by zotter to research forrester ... [saved by 17 other people](#) ... on march 14
- » The shift to Social Computing | Enterprise Web 2.0 | ZDNet.com [save this](#)  
Social Computing, the after effects of what happens when Web 2.0 is pervasive is all the talk, including from Forrester.  
by dhinchcliffe to web2.0 socialcomputing socialsoftware forrester research trends syndication blogs wikis ... [saved by 2 other people](#) ... on march 12
- USATODAY.com - Ad glut turns off viewers [save this](#)  
by birdahonk to Forrester safari\_export ... [saved by 4 other people](#) ... on march 12
- iPod Garage : iPod, iTunes, and Music : News, Commentary, and Reviews : Switch to the iPod Garage - How Steve Jobs snookered the entire cell phone industry [save this](#)  
by birdahonk to Forrester safari\_export ... [saved by 20 other people](#) ... on march 12
- Technology Quarterly | Science & Technology | Economist.com [save this](#)  
by birdahonk to Forrester safari\_export ... [saved by 4 other people](#) ... on march 12
- Porter's Five Forces [save this](#)  
by birdahonk to Forrester safari\_export ... [saved by 39 other people](#) ... on march 12
- Alice Hill's Real Tech News - Independent Tech » Tivo Inches Towards Video On Demand [save this](#)  
by birdahonk to Forrester safari\_export ... on march 12





# Social Bookmarking in StumbleUpon

- **StumbleUpon** allows users to discover and rate web pages, photos, and videos. It chooses which web page to display based on the user's ratings of previous pages, ratings by his/her friends, and by the ratings of users with similar interests.





# Tagging is Everywhere



# Folksonomies

- Folksonomies are the actual output result of collaborative tagging
- Literally, it is taxonomy by “folks”
- Grass-roots
- Community based
- Inclusive -- everyone can get involved
- Scalability





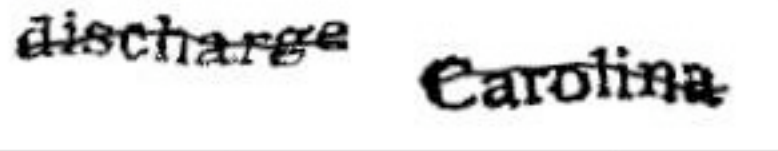
# Tag Clouds

- Visualization of tags
- Weighted value -- based on size, frequency of use of tag



# Social/Human Computation

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Text in the box:

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Can't read this? Try another.  
[Try an audio captcha](#)



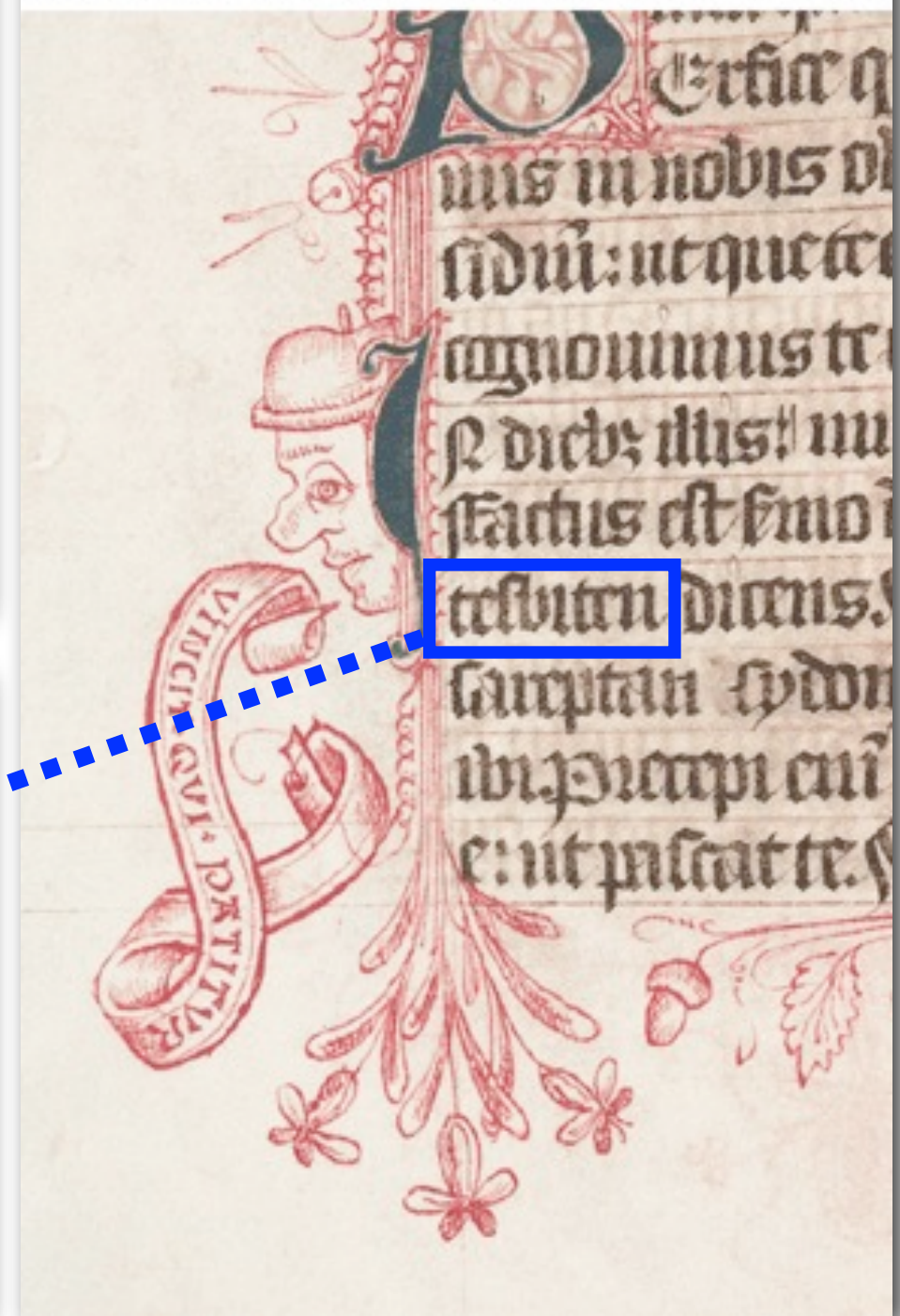
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[Sign Up](#)

The Chinese University of Hong Kong, CSCI5070 Advanced Topics in Social Computing, Irwin King





# Human Computation

The screenshot shows the Google Image Labeler interface. At the top left is the Google logo and 'Image Labeler BETA'. The main title is 'Google Image Labeler'. On the left, there is a scorecard with 'time left' at 01:17, 'score' at 0, and 'passes' at 0. In the center, there is a text input field with a 'label' button and a 'pass' button. Below the input field, it says 'Your partner has suggested 10 labels.' A large image of a lake and mountains is displayed. Below the image is a 'zoom out' button. On the right, there is a list of labels: 'off-limits', 'sky', 'water', 'blue', 'lake', 'mountain'. Below the labels is a 'my labels' section. At the bottom, there are links for 'Privacy Policy', 'Terms of Use', and 'Return to Google Image Search', along with a copyright notice '© 2007 Google'. Red starburst annotations are placed over the input field, the scorecard, and the labels list.





# Crowdsourcing

amazonmechanical turk Artificial Intelligence

Already have an account? Sign in as a Worker | Requester

Your Account | HITs | Qualifications

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.  
**210,857 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



or [learn more about being a Worker](#)

## Get Results from Mechanical Turk Workers

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

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- 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



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### PRESS

- CrowdFlower Broadens Executive Team**  
 TMCnet.com | August 04, 2011
- San Francisco-Based CrowdFlower Names New CEO and CFO**  
 Silicon Valley Wire | August 02, 2011
- CrowdConf2011: Get More Out of Your Crowdsourcing Efforts**

### EVENTS

- PopTech**  
 October 18-22 [See more](#)
- Wolfram Data Summit 2011**  
 September 8-9 [See more](#)
- CrowdConf 2011**  
 November 1-2 [See more](#)

### BLOG

**Should organizations establish a Crowdsourcing**



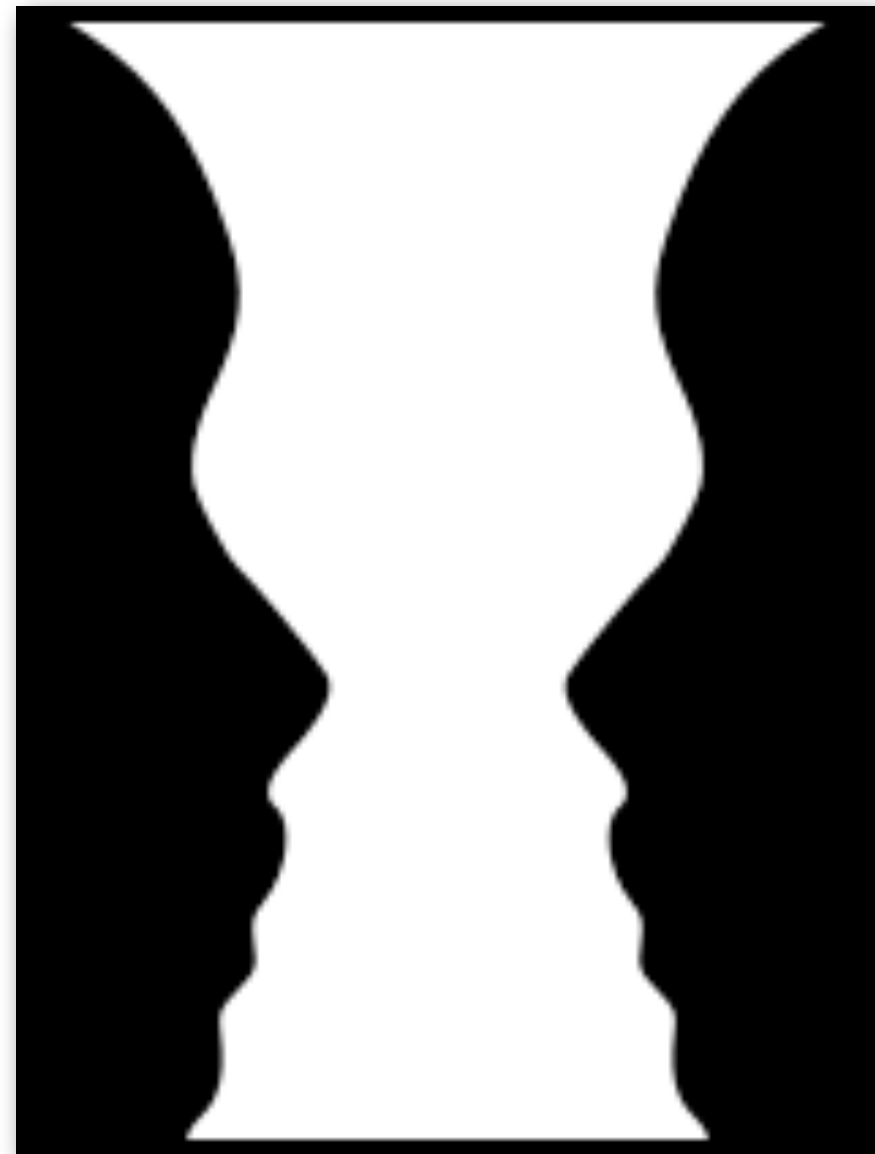
# Web 2.0 Revolution

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

**C**onnectivity

**C**ollaboration

**C**ommunities



# Social Relations

presence  
identity  
social role  
reputation  
expertise  
trust  
ownership  
accountability  
knowledge

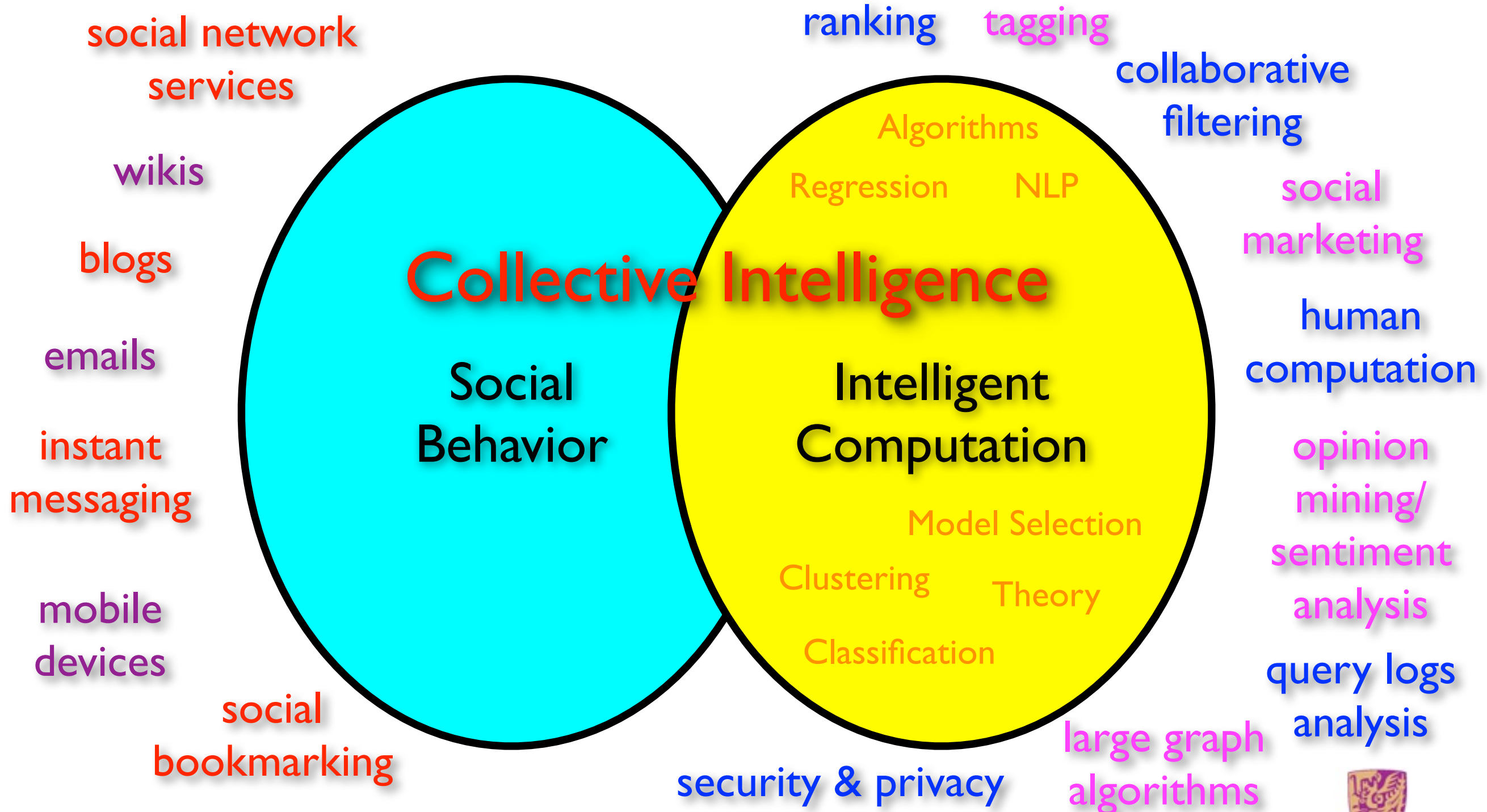
crew  
teams  
populations  
squad  
organizations  
cohorts  
markets  
communities  
partners  
groups

binary  
cardinal  
integer  
real





# 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



# 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** and **privacy** issues
- **Monetization** of social interactions





