



National Initiative on Technology-Mediated Social/Civic Participation

Ben Shneiderman *ben@cs.umd.edu*

Founding Director (1983-2000), Human-Computer Interaction Lab
Professor, Department of Computer Science
Member, Institute for Advanced Computer Studies



UNIVERSITY OF
MARYLAND





Interdisciplinary research community

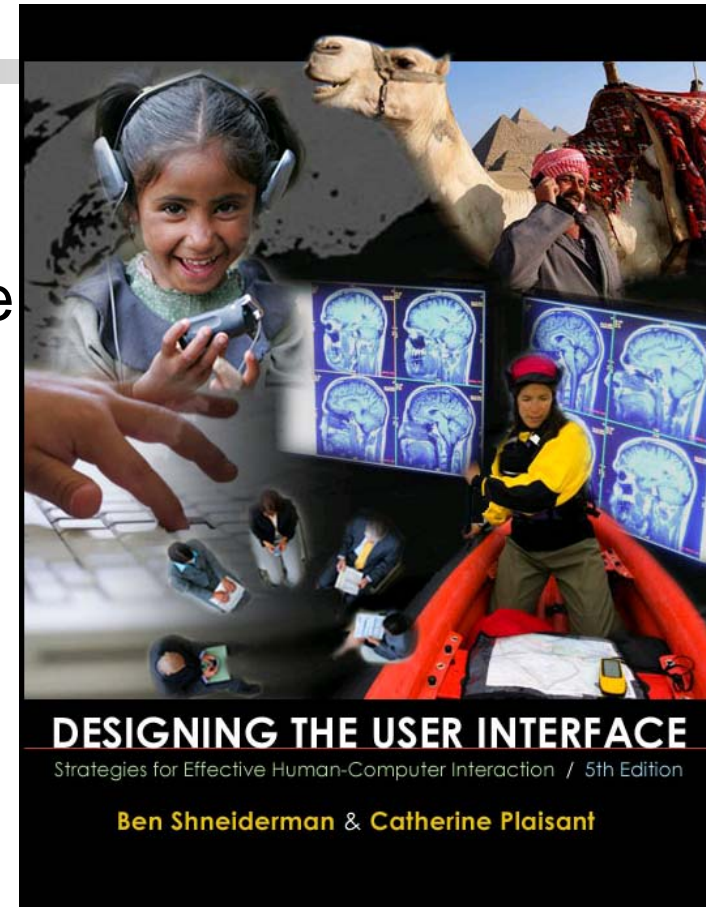
- Computer Science & Info Studies
- Psych, Socio, Poli Sci & MITH

(www.cs.umd.edu/hcil)



Design Issues

- Input devices & strategies
 - Keyboards, pointing devices, voice
 - Direct manipulation
 - Menus, forms, commands
- Output devices & formats
 - Screens, windows, color, sound
 - Text, tables, graphics
 - Instructions, messages, help
- Collaboration & Social Media
- Help, tutorials, training
- Search • Visualization



www.awl.com/DTUI

Fifth Edition: March 2009

Wikipedia



navigation

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- [Contents](#)
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search

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Social media

From Wikipedia, the free encyclopedia

Communication

- **Blogs:** [Blogger](#), [LiveJournal](#), [TypePad](#), [WordPress](#), [V](#)
- **Internet forums:** [vBulletin](#), [phpBB](#)
- **Micro-blogging / Presence applications:** [Twitter](#), [Pli Pounce](#), [Jaiku](#)
- **Social networking:** [Bebo](#), [Facebook](#), [LinkedIn](#), [MySpace](#), [Orkut](#), [Skyrock](#), [Hi5](#)
- **Social network aggregation:** [FriendFeed](#), [Youmeo](#)
- **Events:** [Upcoming](#), [Eventful](#), [Meetup.com](#)
- **Discussion Groups:** [Google Groups](#), [Yahoo! Groups](#), [Windows Live Groups](#)

Collaboration

- **Wikis:** [Wikipedia](#), [PBwiki](#), [wetpaint](#)
- **Social bookmarking** (or [Social tagging](#)) ([Golder & Huberman 2006](#)): [Delicious](#), [StumbleUpon](#), [Stumpedia](#), [Google Reader](#), [CiteULike](#)
- **social news:** [Digg](#), [Mixx](#), [Reddit](#)
- **Opinion sites:** [epinions](#), [Yelp](#)

Multimedia

- **Photo sharing:** [Flickr](#), [Zoomr](#), [Photobucket](#), [SmugMug](#)
- **Video sharing:** [YouTube](#), [Vimeo](#), [Rewer](#)
- **Art sharing:** [deviantART](#)
- **Livecasting:** [Ustream.tv](#), [Justin.tv](#), [Skype](#)
- **Audio and Music Sharing:** [imeem](#), [The Hype Machine](#), [Last.fm](#), [ccMixer](#)

Reviews and Opinions

- **Product Reviews:** [epinions.com](#), [MouthShut.com](#)
- **Q&A:** [Yahoo! Answers](#), [WikiAnswers](#)

Entertainment

- **Virtual worlds:** [Second Life](#), [The Sims Online](#)
- **Online gaming:** [World of Warcraft](#), [EverQuest](#), [Age of Conan](#), [Spore \(2008 video game\)](#)
- **Browser games:** [OGame](#), [Omertà](#), [Travian](#), [Hatrick](#)
- **Game sharing:** [Miniclip](#)

Social Computing: Transformative Movement



- Restructuring
 - Economies, political structures, social systems
 - Scientific disciplines & methods
 - Academic curricula & teaching strategies
 - Government agendas

Social Computing: Transformative Movement



- Restructuring
 - Economies, political structures, social systems
 - Scientific disciplines & methods
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 - Government agendas
- Crime, terrorism, racial hatred, dictatorships

Can Computing Evolve?

- Human-Computer Interaction
- Web Science
- Social Computing/Social Informatics
- Information: I-Schools
- Business: B-Schools
- Design: D-Schools

- Social Physics (Auguste Comte, 1830)
- Social Sciences
- Complexity, Chaos & Network Theory

Vision: Social Computing



1) Focus on National Priorities & Impact

- Health, energy, education, business innovation
- Disaster response, community safety
- Environmental awareness, biodiversity

2) Develop Theories of Social Computing

- How do networks evolve? Can we predict areas of growth, stability, decline, infections, disruptions?
- Can we guide intervention to stop terrorists, slow epidemics, increase sales, promote health?

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- Scalable, reliable, universal, manageable
- Protect privacy, stop attacks, resolve conflicts

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Health & Healthcare



patientslikeme™

Patients | Treatments | Symptoms | Research

Username or Email

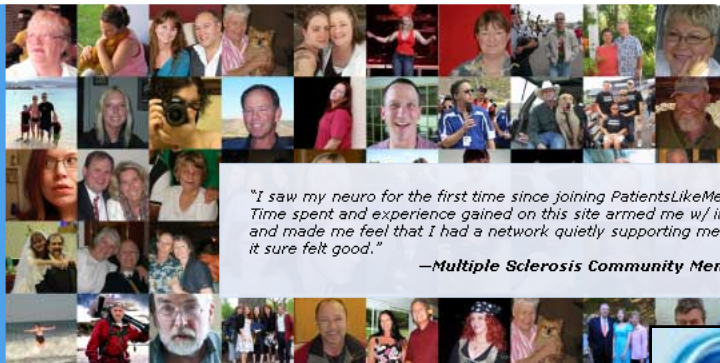
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Join Now! (It's free!)



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—Multiple Sclerosis Community Member

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Google health

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ben.shneiderman

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Add to this Google Health profile

Learn about your health issues and find help



Import medical records

Copy and get automatic updates of your records



Explore online health services

Find online tools for managing your health



Find a doctor

Search by name, location, and specialty



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Energy, Education, Business Innovation



U.S. ENVIRONMENTAL PROTECTION AGENCY • U.S. DEPARTMENT OF ENERGY

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HEADLINES

EPA announces 2nd Annual
Electronics Partner Meeting

ENERGY STAR Homes Nearly 17 %
Market Share in 2008

New Campaign Educates Kids on



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WHERE THE WORLD INNOVATES

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ENERGY STAR
Features
Benefits for
Residential



Recu



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EPA Search



DOE Home
DOE Search

Products • Home Improvement • New Homes • Build
Publications • News Room • FAQs • Contact Us •

Products

Seekers

Solvers

Challenges

FAQ

My InnoCentive

Send A Solver

Blog

*"The ability to pick and choose **your customized solution** from a number of applicants ensures you get the best of the best."*

- Mark Bent, CEO, SunNight Solar

Solution Seekers

Sustainable breakthrough innovation is today's single most important requirement for growth and profitability. InnoCentive gives you the innovation edge you need to be competitive in even the most challenging economic times, with:

Problem Solvers

- Use your knowledge and expertise to make a real impact by solving **challenging problems** for companies and

Energystar.gov

innocentive.com



Disaster Response: Wildfires

flickr

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Yahoo! News California Wildfires

Discussion Pool Map 64 Members



From [ms4jah](#)



From [cpm73](#)



From [cpm73](#)



From [cpm73](#)



From [cpm73](#)



From [bigmikelakers](#)



From [cpm73](#)



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With Others

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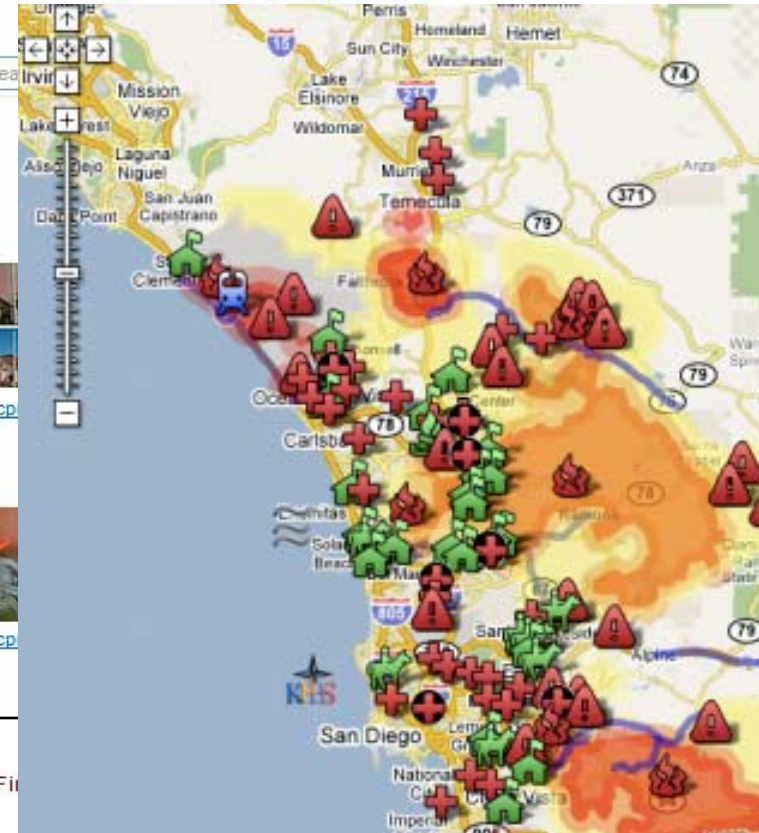
#sandiegofire Harris fire now 50 percent contained 08:21 AM October 27, 2007 from web ☆

#sandiegofire Witch Creek fire now 60 percent contained 08:21 AM October 27, 2007 from web ☆

#sandiegofire Rice Canyon fire now 80 percent contained 08:21 AM October 27, 2007 from web ☆

@pinguino that's really cool. Thanks! 08:20 AM October 27, 2007 from web ☆

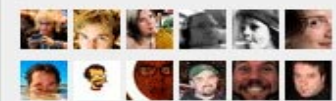
#sandiegofire All Del Dios residents may return to their homes, county officials



Stats

Following	58
Followers	317
Favorites	17
Updates	1,650

Following



Community Safety: Abducted Children



NATIONAL CENTER FOR MISSING & EXPLOITED CHILDREN

Home About Us Supporters Training Site Search News & Events

Help Now

- Report a Sighting
- CyberTipline
- Get Involved
- AMBER Alert
- Donate
- Stay Informed

Resources for

- Parents & Guardians
- Law Enforcement
- Childcare Providers
- Attorneys
- Media

Topics of Focus

- If Your Child Is Missing
- Sexual Exploitation
- Child Safety
- Sex Offenders
- Success Stories
- Natural Disasters

Global Network

Learn More

Language

English

Special Thanks

WAL-MART

Sam

ALERT! Have you seen these children?

FLOR ESCOBAR
Missing since:
Mar 3, 2008
WEST VALLEY CITY UT

JEFFREY S
Missing s
Mar 24, 2
ATTALLA

Quick Search

Female Male

Select a State (US)

Missing within

More search options

Join the fight against child abduction and sexual exploitation.

National Missing Child
May 25, 2008

Featured Services

NetSmartz
An Internet, safety-education resource for children (5-17), parents, guardians, educators, and law enforcement

CyberTipline
Report incidences of child sexual exploitation

NetSmartz411

Latest News

National Child Missing Child

Law Enforcement for Work Inv Exploited Child

More News

U.S. Department of Justice

Office of Justice Programs

Innovation * Partnerships * Safer Neighborhoods

AMBER Alert

America's Missing: Broadcast Emergency Response

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About AMBER Alert

- Guidelines
- Coordinator
- Legislation
- National Strategy

Statistics

Resources

- State AMBER Alert Contacts
- Wireless AMBER Alerts
- Toolkit for Raising Awareness
- Training

Newsroom

- Press Releases
- Publications
- Videos
- Messages
- Events
- Speeches

AMBER Alert

The AMBER Alert™ Program is a voluntary partnership between law-enforcement agencies, broadcasters, transportation agencies, and the wireless industry, to activate an urgent bulletin in the most serious child-abduction cases. The goal of an AMBER Alert is to instantly galvanize the entire community to assist in the search for and the safe recovery of the child.

[See Active AMBER Alerts](#)

Related Initiatives

Wireless AMBER Alerts

take 25
Make time to talk about child safety.

project safe childhood

AA Coordinators' Extranet

The information and statements contained on this official Department of Justice AMBER Alert website shall not be used for the purposes of advertising, nor to imply the endorsement or recommendation of the United States Government. **Use of the AMBER Alert™ logo** is subject to the Department of Justice legal policies and disclaimers regarding the [use of DOJ seals and logos](#).


www.ncmec.org
www.missingkids.com

www.amberalert.gov



Biodiversity: Encyclopedia of Life

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"Imagine an electronic page for each species of organism on Earth..." - Edward O. Wilson
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SHOWING AUTHORITATIVE INFORMATION

☒ Names ☐ Tags ☐ Full-text

Explore



[Typha angustifolia L.](#)
Narrowleaf cattail



[Pseudomyrmex denticollis](#)
(Emery, 1890)



[Deilephila porcellus](#)
Linnaeus 1758
Small elephant hawkmoth



[Hypnos monopterygius](#)
(Shaw, 1795)
Australian numbfish



[Hydrometra stagnorum](#)
(Linnaeus, 1758)

EOL Announcements

- Follow us on Twitter at <http://www.twitter.com/eoflife>
- For more information on becoming a curator or contributor, see how to [help us build EOL](#).
- Do you have photos you'd like to contribute to the Encyclopedia of Life? Start adding them to the [EOL Flickr group](#) directly or by using the iPhone application ([available via iTunes](#)) and we'll periodically pull them into EOL. [Watch the "How to" slideshow](#) or visit the [Flickr group home page](#) for more information.
- EOL has released its plan for a [Curator Network](#). We welcome your comments and suggestions in the [forum](#).
- Learn about the [EOL Fellows Program](#).

Featured




[Ptendum aquilinum \(L.\) Kuhn](#)
Bracken

What's New

- 08/27/2009 - [Ax](#) nature
- 08/13/2009 - [Le](#) [attenboroughii](#), [insects](#).
- 08/10/2009 - [Yo](#) and automatic web page. An A
- 08/05/2009 - [Th](#) vulnerable and [extinction](#) accor
- 08/03/2009 - [C](#) [Winners!](#)
- [more news...](#)

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SHOWING AUTHORITATIVE INFORMATION

☒ Names ☐ Tags ☐ Full-text

Sargocentron seychellense (Smith)

Yellow-tipped squirrelfish

Species recognized by [FishBase](#), R Froese & D Pauly (eds) in [The Catalogue of Life](#)

IUCN RED LIST STATUS: [NOT EVALUATED](#)

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IMAGES



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BPBM 21576



Authoritative INFORMATION All

PHYSICAL DESCRIPTION

Max. size



UN Millennium Development Goals

keep the promise
Millennium Development Goals

2015

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The Goals

- 1 Eradicate extreme poverty and hunger
- 2 Achieve universal primary education
- 3 Promote gender equality and empower women
- 4 Reduce child mortality
- 5 Improve maternal health
- 6 Combat HIV/AIDS, malaria and other diseases
- 7 Ensure environmental sustainability
- 8 Develop a global partnership for development

What are the Millennium Development Goals?

The eight Millennium Development Goals (MDGs) – which range from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the world's poorest.

"We will have time to reach the Millennium Development Goals – worldwide and in most, or even all, individual countries – but only if we break with business as usual. We cannot win overnight. Success will require sustained action across the entire decade between now and the deadline. It takes time to train the teachers, nurses and engineers; to build the roads, schools and hospitals; to grow the small and large businesses able to create the jobs and income needed. So we must start now. And we must more than double global development assistance

NEWS FLASH

[Millennium Development Goals Report 2006](#)

UN ACTION

[2005 World Summit United Nations Headquarters, NY](#)
14-16 September 2005

[Millennium Project](#)

[World Summit outcome](#)

[Millennium Development Goals: Civil Society Takes Action](#)
58th Annual DPI/NGO Conference,
7-9 September 2005, NY

[Regional Reports](#)

[Economic and Social](#)

Vision: Social Computing

1) Focus on National Priorities & Impact

- Health, energy, education, business innovation
- Disaster response, community safety
- Environmental awareness, biodiversity

2) Develop Theories of Social Computing

- How do networks evolve? Can we predict areas of growth, stability, decline, infections, disruptions?
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Network Theories: Evolution models

- Random, preferential attachment, triangles...
- Monotonic, bursty, 3-phase...
- Power law for degree (hubs & indexes)
- Small-world property
- Forest fire, spreading activation ...
- Matures, collapses, decays, fragments, ...

Watts & Strogatz, *Nature* 1998; Barabasi, *Science* 1999, 2009;

Newman, *Phys.Rev.Lett* 2002

Kumar, Novak & Tomkins, *KDD2006*

Leskovec, Faloutsos & Kleinberg, *TKDD2007*

Motivations for participation

- Fear, imminent threat
(Rogers, 1975)
- Revenge, response to tragedy, guilt
(Hanson, 2008)
- Egoism, altruism, collectivism, principlism
(Batson, Ahmad & Tseng, 2002)

Stages of participation

Wikipedia & Reporting sites

- Reader
- First-time Contributor
(Legitimate Peripheral Participation)
- Returning Contributor
- Frequent Contributor

Preece, Nonnecke & Andrews, *CHB2004*

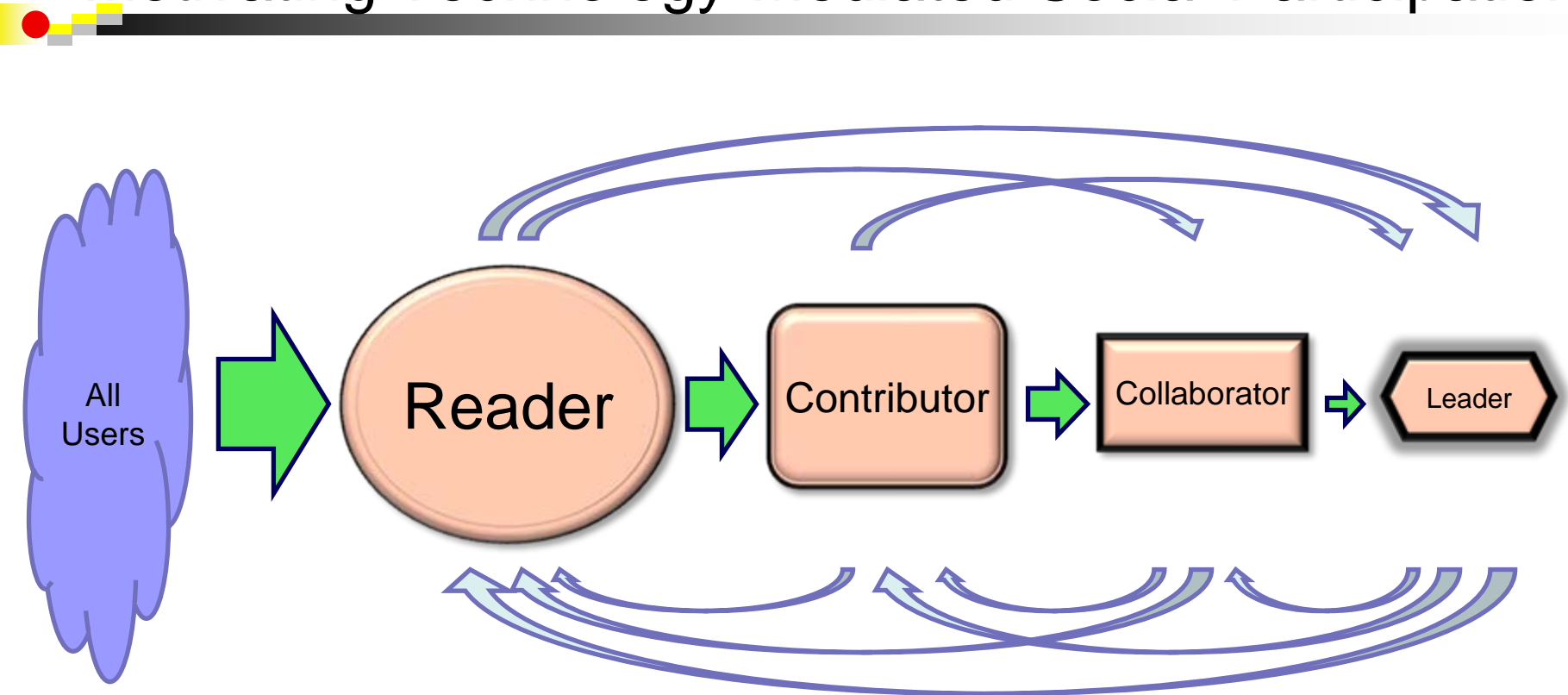
Forte & Bruckman, *SIGGROUP2005*; Hanson, 2008

Porter: *Designing for the Social Web*, 2008

Vassileva, 2002, 2005; Ling et al., *JCMC 2005*; Rashid et al., *CHI2006*

From Reader to Leader:

Motivating Technology-Mediated Social Participation



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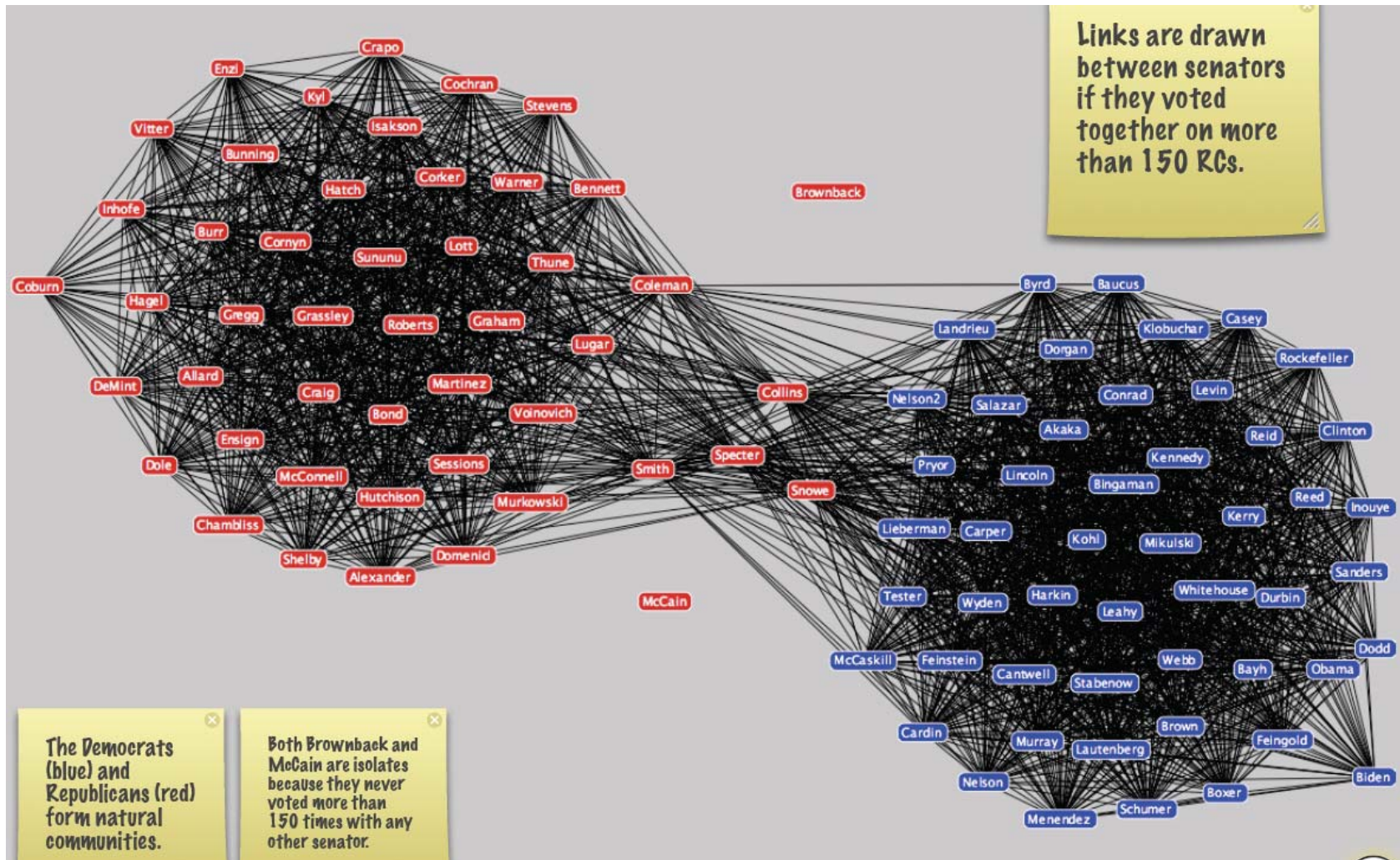
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Technology Infrastructure



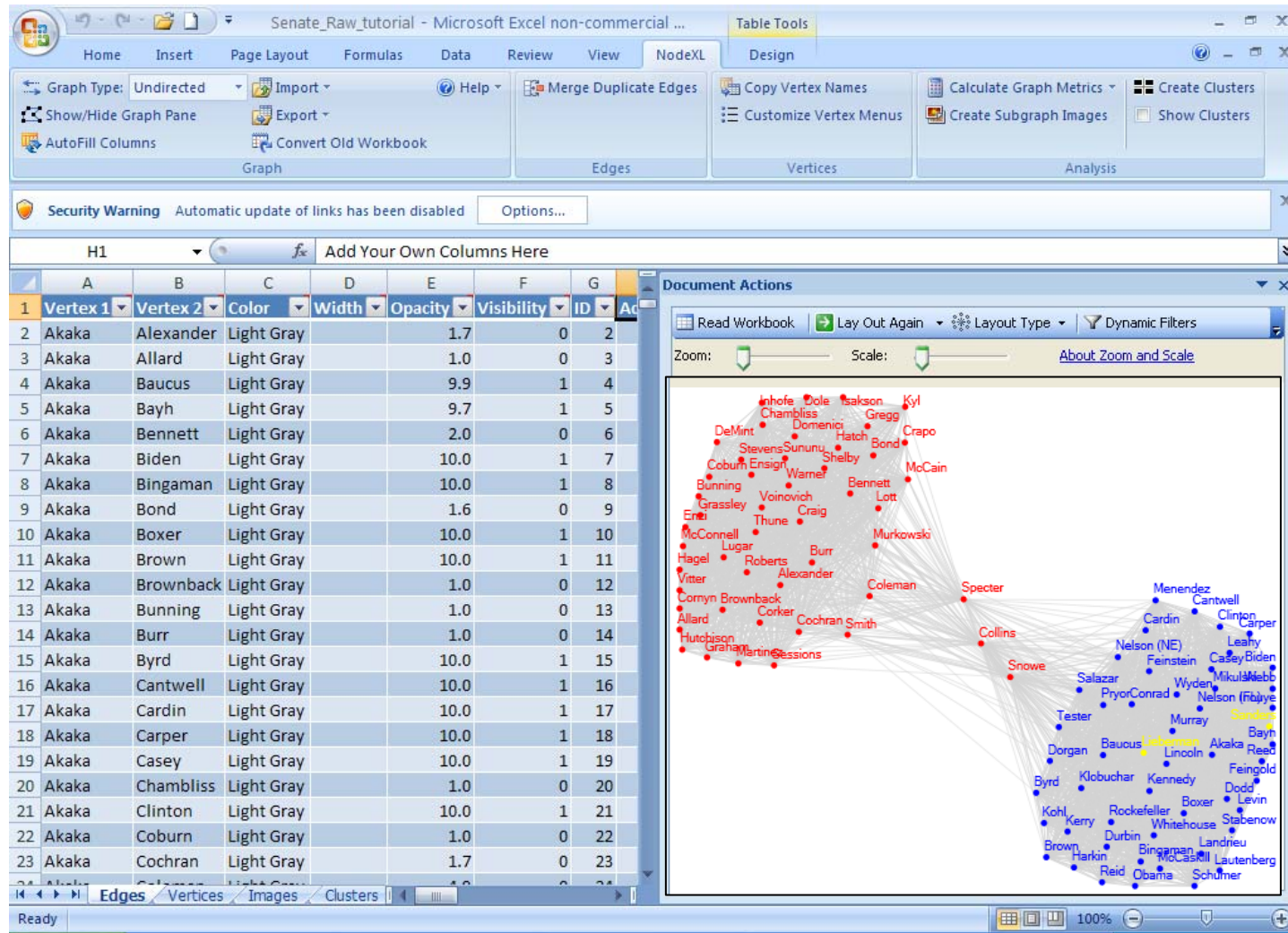
- Platform & browser independent
- Desktop, Web, Mobile
- Petabytes, Tera-contribs, Giga-collabs
- 24/7, 100% uptime, secure, private
- Universal access & usability
- Trust, empathy, responsibility
- Enables leaders to manage activity
- Supports continuous improvement

SocialAction: Senate Vote Patterns



NodeXL:

Network Overview for Discovery & Exploration in Excel



www.codeplex.com/nodexl
casci.umd.edu/NodeXL_Teaching

Vision: Social Computing



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Early Steps

National Initiative for Social Participation

Goal: to promote dramatically increased research support and educational opportunities for technology-mediated social participation especially as related to national priorities.

Draft: May 29, 2009



Organized by:

Ben Shneiderman, Univ of Maryland
Peter Pirolli, PARC
Jenny Preece, Univ of Maryland
Ben Bederson, Univ of Maryland
Derek Hansen, Univ of Maryland
Harry Hochheiser, Towson Univ

Additional Contributors:

Hal Eden, Univ of Colorado
Gerhard Fischer, Univ of Colorado
Art Hanson, Nation of Neighbors
Tom Malone, MIT
Gary Marchionini, Univ of North Carolina
Frank Moss, MIT
Cynthia Parr, Smithsonian Institution
Alex Pentland, MIT

NSF-funded Workshops

- Dec 10-11, PARC
- Feb 11-12, NSF-HQ

www.tmssp.umd.edu

<http://iparticipate.wikispaces.com>

Road ahead



- **Much work to be done**
- **Difficult to attain all our goals**
- **But we can make important contributions**

Road ahead



- **Much work to be done**
- **Difficult to attain all our goals**
- **But we can make important contributions**

- **Shift public policy**
 - **National Institutes for Social Computing**
 - **National Initiative for Social Participation**
- **Change our research community**
- **Restructure our academic curricula**



Human-Computer
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