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***"Integrating Information Technology and Social Science
Research for Effective Government"***

The 7th Annual International Conference on Digital Government Research is a forum for the presentation and discussion of interdisciplinary research on digital government and its applications in diverse domains. Interested participants are invited to submit research papers, system demonstrations, posters, and proposals for tutorials and workshops for dg.o 2006.

The conference will focus on:

- Research on digital government as an interdisciplinary domain that encompasses inquiry at the intersections of computing research, social, political, and behavioral science research, and the problems and missions of government agencies
- Unique partnerships of university researchers and government partners
- Project highlights and outcomes of digital government research

Keynote Speakers

- [Fran Berman](#), Director, San Diego Supercomputer Center Professor and High Performance Computing Endowed Chair, UC San Diego, will deliver a keynote address on "One Hundred Years of Data," Monday, May 22, 2006.
- [Kim Nelson](#), Microsoft's E-Government Director will deliver a keynote address on "Academic and Business Partnerships to Enhance Digital Government Research," Tuesday, May 23, 2006.
- Dr. John Phillips, Chief Scientist of the Central Intelligence Agency (CIA), will deliver a keynote address for ISI2006 on Tuesday, May 23, 2006. (dg.o 2006 attendees are welcomed to attend.)

Conference Registration

- [On Site Conference Registration](#) begins May 21, 2006!

International Research Workshops and Tutorials

dg.o 2006 is planning to have tutorials and international research workshops in conjunction with the conference. They have been scheduled for Sunday, May 21st, and Wednesday, afternoon, May 24th.

Please refer to [Workshops CFPs](#) and [Tutorials CFPs](#) for more details.

Principal Investigators Meeting

The dg.o 2006 conference also hosts the annual Principal Investigators (PIs) meeting of Digital Government and Information Technology Research (ITR), held at lunch on Wednesday, May 24, 2006. The meeting is managed by the NSF's Digital Government Program.

dg.o 2006 to Collaborate with ISI Symposium and Fed Web

We are very pleased to announce that dg.o2006 is being organized in collaboration with the [IEEE 4th](#)

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[Symposium on Intelligence and Security Informatics \(ISI2006\)](#) and [FedWeb](#). The conferences will be collocated and overlapping.

dg.o 2006 is Sponsored in Part by:



dg.o 2006 Conference Cancellation Policy

Cancellations received one month or more prior to the conference will receive full refund

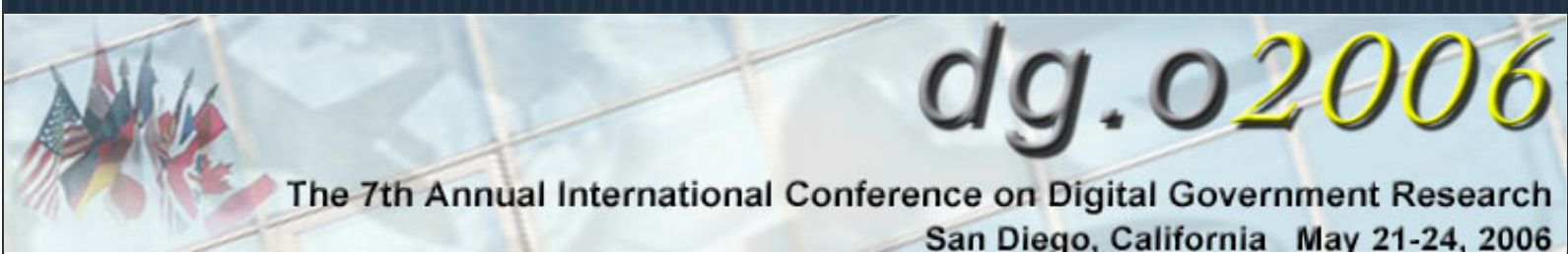
Cancellations received up to three weeks prior to the conference will receive one copy of the proceedings of each event registered to attend, and reimbursement of all amounts paid above the first \$200

Cancellations received within three weeks prior to the conference and all no-shows will not receive reimbursements but will receive one copy of each proceedings of events registered to attend.

Cancellations due to governmental travel restrictions or failure to obtain a visa to attend the Conference will receive full refund regardless of when notification is received.

This material is based upon work supported by the National Science Foundation under Grant No. IIS-0518024.

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CALL FOR VOLUNTEERS

[dg.o 2006](#) - Call for Student Volunteers

The 7th Annual International Conference on Digital Government Research 2006, dg.o 2006

Application Deadline: May 1, 2006

In an effort to encourage graduate student participation in [dg.o 2006](#), the conference is looking for graduate student volunteers. This is a great opportunity find out about ongoing research in digital government and a chance to interact with the best and most prominent people in this international field!

In exchange for one full day's work, student volunteers receive FREE registration to the main [dg.o 2006](#) conference. The work will be divided, into two half-day shifts, and the shifts will be scheduled to maximize volunteer access to conference events.

The work will consist of assistance at the registration desk, workshops, tutorials, and technical sessions; and general assistance helping out where needed (e.g. giving directions to participants, helping presenters, monitoring sessions).

Graduate student volunteers are needed from 7:30 – 6:00 pm, Saturday, May 20, 2006 through Wednesday, May 24, 2006. (We do not require all volunteers to arrive by May 20, 2006 or stay until May 24, 2006.) Travel and lodging expenses will be the responsibility of the volunteers.

DEADLINE for applying to be a graduate student volunteer is **May 1, 2006**.

Notifications will be sent by email and additional information about registration will be provided at that time.

There is no application form.

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Apply by sending an email with your availability and with the subject: "**dg.o 2006 graduate student volunteer**" to the following email address:

Priscilla Rasmussen
Academic and Research Conference Services, Ltd.
TEL: +1-570-476-8006
EMAIL: rasmusse@research.rutgers.edu

NOTE: Please make your hotel reservations through our website so that you may qualify for the conference rate at the Doubletree – Mission Valley in San Diego, California where the dg.o 2006 conference will convene.

We look forward to seeing you in May in San Diego!

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CONFERENCE Sponsorship

Sponsorship Opportunities

Sponsors of dg.o 2006, the 7th Annual International Conference on Digital Government Research, provide essential funding for conference activities, research publications, and scholarships for graduate research student conference admissions. The conference is organized and planned by the [University of Southern California \(USC\)](#), [Information Sciences Institute \(ISI\)](#), [Digital Government Research Center \(DGRC\)](#).

Private sector support is particularly important because it provides us with important linkages to the business community; it lends an important business perspective by helping to design our programs, commenting on our work and actively participating with us in joint research projects on major issues.

This conference will provide you with the opportunity to network with the best and brightest researchers in the technological and social science aspects of digital government, as well as with key players within the business community.

Event sponsorship provides your organization with maximum visibility and demonstrates your continued commitment to facilitate the transfer of academic research to the private and public sectors.

What is digital government?

Digital Government, also referred to as E-Government, is the application of Information and Communication Technologies for public sector modernization. It fosters the use of information technology to support and improve public policies and government operations, engage and empower citizens, and provide comprehensive and timely government services that are more client oriented.

In addition to its technological components, successful implementation of digital government requires a complementary adjustment of government processes.

Examples of Digital Government application areas include:

- Government Processes: voting, e-rulmaking
- e-Health
- e-Crisis/Disaster Response
- e-Business
- e-Education
- e-Agriculture

Conference History:

- This marks the 7th year of this international conference in digital government.
- Keynote speakers have included national and international research scientists, government officials, and senior digital government delegates.
- Average participation ranges from 200 - 300 domestic and international attendees.
- Historically new alliances with digital government researchers have used this conference to build a constituency been created with the Library of Congress, the U.S. National Archives, and other

government agencies.

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Historically Conference Attendees included:

- World-renowned researchers in digital government, in technology, and in social sciences
- Federal, state, and local government representatives and employees
- A variety of local business leaders and professional organizations

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dg.o 2005

dg.o 2004

dg.o 2003

Corporate sponsorship offers companies the opportunity and the ability to influence current and future leaders in digital government research and development.

Sponsorship offers governments and corporations the opportunity to influence current and future leaders in digital government research and development.

Conference Sponsorship Levels and Associated Benefits:

dg.o 2006 Platinum Sponsorship

- Sponsorship level: \$5000
- Sponsors are provided reserved, preferential seating at the conference.
- Sponsorship of one special event (receptions, luncheon, activity) and a contributing sponsor for student scholarships.
- Highly visible company logo or name in the conference proceedings and agenda distributed to all conference attendees as well as advance marketing materials and advertising spots in certain rooms.
- Highly visible company logo at the conference and link on the conference website with a hyperlink to the sponsor's website.
- Sponsors' company brochure included in attendees' registration package.
- Two complimentary full conference admissions (valued at \$600 per person).
- Two copies of the conference proceedings books (valued at \$25 per copy).

dg.o 2006 Gold Sponsorship

- Sponsorship level: \$3000
- Company logo on conference souvenir item (mug, t-shirt, pen) included in attendees' registration package.
- Company logo or name in the conference proceedings and agenda distributed to all conference attendees.
- Company logo and link on the conference website.
- Sponsors' company brochure included in attendees' registration package.
- One complimentary full conference admission (valued at \$600).
- One copy of the conference proceedings books (valued at \$25 per copy).

dg.o 2006 Silver Sponsorship

- Sponsorship level: \$1000
- Sponsorship of one coffee break or a contributing sponsor for student scholarships.
- Company logo and link on the conference website.
- Sponsors' company brochure included in attendees' registration package.
- One complimentary full conference admission (valued at \$600).
- One copy of the conference proceedings books (valued at \$25 per copy).

dg.o 2006 Bronze Sponsorship

- Sponsorship level: \$500
- Contributing sponsor for student scholarships.

- Company logo and link on the conference website.
- Sponsors' company brochure included in attendees' registration package.

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To become a dg.o 2006 sponsor, contact the publicity chair:

Chrystol Koempel, M.A.
dg.o 2006 Publicity Chair
DGRC Public Affairs/Media Officer
Digital Government Research Center
Information Science Institute
University of Southern California
4676 Admiralty Way
Marina Del Rey, CA 90292

Tel: +1-310-448-8419
Fax: +1-310-822-0751
Email: chrystol@isi.edu

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The 7th Annual International Conference on Digital Government Research
San Diego, California May 21-24, 2006

July 19, 2007

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CONFERENCE NEWS

The 7th Annual International Conference on Digital Government Research will take place May 21-24, 2006 in San Diego, California. The conference has historically been the pivotal force in expanding the international digital government community into a multi-faceted research discipline with considerable strength and diversity.

Conference News Articles:

[New DG Team Pursues eRulemaking Research:](#)

Cornell Researchers Extend Earlier Efforts

[Application of Social Network Analysis:](#)

Harvard DG researcher features tutorial at dg.o 2006

[Geoinformatics: Detecting "Hotspots" to Prevent Crisis Situations](#)

Penn State, Distinguished Professor features workshop at dg.o 2006

[Bioterrorism and Public Health:](#)

Insights from NCID Professional offers half day tutorial May 21st at dg.o 2006

Bioterrorism and Public Health:

Insights from NCID Professional offers half day tutorial May 21st at [dg.o 2006](#)

[Karen Heyman](#)

For the [DGRC](#)

At this year's annual Digital Government Conference to be held in San Diego, David Bray will present a tutorial entitled, "[Fighting Fear of a Bioterrorism Event with Information Technology: Real-World Examples and Opportunities.](#)" Bray served for several years as the IT Chief for the Bioterrorism Preparedness and Response Program at the U.S. Centers for Disease Control and Prevention (CDC), where he coordinated the IT aspects of BPRP's response to 9/11, anthrax, West Nile, SARS, monkeypox, and other disease outbreaks. In 2004, he received the CDC's Director Award for his leadership in information systems. Bray is now working towards a PhD in Information Systems in the Goizueta Business School at Emory University.

This [half-day tutorial session on May 21, 2006](#) will

be an in-depth discussion on the intersection of national security, public health, and information technology; specifically how information technology can be used for both bioterrorism preparedness and response. The answer isn't as simple as merely keeping up to date with the latest hardware and software developments, says Bray. There are political, geographical and social issues that all come into play at multiple levels of government.

Bioterrorism and Public Health:



[Conference Officers](#)[Review Committee](#)[ISI 2006](#)[FedWeb - West](#)

Since the U.S. Constitution does not mandate a federal role for public health, it is under the jurisdiction of states by default. In several states, coordination for public health services is at the city and county levels. For the most part, this distributed structure works reasonably well. However acute infectious diseases and emergency response pose serious challenges.

"With the effects of globalization, infectious diseases can spread quite rapidly," says Bray. His intent is not to be alarmist, but to emphasize the importance of being able to rapidly collect, analyze, and act on data surrounding an emergency event. For public health professionals and other concerned officials, it's not just a question of data collection, but team coordination. Coordination to a possible bioterrorism event involves several different parties, including clinicians, health officials, epidemiologists, laboratorians, law enforcement, and several others. Public health efforts must constantly be alert to anomalous events that may simultaneously show up in several different regions across the nation. This requires information system collaborations.

While some computer systems are in place to handle such specific data collection and analysis duties, Bray says that fully-automated information systems for public health surveillance are only in their infancy; the ones that do exist still require a great deal of enhancements. One of the biggest challenges, according to Bray, is that most systems have been custom-made for the purposes of individual agencies. It's not just a problem of system integration, but of sharing vocabulary structures and definitions. Public health professions need a common descriptive vocabulary for exchanging data.

For example, typical epidemiological detective work means that dozens of random items discovered at the site of an outbreak need to be entered into a database. But what happens when one person calls an object "a pipe with biofilm," and another records it as, "bacteria-covered tube"? An additional challenge for emergency response is that every few hours, elements captured in an ad-hoc database may change as the ultimate cause of an outbreak begins to become clearer. "Merging data collected from different local sites is a serious challenge," says Bray. "When anthrax happened, it took several months of data-cleaning by a large team to be able to sort out fully what happened."

The ideal solution involves defining a common, yet flexible vocabulary that would assist practitioners when initially starting and later merging their databases. Yet there are still pitfalls, warns Bray. Being able to share the data is but one challenge; another is being able to securely exchange it with multiple partners at local, state, and federal levels of government. For a response to a bioterrorism event, potentially over fifty different agencies are involved. While progress is being made so that different identity management systems can authenticate different users involved with a response, there remains the problem of getting the correct reports, to the correct users, in the correct time so that informed decisions can be made.

Another challenge is that public health places high importance on the protection of individual privacy; at the same time valuing open sharing of de-identified data. National security, on the other hand, places importance foremost on the protection of data and secrets, whereas individual privacies may be secondary. Bray believes that often information systems for bioterrorism and emergency response are "caught" between the demands of these two priorities. By law, Public health data received at the federal level must have any personal identifiers removed, yet often the federal level is trying to link together different data streams into a complete picture.

Bray's tutorial will go in-depth on these and similar challenges and offer ideas on how IT can help to solve them. He will have time for audience questions during the presentation and discussion afterward. Attendees should come away with a realistic idea of what is currently being done, as well as how much still needs to be done going forward, "I hope people get an eye-opener in terms of the U.S. public health system works, its interplay with national security, and how you can help build and research solutions to solve some of these intriguing challenges," says Bray.

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Geoinformatics: Detecting "Hotspots" to Prevent Crisis Situations

Penn State, Distinguished Professor features workshop at [dgo 2006](#)

By [Karen Heyman](#)

For the [DGRC](#)

At this year's 7th Annual International Conference on

Project Geoinformatic Surveillance:

Digital Government Research, there will be an all-day workshop on "[Digital Governance and Hotspot Geoinformatics for Monitoring, Etiology, Early Warning, and Sustainable Management](#)." Taking place on Sunday, May 21, 2006 in San Diego, it will be conducted by Ganapati P. Patil, Distinguished Professor and Director, Penn State Center for Statistical Ecology and Environmental Statistics.

Geoinformatics is a relatively new discipline that uses the tools of computer science to analyze large sets of geographically based data. It is especially relevant to practitioners in public health and public policy for issues ranging from persistent poverty to epidemics and the aftermath of natural disasters. It is also valuable for those in varied environmental management disciplines, from conservation to invasive species management. Additionally, it can provide critical information for security professionals for object recognition and tracking, and for potential spread of the effects of bioterror weapons.

The workshop will cover geoinformatic models and tools appropriate for detecting and prioritizing "hotspots." Patil and his colleagues have been working on how to identify potential "hotspots." These can be crisis points in the military sense involving areas and networks of robots, sensors, or wireless devices, but also in the environmental and human health sense involving events of societal importance over geographic regions or across networks.

To take a public health example, a "hotspot" could refer to where a disease outbreak has started, where it is at its worst, and most importantly, where and when one may emerge. A public policy analyst might try to detect a hotspot of poverty, looking at both geography and temporal dynamics, as Patil explains, "The questions to ask are, 'What are the poverty patches in the city, how have they changed over time, have the patches been growing, spreading, merging, shifting? Are there any poverty patch trajectories that can be useful for making policy for poverty alleviation?'"

The identification process for these hotspots requires the coordination of many spatial and temporal parameters. In order to correctly incorporate and interpret all of these parameters, Patil and his collaborators start with the spatial scan statistic, a widely used metric in public health, and modify it to apply to environmental sciences and elsewhere.

"The popular health-area scan statistic is a statistical method designed to detect a local excess of events and to test if such an excess can reasonably have occurred by chance," explains Patil. "However, its major limitation is that it is circle-based. The clusters can be of any shape, and cannot be captured only by circles. In more general settings, this is likely to give more false alarms and more of a false sense of security. What we need is the capability to detect arbitrarily shaped hotspots. We plan to accomplish this using our innovation with upper level sets and their connected components extended to permutation based upper level sets (PULSE), and also using novel genetic algorithms."

The benefit of hotspot detection is that it allows for customized analysis and thus the ability to create more specific, targeted policies. "One can see that while 400 cities don't need 400 policies, they cannot do with one single policy, one size fits all," says Patil, "Unfortunately, that has been the case so far in most countries when it comes to poverty alleviation, and by and large the policies have failed."

Detection is only the first step, equally important is prioritizing. "Once you identify hotspots, you want to know which hotspots need monitoring, which ones can be used for etiological analysis, which ones are ready for some assessment and management, so you want to prioritize and rank these hotspots." Of course, as practitioners know, there are different stakeholders in every situation. With each stakeholder providing a score for each hotspot, "You don't want to construct an index, because it's a question of apples and oranges," says Patil, "You want to prioritize and rank these hotspots without crunching these multiple indicators into a single index, so the question is how this can be done."

A conventional solution is to assign a composite numerical score to each hotspot by combining the indicator information in some fashion. But warns Patil, "Consciously or otherwise, every such composite involves judgments, often arbitrary or controversial about tradeoffs or substitutability among indicators."

In Patil's methodology, the solution is, "Rather than trying to combine indicators, we take the view that the relative positions in indicator space determine only a partial ordering and that a given pair of hotspots may

Researcher profile: [G.P Patil](#)

Project profile:

[Project Geoinformatic Surveillance: Hotspot Detection and Prioritization Across Geographic Regions and Networks for Digital Government in the 21st Century](#)



not be inherently comparable. Working with Hasse diagrams of the partial order, we study the collection of all rankings that are compatible with the partial order. And using our innovation with partial order sets, rank frequency distributions, and cumulative rank frequency operators, we accomplish the desired prioritization of the hotspots.”

In essence, it is a problem in multi-dimensional space. You can do an x, y plot to measure say, income by age, but suppose you have two hundred countries and you want to rank them according to human/ environmental interface progress, which includes several indicators. The Hasse diagram allows you to collapse several dimensions into levels that can be compared against each other, and provides a basis for insightful analysis leading to a broadly acceptable ranking.

Says Patil, “We will share these and other methods and tools with the workshop in the hopes that the participants will be able to use some of these methods and tools for analyzing their own datasets and databases if they’re looking for hotspots and prioritizing them.”

WORKSHOP STRUCTURE

The workshop will be divided into morning and afternoon sessions, with the morning devoted to the toolbox exposition with examples and datasets, with particular emphasis on public health, crime, ecohealth, poverty, networks and the like. In the afternoon, there will be actual case studies presented by people working around the world. “One panel participant is an Indian New Delhi official in the Department of Information Technology, who is a senior director of the e-government program,” says Patil. “An innovative young expert from Brazil is going to present a hotspot case study on dengue fever and malaria in Brazil, using creative genetic algorithms together with environmentally meaningful adjacency definitions. My colleague from Penn State will make a case study on crop disease and the management advisory on whether a farmer should spray or not spray. A vice-president of the famous Bogor Agricultural University in Indonesia is going to speak about what Indonesia is going to do to implement hotspot geoinformatics.”

Patil welcomes participants to submit their own case studies for presentation: “It will be a good workshop for people to attend, and speak, and share some of their issues and datasets.” Participants are also welcome just to watch, hear, and overhear the exciting developments and applications for this century.

Links:

<http://www.stat.psu.edu/hotspots>

http://en.wikipedia.org/wiki/Hasse_diagram

New DG Team Pursues eRulemaking Research:

Cornell Researchers Extend Earlier Efforts

[Karen Heyman](#)

For the [DGRC](#)

Digital Government researcher and political scientist Stuart Shulman (University of Pittsburgh) is considered by DG colleagues to be the founder of the e-Rulemaking research community. While his own efforts date back to 1999, since January 2003 he has been working with sociologist Stephen Zavestoski (University of San Francisco) and computer scientists Eduard Hovy (USC-ISI) and Jamie Callan (Carnegie Mellon University) on the challenge of sorting through the sometimes hundreds of thousands of letters citizens and interest groups send in to comment on proposed federal regulations.

Recently, Cornell researchers, law professor Cynthia R. Farina, computer scientist Claire Cardie, legal informatics expert Thomas Bruce, and organizational behavior theorist Erica Wagner, received a major DG grant that will, in Farina’s words, “build on the work Stuart and his group have been doing for years. You can’t overstate the value of what they’ve done and

New DG Team Pursues e-Rulemaking Research:

Researchers profile:

[FARINA, C.](#)

[CARDIE, C.](#)

[SHULMAN, S.](#)

[HOVY, E.](#)

Project profile:

[Collaborative Research: Language Processing Technology for Electronic Rulemaking e-Rulemaking Research Group](#)

continue to do."

One difference between the two projects is where in the commenting process they will focus. Shulman's "e-Rulemaking Research Group" looks at what happens after comments are received, due to the expressed desire of regulators for a way to ease the burden of sorting through so many comments (<http://erulemaking.ucsur.pitt.edu>).



Although the Cornell team is also working on comment sorting and analysis, they will additionally concentrate on an earlier step, the interface a would-be commentator first encounters on Regulations.gov. Perhaps, they hope, they can improve interface design in ways that would encourage more pertinent comments in the first place, thus making the next phase less challenging.

As a professor of administrative law, Farina feels that many citizens, even 2nd year law students, don't understand that "the regulatory process is different from the political process." In our system of representative government, a representative will listen to the will of the people, noting how many constituents write in about particular issues. Sheer numbers alone may be enough to persuade a representative which way to vote. However, if conscience dictates, he or she may take the political risk of voting against what the majority of voters appear to want.

Regulators must work out the real-life details of the laws that have been passed. For those whose mandate is implementation, rather than legislation, the calculation is never as simple as counting up how many yeses vs. how many nos. In order to be persuaded, they need to know, in much greater depth, precisely why those opposed to a proposed rule fear it might impose economic burdens, possibly cause ecological damage, or other unintended and unforeseen results. "Unsupported opinions are generally not useful to an agency, except for figuring out general sentiment" says Cardie, "To make a decision, an agency needs data."

Since most citizens, and even some professional interest groups, think of regulators as working exactly as legislators do, they will deluge them with postcards or e-mails for or against proposed rules. Shulman and his colleagues continue to develop ways to highlight the relatively few unique, individual comments from the masses of form letters. Cardie and her colleagues will be working on the problem as well. Cardie, Hovy, and Callan are all specialists in natural language processing; the science of creating software that can better organize human language for analysis.

The impressive search engines, with which we're all familiar, such as Google, actually illustrate the problem. They are excellent at pulling out keywords, but they cannot distinguish their context. It's still a challenge to get a computer to understand that "Bush" with a capital B is the surname of two US presidents, while "bush" with a lowercase B refers to wild land or a piece of shrubbery. Reading a sentence like, "We want Bush to save the rose bush next to the bank near the river bank," a human knows immediately that the writer wants the president to preserve a flowering plant, and knows as well that the first "bank" refers to a building. But a computer must be trained, with complex learning algorithms, recursively going over texts, before incorporating enough understanding of syntax and context to correctly interpret a sentence like, "Bush saved the bush," that any human child can grasp.

In the context of e-Rulemaking, both the original eRulemaking Research Group and the Cornell group are writing software to help computers identify the unique, individual comments that have more value to regulators than thousands of letters with the same Do/Don't boilerplate text. In addition, the Cornell group hopes to create a useful way to index and group received comments, so that someone hoping to add an additional comment could easily search to see what had already been written on particular sub-sections of proposed rules. They are considering taking on an even more daunting challenge as well: Creating software that could help rulemakers by indexing apparently unrelated statutes and executive orders to flag mandates relevant to the rules being written, to catch possible conflicts and contradictions. "So many things impinge on other things," says Cardie.

For all the optimism about how the work of both groups could make the commenting process easier and more effective for regulators and citizens, Shulman admits, "I've scaled back my expectations." Similarly, Farina cautions, "We are looking at modest steps in improving the way the interface educates people and facilitates citizen participation." What optimists about eRulemaking had not considered, Shulman now realizes, is that some groups consider it in their best interests to keep the process of rulemaking slow and tedious. If a group is strongly opposed to a proposed rule, and fears it might be approved despite their objections, then they may feel the best course they have left is to delay its implementation. In which case,

they would actually prefer the current system, in which hundreds of thousands of comments are sorted by hand.

There's also another subtle issue of civics and administrative law, says Farina. Although legislators and regulators view comments differently, many interest groups believe that because regulators are ultimately hired by elected officials, the sheer gross number of comments on a proposed rule should matter as much as it does when legislators are making a decision.

Nevertheless, while aware of those issues, all the involved researchers still hope to do their best to use digital technology to make the working lives of regulators easier and the outcome of the regulatory process better.

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Application of Social Network Analysis

Harvard DG researcher features tutorial at dg.o 2006

By [Karen Heyman](#)

For the [DGRC](#)

[The 7th Annual International Conference on Digital Government Research, dg.o 2006](#), will be held in San Diego, California from May 21 – 24, 2006. David Lazer, Director of the Program on Networked Governance at Harvard University, will chair a workshop on "Application of Social Network Analysis in Digital Government Research" Other speakers will be Ines Mergel, also of Harvard University, and Noshir Contractor of the University of Illinois.

The tutorial will be a three-hour overview, "that will inform people what you can do with social network analysis," says Lazer. "Our objective is not to make you a social network expert—which is impossible in 3 hours—but to familiarize people with the key ideas and methods from social network analysis."

The idea of social network analysis dates back to the 1930's and the pioneering research of Jacob Levy Moreno, who coined the term "sociometry" for his measurements of how closely people were socially related (see Wasserman and Faust 1994). One of the field's most famous ideas is familiar to the layperson from the popular notion of "six degrees of separation." It was inspired by the "small worlds" work of social psychologist Stanley Milgram. Although Milgram is infamous for his obedience experiments involving putative electric shocks, he also did equally significant and (far more benign) work on societal connections. Some connections are obvious: friends, family, work or academic relationships. But Milgram created an experiment in which people were asked to send a letter to a complete stranger, routing it through the acquaintance they thought most likely to have a connection to the stranger. Although the actual number of completed chains in his first experiment was extremely low, the average number of links in those chains was six.

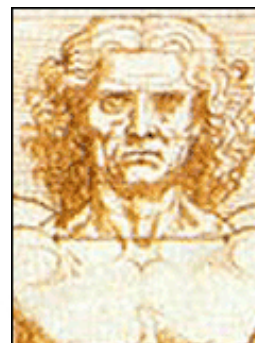
But the idea is far more complex than how many actors can claim a working relationship to Kevin Bacon (see <http://www.cs.virginia.edu/oracle/>), which is why researchers like Lazer find social networks so fascinating to study. For example, Milgram found that people's perception of a letter's importance affected their urgency to pass it on. Consider: It would be all too easy to conclude that a student had no social circle if you asked her to forward an email about an alumni picnic. But if you asked her to forward an email about a free U2 concert taking place on campus that night, you might find a stadium filled within a few hours of the original note.

In a famous paper published in Nature in 1998, Duncan Watts and Steve Strogatz quantified the "small

Social Network Analysis:

Researcher profile: [David Lazer](#)

Project profile:
[Collaborative Research: Connecting to Congress: The Adoption and Use of Web Technologies Among Congressional Offices](#)



worlds" idea, allowing it to be applied to nearly everything from computer networks to Dutch Tulip Mania. Their work even kicked off a mini-genre in publishing, including Watts's own popular book, "Six Degrees."

"I think it hit the zeitgeist at just the right time, just as the Internet was emerging, and that's such a powerful metaphor for human relations," says Lazer, "I think the idea of networks generally has exploded over the last decade."

Another concept receiving much attention is "power laws," the idea that networks are not distributed randomly, but cluster around powerful nodes, whether among people, computers or organic systems (see Barabasi and Albert 1999). A power law, Clay Shirky points out on his blog, may be contrasted to the better-known Bell Curve distribution. Due to the Bell Curve idea, we're often used to thinking that the largest cluster should be in the middle of a distribution, but power laws say that a distribution will be strongly tilted, as well as affected by the choices of others. The idea is easily illustrated at fan conventions. Whether it's country music or Star Trek, the largest clusters of fans will be found nearest the biggest stars. And those clusters will grow, as other fans think, "Look at the size of that line, it's got to be for somebody big."

http://www.shirky.com/writings/powerlaw_weblog.html

All of these, and many more issues in social network analysis, are pervasive, complex, and crucial, says Lazer. One important example, he says, is how the idea is approached in law enforcement. Police and legal professionals constantly need to consider clusters of networks, and how they may—or may not—interact. If all the members of a drug ring have the same dental office in common, does that make the dentists criminal masterminds? Or just doctors who are so good, all their patients keep recommending them to their friends? Another point to consider is "social capital," the idea that relationships affect productivity. Both the dentists and the criminals increase their skills and output by associating with their peers.

But if learning from peers in a network is the upside, getting stuck in one's own professional silo is the downside. Social network analysis helps people see where the bottlenecks are, and how the very structure of organizations, and inter-organizational relationships, may help or impede achieving desired goals. "Government is often made up of entities that have to work together, but don't always have authority over each other," says Lazer, "In the field of public administration, there's been an increasing realization that teaching students the world works in a hierarchical fashion leaves out a very important reality, which is that you have to work with other organizations that are equal to your own in terms of legal authority."

Lazer offers his workshop as a way for Digital Government researchers, whether academics or practitioners, to learn more of these and other social network analysis theoretical frameworks, in order to inspire new ways of analyzing their own data, "The social network analysis paradigm is a lens through which people can pick out things in the landscape they otherwise wouldn't be able to see."

Albert-Laszlo Barabasi, Reka Albert, Emergence of scaling in random networks, Science 286 1999) 509-512.

Stanley Wasserman and Katherine Faust. Social Network Analysis. Cambridge University Press, New York, 1994.

D. J. Watts and S. H. Strogatz. Collective dynamics of 'small-world' networks. Nature 393, 440-442 (1998).

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DIGITAL Government

What is digital government?

Digital Government, also referred to as E-Government, is the application of Information and Communication Technologies for public sector modernization. It fosters the use of information technology to support and improve public policies and government operations, engage and empower citizens, and provide comprehensive and timely government services that are more client oriented.

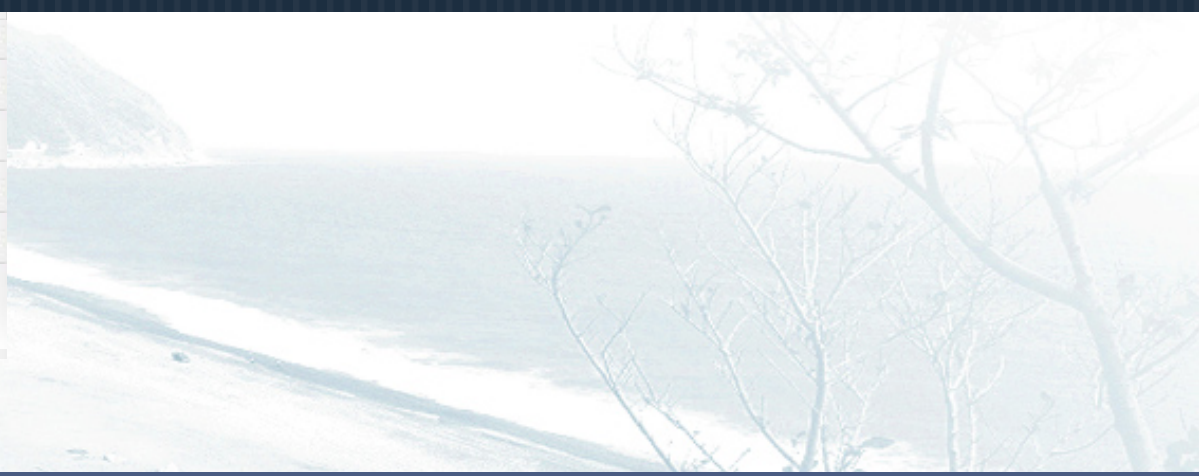
In addition to its technological components, successful implementation of digital government requires a complimentary adjustment of government processes.

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