



CENTER FOR DIGITAL ECONOMY RESEARCH
2008-2009 ANNUAL REPORT

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1. Introduction:

The Center for Digital Economy Research (CeDER) is a thought leader in areas of research that have become prominent in the Internet era. These include social and economic networks, prediction markets and “crowdsourcing,” data mining and business intelligence, global sourcing and service delivery, and issues of risk containment with respect to the governance of data and operations that are becoming increasingly important in the global digital economy.

The department of Information, Operations, and Management Sciences within Stern has the multi-disciplinary skills to be a leader in the above research areas in light of the synergy it has demonstrated in integrating Economics, Computer Science, Sociology, and Optimization in the study of the Digital Economy. Awards received by CeDER faculty are listed in Section 2. Summaries of CeDER faculty and their research are in Section 3.

CeDER sponsored workshops are listed in Section 4. CeDER recently held a high visible leadership establishing event called the Workshop on Information in Networks that brought together leading thinkers across diverse disciplines, and intends to host this event annually (<http://winworkshop.net/>). The center also sponsored several workshops across a range of areas including Data Governance and Risk, Global Delivery of Professional Services, Statistical Challenges in Electronic Commerce, and Information Economics. CeDER also sponsored the first *NY Computer Science and Economics day*.

During the past academic year, CeDER has organized 13 statistics, 14 information systems, and 13 operations management research seminars, for a total of 40 seminars over the course of the year (Section 5). Additionally the center has organized 10 informal ‘TUILES’ seminars (Section 6).

Nine working papers have been submitted to the NYU Faculty Digital archive over the past year (Section 4), and CeDER faculty have continued to earn distinction for their work. Professors Panos Ipeirotis and Foster Provost won best paper runner-up awards at the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining; Professor Arun Sundararajan and Stern alum Gal Oestreicher-Singer won the best paper award at the INFORMS Conference on Information Systems and Technology; and Sinan Aral won Best Overall Paper Award at ICIS 2008. Short summaries of faculty research projects over the past year, as well as associated working papers, are provided in the next section.

2. CeDER Faculty Awards 2008-2009

Professor Anindya Ghose & NYU Collaborators Awarded \$2 Million NSF Grant to Study Security and Privacy Issues

http://w4.stern.nyu.edu/news/news.cfm?doc_id=101751

Professor Sinan Aral Awarded IBM Faculty Award

http://w4.stern.nyu.edu/news/news.cfm?doc_id=101567

IBM gifts CeDER to support research by Professors Dhar, Sundararajan, and Provost

http://w4.stern.nyu.edu/ceder/events.cfm?doc_id=100971

Sinan Aral wins Best Overall Paper Award at ICIS 2008

Sundararajan and Oestreicher-Singer win best paper award at the INFORMS Conference on Information Systems and Technology

<http://oz.stern.nyu.edu/papers/visiblehand/>

Provost and Ipeirotis win best paper runner-up award at the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining.

<http://pages.stern.nyu.edu/~panos/publications/kdd2008.pdf>

3. Faculty Research Projects and Recent Publications

Sinan Aral

Peer Reviewed Work

Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabasi, A.L., Brewer, D., Christakis, N., Contractor, N., Fowler, J., Gutmann, M., Jebara, A., King, G., Macy, M., Roy, D., Van Alstyne, M., (2009) "Life in the Network: The Coming Age of Computational Social Science," *Science*, Forthcoming in the February 6th issue.

Publications

Aral, Sinan, Kings, N.J., Davies, J., Verrill, D., Brynjolfsson, E., Van Alstyne, M. (2008) "Social Computing, Networks and Knowledge Management". In: Warren, P., Davies, J., Brown, D. *Information and Communication Technologies Futures* West Sussex, England, Wiley & Sons, pp.17-15.

Aral, S., Bakos, Y., Brynjolfsson, E. 2008. "Trust, Costs and Incentives in Global Supplier Networks: Evidence From IT Sourcing Decisions." Workshop on Information Systems Economics, Paris, France.

Wu, L., Aral, S., Brynjolfsson, E., Lin, C. 2009. "Network Structure and Information Worker Productivity: New Evidence from the Global Consulting Services Industry." Winter Information Systems Conference, University of Utah, Salt Lake City, UT.

Aral, S., Muchnik, L., & Sundararajan, A. 2008. "Economic Influence in Massive Online Social Networks." Workshop on Information Systems Economics, Paris, France.

Wu, L., Waber, B., Aral, S., Brynjolfsson, E., & Pentland, S. 2008. "Mining Face to Face Interaction Networks Using Sociometric Badges: Evidence Predicting Productivity in IT Configuration" Proceedings of the 29th Annual International Conference on Information Systems, Paris, France. (Winner – Best Overall Paper)

Papers Completed

Aral, Sinan, Brynjolfsson, E., & Van Alstyne, M. (2008) "Information, Technology and Information Worker Productivity: Task Level Evidence," under review at *Management Science*, Under Second Round Review.

Aral, S., Brynjolfsson, E. & Van Alstyne, M. (2009) "Antecedents and Consequences of Mutual Knowledge in Teams." under review at *Organization Science*.

Reynolds, M., Van Alstyne, M., Aral, S. (2009) "Functions that Preserve Privacy but Permit Analysis of Text," under review at IIIE Symposium on Security and Privacy (SecPriv).

Aral, S., Wu, L., Brynjolfsson, E. (2009) "Incentive Systems and Information Technology," working paper completed.

Projects:

Aral is in the process of working on several large projects. First, he is working with Sundararajan on a large project analyzing the relationships between social networks and online marketing using a new data set on 27 million users collected from Yahoo.com. He has written one draft paper and has made one conference presentation from this project and expects much more to develop soon from this work. The paper is to appear in PNAS. Second, he has started a project in which he is running randomized experiments to test social influence among approximately 10 million users of Facebook. This project is currently under way. Third, he is running a natural experiment to examine the impact of information technology on social networks and information worker productivity in a global media firm. Fourth, he began a project on the economics of Software as a Service (SaaS).

Yannis Bakos

Peer Reviewed Work

Bakos, Yannis & Katsamakas, Evangelos (2008) "Design and Ownership of Two-Sided Networks," *Journal of Management Information Systems*, 25, 2 Fall, pp. 171-202.

Other Publications

Aral, Sinan, Bakos, Yannis and Brynjolfsson, Erik. "Trust, Costs and Incentives in Global Supplier Networks: Evidence from IT Sourcing Decisions." Presented at the Workshop in Information Systems and Economics, Paris, France, December 2008

Papers Completed

Bakos, Yannis & C. Dellarocas (2008) "Online Reputation Mechanisms as Substitutes and Complements of Tort Litigation" to be submitted to *Management Science*

Aral, Sinan, Bakos, Yannis and Brynjolfsson, Erik. "Trust, Costs and Incentives in Global Supplier Networks: Evidence from IT Sourcing Decisions." Completed in December 2008. To be submitted to *Management Science*.

Bakos, Yannis and Marotta-Wurgler, Florencia. "Does Anyone Read the Fine Print? A Test of the Informed Minority Hypothesis Using Clickstream Data." Completed in December 2008. To be presented to American Law and Economics Association Conference and be submitted to a journal in Spring 2009.

Projects:

Bakos is working with Florencia Marotta-Wurgler of NYU's School of Law on a theoretical and empirical analysis of online contracts. The first paper from this work was completed in December 2008 and will be presented in the American Law and Economics Association conference in Spring 2009, and will be submitted to a top Law and Economics journal after we receive comments from that conference.

Vasant Dhar

Research

Dhar's longstanding research has been on building robust automated decision making systems from large databases. He has explored this line of research primarily in financial markets, where his algorithms have been employed by investment advisors. This research focuses on building predictive models based on data from a variety of sources such as financial time series, economic networks,

blogs, news, and sponsored search markets More recently, he and Sundararajan have been working with IBM Research on the question of "What Data Should You Keep?" This view considers data as both an asset as well as a potential liability thereby taking a risk-based approach to Data Governance.

Another stream of his more recent research analyzes the relationship between information technologies and industry/business transformation, which asks the following types of questions: What is unique about information technologies that drive industry transformation and determine a firm's success with IT investments? Why is it that some organizations succeed with their IT investments while others fail in the emerging digital economy? More generally, how can firms think scientifically about the disruptive technologies that are on the horizon and exploiting them?

Recent Working Papers

1. Dhar, Sundararajan, Umayrov, Oestecher-Singer., The Gestalt in Graphs: Prediction Using Economic Networks, CeDER Working Paper, 09-06, October 2009. <http://hdl.handle.net/2451/28313>
2. Dhar, V., Prediction in Financial Markets: The Case for Small Disjuncts, CeDER Working Paper, 09-04, September 2009. <http://archive.nyu.edu/handle/2451/28304>.
3. Dhar, V., and Ghose, A., Sponsored Search and Market Efficiency, CeDER Working paper, August 2009. (Available upon request).
4. Dhar, V., and Sundararajan., Managing IT in a Downturn: Plugging into Transformation. <http://www.ft.com/cms/s/0/1f509532-f256-11dd-9678-0000779fd2ac.html> (paper appears in *Managing in a Downturn: Leading Business Thinkers on How to Grow When Markets Don't*. Financial Times Prentice Hall, Great Britain, 2009. ISBN 978-0-273-73005-7

Anindya Ghose

Peer Reviewed Work

Forman, C., Anindya Ghose and Batia Wiesenfeld (2008) "Examining the Relationship Between Reviews and Sales: The Role of Reviewer Identity Disclosure in Electronic Markets" *Information Systems Research*, 19(3) September, pp. 291-313.

Forman, Chris, Anindya Ghose, Avi Goldfarb (2009) "Competition between Local and Electronic Markets: How the Benefit of Buying Online Depends on Where You Live" *Management Science*, 55(1) January, pp. 47-57.

Ghose, Anindya (2009) "Internet Exchanges for Used Goods: An Empirical Analysis of Trade Patterns and Adverse Selection" *MIS Quarterly*, 33(1) March, pp. 1-30.

Ghose, Anindya & Ke-Wei Huang (2009) "Personalized Pricing and Quality Customization" *Journal of Economics and Management Strategy*, 18(4) Winter, pp. .

Invited Journal Submission:

Arora, N., X. Dreze, A. Ghose, J. Hess, R. Iyengar, B. Jing, Y. Joshi, V. Kumar, N. Lurie, S. Neslin, S. Sajeesh, M. Su, N. Syam, J. Thomas, Z. J. Zhang (2008) "Putting One-to-One Marketing to Work: Personalization, Customization and Choice," *Marketing Letters*, 19(3-4), December, pp. 305-321.
Selected Publications in Premier Conferences

Ghose, Anindya & Sha Yang (2008). Modeling and Estimating the Relationship Between Organic and Paid Search Advertising. Proceedings of the Workshop on Information Technologies and Systems (WITS 2008), Paris. BEST CONFERENCE PAPER NOMINATION.

Ghose, Anindya & Bin Gu. 2008. Market Frictions, Demand Structure and Price Competition in Online Markets. Proceedings of the International Conference on Information Systems (ICIS 2008), Paris, December. (Acceptance Rate 21%).

Ghose, Anindya & Sha Yang. Analyzing Search Engine Advertising: Firm Behavior and Cross-Selling in Electronic Markets, Proceedings of the World Wide Web Conference (WWW 2008), Beijing, April 2008. (Acceptance Rate 11%).

Ghose, Anindya & Sha Yang (2008) An Empirical Analysis of Sponsored Search Performance in Search Engine Advertising Proceedings of the First ACM International Conference on Web Search and Datamining Conference (WSDM 2008), Stanford. (Acceptance Rate 16%)

Invited Book Chapter

Ghose, Anindya (2008) The Economic Impact of User-Generated and Firm-Published Content: Directions for Advancing the Frontiers in Electronic Commerce Research. In: Wolfgang Jank and Galit Shmueli (eds.) Statistical Methods in Electronic Commerce Wiley, (Accepted).

Papers Completed

Ghose, Anindya & Arun Sundararajan (2008) "Software Versioning and Quality Degradation? An Exploratory Study of the Evidence." under revision for Journal of Marketing,

Archak, Nikolay, Anindya Ghose & Panos Ipeirotis (2008) "Deriving the Pricing Power of Product Features by Mining Consumer Reviews," under review at Management Science, 1st Round.

Ghose, Anindya, Panos Ipeirotis & Arun Sundararajan (2009) "The Dimensions of Reputation in Electronic Markets", under review at Management Information Systems Quarterly, 1st Round.

Recent Papers

Ghose, Anindya & Sha Yang (2008). "Modeling Cross-Category Purchases in Sponsored Search Advertising," under 1st round review in Management Science.

Dhar, Vasant & Anindya Ghose (2008). "Market Efficiency in Sponsored Search, CeDER Working Paper.

Projects:

Ghose has been invited by the executive committee of the INFORMS Information Systems Society to co-Chair their flagship conference - Conference on Information Systems and Technology (CIST) in 2009 to be held in San Diego. Ghose was an Associate Editor of the most prestigious and largest IS conference (ICIS) in 2008, and has been re-invited to act as an AE for ICIS 2009.

Ghose was part of the 5 member "core group" of a joint NYU-Poly team that obtained a large grant from the NSF towards furthering the collaboration between NYU and Poly (and the only member in the core group from the Stern School). These grants include the NSF-IGERT grant and the NSF-SFS grants, which cumulatively are worth more than a million dollars. Funding from such grants would go towards enhancing inter-disciplinary research across Stern, Poly, Steinhardt, Wagner, and Courant.

Natalia Levina

Peer Reviewed Work

Levina, Natalia & N. Su (2008) "Global IT Multisourcing Strategy: The Emergence of Supplier Portfolio in Services Offshoring," *Decision Sciences*, 39:3 August, pp. 541-571.

Levina, Natalia & E. Vaast (2008) "Innovating or Doing as Told? Status Differences and Overlapping Boundaries in Offshore Collaboration," *MIS Quarterly*, 32(2), pp. 307-332. G ; Special Issue on Offshoring.

Levina, Natalia and Wanda Orlikowski "Understanding Shifting Power Relations within and across Organizations: A Critical Genre Analysis," *Academy of Management Journal*, 2009 (forthcoming) available for download from AMJ website.

Other Publications

Jaiswal, V., and Natalia Levina, "Jit Full Circle Outsourcing," in: *IT Outsourcing - Impacts, Dilemmas, Debates and Real Cases in A.L. Albertin and O.P. Sanchez (eds.)*, Editora FGV, Sao Palo, Brazil, August, 2008.

Manuel Arriaga and Natalia Levina, "Social Dynamics in Online Cultural Fields," 29th International Conference on Information Systems, December 15-17, 2008, Paris, France (Published in the Proceedings).

Mingdi Xin and Natalia Levina, "Software-as-a-Service Model: Elaborating Client-side Adoption Factors," 29th International Conference on Information Systems, December 15-17, 2008, Paris, France (Published in the Proceedings).

Levina, Natalia and Aimee Kane, "Immigrant Managers as Boundary Spanners on Offshored Software Development Projects: Partners or Bosses?," *Proceedings of the International Workshop on Cross-Cultural Collaboration*, February 20-21, 2009, Stanford University, Paolo Alto, CA (forthcoming)

Papers Completed

Levina, Natalia & Aimee Kane (2008) "Immigrant Managers as Boundary Spanners on Offshored Software Development Projects: Partners or Bosses?" to be submitted to *Organization Science*

Manuel Arriaga and Natalia Levina, "Status Production, Reproduction, and Transformation in Online Cultural Fields," to be submitted to *Organization Science* special issue on Status (February, 2009)

Ning Su and Natalia Levina, "Using Multi-vendor Strategy in Global Sourcing of Services: What Can Services Learn from Manufacturing," accepted at the Global Sourcing Workshop, March 22-25, 2009, Keystone, CO.

Levina Natalia and Emmanuelle Vaast "Boundaries, Boundary Spanners, and Boundary Objects: A Practice Perspective on Boundary Spanning," Working paper to be submitted to *Organization Science* (Spring, 2009)

Mingdi Xin and Natalia Levina, "Software-as-a-Service Model: Elaborating Client-side Adoption Factors," Working Paper accessible at <http://ssrn.com/abstract=1319488> (Fall, 2008).

Oshri, Ilan, Julia Kotlarsky, and Natalia Levina, "Understanding the Role of Captive Centers in Offshoring of Knowledge-Intensive Services," Working Paper (Spring, 2009) G (India, Russia)

Projects:

In the past year, Levina has continued work with the focus on understanding how people collaborate across boundaries of organizations, professions, and nations as well as expanded my work into several new areas. Two papers from her project on collaboration in offshoring have been published in 2008 (one in MIS Quarterly and one in Decision Sciences Journal). Another paper based on her dissertation work has been accepted for publication in Academy of Management Journal (and is forthcoming).

From the research stream on collaboration in offshoring, a paper has been submitted to a workshop in Stanford and was nominated for the best paper award. This paper builds on the data she started collecting in 2004. Three other papers in collaboration with her PhD students have been accepted at top-rated research conferences. Each of these papers builds on her prior work and expands into the new phenomenon (papers with Ning Su and Mingdi Xin expands on the topic of IS outsourcing strategy and a paper with Manual Arriaga expands on work that draws on Bourdieu's practice theory to understand status). Levina has also started a new study on the evolution of offshore captive centers (contributing to strategy of global sourcing). Emma Vaast and Levina have also made great progress in developing a practice-based theory of boundary spanning which they plan to submit to Organization Science.

In terms of publicizing these areas of work, Levina organized a very successful NYU workshop on Global Delivery of Professional Services obtaining an additional \$35,000 of funding from IBM; 2) a very successful (over-subscribed) PDW at the Academy of Management; 3) as the founding member of a Special Interest Group on Grounded Theory Methods and an organizer of a pre-ICIS workshop and a special issue of European Journal of IS (top rated European Journal); 4) accepted editorial board assignment at Org Science; 5) organizing a Global Sourcing cluster at INFORMS 2009; 6) presented her work at the AOM meeting, Sloan Industry Studies Conference, and ICIS besides special interest workshops on global sourcing; 7) given invited talks at Stanford, Temple University, and UT Austin; 8) placed her papers on SSRN. Levina continues serving on the editorial board of ISR and has started serving on the editorial board of Organization Science and has been an associate editor for the increasingly visible CIST pre-INFORMS conference.

Panos Ipeirotis

Peer Reviewed Work

A. Jain and P. Ipeirotis. A Quality-Aware Optimizer for Information Extraction, ACM Transactions on Database Systems (TODS), 2009

A. Jain, P. Ipeirotis, and L. Gravano, Building Query Optimizers for Information Extraction: The SQoUT Project, SIGMOD Record, Special Issue on "Managing Information Extraction," vol. 37, no. 4, December 2008.

Anindya Ghose and Panagiotis Ipeirotis, The EconoMining Project at NYU: Studying the Economic Value of User-Generated Content on the Internet, Journal of Revenue and Pricing Management, 2009

Other Publications

Y. Yang, N. Bansal, W. Dakka, P. Ipeirotis, N. Koudas, D. Papadias, Query by Document, Second ACM International Conference on Web Search and Data Mining (WSDM 2009), 2009 (29/170 = 17% accepted)

A. Jain, P. Ipeirotis, A. Doan, and L. Gravano, Join Optimization of Information Extraction Output: Quality Matters!, Proceedings of the 25th IEEE International Conference on Data Engineering (ICDE 2009), 2009

V. Sheng, F. Provost, and P. Ipeirotis, Get Another Label? Improving Data Quality and Data Mining Using Multiple, Noisy Labelers, Best Paper Award Runner Up, Proceedings of the Fourteenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2008), 2008 (50/~500 < 10% accepted)

W. Dakka, L. Gravano, and P. Ipeirotis, Answering General Time Sensitive Queries, Proceedings of the 2008 ACM CIKM International Conference on Information and Knowledge Management (CIKM 2008), 2008

B. Li, A. Ghose, and P. Ipeirotis, Stay Elsewhere? Improving Local Search for Hotels Using Econometric Modeling and Image Classification, Proceedings of the Sixth International Workshop on the Web and Databases (WebDB 2008), 2008 (14/30 = 46% accepted)

K. Balakrishnan, A. Ghose, and P. Ipeirotis, The Impact of Information Disclosure on Stock Market Returns: The Sarbanes-Oxley Act and the Role of Media as an Information Intermediary, Proceedings of the Seventh Workshop on the Economics of Information Security (WEIS 2008), 2008

Papers Completed

N. Archak and P. Ipeirotis (2009) "Modeling Volatility in Prediction Markets", to be submitted to ACM EC 2009

N. Archak and P. Ipeirotis (2009) "Pricing Combinatorial Contracts using Past Evolution of Prediction Markets", to be submitted to ACM EC 2009

V. Sheng, F. Provost, and P. Ipeirotis (2009) "Improving Data Quality and Data Mining Using Multiple, Noisy Labelers", to be submitted to Data Mining and Knowledge Discovery, Journal Version of KDD 2008 paper.

Projects:

Ipeirotis's research lies in the area of data management and integration, with a special focus on textual and web data. He has been working on algorithms and systems that help organize and analyze meaningfully all the globally available information. His current research falls under three interconnected projects: SQoUT, EconoMining, and AcMON.

In the SQoUT project, Ipeirotis works on leveraging "information extraction" technologies to be able to answer structured, SQL-like queries, over repositories of unstructured text. Such algorithms allow users to ask complicated questions over unstructured text and get concrete answers, thus enabling users to spend less time searching for information and more time analyzing and understanding the results. Of course, having hundreds and thousands of information extraction systems available, allows the execution of many, complex queries over the web. With billions of available documents, it is crucial to find efficient methods for optimizing the execution of such queries. Our algorithms focus on automatically choosing the best way to execute a given task, returning the desired answer in the fastest way possible. Furthermore, since the information extraction systems are inherently noisy, our systems also allow the users to specify the desired level of quality. The results of this research have been well-received in the community, winning the Best Paper award at the SIGMOD 2006 conference (one of the

most prestigious and selective database conferences), and resulting in 5 journal papers (ACM TODS August 2007, ACM TODS November 2007, ACM TOIS April 2008, SIGMOD Record December 2008, ACM TODS 2009 upcoming) and one upcoming conference paper (IEEE ICDE 2009).

One important application of information extraction is the structuring of the information available on the Internet in the form of user-generated content. In the EconoMining project, we build on the information extraction techniques of the SQoUT project to structure the user-generated content, and then we measure the economic value of this content in a variety of contexts. This line of research, initiated with Anindya Ghose and Arun Sundararajan in the IOMS department, examines a family of problems that can be solved by techniques that integrate text mining and econometrics. The project has received one of the prestigious "Microsoft Live Labs Search Award" (~6% success rate) and a "Microsoft Virtual Earth Award" (~10% success rate). It also resulted in a large number of presentations in conferences, workshops, and research seminars. Four papers are now under submissions to various journals (MISQ, Management Science, IEEE TKDE). This is a really exciting interdisciplinary line of research with many opportunities for future research, which we are currently exploring.

A common theme that emerged from both the SQoUT and the EconoMining projects was the need to actually evaluate the output of the systems. Due to the absence of benchmarks, we commonly need to examine manually the output of the systems and evaluate the output in terms of completeness and in terms of accuracy. Such evaluations are typically slow and often impossible when the output that should be evaluated is big. Recently, the emergence of micro-outsourcing services, such as Amazon Mechanical Turk, allowed the easy outsourcing of such "micro"- tasks in exchange for a small payment (an example of such microtask is answering a question like "is the discussion in this blog post positive or negative?" for 1 cent). Unfortunately, the answers that we get back are inherently noisy: the workers are not always diligent or capable of giving the correct answer. So, we need to develop techniques that will allow us to improve the quality of the results that we get back and infer the quality of the individual workers, without knowing the correct answer. Furthermore, when we use the acquired data to build data mining models, we need to decide what cases are the most beneficial to work on, and which workers should work on which cases. Some preliminary results of this research have been presented at the ACM KDD 2008 conference, (the most prestigious data mining conference with acceptance rate below 10%) where it received the Best Paper Runner Up award.

Foster Provost

Peer Reviewed Work

Saar-Tsechansky, M., P. Melville and F. Provost (2009) "Active Feature-value Acquisition," forthcoming in Management Science.

Sheng, S., F. Provost, and P. Ipeirotis. "Get Another Label? Improving Data Quality and Data Mining Using Multiple, Noisy Labelers." In ACM SIGKDD-2008. Best Paper Award Runner-up.

Other Publications

"Predictive Modeling with Social Networks." Tutorial presented at the Fourteenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (with Jennifer Neville), August 2008.

"Social Network Mining: A Tutorial on Inference and Learning with Social Network Data." Tutorial (invited) presented at the Twenty-Third AAAI Conf. on Artificial Intelligence (with Jennifer Neville), July 2008.

Papers Completed

Social Network Collaborative Filtering. Zheng, R., D. Wilkinson, and F. Provost. Working paper CeDER-8-08. Center for Digital Economy Research, Stern School of Business, New York University. September 2008.

Projects:

Provost's work on mining (social) network data is part of a major shift in the focus of data mining research towards online networks. CMU's Christos Faloutsos in August at the main data mining conference referred to this work as one of the (few) "successes" with "impact" in this area (<http://www.cs.cmu.edu/~christos/TALKS/08-KDD-panel/faloutsosPanel.ppt>). Provost's work on social-network marketing also has received a large amount of interest in marketing blogs and beyond (google: "hill volinsky provost blog" for an intriguing sample). Provost is currently studying on-line *brand* advertising, which has gotten relatively little prior attention in the technical community (and generally); again social-network targeting seems to be a remarkably useful technique. Provost is looking at inferring a (quasi-) social network by connecting people by common visitations of user-generated micro-content. For prediction purposes, it seems to act like a real social network (e.g., identifying similarity in brand affinity).

On a separate research track, Provost and Ipeirotis recently introduced the idea of using intelligently guided "micro-outsourcing", such as with Amazon's Mechanical Turk, to help improve data quality and data mining. They won the best paper award runner up at the ACM SIGKDD conference this summer. This area also will end up getting a good deal of attention, as more research turns from "wow, users generate content!" to "how can we harness and focus this phenomenon?"

Roy Radner

Peer Reviewed Work

Radner, Roy, A. Lambert-Mogiliansky and M. K. Majumdar (2008) "Petty Corruption: A Game-Theoretic Approach" *International Journal of Economic Theory*, v. 4, no. 2, pp. 273-

Radner, Roy, A. Lambert-Mogiliansky and M. K. Majumdar (2009) "Strategic Analysis of Petty Corruption with an Intermediary" forthcoming in *Games and Economic Behavior*.

Dutta, P. K., and R. Radner (2009) "Strategic Analysis of Global Warming: Theory and Some Numbers," forthcoming in *Journal of Economic Behavior and Organization*.

Papers Completed

Radner, Roy & Arun Sundararajan (2008) "Dynamic Pricing of Network Goods with Boundedly Rational Consumers," under revision for *Management Science*,

Radner, Roy (2009) "Notes on a Climate Change Game with Capital and Population Growth" (Working Paper).

Research

One of Radner's primary research interests and publications are in the strategic (game-theoretic) analysis of climate change, especially related to an international treaty. Various partial analyses have been published by P. K. Dutta (Col. U.) and Radner, and a unified theoretical model has been developed. Dutta, Norman White (Stern), and Roy intend to calibrate the model and explore its implications for quantitative policy-relevant conclusions concerning self-enforcing treaties and strategic foreign aid.

Roy's second major research theme is "bounded rationality," as introduced by Jacob Marschak and Herbert Simon.

Next year Roy will return to two working papers, one with Arun Sundararajan on "Dynamic Pricing of Network Goods with Boundedly Rational Consumers," one by Radner on "Bayesian Analysis of Statistical Model Revision," as well as other topics in the area.

Lee Sproull

Peer Reviewed Work

Lee Sproull. 2009 forthcoming. Organizational learning. *Research on Organizational Sociology*.

Jae Yun Moon and Lee Sproull. 2008. The role of feedback in managing the Internet-based volunteer workforce. *Information Systems Research*,

Other Publications

Sproull, Lee & Conley, Caryn A. 2008. Network organizations through communication technology.. *The International Encyclopedia of Communication* (ed. Donsbach), volume 7. pg. 3205-3207. Oxford, UK: Wiley-Blackwell.

Arun Sundararajan

Peer Reviewed Work

Sankaranarayanan, R., and Sundararajan, A. (2009) "Electronic markets, search costs and firm boundaries" accepted at *Information Systems Research*.

Recent Papers

Mantena, R. and A. Sundararajan (2008) "Competing across boundaries: technological scope and inter-industry convergence," resubmitted to *Information Systems Research*, (revise and resubmit, minor revisions, third round).

Huang, K. and Sundararajan, A. (2008) "Pricing Digital Goods: Discontinuous Costs and Shared Infrastructures," under revision for *Information Systems Research*, (revise and resubmit, major revision, third round).

Ghose, A., Ipeiortis, P., and Sundararajan, A. (2009) "The Dimensions of Reputation in Electronic Markets" under revision for *MIS Quarterly*, (first round)

Oestreicher-Singer, G. and Sundararajan, A., 2009. Recommendation Networks and the Long Tail of Electronic Commerce. (*MIS Quarterly*, first round)

Oestreicher-Singer, G. and Sundararajan, A., 2008. The Visible Hand of Social Networks in Electronic Markets. (*Management Science*, first round)

Projects:

Sundararajan has initiated a number of new research projects that add to my emerging research program on the influence of visible and massive complex networks. These include following up on ongoing work on Amazon's recommendation networks, and initiating a new project using an unprecedented data set from Yahoo!

Prasanna Tambe

1. How Does Offshoring Affect Information Technology Workers?

Despite significant public, media, and academic interest in offshoring, there has been very little data available through which to assess how offshoring has affected US-based information technology workers. In this study, we use data from two new, nationally representative surveys to examine how offshoring has already affected the US based IT workforce, and to test the hypothesis that offshoring is making interpersonal skills more valuable for US-based IT workers.

Our survey results show that 40% of high-technology firms offshore work, and about 30% of all firms that offshore send IT work overseas. Among the IT workers surveyed, about 8% report ever having experienced offshoring-related job displacement, double the average offshoring-related displacement rate across all other worker types, but still implying an annual offshoring-related displacement rate of only about 1-2% per year.

We also provide evidence that workers who provide services requiring face-to-face contact or physical presence ("personally delivered services") are at smaller risk of offshoring-related job displacement, implying that interpersonal skills are becoming relatively more valuable among IT workers. A one standard deviation increase in our measure of how "personal" a job is decreases the likelihood of being displaced due to offshoring by about 25% relative to the base rate. Our findings imply that IT workers

in functions that involve cross-divisional communication or hands-on support are less likely to be affected by offshoring.

2. The Extroverted Firm: How External Information Practices Affect Productivity

We combine detailed survey data on firms' organizational practices with information technology (IT) intensity measures to examine the hypothesis that external focus is an important determinant of returns to IT investments. First, using survey-based measures, we show that external focus is highly correlated with organizational decentralization and information technology investments. Second, we show that a cluster of practices including decentralization, external focus and IT investment is associated with improved product innovation capabilities. Third, we report estimates from a complementarities model that indicates that the combination of external focus and decentralization is associated with significantly higher productivity from IT investments. Firms that have one or neither of these organizational practices in place are not any more productive than the average firm in our sample. We also introduce a new set of instrumental variables representing barriers to IT-related organizational change and use these measures to show that our results are robust when we account for the potential endogeneity of organizational investments. Our results may help explain why more "networked" regions and economies have experienced especially high returns to IT investment and suggest a set of practices that some managers may be able to use to increase their returns from IT investments.

3. Is Organization An Asset?

Using new firm-level information technology and human capital measures, we test the hypothesis that IT-related organizational assets account for a significant fraction of the market value of modern firms. We first develop and benchmark new IT employment and human capital measures for over 80,000 firm-years from 1987 to 2006. We use these new measures to investigate changes in the value of IT-related organizational capital stocks over the last two decades. On average, the measured value of organizational capital has been steadily increasing, and is about one quarter the value of physical capital stocks. We also find that organizational capital depreciates at the rate of just under 7% a year, closer to the estimated rates of depreciation of physical capital than R&D knowledge capital. We also use Hall's Quantity Revelation Theorem to decompose organizational asset values into prices and quantities, and find that high organizational asset values are due to the accumulation of organizational stocks, not because of high "prices" for firms that are lucky enough to have access to scarce organizational resources. Implications for managerial strategy and policy makers are discussed.

4. Expert Mobility, Knowledge Spillovers, and Regional Returns to IT Investments

We find evidence that firms derive substantial benefits from the IT investments of other firms through knowledge spillovers produced by the mobility of technical workers. We use a new developed source of matched employer-employee micro-data to model the mobility patterns of IT workers among firms. Our productivity estimates indicate that the external rate of return to IT investment is about 20% that of internal IT investment. Implications for managers and policy makers are discussed.

5. Globalization and the Wages of Information Technology Workers

We use new sources of micro-data to estimate the impact that H-1B and offshore employment have had on the wages of native IT workers. Our primary data source describes employers, demographics, and wages for a segment of the US IT workforce. We integrate these data with external datasets describing employers' H-1B applications, available through Department of Labor databases, and offshore employment, measured through the self-reported employment of a large sample of offshore IT workers.

Associated Papers:

The Extroverted Firm: How External Information Practices Affect Productivity – Prasanna Tambe, Lorin M. Hitt, Erik Brynjolfsson

How Does Offshoring Affect Information Technology Workers? - Prasanna Tambe, Lorin M. Hitt

Alex Tuzhilin

Peer Reviewed Work

Tuzhilin, Alexander S. & Tianyi Jiang (2008) "Dynamic Micro Targeting: Fitness-Based Approach to Predicting Individual Preferences," accepted at *Journal of Knowledge and Information Systems*.

Tuzhilin, Alexander S., M. Gorgoglione and C. Palmisano (2008) "Using Context to Improve Predictive Models of Customers in Personalization Applications," *IEEE Transactions on Knowledge and Data Engineering*, 20(11) November, pp. 1535 - 1549.

Tuzhilin, Alexander S., G. Adomavicius and R. Zheng (2009) "ReQuest: A Query Language for Customizing Recommendations" accepted at *Information Systems Research*. It was conditionally accepted subject to minor editorial revisions. Revisions made and the paper was resubmitted on January 18, 2009.

Tuzhilin, Alexander S. & T. Jiang (2009) "Improving Personalization Solutions through Optimal Segmentation of Customer Bases," *IEEE Transactions on Knowledge and Data Engineering*, 21(3) March, pp. 305 - 320.

Other publications

"Improving Collaborative Filtering Recommendations Using External Data." IEEE International Conference on Data Mining (ICDM), December 2008 (with A. Umyarov) (acceptance rate = 9%).

"Partitioning Customers Using Overlapping Segmentation Methods." 18th Workshop on Information Technologies and Systems (WITS) (with R. Zheng), December 2008.

"The Long Tail of Recommender Systems and How to Leverage It." ACM Conference on Recommender Systems (RecSys), October 2008 (with Y-J Park) (acceptance rate = 20/124 = 16%).

"Customer Relationship Management: An Interdisciplinary Approach," Book chapter in *Web Usage Mining*, forthcoming, 2009.

"Personalization: The State of the Art and Future Directions." Book chapter in *Handbook on Business Computing*, Elsevier Publishing, forthcoming, 2009.

Tutorial "Personalization and Recommender Systems". Proceedings of the INFORMS Annual Conference, October, 2008 (with G. Adomavicius and Z. Huang).

"The effect of context on the predictive performance of segmentation", Proceedings of the WI-IAT WPRRS Workshop, Sydney, Australia, December 2008 (with M. Gorgoglione, S. Lombardi, C. Palmisano, U. Panniello and M. F. Faraone).

Papers Completed

"Using External Aggregate Ratings for Improving Individual Recommendations" (with A. Umyarov). Submitted to the ACM Transactions on the Web, Sept. 23, 2008.

"Context-Aware Recommender Systems" (with G. Adomavicius) - a book chapter in the upcoming Handbook on Recommender System by Springer. The extended proposal was submitted on November 14, 2008 and competitively accepted on December 20, 2008. We are in the process of writing the complete book chapter (deadline - March 1, 2009).

"Improving Predictive Modeling Via Overlapping Customer Segmentation" (with R. Zheng). In the process of being submitted to the IEEE Transactions on Knowledge and Data Engineering, February 2009.

Projects:

(a) Tuzhilin is working on 4 different high-impact research projects in the areas of Personalization, Recommender Systems and Data Mining with various researchers around the world and 2 PhD students in the IOMS Department. Tuzhilin is the Organizer for the ACM International Conference on Recommender Systems this year.

Norm White

Projects:

White continues to lead the school's efforts in research computing.

The grid computing environment developed has now processed over 2 million jobs since its inception, and is now widely used by many researchers. No other business school has an equivalent capability. This is a major attraction to young researchers attacking problems in the areas of high frequency financial data, web generated transactional data, social network analysis, macroeconomic simulations, time series analysis, data mining.

The behavioral lab has now become self sufficient, demanding little of my time. Usage continues to be high, with utilization rates of over 80% during the academic year. We have just finished the upgrade of the new systems for the new, larger behavioral lab. Hopefully, the new lab will provide the same boost to behavioral research at Stern that the grid computing environment has done to empirical and theoretical research. The new lab should double the capacity of the old lab, as well as provide breakout rooms and a conference room.

4. CeDER Sponsored Workshops

CeDER Workshop on Information in Networks (WIN)

Friday/Saturday, Sep 25-26, 2009 - New York City

WIN is a Social Networks Summit intended to foster collaboration and to build community. The increasing availability of massive networked data is revolutionizing the scientific study of a variety of phenomena in fields as diverse as Computer Science, Economics, Physics and Sociology. Yet, while many important advances have taken place in these different communities, the dialog between researchers across disciplines is only beginning. The purpose of WIN is to bring together leading researchers studying ‘information in networks’ – its distribution, its diffusion, its value, and its influence on social and economic outcomes – in order to lay the foundation for ongoing relationships and to build a lasting multidisciplinary research community.

<http://winworkshop.net/index.php>

CIST 2009: Conference on Information Systems and Technology

San Diego , October 10-11, 2009

[Download the call for papers \(.pdf\)](#)

http://w4.stern.nyu.edu/ceder/events.cfm?doc_id=101030

The role of IT and IT-enabled innovations in business and society is ubiquitous and pervasive. From Twitter to Facebook to Google, the shared infrastructure of IT-enabled platforms are playing a transformational role in today’s digital age. From becoming a provider of leaner business processes and improving firm productivity, IT is now encroaching core business activities such as new product design, collaboration processes, creation of word-of-mouth and fostering community-based business models. IS research today reflects this confluence. It is suitably positioned at the intersection of several research traditions and methodologies, benefiting from and contributing to reference disciplines such as computer science, economics, sociology, marketing, and strategy. CIST has emerged as a premier conference that brings together IS researchers from the economics, organizational/strategic, and technical perspectives to discuss new and interesting phenomena at the intersection of business, technology, and innovation. It is this inter-disciplinary nature of CIST that provides a meaningful lens to critique and advance knowledge on topics of theoretical and managerial interest. We encourage submissions dealing with all aspects of theoretical and empirical research in information systems.

Conference Co-Chairs

Ravi Bapna, Anindya Ghose, Kevin Zhu

NYU/IBM Workshop on:

Managing Data Risk: Acquisition, Processing, Retention and Governance

Friday, April 24, 2009 - New York City
NYU Torch Club, 9am – 5pm, followed by reception

http://w4.stern.nyu.edu/ceder/events.cfm?doc_id=100971

The question: What can organizations do to manage or reduce data risk?

Organizations are collecting massive amounts of data in order to make better decisions. Data are typically viewed as an asset. However, experience reveals risks: from high-profile losses in reputational equity due to data breaches, to suboptimal day-to-day decisions due to erroneous or incomplete data. More generally, organizations need to consider various aspects of data risk, including material damages resulting if data are stolen, lost, or used inappropriately, as well as the unrealized benefits of not investing in improved data acquisition, accessibility, and maintenance.

This workshop focuses on strategies and tactics for addressing data risk. To date, this topic has received very little analysis and discussion, despite its generally accepted importance among organizational stakeholders. As examples, a strategic question may be: should we actively discard data and if so, what should be our policy? A tactical question might be: how should we allocate limited resources to clean data to improve a particular decision making process? We solicit contributions from managerial, mathematical, and engineering/computer science perspectives.

The main goal is to bring together researchers and practitioners to facilitate the creation of theoretical and practical knowledge that will help organizations choose data strategies and tactics. A secondary goal is to begin to match researchers with organizations ready to provide funding and/or share data or important details of their strategic and tactical needs. The workshop will comprise invited talks by researchers and practitioners, with considerable time allocated for focused and open-ended discussion.

NYU Conference on Global Delivery of Professional Services Sponsored by IBM

May 30 & 31, 2008

http://w4.stern.nyu.edu/ceder/events.cfm?doc_id=7938

The NYU-IBM Conference on Global Delivery of Professional Services took place May 30-31, 2008 at New York University, New York, USA. This one and a half day workshop involved 30-40 invited participants including leading IS scholars conducting cutting edge research in the area of Global Offshoring and Outsourcing as well as faculty members and graduate students from NYU and affiliate universities and researchers from IBM. The workshop's goal was to provide a forum for high quality academic discussions of topics pertaining to globalization of service work, outsourcing strategy,

offshoring strategy, relationship management practices, vendor evaluation strategies, vendors' and clients' sourcing competencies, personnel issues, and others.

Fourth Symposium on Statistical Challenges in Electronic Commerce Research May 18 & 19, 2008

http://w4.stern.nyu.edu/ceder/events.cfm?doc_id=7909

NYU's Center for Digital Economy Research is pleased to announce the fourth annual symposium on Statistical Challenges in eCommerce Research. The theme of this year's symposium is Social Networks and User-Generated Content. We envision the research presented in the symposium will discuss both the opportunities and statistical challenges relating to the statistical analysis of new forms of user-generated and networked data sets that are increasingly prevalent on account of Web 2.0 technologies.

The deadline for submitting a two-page abstract for presentation consideration was **February 15th, 2008**. The program will feature over 30 presentations. The authors of accepted papers have been notified via email. Our plenary speakers thus far are **Duncan Watts** from Yahoo! Research and **Daryl Pregibon** from Google.

New York Computer Science and Economics Day (NYCE Day), Oct 3 2008

<http://sites.google.com/site/nyceatny/>

NYCE Day 2008 is the first annual New York Computer Science and Economics Day. This will be held at the [NY Academy of Sciences](#) on October 3, 2008. See [Travel Details](#) for more information.

The goal of the meeting is to bring together researchers in the larger NY metropolitan area with interests in Computer Science, Economics, Marketing and Business, and common focus in understanding and developing the economics of Internet activity. Examples of topics of interest include theoretical, modeling, algorithmic and empirical work on advertising and marketing based on search, user-generated content, or social networks, and other means of monetizing Internet.

Call for Participation: We solicit speakers for the *rump session*. Each speaker will have 5 min to describe a problem and result, an experiment/system and results, or an open problem or a big challenge. If you'd like to speak, please [email](#) with NYCE in the subject line, and one paragraph text description of what you would like to present (with pointer to refs if needed). Submissions must be received by Sept 12 and accepted speakers will be notified by Sept 19.

WISE 2008: Twentieth Workshop on Information Systems and Economics
Paris, France
December 13-14, 2008

http://w4.stern.nyu.edu/ceder/events.cfm?doc_id=100267

[Download the call for papers \(.pdf\)](#)

The submission deadline is Monday September 15th, 2008.

Workshop Objective

Now in its 20th year, the Workshop on Information Systems and Economics is the pre-eminent forum for discussing research on the economics of information technology.

Workshop Location

[Ecole Nationale Supérieure des Télécommunications: TELECOM ParisTech](#)

46 rue Barrault, F-75634 Paris Cedex 13

Program Co-Chairs

Anindya Ghose, Geoffrey Parker, Arun Sundararajan, Marshall Van Alstyne

5. CeDER Working Papers

2-June-2009 CeDER-09-03 [Conditions for the Propagation of Memory Parameter from Durations to Counts and Realized Volatility](#), *Deo Rohit; Hurvich Clifford M.; Soulier, Philippe and Wang, Yi*

26-May-2009 CeDER-09-02 [Limit Laws in Transaction-Level Asset Price Models](#) *Aue, Alexander; Horvath, Lajos and Hurvich, Clifford*

1-May-2009 CeDER-09-01 [Bayesian Learning in Social Networks](#) *Lobel, Ilan; Dahleh, Munther; Acemoglu, Daron; Ozdaglar, Asuman*

22-Oct-2008 CeDER-08-08 [Social Network Collaborative Filtering](#) *Zheng, Rong; Wilkinson, Dennis; Provost, Foster*

1-Oct-2008 CeDER-08-07 [Modeling Volatility in Prediction Markets](#) *Archak, Nikolay; Ipeirotis, Panagiotis G.*

2-Sep-2008 CeDER-08-06 [Estimating the Socio-Economic Impact of Product Reviews: Mining Text and Reviewer Characteristics](#) *Ghose, Anindya; Ipeirotis, Panagiotis G.*

27-Jun-2008 CeDER-08-04 [Understanding, Estimating, and Incorporating Output Quality Into Join Algorithms For Information Extraction](#) *Jain, Alpa; Ipeirotis, Panagiotis G.; Gravano, Luis; Doan, Anhai*

8-Mar-2008 CeDER-08-02 [A Quality-Aware Optimizer for Information Extraction](#) *Jain, Alpa; Ipeirotis, Panagiotis G.*

6-Mar-2008 CeDER-08-01 [Get Another Label? Improving Data Quality and Data Mining Using Multiple, Noisy Labelers](#) *Sheng, Victor; Provost, Foster; Ipeirotis, Panagiotis G.*

6. TUILES: Information Systems Informal Research Workshop

Gregory Ramsey: "Logic of Error: Success and Failure in Medical Decision Making"

Foster Provost, Panos Ipeirotis, and Shengli Sheng: "Get Another Label? Improving Data Quality and Data Mining Using Multiple, Noisy Labelers"

Sonny Tambe: "The Impact of the H-1B Visa Program on US Information Technology Workers"

Rong Zheng: "Improving Target Marketing via Overlapping Customer Segmentation"

Anindya Ghose: "An Empirical Analysis of Search Engine Advertising in Electronic Markets"

Nikolay Archak: "Attracting the best and the brightest: optimal design of innovation contests with open participation"

Sinan Aral, Lev Muchnik, Arun Sundararajan: "Identifying Economic Influence in Massive Online Social Networks"

Mingdi Xin: "Dynamic Pricing of Enterprise Software with Value Uncertainty: Motivation for Selling Software as a Service"

Foster Provost: "Audience Selection for On-line Brand Advertising: Privacy-friendly Social Network Targeting"

Vijay Gurbaxani: "Performance Measurement and IT Outsourcing"

7. CeDER Research Seminars

OM Seminars

<u>Sergei Savin</u> Columbia University	<u>Reducing Delays for Medical Appointments</u>
<u>Xiuli Chao</u> University of Michigan	<u>Optimal Control of Remanufacturing Inventory Systems With Multiple Types of Return</u>
<u>Felipe Caro</u> UCLA	<u>Understanding the Competitive Advantage of Fast Fashion Retailers</u>
Hao Zhang University of Southern California	<u>Dynamic Adverse Selection: Models, Methods and Results</u>
<u>Ramandeep Randhawa</u> University of Texas at Austin	<u>A Little Flexibility is All You Need: Optimality of Tailored Chaining and Pairing</u>
<u>Nicola Secomandi</u> Carnegie Mellon University	<u>An Approximate Dynamic Programming Approach to Benchmark Practice-based Heuristics for Natural Gas Storage Valuation</u>
<u>Haipeng Shen</u> University of North Carolina at Chapel Hill	<u>Workforce Management for Labor-Intensive Service Systems through the Statistics Lens</u>
<u>Bill Cooper</u> University of Minnesota	<u>Demand Estimation and Pricing with Models that do not Explicitly Account for Competition</u>
<u>Garrett J van Ryzin</u> Columbia University	<u>Estimating primary demand for substitutable products from sales transaction data</u>
<u>Gideon Weiss</u> University of Haifa	<u>Infinite Virtual Queues (IVQ) and the Control of Multi Class Queueing Networks (MCQN)</u>
<u>Martin A Lariviere</u> Northwestern University	<u>Saving Seats for Strategic Customers</u>
<u>Uriel Rothblum</u> Israel Institute of Technology	<u>Partition problems: Optimality and Clustering</u>
<u>Robert Shumsky</u> Dartmouth	<u>Revenue Management in Airline Alliances</u>
<u>Paul Zipkin</u> Duke University	<u>Quality Snags in the Mortgage-Finance Supply Chain</u>

IS Seminars

[Jure Leskovec](#)
Cornell/Stanford

[Dynamics of Large Networks](#)

[Mark Mortensen](#)
MIT

[Walking a Mile In Their Shoes: First-Hand Experience and Reflexive and Direct Cross-Site Knowledge as Determinants of Effective Global Collaborations](#)

Claudia Perlich
IBM Research

[Winner's Report: KDD CUP Breast Cancer Identification](#)

[Paul Leonardi](#)
Northwestern University

[Talking about Technology: A Comparative Study of Framing, Appropriation and Network Change in Organizations](#)

[Michael Macy](#)
Cornell University

[Social Contagions and Online Networks](#)

[Ravi Aron](#)
University of Southern California

[The Market for Complexity Arbitrage: Process Structure and Market Outcomes in Offshore Sourcing Of Services – Evidence from Field Research](#)

[Youngjin Yoo](#)
Temple University

[Path Creation in Innovation Design: A Multi-Layered Perspective](#)

[Alessandro Acquisti](#)
Carnegie Mellon

[Inferring Sensitive Information from Public Data](#)

[Carter Butts](#)
UC Irvine

[Coping with Disruption: Emergent Networks During Disasters](#)

Sarah Rice
University of Connecticut

Simultaneous Online Auctions by Sellers of Different Reputations: Theory and Experimental Evidence

Lee Fleming
Harvard Business School

Regional Disadvantage: How Non-competitive Agreements Impact Careers, Entrepreneurship, and Innovative Dynamics

Vijay Gurbaxani
UC Irvine

Performance Measurement and IT Outsourcing

Avi Bernstein
University of Zurich

Tell Me Where You've Lived, and I'll Tell You What You Like: Adapting Interfaces to Cultural Preferences

Ray Reagans
Carnegie Mellon

Bridging the Knowledge Gap: The impact of strong ties, network cohesion and network range

Statistics Seminars

[Peter Lenk](#)
University of Michigan
[Estimating Common Utility Origins and Scales in Discrete-Choice Conjoint with Auxiliary Data](#)

[Murray Rosenblatt](#)
University of California at San Diego
[Stationary Processes and One-Sided Representations in Terms of Independent Identically Distributed Random Variables](#)

[David Dickey](#)
North Carolina State University
[Seasonal Time Series with Long Periodicities](#)

[Alexander Aue](#)
University of California at Davis
[Topics in Autoregressive Time Series with Random Coefficients](#)

[Michael Steele](#)
The Wharton School,
University of Pennsylvania
[One Stop Shopping as a Feature of Merit in Financial Models](#)

[John Maheu](#)
University of Toronto
[Bayesian semiparametric stochastic volatility modeling](#)

[Haipeng Shen](#)
University of North Carolina
Chapel Hill
[Workforce Management for Labor-Intensive Service Systems through the Statistics Lens.](#)
Cross listed with the IOMS-OM Seminar Series.

[Siem Jan Koopman](#)
[Vrije Universiteit Amsterdam](#)
[A General Framework for Observation Driven Time-Varying Parameter Models](#)

[Mark Hansen](#)
UCLA
[Data analysis in an expanded field](#)

[Karen Kafadar](#)
University of Indiana
[Statistical displays and methods for analyzing large data sets](#)

[Roger Koenker](#)
University of Illinois,
Urbana-Champaign
[Quasi-Concave Density Estimation](#)

Joan Garfield
University of Minnesota

Connecting research and teaching: What Does
the Research Literature Suggest About
Improving the Teaching of Statistics?

Bruce Hansen
University of Wisconsin

Generalized Shrinkage Estimators

Michael Greenstone

MIT

Weather & Death in India: Mechanisms and
Implications for Climate Change.