

John Chung-I Chuang

School of Information
University of California at Berkeley
102 South Hall #4600
Berkeley, CA 94720-4600
Telephone: (510) 642-7253
Fax: (510) 642-5814
E-mail: chuang@ischool.berkeley.edu
Web: <http://ischool.berkeley.edu/~chuang/>

EDUCATION

Ph.D., Engineering and Public Policy, Carnegie Mellon University, December 1998
Dissertation title: "Economies of Scale in Information Dissemination over the Internet"
Advisor: Marvin Sirbu. Committee: Alex Hills, Granger Morgan, Hui Zhang
M.S., Engineering and Public Policy, Carnegie Mellon University, May 1997
M.S., Electrical Engineering, Stanford University, June 1992
B.S., Electrical Engineering, *Summa cum laude*, University of Southern California, May 1991
Salutatorian, Class of 1991
Student President, USC Engineering Honors Program, 1990-1991
Honor Societies: Tau Beta Pi, Phi Kappa Phi, Alpha Lambda Delta, Golden Key National Honor Society

ACADEMIC POSITIONS

Professor, School of Information, UC Berkeley, July 2010 – present
Professor, Below-the-Line, Electrical Engineering and Computer Sciences, UC Berkeley, July 2010 – present
Associate Professor, School of Information, UC Berkeley, July 2005 – June 2010
Assistant Professor, Below-the-Line, Electrical Engineering and Computer Sciences, UC Berkeley, July 2003 – June 2010
Assistant Professor, School of Information Management & Systems, UC Berkeley, July 1999 – June 2005
Post-Doctoral Fellow, School of Computer Science, Carnegie Mellon University, January 1999 – June 1999
Advisor: Hui Zhang

PROFESSIONAL EXPERIENCE

Co-Founder, *boxbabble*, 2007 – present
Member of Technical Staff, Silicon Graphics Inc., July 1992 – July 1995

AWARDS

Distinguished Teaching Award, School of Information, UC Berkeley, 2011
Distinguished Teaching Award, School of Information, UC Berkeley, 2009
Distinguished Teaching Award, School of Information, UC Berkeley, 2006
UCB Distinguished Faculty Mentors Award – Nominee, 2004
Best Paper Award, 4th International Conference on Mobile Data Management (MDM), 2003
Distinguished Teaching Award – Honorable Mention, School of Information Management & Systems, UC Berkeley, 2002
Distinguished Teaching Award, School of Information Management & Systems, UC Berkeley, 2001
Distinguished Teaching Award, School of Information Management & Systems, UC Berkeley, 2000
Hebert L. Toor Best Qualifier Paper Award, Department of Engineering and Public Policy, CMU, 1997
Council on Library and Information Resources A. R. Zipf Fellow in Information Management, 1997
Phi Kappa Phi Outstanding Freshman Award, USC, 1989

PUBLICATIONS

Listed in chronological order according to UC Berkeley Bio-Bibliography format. A paper with multiple citations is listed under a single entry.

Refereed Publications, Archival Journals, Conference and Symposium Proceedings

- [1] A. Ahi, A. Bomdica, G. Shippen, H. Sucar, H. Su, J. Chuang, N. Vasseghi, R. Ramchandani, R. Martin, R. Conrad, Y. Chen, K. Yeager, W. Voegtli Jr., M. Seddighnezhad, Y. Van Atta, MIPS R10000 Superscalar Microprocessor. HOT CHIPS Symposium VII, Stanford CA, August 13-15, 1995.
- [2] M. Sirbu and J. Chuang, Distributed Authentication in Kerberos Using Public Key Cryptography. Proceedings of the Internet Society Symposium on Network and Distributed System Security (NDSS'97), February 1997.
- [3] J. Chuang and M. Sirbu, Optimal Bundling Strategy for Digital Information Goods: Network Delivery of Articles and Subscriptions. *Information Economics and Policy* 11(2):147-176, 1999. Also appeared as J. Chuang and M. Sirbu, Network Delivery of Information Goods: Optimal Pricing of Articles and Subscriptions. In *Internet Publishing and Beyond: The Economics of Digital Information and Intellectual Property*, by B. Kahin and H. Varian (eds.), MIT Press, August 2000.
- [4] J. Chuang, Resource Allocation for stor-serv: Network Storage Services with QoS Guarantees. Proceedings of Internet2 Network Storage Symposium, October 1999.
- [5] J. Chuang and M. Sirbu, Distributed Network Storage with Quality-of-Service Guarantees. *Journal of Network and Computer Applications* 23(3):163-185, July 2000. Also appeared in Proceedings of the Internet Society INET'99 Conference, June 1999.
- [6] A. Myers, J. Chuang, U. Hengartner, Y. Xie, W. Zhuang, and H. Zhang, A Secure, Publisher-Centric Web Caching Infrastructure. Proceedings of IEEE INFOCOM 2001, April 2001.
- [7] J. Chuang and M. Sirbu, Pricing Multicast Communications: A Cost-Based Approach. *Telecommunication Systems* 17 (3):281-297, July 2001. Also appeared in Proceedings of the Internet Society INET'98 Conference, July 1998.
- [8] J. Chuang, Economics of Scalable Network Services. Proceedings of SPIE ITCOM 2001, August 2001.
- [9] K. Norlen, G. Lucas, M. Gebbie, and J. Chuang, EVA: Extraction, Visualization and Analysis of the Telecommunications and Media Ownership Network. Proceedings of International Telecommunications Society 14th Biennial Conference (ITS2002), August 2002.
- [10] M. Feldman and J. Chuang, Service Differentiation in Web Caching and Content Distribution. Proceedings of IASTED International Conference on Communications and Computer Networks, November 2002.
- [11] J. Chuang, S. Kafka, and K. Norlen, Efficiency and Performance of Web Cache Reporting Strategies. Proceedings of IEEE International Workshop on Data Semantics in Web Information Systems, December 2002.
- [12] K. Lai, M. Feldman, I. Stoica and J. Chuang, Incentives for Cooperation in Peer-to-Peer Networks. 1st Workshop on Economics of Peer-to-Peer Systems, June 2003.
- [13] M. Feldman, K. Lai, J. Chuang and I. Stoica, Quantifying Disincentives in Peer-to-Peer Networks. 1st Workshop on Economics of Peer-to-Peer Systems, June 2003.
- [14] G. Lucas, A. Ghose, and J. Chuang, On Characterizing Affinity and Its Impact on Network Performance. Proceedings of ACM SIGCOMM Workshop on Models, Methods and Tools for Reproducible Network Research, August 2003.
- [15] A. Ghose, J. Grossklags, and J. Chuang, Resilient Data-Centric Storage in Wireless Sensor Networks. *IEEE Distributed Systems Online*. November 2003. Also appeared in Proceedings of 4th International Conference on Mobile Data Management (MDM 2003), January 2003. Best Paper Award. Also appeared in *Lecture Notes in Computer Science* series, No. 2574, pp. 45-62, Springer Verlag, 2003.
- [16] N. Christin and J. Chuang. On the Cost of Participating in a Peer-to-Peer Network. Proceedings of 3rd International Workshop on Peer-to-Peer Systems (IPTPS'04), February 2004. Also appeared in *Lecture Notes in Computer Science* series, Springer Verlag, 2004.
- [17] M. Feldman, K. Lai, I. Stoica, and J. Chuang, Robust Incentive Techniques for Peer-to-Peer Networks. Proceedings of 5th ACM Conference on Electronic Commerce (EC'04), May 2004.

- [18] N. Christin, J. Grossklags and J. Chuang, Near Rationality and Competitive Equilibria in Networked Systems, Proceedings of ACM SIGCOMM Workshop on Practice and Theory of Incentives in Networked Systems (PINS), August 2004.
- [19] Y. Chu, J. Chuang, and H. Zhang, A Case for Taxation in Peer-to-Peer Streaming Broadcast. Proceedings of ACM SIGCOMM Workshop on Practice and Theory of Incentives in Networked Systems (PINS), August 2004.
- [20] N. Christin and J. Chuang, A Cost-Based Analysis of Overlay Routing Geometries. Proceedings of IEEE INFOCOM, March 2005.
- [21] N. Christin, A. Weigend, and J. Chuang, Content Availability, Pollution and Poisoning in Peer-to-Peer File Sharing Networks. Proceedings of ACM E-Commerce Conference (EC'05), June 2005.
- [22] M. Feldman, J. Chuang, The Evolution of Cooperation under Cheap Pseudonyms. Proceedings of 7th International IEEE Conference on E-Commerce Technology (CEC'05), July 2005.
- [23] A. Habib, D. Xu, M. Atallah, B. Bhargava and J. Chuang, A Tree-based Forward Digest Protocol to Verify Data Integrity in Distributed Media Streaming, *IEEE Transactions on Knowledge and Data Engineering*, July 2005. Conference version appeared as: Verifying Data Integrity in Peer-to-Peer Media Streaming. ACM/SPIE Multimedia Computing and Networking (MMCN '05), January 2005.
- [24] K. Hosanagar, R. Krishnan, J. Chuang, and V. Choudhary, Pricing and Resource Allocation in Caching Services with Multiple Levels of Quality of Service, *Management Science*, Vol. 51, No. 12, December 2005. Conference version appeared as: K. Hosanagar, R. Krishnan, J. Chuang, and V. Choudhary, Pricing Vertically Differentiated Web Caching Services, Proceedings of International Conference on Information Systems (ICIS 2002), December 2002.
- [25] A. Habib and J. Chuang, MMS: A Multihome-Aware Media Streaming System, Proceedings of 13th Multimedia Computing and Networking Conference (MMCN '06), January 2006. Earlier version appeared as: A. Habib, J. Chuang, Multihoming Media Streaming, IEEE Workshop on Multimedia Systems and Networking (WMSN '05), April 2005.
- [26] A. Habib, N. Christin, and J. Chuang, Taking Advantage of Multihoming with Session Layer Striping, Proceedings of the 9th IEEE Global Internet Symposium (Global Internet 2006), pages 102-107, April 2006.
- [27] M. Feldman, C. Papadimitriou, J. Chuang, and I. Stoica, Free-Riding and Whitewashing in Peer-to-Peer Systems. *IEEE Journal on Selected Areas in Communications*, Vol. 24, No. 5, May 2006. Conference version appeared in: Proceedings of ACM SIGCOMM Workshop on Practice and Theory of Incentives in Networked Systems (PINS), August 2004. Earlier version presented at 3rd Workshop on Economics and Information Security (WEIS04), May 2004.
- [28] A. Habib and J. Chuang, Service Differentiated Peer Selection: An Incentive Mechanism for Peer-to-Peer Media Streaming, *IEEE Transactions on Multimedia*, Vol. 8, No. 3, June 2006. Conference version appeared as: A. Habib and J. Chuang, Incentive Mechanism for Peer-to-Peer Media Streaming. Proceedings of 12th IEEE International Workshop on Quality of Service, Montreal Canada, June 2004.
- [29] P. Laskowski and J. Chuang, Network Monitors and Contracting Systems: Competition and Innovation, Proceedings of ACM SIGCOMM, September 2006.
- [30] G. Lucas, M. Gebbie, K. Norlen and J. Chuang, Improving Transparency: Extracting, Visualizing, and Analyzing Corporate Relationships from SEC 10-K Documents. *International Journal on Technology, Policy and Management*, Vol. 7, No. 1, pp. 15-31, 2007. Conference version appeared in 7th International Conference on Technology Policy and Innovation, June 10-13 2003.
- [31] M. Feldman, J. Chuang, I. Stoica, S. Shenker. Hidden-Action in Network Routing. *IEEE Journal on Selected Areas in Communications*, 2007. Conference version appeared as: M. Feldman, J. Chuang, I. Stoica, and S. Shenker, Hidden-Action in Multi-Hop Routing. Proceedings of ACM E-Commerce Conference (EC'05), June 2005. (Earlier version appeared as: M. Feldman and J. Chuang, Hidden-Action in Multi-Hop Routing. 2nd Workshop on Economics of Peer-to-Peer Systems, June 2004.)
- [32] M. Babaioff, J. Chuang. On the Optimality and Interconnection of Valiant Load-Balancing Networks. Proceedings of the 26th Annual IEEE Conference on Computer Communications (IEEE INFOCOM), May 2007.
- [33] A. Habib, N. Christin, J. Chuang. On the Feasibility of Switching ISPs in Residential Multihoming. Proceedings of International Workshop on Quality-of-Service (IWQoS), June 2007.
- [34] A. Habib, J. Chuang. Improving Application QoS with Residential Multihoming. *Computer Networks*, Volume 51, Issue 12, Pages 3323-3337, August 2007.

- [35] D. Joseph, N. Shetty, J. Chuang, I. Stoica. Modeling the Adoption of New Network Architectures, Proceedings of ACM CoNEXT, December 2007.
- [36] M. Babaioff, J. Chuang, M. Feldman. Incentives in Peer-to-Peer Systems, Chapter 23 of N. Nisan, T. Roughgarden, E. Tardos, V. Vazirani, eds., *Algorithmic Game Theory*, Cambridge University Press, 2007.
- [37] S. Buchegger, J. Chuang. Encouraging Cooperative Interaction Among Network Entities. Book chapter in F.H.P. Fitzek, M.D. Katz, eds., *Cognitive Wireless Networks: Concepts, Methodologies and Visions Inspiring the Age of Enlightenment of Wireless Communications*, Springer, 2007.
- [38] J. Grossklags, N. Christin, J. Chuang. Secure or Insure? A Game-Theoretic Analysis of Information Security Games. Proceedings of the 17th International World Wide Web Conference (WWW2008), April 2008.
- [39] J. Grossklags, N. Christin, J. Chuang. Predicted and Observed User Behavior in the Weakest-Link Security Game. Proceedings of the 2008 USENIX Workshop on Usability, Psychology, and Security (UPSEC'08), April 2008.
- [40] J. Grossklags, N. Christin, J. Chuang. Security and Insurance Management in Networks with Heterogeneous Agents. Proceedings of ACM E-Commerce Conference (EC'08), July 2008.
- [41] P. Laskowski, B. Johnson, J. Chuang. User-Directed Routing: From Theory, towards Practice. Proceedings of ACM SIGCOMM Workshop on the Economics of Networks, Systems, and Computation (NetEcon 2008), August 2008.
- [42] N. Christin, J. Chuang, J. Grossklags, Economics-Informed Design of Content Delivery Networks, in: R. Buyya, A.K. Pathan, A. Vakali, eds., *Content Delivery Networks: Principles and Paradigms*, Springer Verlag, August 2008.
- [43] K. Hosanagar, J. Chuang, R. Krishnan, M. D. Smith, Service Adoption and Pricing of Content Delivery Network (CDN) Services, *Management Science*, September 2008. Conference version appeared as: K. Hosanagar, R. Krishnan, M. Smith and J. Chuang. Optimal Pricing of Content Distribution Network Services. Proceedings of HICSS 2004, January 2004.
- [44] P. Laskowski, J. Ubois, D. Marvit, J. Chuang. Exploring Digital Content in the Age of Peer-to-Peer, 2009 Workshop on the Economics of Networks, Systems, and Computation (NetEcon 2009), July 2009.
- [45] J. Grossklags, S. Radosavac, A. Cardenas, J. Chuang. Nudge: Intermediaries' Role in Interdependent Network Security. Proceedings of 3rd International Conference on Trust and Trustworthy Computing (Trust'10), June 2010. Published in: A. Acquisti, S. Smith, and A.-R. Sadeghi (Eds.), *Lecture Notes in Computer Science (LNCS)*, No. 6101, Springer Verlag, 2010, pp. 323-336.
- [46] B. Johnson, J. Grossklags, N. Christin, J. Chuang. Are Security Experts Useful? Bayesian Nash Equilibria for Network Security Games with Limited Information. Proceedings of 15th European Symposium on Research in Computer Security (ESORICS'10), September 2010.
- [47] P. Laskowski, J. Chuang. Innovations and Upgrades in Virtualized Network Architectures. Proceedings of 2010 Workshop on the Economics of Networks, Systems, and Computation (NetEcon 2010), October 2010.
- [48] B. Johnson, J. Grossklags, N. Christin, J. Chuang. Uncertainty in Interdependent Security Games. Proceedings of 2010 Conference on Decision and Game Theory for Security (GameSec 2010), November 2010.
- [49] B. Johnson, J. Grossklags, N. Christin, J. Chuang. Nash Equilibria for Weakest Target Security Games with Heterogeneous Agents. Proceedings of 2nd International Conference on Game Theory for Networks (GameNets 2011), April 2011.
- [50] J. Chuang. Loci of Competition for Future Internet Architectures. *IEEE Communications Magazine*, Special Issue on Future Internet Architectures: Design and Deployment Perspectives, July 2011.

Non-Refereed Publications, Technical Reports, Conference and Symposia Proceedings, Articles in Non-Archival Magazines or Journals, Book Reviews

- [51] M. Sirbu and J. Chuang, Public-Key Based Ticket Granting Service in Kerberos, IETF Internet Draft, May 1996.
- [52] J. Chuang, Economies of Scale in Information Dissemination over the Internet. Ph.D. Dissertation, Carnegie Mellon University, Pittsburgh Pennsylvania, November 1998.
- [53] J. Chuang, Network Transmission and Storage: Vertical Relationships and Industry Structure. 27th Telecommunications Policy Research Conference, September 1999. (Abstract reviewed)

- [54] J. Chuang, Economics of Ad-Hoc, Overlay and Traditional Networks: A Topological Perspective, Position Paper for the ACM SIGCOMM Workshop on Network Research: Exploration of Dimensions and Scope, August 25 2003.
- [55] J. Chuang. Designing Incentive Mechanisms for Peer-to-Peer Systems. Proceedings of 1st IEEE Workshop on Grid Economics and Business Models, April 2004. (Invited paper)
- [56] M. Feldman and J. Chuang. Overcoming Free-Riding Behavior in Peer-to-Peer Systems, *ACM Sigecom Exchanges*, Summer 2005. (Invited paper)
- [57] P. Laskowski, J. Chuang. Antitrust Scrutiny of Price-Fixing Clauses in Patent Licenses. Working Paper, 2005.
- [58] J. Feigenbaum, J. Chuang, D. Pennock, eds., Proceedings of the 7th ACM Conference on Electronic Commerce, ACM, June 2006.
- [59] J. Grossklags, N. Christin, J. Chuang. Security Investment (Failures) in Five Economic Environments: A Comparison of Homogeneous and Heterogeneous User Agents. 7th Workshop on the Economics of Information Security (WEIS'08), June 2008.
- [60] P. Laskowski, J. Chuang. Empowering Users to Break the Internet Impasse. UC Berkeley Technical Report. Feb 26, 2009. Invited presentation at I3P Workshop on the Economics of Securing the Information Infrastructure, March 2009.
- [61] J. Chuang, L. Fortnow, P. Pu, eds., Proceedings of the 10th ACM Conference on Electronic Commerce, ACM, July 2009.
- [62] P. Laskowski, J. Chuang. A Leap of Faith? From Large-Scale Testbed to the Global Internet. Telecommunications Policy Research Conference, September 2009. (Abstract reviewed)
- [63] A. Cardenas, J. Chuang, J. Grossklags, S. Radosavac, C. Hoofnagle, V. Paxson. An Economic Map of Cybercrime. Telecommunications Policy Research Conference, September 2009. (Abstract reviewed)

TEACHING

IS206: Distributed Computing Applications and Infrastructure (F99, S02, S03, S04, S05, F05, F06, F07, F08, F09, F10)
IS250: Computer-Based Communications Networks and Systems (S00, S01, F01, F02, F03, F04, S06, F07, S10, S11)
IS290: Advanced Topics in Computer Networking (S01)
IS290: Economics of Network Security and Privacy (S08)
IS290: Information Technologies Economics, Strategy, and Policy (F08)
IS295: Doctoral Colloquium (F01, S02)
IS296A: Research Methods (S01)
IS296A: Economics-Informed Network Design (F05)

Academia Sinica Summer Institute on Peer-to-Peer Computing, August 2004.

Ph.D. Dissertation Committee (completed): 50

Masters Theses and Projects Supervised (completed): 12 (three won best project awards)

Ph.D. Qualifying Exam Committee (completed): 56

Postdoctoral Scholars Supervised: 6

EXTRAMURAL FUNDED RESEARCH PROJECTS

Principal-Investigator, The Denali Project (<http://denali.berkeley.edu/>), National Science Foundation ITR Program (ANI-0085879), \$1.5Million, 2000-2005

Principal-Investigator, The 100x100 Project (<http://100x100network.org/>), National Science Foundation ITR Program (ANI-0331659), \$1.0Million, 2003-2008

Principal-Investigator, Incentive Engineering for Network Security, UC MICRO Program and DoCoMo Labs USA, \$93K, 2008-2009

PROFESSIONAL ACTIVITIES

General Chair:

- 10th ACM Conference on E-Commerce (EC), 2009
- 1st Workshop on Economics of Peer-to-Peer Systems (P2PEcon), 2003

Steering Committee:

- Workshop on the Economics of Networks, Systems, and Computation (NetEcon), 2006 – present

Program Committee Co-Chairs:

- 7th ACM Conference on E-Commerce (EC), 2006
- 1st Workshop on Economics of Peer-to-Peer Systems (P2PEcon), 2003

Program Committees:

- 39th Telecommunications Policy Research Conference (TPRC 2011)
- 2nd International ICST Conference on Game Theory for Networks (GameNets 2011)
- 38th Telecommunications Policy Research Conference (TPRC 2010)
- Conference on Decision and Game Theory for Security (GameSec 2010)
- 11th ACM E-Commerce Conference (EC 2010), Senior PC Member
- 19th International Conference on World Wide Web (WWW) 2010
- 11th International Conference on Electronic Commerce (ICEC) 2009
- 9th ACM Conference on E-Commerce (EC) 2008
- 17th International Conference on World Wide Web (WWW) 2008
- 7th International Workshop on Peer-to-Peer Systems (IPTPS) 2008
- Workshop on Economic Models for Distributed Systems (EMDS) 2008
- 2nd IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD) 2007
- 4th Workshop on Grid Economics & Business Models (GECON) 2007
- Workshop on Economic Models and Algorithms for Grid Systems (EMAGS) 2007
- ACM SIGCOMM 2006
- International Conference on Information and Communication Technologies and Development (ICTD) 2006
- 3rd Workshop on Grid Economics & Business Models (GECON) 2006
- 6th ACM Conference on E-Commerce (EC) 2005
- 7th International IEEE Conference on E-Commerce Technology (CEC) 2005
- 25th IEEE International Conference on Distributed Computing Systems (ICDCS) 2005
- 3rd Workshop on Economics of Peer-to-Peer Systems (P2PEcon) 2005
- AIIS International Conference on Information Systems (ICIS) (Associate Editor for ITS track) 2004
- ACM SIGCOMM Workshop on Practice and Theory on Incentives in Networked Systems (PINS) 2004
- 2nd Workshop on Economics of Peer-to-Peer Systems (P2PEcon) 2004
- Workshop on Information Technology and Systems (WITS) 2003
- IEEE International Workshop on Quality of Service (IWQoS) 2003
- IEEE International Workshop on Quality of Service (IWQoS) 2002

Editorial Board: *International Journal on Information Technology and Decision Making*

Reviewer for: *IEEE/ACM Transactions on Networking, IEEE Transactions on Computing, IEEE Transactions on Multimedia, IEEE Journal on Selected Areas in Communications, IEEE Communications Magazine, ACM Transactions on Computer Systems, ACM Transactions on the Web, Journal of Algorithms, Management Science, Journal of Economics & Management Strategy, Electronic Commerce Research, INFORMS Journal on Computing, Review of Network Economics, Internet Encyclopedia, The Internet Society Journal, Algorithmic Game Theory* (Cambridge University Press), IEEE INFOCOM, ACM SIGCOMM, ACM HotNets, ACM Mobisys, National Science Foundation (NSF).

Service at the National Science Foundation (NSF):

CISE CNS Committee of Visitors (CoV), 2009

CISE CNS Review Panel, 2006

CISE Advisory Committee, Subcommittee on Middleware Infrastructure, 2000

Keynote Speaker, 2nd International Conference on Game Theory for Networks (GameNets 2011), April 2011.

Briefer, JASON Summer Study on Science of Cybersecurity, July 2010.

Keynote Speaker, 5th IEEE International Conference on Peer-to-Peer Computing, September 2005.

Vice-Chair, IEEE Society on Social Implications of Technology, Santa Clara Valley Chapter, 1994-1995.

Advisory Boards: numerous