

# LORRIE FAITH CRANOR

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## EDUCATION

- Doctor of Science in Engineering and Policy, Washington University, 1996
- Master of Science in Computer Science, Washington University, 1996
- Master of Science in Technology and Human Affairs, Washington University, 1993
- Bachelor of Science in Engineering and Public Policy, Washington University, 1992

## EMPLOYMENT

### **Carnegie Mellon University**, Pittsburgh, PA

Institute for Software Research, School of Computer Science

Engineering & Public Policy Department, College of Engineering

FORE Systems Professor, September 2017-

- Associate Department Head, Engineering & Public Policy, 2017-
- Co-Director, MSIT-Privacy Engineering masters program, 2013-
- Director, CyLab Usable Privacy and Security Laboratory
- Consulting faculty, MSIT in eBusiness Technology masters program
- Affiliate faculty member in Heinz College, Human-Computer Interaction Institute, and Electrical and Computer Engineering Department

Professor, July 2014 - August 2017

Fellow, Frank-Ratchye STUDIO for Creative Inquiry, June 2012 - August 2013

Associate Professor, July 2008 - July 2014 (tenured July 2011)

Associate Research Professor, December 2003 - June 2008

### **US Federal Trade Commission**, Washington, DC

Chief Technologist, January 2016 - January 2017

### **Wombat Security Technologies**, Pittsburgh, PA

Co-founder and Chief Scientist, 2008-2011

### **New York University Stern School of Business**, New York, NY

Adjunct Assistant Professor of Information Systems, 2003

### **AT&T Labs-Research**, Florham Park, NJ

Principal Technical Staff Member, 2001-2003

Senior Technical Staff Member, 1996-2001

### **Washington University in St. Louis**, St. Louis, MO

Lecturer and Manager of the Student Staff, Computer Science Department, 1993-1996

Research Assistant, Medical Library, Advanced Technology Group, 1992-1993

## PERSONAL

- Allegheny County, PA – election judge, 2004 – 2015, 2017
- Dynamoms Women's Soccer – founding commissioner, 2013 -
- Dynamo Youth Soccer – age-level commissioner, 2009-2014
- Pittsburgh Science and Technology Academy Parent Teacher Organization – president, 2013-2016
- Pittsburgh Colfax K-8 Parent Teacher Organization – webmaster, 2008-2017
- Hobbies: quilting, photography, yoga, flute

## PUBLICATIONS

### BOOKS

1. Lorrie Faith Cranor and Simson Garfinkel, eds. **Security and Usability: Designing Secure Systems That People Can Use**. O'Reilly & Associates, Inc. (2005). [714 pages, heavily edited volume]
2. Lorrie Faith Cranor and Steven S. Wildman, eds. **Rethinking Rights and Regulations: Institutional Responses to new Communications Technologies**. MIT Press (2003).
3. Lorrie Faith Cranor. **Web Privacy with P3P**. O'Reilly & Associates, Inc. (2002).
4. Lorrie Faith Cranor and Shane Mitchell Greenstein, eds. **Communications Policy and Information Technology: Promises, Problems, Prospects**. MIT Press (2002).

### CHAPTERS IN BOOKS

5. Lorrie Faith Cranor, Rebecca Balebako, Darya Kurilova, and Manya Sleeper. Privacy Illustrated. In **Deep Lab**, Deep Lab (2014).
6. Lorrie Faith Cranor, Manya Sleeper, and Blase Ur. Tracking and Surveillance. In **Introduction to IT Privacy: A Handbook for Technologists**, IAPP (2014).
7. Lorrie Faith Cranor, Jason Hong, Ponnurangam Kumaraguru, and Alessandro Acquisti. Empirical Evaluations of Embedded Training for Anti-Phishing User Education. In Rebecca Herold, **Managing an Information Security and Privacy Awareness and Training Program, Second Edition**, CRC Press (2010).
8. Lorrie Faith Cranor. Platform for Privacy Preferences Project (P3P). In Hossein Bidgoli, ed., **Handbook of Information Security**. John Wiley and Sons (2005).
9. Lorrie Faith Cranor. 'I Didn't Buy it for Myself': Privacy and Ecommerce Personalization. In Clare-Marie Karat, Jan O. Blom, and John Karat, eds. **Designing Personalized User Experiences in eCommerce**. Kluwer Academic Publishers (2004), 57-74. [Extended version of a paper originally presented at the 2003 ACM Workshop on Privacy in the Electronic Society. [15/50]]
10. Lorrie Faith Cranor. The Role of Privacy Enhancing Technologies. In **Considering Consumer Privacy: A Resource for Policymakers and Practitioners**. Center for Democracy and Technology, edited by Paula J. Bruening, (2003).
11. Lorrie Faith Cranor. In search of the perfect voting technology: no easy answers. In Dimitris Gritzalis, ed. **Secure Electronic Voting**. Kluwer Academic Publishers (2002), 17-30.
12. Lorrie Faith Cranor. P3P: The Platform for Privacy Preferences Project. In Simson Garfinkel with Gene Spafford, **Web Security, Privacy & Commerce, 2nd Edition**. O'Reilly (2001), 699-707.
13. Marc Waldman, Lorrie Faith Cranor, and Avi Rubin. Publius. In Andy Oram, ed. **Peer-to-Peer: Harnessing the Power of Disruptive Technologies**. O'Reilly (2001), 145-158.
14. Marc Waldman, Lorrie Faith Cranor, and Avi Rubin. Trust. In Andy Oram, ed. **Peer-to-Peer: Harnessing the Power of Disruptive Technologies**. O'Reilly (2001), 242-270.
15. Lorrie Faith Cranor, Joseph Reagle, and Mark S. Ackerman. Beyond Concern: Understanding Net Users' Attitudes About Online Privacy. In Ingo Vogelsang and Benjamin M. Compaine, eds. **The Internet Upheaval: Raising Questions, Seeking Answers in Communications Policy**. MIT Press (2000), 47-70.
16. Lorrie Faith Cranor. Privacy Tools. In Helmut Baumler, ed. **E-Privacy: Datenschutz im Internet**. Vieweg & Sohn Verlagsgesellschaft (2000), 107-119.
17. Lorrie Faith Cranor and Joseph Reagle. Designing a Social Protocol: Lessons Learned from the Platform for Privacy Preferences. In Jeffrey K. MacKie-Mason and David Waterman, eds. **Telephony, the Internet, and the Media**. Lawrence Erlbaum Associates (1998), 215-232.
18. Lorrie Faith Cranor. The Role of Technology in Self-Regulatory Privacy Regimes. In **Privacy and Self Regulation in the Information Age**. U.S. Department of Commerce, National Telecommunications and Infrastructure Administration (1997), 185-191.

## REFEREED JOURNAL PAPERS

19. Alessandro Acquisti, Idris Adjerid, Rebecca Balebako, Laura Brandimarte, Lorrie Faith Cranor, Saranga Komanduri, Pedro Giovanni Leon, Norman Sadeh, Florian Schaub, Manya Sleeper, Yang Wang, and Shomir Wilson. 2017. Nudges for Privacy and Security: Understanding and Assisting Users' Choices Online. *ACM Comput. Surv.* 50, 3, Article 44 (August 2017), 41 pages.
20. Lorrie Faith Cranor, Pedro Giovanni Leon, Blase Ur. A Large-Scale Evaluation of U.S. Financial Institutions' Standardized Privacy Notices. *ACM Transactions on the Web (TWEB)* 10(3):17, 2016.
21. Richard Shay, Saranga Komanduri, Adam L. Durity, Phillip (Seyoung) Huh, Michelle L. Mazurek, Sean M. Segreti, Blase Ur, Lujo Bauer, Nicolas Christin, and Lorrie Faith Cranor. 2016. Designing Password Policies for Strength and Usability. *ACM Trans. Inf. Syst. Secur.* 18, 4, Article 13 (May 2016), 34 pages.
22. Rebecca Balebako, Cristian Bravo-Lillo, and Lorrie Faith Cranor; Is Notice Enough: Mitigating the Risks of Smartphone Data Sharing. *I/S: A Journal of Law and Policy for the Information Society*, 11(2) Summer 2015, 279-323.
23. Lorrie Faith Cranor, Candice Hoke, Pedro Giovanni Leon, and Alyssa Au. Are They Worth Reading? An In-Depth Analysis of Online Trackers' Privacy Policies. *I/S: A Journal of Law and Policy for the Information Society*, 11(2) Summer 2015, 325-404.
24. Joel R. Reidenberg, Travis D. Breaux, Lorrie F. Cranor, Brian French, Amanda Grannis, James T. Graves, F. Liu, A. M. McDonald, T. B. Norton, R. Ramanath, N. C. Russell, N. Sadeh, F. Schaub, Disagreeable Privacy Policies: Mismatches between Meaning and Users' Understanding. *Berkeley Technology Law Journal*, 30(1), May 2015, 39-88.
25. Lorrie Faith Cranor. Necessary But Not Sufficient: Standardized Mechanisms for Privacy Notice and Choice. *Journal on Telecommunications and High Technology Law* 10(2), 2012, 273-307.
26. Saranga Komanduri, Richard Shay, Greg Norcie, Blase Ur, Lorrie Faith Cranor. AdChoices? Compliance with Online Behavioral Advertising Notice and Choice Requirements. *I/S: A Journal of Law and Policy for the Information Society* 7(3), Spring 2012, 603-638.
27. Aleecia McDonald and Lorrie Faith Cranor. A Survey of the Use of Adobe Flash Local Shared Objects to Respawn HTTP Cookies. *I/S: A Journal of Law and Policy for the Information Society* 7(3), Spring 2012, 638-687.
28. Eran Toch, Yang Wang, and Lorrie Faith Cranor. 2012. Personalization and privacy: a survey of privacy risks and remedies in personalization-based systems. *User Modeling and User-Adapted Interaction* 22, 1-2 (April 2012), 203-220.
29. Cristian Bravo-Lillo, Lorrie Faith Cranor, Julie Downs, and Saranga Komanduri, Bridging the Gap in Computer Security Warnings: A Mental Model Approach. *IEEE Security & Privacy*, March/April 2011, 18-26.
30. Michael Benisch, Patrick Gage Kelley, Norman Sadeh, and Lorrie Faith Cranor. Capturing Location-Privacy Preferences: Quantifying Accuracy and User-Burden Tradeoffs. *Journal of Personal and Ubiquitous Computing*, published online December 2010.
31. Janice Y. Tsai, Patrick Gage Kelley, Lorrie Faith Cranor, and Norman Sadeh. Location-Sharing Technologies: Privacy Risks and Controls. *I/S: A Journal of Law and Policy for the Information Society* 6(2), Summer 2010, 119-151.
32. Janice Y. Tsai, Serge Egelman, Lorrie Faith Cranor, and Alessandro Acquisti. The Effect of Online Privacy Information on Purchasing Behavior: An Experimental Study. *Information Systems Research*. 22(2): 254-268 (2011). [Originally presented at the 2007 Workshop on the Economics of Information Security, Pittsburgh, PA, June 7-8, 2007.]
33. Ponnurangam Kumaraguru, Steve Sheng, Alessandro Acquisti, Lorrie Faith Cranor, and Jason Hong. Teaching Johnny Not to Fall for Phish. *ACM Transactions on Internet Technology*. May 2010.
34. Norman Sadeh, Jason Hong, Lorrie Cranor, Ian Fette, Patrick Kelley, Madhu Prabaker, Jinghai Rao. 2009. Understanding and capturing people's privacy policies in a mobile social networking application. *Personal Ubiquitous Comput.* 13, 6 (Aug. 2009), 401-412.
35. Sarah Spiekermann and Lorrie Faith Cranor. Engineering Privacy. *IEEE Transactions on Software Engineering*, Vo. 35, No. 1, January/February, 2009, pp. 67-82.

36. Aleecia M. McDonald and Lorrie Faith Cranor. The Cost of Reading Privacy Policies. *I/S: A Journal of Law and Policy for the Information Society*, Winter 2008-09 4(3): 543-568. [Originally presented at The 36th Research Conference on Communication, Information and Internet Policy (TPRC 2008) 26-28 September 2008 Arlington, Virginia.]
37. Lorrie Faith Cranor, Serge Egelman, Steve Sheng, Aleecia M. McDonald, and Abdur Chowdhury. P3P Deployment on Websites. *Electronic Commerce Research and Applications*, Volume 7, Issue 3, Autumn 2008, Pages 274-293.
38. Aleecia McDonald and Lorrie Faith Cranor. How Technology Drives Vehicular Privacy. *I/S: A Journal of Law and Policy for the Information Society*, 2(3), Fall 2006, 981-1015.
39. Xinguang Sheng and Lorrie Faith Cranor. An Evaluation of the Effectiveness of US Financial Privacy Legislation Through the Analysis of Privacy Policies. *I/S: A Journal of Law and Policy for the Information Society*, 2(3), Fall 2006, 943-979.
40. Lorrie Faith Cranor, Praveen Guduru and Manjula Arjula. User Interfaces for Privacy Agents. *ACM Transactions on Computer Human Interaction (ToCHI)*, 13(2), June 2006, 135-178.
41. Serge Egelman and Lorrie Faith Cranor. The Real ID Act: Fixing Identity Documents with Duct Tape. *I/S: A Journal of Law and Policy for the Information Society*, 2(1) Winter 2006, 149-183.
42. Simon Byers, Lorrie Faith Cranor, Eric Cronin, Dave Kormann, and Patrick McDaniel. An analysis of security vulnerabilities in the movie production and distribution process. *Telecommunications Policy*, 28 (7-8), August/September 2004, 619-644.
43. Marc Waldman, Aviel D. Rubin, and Lorrie Faith Cranor. The architecture of robust publishing systems. *ACM Transactions on Internet Technology (TOIT)*, 1(2), November 2001, 199-230.
44. Lorrie Faith Cranor and Paul Resnick. Protocols for Automated Negotiations with Buyer Anonymity and Seller Reputations. *Netnomics*, 2(1), 2000, 1-23.

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45. Florian Schaub, Rebecca Balebako and Lorrie Faith Cranor, Designing Effective Privacy Notices and Controls. *IEEE Internet Computing*, 21(3), May-June 2017, 70-77.
46. Cristian Bravo-Lillo, Lorrie Faith Cranor, Julie Downs, and Saranga Komanduri, Bridging the Gap in Computer Security Warnings: A Mental Model Approach. *IEEE Security & Privacy*, March/April 2011, 18-26.
47. Simson L. Garfinkel and Lorrie Faith Cranor. Institutional Review Boards and Your Research. *Communications of the ACM*, June 2010, 38-40.
48. Matthew Geiger and Lorrie Faith Cranor. Scrubbing Stubborn Data: An evaluation of counter-forensic privacy tools. *IEEE Security & Privacy*, September/October 2006, 16-25.
49. Lorrie Faith Cranor. What Do They "Indicate"?: Evaluating security and privacy indicators *ACM Interactions*, May/June 2006, 45-47.
50. Lorrie Faith Cranor. P3P: Making Privacy Policies More Useful. *IEEE Security and Privacy*, November/December 2003, 50-55.
51. Joseph Reagle and Lorrie Faith Cranor. The Platform for Privacy Preferences. *Communications of the ACM*, 42(2), February 1999, 48-55.
52. Lorrie Faith Cranor and Brian LaMacchia. Spam! *Communications of the ACM*, 41(8), August 1998, 74-83.

## REFEREED CONFERENCE AND WORKSHOP PAPERS

53. Sean Segreti, William Melicher, Saranga Komanduri, Darya Melicher, Richard Shay, Blase Ur, Lujo Bauer, Nicolas Christin, Lorrie Cranor, and Michelle Mazurek. Diversify to Survive: Making Passwords Stronger with Adaptive Policies. **SOUPS 2017**, Santa Clara, CA, July 12-14, 2017.
54. Pardis Emami Naeini, Sruti Bhagavatula, Hana Habib, Martin Degeling, Lujo Bauer, Lorrie Cranor, and Norman Sadeh. Privacy Expectations and Preferences in an IoT World. **SOUPS 2017**, Santa Clara, CA, July 12-14, 2017.
55. Joshua Tan, Lujo Bauer, Joe Bonneau, Lorrie Cranor, Jeremy Thomas, and Blase Ur. Can unicorns help users compare crypto key fingerprints? **CHI 2017**, Denver, CO, May 6-11, 2017.

56. Blase Ur, Felicia Alfieri, Maung Aung, Lujo Bauer, Nicolas Christin, Jessica Colnago, Lorrie Cranor, Harold Dixon, Pardis Emami Naeini, Hana Habib, Noah Johnson, and William Melicher. Design and evaluation of a data-driven password meter. **CHI 2017**, Denver, CO, May 6-11, 2017. [Best paper award]
57. Manya Sleeper, Lorrie Cranor, and Sarah Pearman. Exploring Topic-Based Sharing Mechanisms. **CHI 2017**, Denver, CO, May 6-11, 2017.
58. Hana Habib, Jessica Colnago, William Melicher, Blase Ur, Sean Segreti, Lujo Bauer, Nicolas Christin, and Lorrie Cranor. Password creation in the presence of blacklists. **USEC 2017**, San Diego, CA, February 26, 2017.
59. William Melicher, Blase Ur, Sean M. Segreti, Saranga Komanduri, Lujo Bauer, Nicolas Christin, and Lorrie Faith Cranor. Fast, Lean, and Accurate: Modeling Password Guessability Using Neural Networks. **USENIX Security 2016**, Austin, TX, August 10-12, 2016, 175-191. [Best paper award]
60. Alain Forget, Sarah Pearman, Jeremy Thomas, Alessandro Acquisti, Nicolas Christin, Lorrie Faith Cranor, Serge Egelman, Marian Harbach, and Rahul Telang. Do or Do Not, There Is No Try: User Engagement May Not Improve Security Outcomes. **SOUPS 2016**, Denver, CO, June 22-24, 2016, 97-111.
61. Joshua Gluck, Florian Schaub, Amy Friedman, Hana Habib, Norman Sadeh, Lorrie Faith Cranor, and Yuvraj Agarwal. How Short Is Too Short? Implications of Length and Framing on the Effectiveness of Privacy Notices. **SOUPS 2016**, Denver, CO, June 22-24, 2016, 321-340.
62. William Melicher, Darya Kurilova, Sean M. Segreti, Pranshu Kalvani, Richard Shay, Blase Ur, Lujo Bauer, Nicolas Christin, Lorrie Faith Cranor, and Michelle L. Mazurek. Usability and Security of Text Passwords on Mobile Devices. **CHI 2016 Conference on Human Factors in Computing Systems**, San Jose, CA, May 7-12, 2016, 527-539.
63. Manya Sleeper, William Melicher, Hana Habib, Lujo Bauer, Lorrie Faith Cranor, and Michelle L. Mazurek. Sharing Personal Content Online: Exploring Channel Choice and Multi-Channel Behaviors **CHI 2016 Conference on Human Factors in Computing Systems**, San Jose, CA, May 7-12, 2016, 101-112.
64. Blase Ur, Jonathan Bees, Sean M. Segreti, Lujo Bauer, Nicolas Christin, and Lorrie Faith Cranor. Do Users' Perceptions of Password Security Match Reality?. **CHI 2016 Conference on Human Factors in Computing Systems**, San Jose, CA, May 7-12, 2016, 3748-3760. [Best paper honorable mention]
65. Rebecca Balebako, Florian Schaub, Idris Adjerid, Alessandro Acquisti, Lorrie Faith Cranor. The Impact of Timing on the Salience of Smartphone App Privacy Notices. **ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM)**, Denver, CO. October 12, 2015.
66. Yuan Tian, Bin Liu, Weisi Dai, Blase Ur, Patrick Tague, Lorrie Faith Cranor, Supporting Privacy-Conscious App Update Decisions with User Reviews. **ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM)**, Denver, CO. October 12, 2015.
67. Blase Ur, Sean Segreti, Lujo Bauer, Nicolas Christin, Lorrie Cranor, Saranga Komanduri, Darya Kurilova, Michelle Mazurek, William Melicher and Richard Shay. Measuring Real-World Accuracies and Biases in Modeling Password Guessability. **USENIX Security Symposium 2015**. Washington, DC, August 12-14, 2015, 463-481.
68. Florian Schaub, Rebecca Balebako, Adam Durity, and Lorrie Faith Cranor. A Design Space for Effective Privacy Notices. **SOUPS 2015**, Ottawa, Canada, July 22-24, 2015, 1-17.
69. Blase Ur, Fumiko Noma, Jonathan Bees, Sean M. Segreti, Richard Shay, Lujo Bauer, Nicolas Christin, and Lorrie Faith Cranor, "I Added '!' at the End to Make It Secure": Observing Password Creation in the Lab. **SOUPS 2015**, Ottawa, Canada, July 22-24, 2015, 123-140.
70. Richard Shay, Lujo Bauer, Nicolas Christin, Lorrie Faith Cranor, Alain Forget, Saranga Komanduri, Michelle Mazurek, William L. Melicher, Sean M. Segretti, and Blase Ur. A Spoonful of Sugar?: The Impact of Guidance and Feedback on Password-Creation Behavior. **CHI2015: ACM Conference on Human Factors in Computing Systems**, Seoul, Republic of Korea, April 2015, 2903-2912.

71. Hazim Almuhammedi, Florian Schaub, Norman Sadeh, Idris Adjerid, Alessandro Acquisti, Josh Gluck, Lorrie Faith Cranor, Yuvraj Agarwal. Your Location has been Shared 5,398 Times!: A Field Study on Mobile App Privacy Nudging. **CHI2015: ACM Conference on Human Factors in Computing Systems**, Seoul, Republic of Korea, April 2015, 787-796.
72. Manya Sleeper, Alessandro Acquisti, Lorrie Faith Cranor, Patrick Gage Kelley, Sean A. Munson, Norman M. Sadeh: I Would Like To..., I Shouldn't..., I Wish I...: Exploring Behavior-Change Goals for Social Networking Sites. **CSCW 2015**, Vancouver, BC, CA, March 14-18, 2015, 1058-1069.
73. Jeremiah Blocki, Saranga Komanduri, Lorrie Cranor, Anupam Datta. Spaced Repetition and Mnemonics Enable Recall of Multiple Strong Passwords. **NDSS 2015**, San Diego, CA, February, 2015.
74. Chandrasekhar Bhagavatula, Blase Ur, Kevin Iacovino, Su Mon Kywey, Lorrie Faith Cranor, Marios Savvides. Biometric Authentication on iPhone and Android: Usability, Perceptions, and Influences on Adoption. **USEC 2015**. February 8, 2015.
75. Saranga Komanduri, Richard Shay, Lorrie Faith Cranor, Cormac Herley, and Stuart Schechter. Telepathwords: Preventing Weak Passwords by Reading Users' Minds. **USENIX Security Symposium 2014**. August 20-22, 2014, San Diego, CA, pp. 591-606.
76. Cristian Bravo-Lillo, Lorrie Cranor, Saranga Komanduri, Stuart Schechter, and Manya Sleeper. Harder to Ignore? Revisiting Pop-up Fatigue and Approaches to Prevent It. **SOUPS 2014**. Menlo Park, CA, July 9-11, 2014.
77. Lorrie Faith Cranor, Adam L. Durity, Abigail Marsh, and Blase Ur. Parents' and Teens' Perspectives on Privacy in a Technology-Filled World. **SOUPS 2014**. Menlo Park, CA, July 9-11, 2014.
78. Yang Wang, Pedro G. Leon, Alessandro Acquisti, Lorrie F. Cranor, Alain Forget, and Norman Sadeh. A field trial of privacy nudges for Facebook. **CHI 2014: Conference on Human Factors in Computing Systems**. Toronto, CA, April 2014.
79. Richard Shay, Saranga Komanduri, Adam L. Durity, Philip (Seyoung) Huh, Michelle L. Mazurek, Sean M. Segreti, Blase Ur, Lujo Bauer, Nicolas Christin, Lorrie F. Cranor. Can long passwords be secure and usable? **CHI 2014: Conference on Human Factors in Computing Systems**. Toronto, CA, April 2014.
80. Rebecca Balebako, Abigail Marsh, Jialiu Lin, Jason Hong, Lorrie Faith Cranor. The Privacy and Security Behaviors of Smartphone App Developers. **Workshop on Usable Security (USEC 2014)**. San Diego, CA, February 23, 2014.
81. Rebecca Balebako, Rich Shay, and Lorrie Faith Cranor. Is Your Inseam a Biometric? A Case Study on the Role of Usability Studies in Developing Public Policy. **Workshop on Usable Security (USEC 2014)**. San Diego, CA, February 23, 2014.
82. Michelle L. Mazurek, Saranga Komanduri, Timothy Vidas, Lujo Bauer, Nicolas Christin, Lorrie Faith Cranor, Patrick Gage Kelley, Richard Shay, and Blase Ur. 2013. Measuring password guessability for an entire university. **2013 ACM SIGSAC conference on Computer & communications security (CCS '13)**, 173-186.
83. Lujo Bauer, Lorrie Faith Cranor, Saranga Komanduri, Michelle L. Mazurek, Michael K. Reiter, Manya Sleeper, and Blase Ur. 2013. The post anachronism: the temporal dimension of Facebook privacy. **12th ACM workshop on privacy in the electronic society (WPES '13)**, 1-12.
84. Rebecca Balebako, Eyal Pe'er, Laura Brandimarte, Lorrie Cranor, and Alessandro Acquisti. Is it the typeset or the type of statistics? Disfluent font and self-disclosure. **2013 Workshop on Learning from Authoritative Security Experiment Results (LASER '13)**.
85. Shomir Wilson, Justin Cranshaw, Norman Sadeh, Alessandro Acquisti, Lorrie Faith Cranor, Jay Springfield, Sae Youngeong, and Arun Balasubramanian. Privacy Manipulation and Acclimation in a Location Sharing Application. **UbiComp 2013**, September 2013.
86. Pedro G. Leon, Blase Ur, Yang Wang, Manya Sleeper, Rebecca Balebako, Richard Shay, Lujo Bauer, Mihai Christodorescu, and Lorrie Faith Cranor. What Matters to Users? Factors that Affect Users' Willingness to Share Information with Online Advertisers. **SOUPS 2013**, July 2013.
87. Cristian Bravo-Lillo, Lorrie Faith Cranor, Julie Downs, Saranga Komanduri, Robert W. Reeder, Stuart Schechter, and Manya Sleeper. Your Attention Please: Designing security-decision UIs to make genuine risks harder to ignore. **SOUPS 2013**, July 2013.

88. Rebecca Balebako, Jaeyeon Jung, Wei Lu, Lorrie Faith Cranor, and Carolyn Nguyen. "Little Brothers Watching You:" Raising Awareness of Data Leaks on Smartphones. **SOUPS 2013**, July 2013.
89. Lorrie Faith Cranor, Kelly Idouchi, Pedro Giovanni Leon, Manya Sleeper, Blase Ur. Are They Actually Any Different? Comparing Thousands of Financial Institutions' Privacy Practices. **Workshop on the Economics of Information Security (WEIS)**. June 2013.
90. Yang Wang, Pedro Giovanni Leon, Kevin Scott, Xiaoxuan Chen, Alessandro Acquisti, Lorrie Faith Cranor. Privacy nudges for social media: An exploratory Facebook study. **Second International Workshop on Privacy and Security in Online Social Media**, May 14, 2013.
91. Patrick Gage Kelley, Lorrie Faith Cranor, and Norman Sadeh. Privacy as Part of the App Decision-Making Process. In **CHI 2013: Conference on Human Factors in Computing Systems**, May 2013 [393/1963].
92. Manya Sleeper, Justin Cranshaw, Patrick Gage Kelley, Blase Ur, Alessandro Acquisti, Lorrie Faith Cranor, and Norman Sadeh. "I read by Twitter the next morning and was astonished": A Conversational Perspective on Twitter Regrets. In **CHI 2013: Conference on Human Factors in Computing Systems**, May 2013 [393/1963].
93. T. Vidas, E. Owusu, S. Wang, C. Zeng, and L. Cranor. QRishing: The Susceptibility of Smartphone Users to QR Code Phishing Attacks. **USEC 2013**. [10/16].
94. P.G. Kelley, S. Komanduri, M.L. Mazurek, R. Shay, T. Vidas, L. Bauer, N. Christin and L.F. Cranor. The impact of length and mathematical operators on the usability and security of system-assigned one-time PINs. **USEC 2013**, [10/16]
95. Manya Sleeper, Rebecca Balebako, Sauvik Das, Amber Lynn McConahy, Jason Wiese, and Lorrie Faith Cranor. The Post that Wasn't: Exploring Self-Censorship on Facebook. **CSCW 2013**, February 2013.
96. C. Bravo-Lillo, L. Cranor, J. Downs, S. Komanduri, S. Schechter, and M. Sleeper, Operating system framed in case of mistaken identity: Measuring the success of web-based spoofing attacks on OS password-entry dialogs, 19th **ACM Conference on Computer and Communications Security**, 18 October 2012.
97. P.G. Leon, J. Cranshaw, L.F. Cranor, J. Graves, M. Hastak, B. Ur. What Do Online Behavioral Advertising Disclosures Communicate to Users?, **WPES 2012**.
98. B. Ur, P.G. Kelley, S. Komanduri, J. Lee, M. Maass, M. Mazurek, T. Passaro, R. Shay, T. Vidas, L. Bauer, N. Christin, and L.F. Cranor. How does your password measure up? The effect of strength meters on password creation. **USENIX Security 2012**.
99. K. Vaniea, L. Bauer, L.F. Cranor, and M.K. Reiter. Studying access control usability in the lab: Lessons learned from four studies. **LASER 2012—Learning from Authoritative Security Experiment Results**, July 2012.
100. K. Vaniea, L. Bauer, L.F. Cranor, and M.K. Reiter. Out of sight, out of mind: Effects of displaying access-control information near the item it controls. **Tenth Annual Conference on Privacy, Security and Trust**, July 2012.
101. B. Ur, P.G. Leon, L.F. Cranor, R. Shay, and Y. Wang. Smart, Useful, Scary, Creepy: Perceptions of Online Behavioral Advertising, **SOUPS 2012** [14/67].
102. R. Shay, P.G. Kelley, S. Komanduri, M. Mazurek, B. Ur, T. Vidas, L. Bauer, N. Christin, L.F. Cranor. Correct horse battery staple: Exploring the usability of system-assigned passphrases. **SOUPS 2012** [14/67].
103. B. Ur, M. Sleeper, L.F. Cranor. {Privacy, Privacidad, Приватность} Policies in Social Media: Providing Translated Privacy Notice. **PSOSM 2012**.
104. R. Balebako, P.G. Leon, R. Shay, B. Ur, L.F. Cranor. Measuring the Effectiveness of Privacy Tools for Limiting Behavioral Advertising. **W2SP 2012**.
105. Patrick Gage Kelley, Saranga Komanduri, Michelle L. Mazurek, Rich Shay, Tim Vidas, Lujo Bauer, Nicolas Christin, Lorrie Faith Cranor, Julio Lopez. Guess again (and again and again): Measuring password strength by simulating password-cracking algorithms. **2012 IEEE Symposium on Security and Privacy**.
106. Pedro G. Leon, Blase Ur, Rebecca Balebako, Lorrie Faith Cranor, Richard Shay, and Yang Wang. Why Johnny Can't Opt Out: A Usability Evaluation of Tools to Limit Online Behavioral Advertising. In **CHI 2012: Conference on Human Factors in Computing Systems**, May 2012 [370/1577].

107. Peter F. Klemperer, Yuan Liang, Michelle L. Mazurek, Manya Sleeper, Blase Ur, Lujo Bauer, Lorrie Faith Cranor, Nitin Gupta, and Michael K. Reiter. Tag, you can see it! Using tags for access control in photo sharing. In **CHI 2012: Conference on Human Factors in Computing Systems**, May 2012 [370/1577].
108. P.G. Kelley, S. Consolvo, L.F. Cranor, J. Jung, N. Sadeh, D. Wetherall. A Conundrum of Permissions: Installing Applications on an Android Smartphone. **Workshop on Usable Security**. Bonaire, March 2, 2012.
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180. Lorrie Faith Cranor and Joel Reidenberg. Can user agents accurately represent privacy notices? **The 30th Research Conference on Communication, Information and Internet Policy (TPRC2002)** 28-30 September, 2002 Alexandria, Virginia. [Abstracts are refereed]
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## **PATENTS AND INVENTION DISCLOSURES**

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## EVIDENCE OF EXTERNAL REPUTATION

### CITATIONS AND AWARDS

- ACM CHI Academy, 2017
- IEEE Fellow, 2016
- ACM Fellow, 2014
- ELATE Fellow, Executive Leadership in Academic Technology and Engineering, 2014-2015
- Montgomery Blair High School Magnet Foundation Distinguished Alumni Award, 2014
- NSF Science and Engineering Visualization Challenge Honorable Mention, 2014
- Recognized as a Privacy by Design Ambassador by the Information and Privacy Commissioner, Ontario, Canada, 2012
- Finalist, Executive Women's Forum (information security, risk management, and privacy) Women of Influence Awards, 2010
- Annual Computer Security Applications Conference 2009 Distinguished Practitioner Award
- Tor Graphical User Interface Design Competition, Phase 1 Overall Winner (2006)
- 2004 IBM Best Academic Privacy Faculty Award
- Technology Review Top 100 Innovator 35 or Younger (2003)
- 2002 AT&T Standards Recognition Award
- Index on Censorship Freedom of Expression Award for Best Circumvention of Censorship (for Publius project), 2001
- Washington University Omicron Delta Kappa Campus Government Honors Medal, 1995
- Washington University Engineering & Policy Departmental Fellowship, 1992-96
- Senior Award for Service to the Engineering & Policy Department and Professional Excellence, 1992
- Washington University Woodward Engineering Fellowship, 1989-92
- National Merit Scholarship Finalist, 1989

### PAPER AND POSTER AWARDS

- Symposium On Usable Privacy and Security Impact Award Nominee, 2017 (5 of 14 SOUPS papers published in 2007-2012 recognized as having a significant impact on usable security and privacy research and practice) [153, 137, 126, 113, 101]
- Symposium On Usable Privacy and Security 2017 Distinguished Poster Award
- CHI 2017 Best Paper Award [56]
- USENIX Security 2016 Best Paper Award [59]
- CHI 2016 Best Paper Award Honorable Mention [64]
- Paper selected for Privacy Papers for Policy Makers, 2015 [68]
- Symposium On Usable Privacy and Security 2015 Distinguished Poster Award
- Symposium On Usable Privacy and Security Impact Award Nominee, 2014 (one of 10 SOUPS papers published in 2005-2009 recognized as having a significant impact on usable security and privacy research and practice) [162]
- Symposium On Usable Privacy and Security 2014 Distinguished Poster Award
- Symposium On Usable Privacy and Security 2013 Distinguished Paper Award [87]
- Information Systems Society and Information Systems Research 2012 Best Published Paper Award [32]
- Paper selected for Privacy Papers for Policy Makers, 2012 [101]
- CHI 2012 Best Paper Award Honorable Mention [106]
- CHI 2011 Best Paper Award Honorable Mention [120]
- Paper selected for Privacy Papers for Policy Makers, 2010 [101]
- Award for Outstanding Research in Privacy Enhancing Technologies, Runner up, 2010 [106]
- CHI 2008 Best Paper Award Honorable Mention [149]
- Best Paper Award, The Fifth International Conference on Electronic Commerce (ICEC 2003) [168]
- Best Paper Award, 9th USENIX Security Symposium, 2000 [170]

- ACM Computer Science Conference Student Poster Forum Award, 1996
- Washington University Association of Graduate Engineering Students Research Fair First Place Award, 1996
- Missouri College Newspaper Association Award for Second Place in Features Writing, 1992
- Columbia University's national Gold Circle Award for Features Profiles Writing, second place, 1988

## **ADVISORY COMMITTEES AND BOARDS**

- Member, National Academies Panel on Human Factors Sciences at the Army Research Laboratory, 2017
- Member, CMU Nanotechnology-Environmental Effects and Policy (NEEP) IGERT Advisory Board, 2012-2015
- Member, NYU Center for Interdisciplinary Studies in Security and Privacy (CRISSP) IGERT Advisory Board, 2011-2015
- Member, DARPA Privacy Panel, 2010-2013
- Member, Future of Privacy Forum Advisory Board, 2009-2015
- Member, Wombat Security Technologies Board of Directors, 2008-2014
- Member, Electronic Frontier Foundation Board of Directors, 2007-2015
- Member, Washington University in St. Louis Department of Computers Science and Engineering External Advisory Board, 2007-2010
- Member, Microsoft Trusted Computing Academic Advisory Board, 2004-2010
- Member, IBM Privacy Institute External Advisory Board, 2001-2008
- Member, Federal Trade Commission Advisory Committee on Online Access and Security, 2000
- Member, The Democracy Online Project National Task Force, 1999-2001
- Member, Voting Integrity Project National Advisory Board, 1998-2001
- Graduate Student Representative, Washington University Board of Trustees, 1995-1996

## **WORKING GROUPS AND STANDARDS ACTIVITIES**

- Member, National Privacy Research Strategy Working Group, 2016
- Chair, W3C Platform for Privacy Preferences Project Specification Working Group, 1999-2006
- Advisory Committee Representative, World Wide Web Consortium, 1997-2002
- Chair, W3C Platform for Privacy Preferences Project Vocabulary Working Group, 1997

## **CONFERENCE AND WORKSHOP COMMITTEES**

- Workshop on Technology and Consumer Protection (ConPro '17), program committee member (2017)
- Symposium On Usable Privacy and Security — general chair (2005-2015), steering committee member (2011-2017)
- CHI Conference on Human Factors in Computing Systems — Associate chair (2014), paper reviewer (2003-2017), student research competition judge (2008-2010)
- Privacy Enhancing Technologies Symposium — program committee member (2008, 2009, 2015)
- Passwords – program committee member (2015)
- Workshop on the Future of Privacy Notice and Choice – general chair (2014)
- International Workshop on Privacy Engineering – program committee member (2015)
- NDSS Workshop on Usable Security (USEC) – program committee member (2014)
- W3C Workshop on Web Tracking and User Privacy – Program committee co-chair (2011)
- International Conference on Trust and Trustworthy Computing – program committee member (2009, 2010)
- ACM CCS Workshop on Assurable & Usable Security Configuration (SafeConfig) – program committee member (2009, 2010)
- National Academy of Sciences Workshop on Usability, Security, and Privacy of Information Systems, Program Committee, 2009
- ACM Conference on Computer and Communications Security (CCS) — program committee member (2007, 2008, 2009)



- Computers, Freedom And Privacy Conference — program committee member (1999, 2004), conference chair (2000), advisory board member (2001), treasurer (2000-2002), steering committee chair (2002-2006), research showcase co-chair (2009), steering committee member (2000-2013)
- CMU/Microsoft Mindswap on Privacy — co-chair (2007)
- Anti-Phishing Working Group eCrime Researchers Summit — general chair (2007)
- ACM CCS Workshop on Digital Identity Management — program committee member (2007)
- IEEE Workshop on Policies for Distributed Systems and Networks — program committee member (2007)
- ACM Conference on Electronic Commerce — program committee member (2001, 2007)
- Semantic Web And Policy Workshop — program committee member (2005)
- UM 2005 Workshop On Privacy-Enhanced Personalization — co-chair (2005)
- Third Annual Conference On Privacy, Security And Trust — program committee member (2005)
- Workshop On Privacy Enhancing Technologies — program committee member (2003, 2004, 2005)
- International World Wide Web Conference — E-commerce and security vice chair (2001), program committee member (2000, 2002, 2004, 2009)
- ACM Workshop on Digital Rights Management — program committee member (2004)
- ACM Workshop On Privacy In The Electronic Society — program committee member (2002, 2004)
- DIMACS Workshop On Usable Privacy And Security Software — chair (2004)
- International Conference On Electronic Commerce — eCommerce Law & Policy Co-Chair (2003)
- Workshop On The Future Of P3P — program committee co-chair and workshop co-chair (2003)
- Financial Cryptography — program committee member (2003)
- Telecommunications Policy Research Conference (TPRC) — program committee chair (2001), program committee member (1999, 2000)
- National Workshop on Internet Voting — Executive committee member (2000-2001)
- AT&T Student Research Day — committee chair (1998, 1999)

## **MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

- International Association of Privacy Professionals (IAPP), Certified Information Privacy Technologist (CIPT)
- ACM Fellow
- 2009-2010 elected member of ACM Public Policy Council (USACM), 1997-2003 member ACM Publications Board, 2000-2003 vice chair ACM Publications Board, 1997-1999 student activities chair on ACM Membership Activities Board, 1995-1996 member ACM Membership and Promotion Board
- IEEE Fellow

## **EDITORIAL BOARD MEMBERSHIPS**

- Editorial Board Member, IEEE Transactions on Dependable and Secure Computing, 2015 to present
- Editorial Board Member, I/S: A Journal of Law and Policy for the Information Society, 2004 to present
- Associate Editor, The Information Society, 2000-2015
- Editorial Board Member, User Modeling and User-Adapted Interaction: The Journal of Personalization Research, 2006-2013
- Associate Editor, ACM Transactions on Internet Technology, 2000-2011
- Area Editor, Electronic Commerce Research and Applications, 2006-2008
- Editorial Board Member, Journal of Privacy Technology, 2004-2006
- Associate Editor, SIGecom Exchanges, 2000-2002
- Editor-in-Chief, Crossroads: The ACM Student Magazine, 1994-1996

## **INVITED TALKS**

- Keynote: *What's wrong with your pa\$\$w0rd*, FedEx Security Awareness Event, Memphis, TN, October 4, 2017.
- *Real Humans, Simulated Attacks: Usability Testing with Attack Scenarios*, Black Hat USA, Las Vegas, NV, July 26, 2017.

- Keynote: *The Art of Privacy*, 11th International Conference on Web and Social Media (ICWSM-17), Montreal, Quebec, CA, May 17, 2017.
- Invited talk: *Effectiveness of Notices and Disclosures*, National Association of Attorneys General Consumer Protection Conference, Washington, DC, May 15, 2017.
- Keynote: *Putting Privacy Notices to the Test*, American Bar Association Consumer Protection Conference, Atlanta, GA, February 2, 2017.
- *Putting Privacy Notices to the Test*, Enigma, Oakland, CA, February 1, 2017.
- Keynote: *How online tracking works*. Silicon Flatirons Conference on the Future of Advertising and Privacy, University of Colorado Law School, Boulder, CO, December 2, 2016.
- Keynote: *Adventures in Usable Privacy and Security: From Empirical Studies to Public Policy*. IEEE Cybersecurity Development Conference, Boston, MA, November 3, 2016.
- Keynote: *Usable Security and Public Policy*. 3<sup>rd</sup> Annual Senior Executive Cyber Security Conference, Baltimore, MD, September 21, 2016.
- Keynote: *Time to rethink mandatory password changes*. BSides Las Vegas, August 2, 2016.
- Keynote: *Informing (public) policy*. Symposium On Usable Privacy and Security, Denver, CO, June 23, 2016.
- Keynote: *Putting transparency to the test*. Clean Ads I/O. New York, NY, May 24, 2016.
- Keynote: *Adventures in usable privacy and security: from empirical studies to public policy*. HotSoS, Pittsburgh, PA, April 20, 2016.
- *Personal Privacy Assistants in the Age of the Internet of Things*. World Economics Forum, Davos, Switzerland, January 21, 2016.
- Keynote: *The continuing quest for secure and usable passwords*. ArchCOn 2015, St. Louis, MO, September 11, 2015.
- *Conducting Usable Security Studies: It's Complicated*. USENIX Security Symposium, Washington, DC, August 12, 2015.
- *Making Privacy Transparent*. Highmark Health Privacy Workshop, Pittsburgh, PA, June 11, 2015.
- Distinguished Speaker: *Security, Privacy, and Human Behavior*. Women in Cybersecurity, Atlanta, GA, March 27, 2015.
- Game Changer talk: *Don't Change Your Pa\$\$w0rd!* IAPP Global Privacy Summit. Washington, DC, March 6, 2015.
- Keynote: *New Findings in Notice and Consent*, IAPP Practical Privacy Series, Washington, DC, December 2, 2014.
- *The continuing quest for secure and usable passwords*, Grace Hopper Celebration of Women in Computing, Phoenix, AZ, October 10, 2014.
- *iloveyou password 123456*. TEDxCMU, Pittsburgh, PA, March 2, 2014.
- *Privacy Nudges and Self-Censorship*, Facebook Faculty Summit, Menlo Park, CA, August 6, 2013.
- Keynote: *Privacy Notice and Choice in Practice*, Privacy Enhancing Technologies Symposium, Bloomington, Indiana, July 10, 2013.
- *Privacy: The User Perspective*, Telefonica Privacy and Data Monetization Event, Barcelona, Spain, February 8, 2012.
- *Necessary but not sufficient, standards mechanisms for privacy notice and choice*, Silicon Flatirons Economics of Privacy Conference, Boulder, CO, December 2, 2011.
- Keynote: *Usable Privacy and Security Research and Education*, Workshop on Integrating Usability and Accessibility in Information Assurance Education, Bowie Maryland, August 3, 2010.
- Keynote: *Building a Better Privacy Policy*, IEEE International Symposium on Policies for Distributed Systems and Networks, Fairfax, VA, July 21-23, 2010.
- Keynote: *Users do the darndest things: True stories from the CyLab Usable Privacy and Security Laboratory*, Financial Cryptography and Data Security 2010, Tenerife, Canary Islands, Spain, January 25-28, 2010.
- Keynote: *Users do the darndest things: True stories from the CyLab Usable Privacy and Security Laboratory*, 2009 Annual Computer Security Applications Conference, Honolulu, Hawaii, December 7-11, 2009.
- Keynote: *Teaching Johnny Not to Fall for Phish*. 6<sup>th</sup> Conference on Email and Anti-Spam. Mountain View, CA, July 18, 2009.
- *Usable Privacy*. National Academy of Sciences Usability, Security, and Privacy of Information Systems Workshop, July 21-22, 2009, Washington, DC.

- *You've Been Warned*. Security and Human Behavior, Boston, MA, June 11-12, 2009.
- *The Human in the Loop*. RSA 2009, San Francisco, CA, April 22, 2009.
- *The Human in the Loop*. Information Security Best Practices 2009, Philadelphia, PA, January 29-30, 2009.
- *How to Foil Phishing Scams*, Project Olympus Show and Tell, Carnegie Mellon University, January 21, 2009.
- Keynote: *You've Been Warned: Why Nobody Pays Any Attention to Computer Security Warnings (And How We Might Change That)*. Computer Science 2008: student research conference, Cambridge, UK, December 15, 2008.
- Leveraging the "Teachable Moment": APWG CMU Phishing Education Landing Page Program. APWG eCrime Researchers Summit. Atlanta, GA, October 15, 2008.
- *Visualization and Semantics to Support Fast and Accurate Policy Authoring*, NSF Workshop on Assurable and Usable Security Configuration, Fairfax, VA, 11-12 August 2008.
- *Online Shoppers Will Pay More for Privacy: Results from Empirical Research*. International Association of Privacy Professionals (IAPP) Privacy Summit, Washington, DC, March 28, 2008.
- *Information Security Education: A Carnegie Mellon Perspective*, 7th Semi-Annual Fidelity Information Security Briefing, Boston, MA, 30 January 2008.
- *Usable Security*, CA, Pittsburgh, 29 November 2007.
- *Making Privacy Disclosures to Consumers More Usable*, Federal Trade Commission Ebehavioral Advertising Town Hall, 2 November 2007.
- *Supporting Trust Decisions Research at Carnegie Mellon*, 2007 Anti-Phishing Working Group General Members Meeting, Pittsburgh, PA, 2-3 October 2007.
- *Usable Storage Security*, 2007 Storage Networking Industry Association Summer Security Summit, Pittsburgh, PA, 30 May - 1 June 2007.
- *Phishing Phish: How accurate are today's toolbars? What hope for training users?* 2006 Anti-Phishing Working Group General Meeting, Orlando, Florida, 14-15 November 2006.
- Keynote: *Inexplicable Indicators and Puzzling Pop-ups: Security Software From an End User Perspective*, Eighth International Conference on Information and Communications Security (ICICS '06), Raleigh, North Carolina, 4-7 December 2006.
- *Towards Usable Web Privacy and Security*, 6th Annual Privacy and Security Workshop, Toronto, Canada, 3-4 November, 2005.
- *Hey, That's Personal!*, 10th International Conference on User Modeling (UM'05), Edinburgh, Scotland, UK, 24-29 July 2005.
- *Scrubbing Stubborn Data*, 2nd Storage Networking Industry Association Security Summit, Pittsburgh, PA, 1-2 June 2005.
- Keynote: *Towards Usable Web Privacy and Security*, The 14th International World Wide Web Conference (WWW2005), Chiba, Japan, 10-14 May 2005.
- *Technical Trends in Privacy*, MITRE Privacy Technical Exchange, McLean, VA, 19 April 2005.
- Keynote: *Usable Privacy and Security*, Intel Corporation Forum: Usable Privacy When Privacy is Ubiquitous, Hillsboro, OR, 2 March 2005.
- Keynote: *How Your Dog Can Publish Your Secrets Anonymously and Why There's Probably Nothing You Can Do About It*. Fifth International Workshop on the Web and Databases (WebDB 2002), Madison, Wisconsin, June 6, 2002.
- *P3P and Privacy Bird*. Workshop on the Relationship between Privacy and Security, Pittsburgh, PA, May 29-30, 2002.
- *Online Privacy: Promise or Peril?* 2001 USENIX Annual Technical Conference, Boston, MA, 25-30 June 2001.
- Keynote: *Online Data Privacy Trends*. Association of Corporate Travel Executives (ACTE) Executive Forum, New York, NY, January 16, 2001.
- *Overview of Online Privacy-Enhancing Technologies*. NTIA Online Technologies Workshop and Technology Fair, Washington, DC, September 19, 2000.
- *Privacy Implications of Online Data Collection*, DIMACS Workshop: Data Processing on the Web: A Look into the Future, Piscataway, NJ, 6-7 March 2000.
- *Tracks on the web and a grammar for personal privacy*, Individual Privacy and Information Policy: A Policy and Research Issues Conference, Rutgers University, New Brunswick, NJ, 14 April 1999.

- The Platform for Privacy Preferences Project: Facilitating Individual Control Over Personal Information Flow Online, Human Computer Interaction Consortium Workshop, Winter Park, Colorado, 6 March 1998.
- *The Technology Tool Kit*, Internet Online Summit: Focus on Children, Washington, DC, 2 December 1997.
- *Making the Internet Safe, Fun, and Profitable*, International Symposium of Computing Technology (EI@TEC97), Torreon, Coahuil, Mexico, 17 October 1997.
- *User Empowerment Techniques to Address Online Privacy Concerns*, DIMACS Workshop on Massive Data Sets in Telecommunications, Piscataway, NJ, 14 October 1997.
- *The Future of Privacy*, DIMACS Research and Education Institute, Piscataway, NJ, 3 August 1997.
- *Making it Safe, Fun, and Profitable to do Business on the Internet*, Sonya Kovalevsky Day 97, Montgomery College Mathematics Department, Rockville, MD, 18 April 1997.

## SEMINARS & COLLOQUIA

- *Real Humans, Simulated Attacks: Usability Testing with Attack Scenarios*, University of Kentucky, Dean's Lecture Series, Lexington, KY, October 3, 2017.
- *The continuing quest for secure and usable passwords*, York University, Toronto, Ontario, CA, May 16, 2017.
- *Adventures in Usable Privacy and Security: From Empirical Studies to Public Policy*, Ohio University Moritz College of Law, Program on Data Governance Seminar Series, April 11, 2017.
- *Adventures in Usable Privacy and Security: From Empirical Studies to Public Policy*, Harvard Computer Science Colloquium Series, Cambridge, MA, November 3, 2016.
- *Conducting Usable Privacy and Security Studies: It's Complicated*, Washington University in St. Louis CSE Seminar, St. Louis, MO, September 11, 2015.
- *The continuing quest for secure and usable passwords*, Steel City Information Security, Pittsburgh, PA, July 15, 2015.
- *The Art of Privacy*, Carnegie Mellon CyLab Seminar Series, February 9, 2015.
- *The continuing quest for secure and usable passwords*, Google-UMD Cybersecurity Seminar, University of Maryland, College Park, MD, February 27, 2014.
- *Privacy Nudges and Self-Censorship on Social Media*, GVU Brown Bag Seminar, Georgia Tech, Atlanta, GA, November 21, 2013.
- *Privacy Nudges and Self-Censorship on Social Media*, Carnegie Mellon CyLab Seminar Series, October 7, 2013.
- *Privacy Nudges for Social Media*, PARC Privacy Lunch, Palo Alto, CA, June 26, 2013.
- *Privacy Nudges for Social Media*, Facebook, Menlo Park, CA, June 26, 2013.
- *Necessary But Not Sufficient: Standardized Mechanisms for Privacy Notice and Choice*, Harvard Center for Research on Computation and Society, May 6, 2013.
- *Security, Privacy, and Usability: Better Together*, Williams College, Class of 1960 Scholars Lecture in Computer Science, Williamstown, MA, October 25, 2012.
- *Spoofing Operating System Security Interfaces to Study User Security Behaviors*, Carnegie Mellon CyLab Seminar Series, October 22, 2012.
- *Are Privacy Policies and Online Privacy Tools Really Protecting our Privacy?* Pugwash Ethics and Technology Lecture, Carnegie Mellon University, September 20, 2012.
- *Security, Privacy, and Usability: Better Together*, National Science Foundation WATCH Series, Arlington, VA, April 19, 2012.
- *Why Johnny Can't Opt-Out*, Microsoft, Redmond, WA, February 27, 2012.
- *Designing Secure Systems that People Can Use*, Carnegie Mellon ECE Grad Seminar Series, January 26, 2012.
- *15 Years of Privacy Notice and Choice*, Carnegie Mellon CyLab Seminar Series, October 2, 2011.
- "I regretted the minute I pressed share": A study of Facebook Regrets, Google, Mountain View, CA, June 29, 2011.
- *Standardizing Privacy Notices: Privacy Taxonomy, Privacy Nutrition Labels, and Computer-Readable Policies*. University of California Berkeley Center for Law and Technology, 4<sup>th</sup> Annual Privacy Lecture, Berkeley, California, February 17, 2011.
- *Building a Better Privacy Policy*. Carnegie Mellon, University Lecture Series, February 7, 2011.

- *Building a Better Privacy Policy*. Carnegie Mellon University Human Computer Interaction Institute Seminar Series, October 6, 2010.
- *Usable Privacy and Security*. University of Toronto Identity, Privacy and Security Institute Lecture Series, Toronto Canada, November 23, 2009.
- *Teaching Johnny Not to Fall for Phish*. Carnegie Mellon CyLab Seminar Series, March 2, 2009.
- *You've Been Warned: Why Nobody Pays Any Attention to Computer Security Warnings (And How We Might Change That)*. Carnegie Mellon University Human Computer Interaction Institute Seminar Series, February 11, 2009.
- *Teaching Johnny Not to Fall for Phish*. University College London Centre for Security and Crime Science, London, UK, December 16, 2008.
- *A Framework for Reasoning About the Human in the Loop*, Google, Mountain View, CA, September 15, 2008.
- *Inexplicable Indicators and Puzzling Pop-ups: Security Software From an End User Perspective*, Pennsylvania State Information Sciences and Technology Research Seminar Series, 30 March 2007.
- *Searching for Privacy*, Microsoft Research, Redmond, WA, 21 July 2006.
- *Searching for Privacy*, America OnLine, Dulles, VA, 13 January 2006.
- *Towards Usable Web Privacy and Security*, University of Pittsburgh Computer Science Colloquium Series, 19 October 2005.
- *Towards Usable Web Privacy and Security*, Carnegie Mellon University Human-Computer Interaction Institute Seminar, 7 September 2005.
- *Towards Usable Web Privacy and Security*, University of Pittsburgh Laboratory of Education and Research in Security Assured Information Systems Seminar Series, 2 September 2005.
- *Making Privacy Visible: The Privacy Bird P3P User Agent and Beyond*, Intel Research Seattle, 13 April 2005.
- *User Interfaces for Privacy: Design and Evaluation of the AT&T Privacy Bird P3P User Agent*, University of Michigan Socio-Technical Infrastructure for Electronic Transactions (STIET) Research Seminar, 10 March 2005.
- *Usable Privacy and Security Research at CMU*. IBM Watson Research, Hawthorne, New York, February 9, 2005.
- *User Interfaces for Privacy: Design and Evaluation of the AT&T Privacy Bird P3P User Agent*. IBM Watson Research, Hawthorne, New York, March 28, 2003.
- *Developing Online Privacy Standards: A View From the Trenches*. New York University Stern School of Business Information Systems Research Seminar, New York, October 11, 2001.
- *Online Privacy: What are People So Concerned About and What is Being done About It?* University of Virginia Department of Computer Science "Top Gun" Distinguished Lecture Series, Charlottesville, Virginia, January 24, 2001.
- *Online Privacy: What are People So Concerned About and What is Being Done About It?* Princeton ACM/IEEE Computer Society meeting, Princeton, NJ, December 14, 2000.
- *Online Privacy: What are People So Concerned About and What is Being Done About it?*, North Carolina State University, March 24, 2000.
- *Many Lessons Later: The Platform for Privacy Preferences and What We've Learned About Designing Social Protocols*, Rensselaer Polytechnic Institute, Troy, NY, 11 November 1999.
- *Privacy and Commerce*, Raymond Walters College Community Conversations series on Privacy in America, Cincinnati, OH, 9 February 1999.
- *The Platform for Privacy Preferences Project*, Internet Developer/Technology Group, San Jose, CA, 15 October 1998.
- *Electronic voting: theory and practice*, Royal Melbourne Institute of Technology, Melbourne, Australia, 20 April 1998.
- *The Platform for Privacy Preferences Project and Unsolicited Commercial Email*, IBM Watson Research, Hawthorne, New York, 16 December 1997.
- *Electronic Voting: Representative Democracy in the Information Age*, Webster University Department of Philosophy, St. Louis, MO, 17 September 1996.

## TUTORIALS

- *Designing Notice and Consent for the Internet of Things*, International Association of Privacy Professionals Global Privacy Summit 2017, Washington, DC, April 18, 2017
- *Designing Notice and Consent for the Internet of Things*, International Association of Privacy Professionals Global Privacy Summit 2016, Washington, DC, April 5, 2016.
- *Certified Information Privacy Professional/IT Training Course*, International Association of Privacy Professionals Privacy Academy, Boston, MA, September 16, 2009.
- *Machine Readable Privacy Policies and P3P*. International Association of Privacy Professionals Fourth Annual Privacy and Data Security Summit, Washington, DC, February 18, 2004.
- *P3P Introduction and Practical Solutions*. International Association of Privacy Professionals Third Annual Privacy and Data Security Summit, Washington, DC, February 26-28, 2003.
- *Internet Privacy and P3P*, Ninth International World Wide Web Conference (WWW9), Amsterdam, May 15, 2000.

## PANELS

- *Designing and evaluating disclosures in a digital world*. Department Of Commerce Public Meeting On Consumer Messaging For Copyrighted Works, Alexandria, VA, April 18, 2017.
- *What's the value of privacy notices?* Privacy@Scale, Washington, DC, May 31, 2016.
- *Balancing transparency and privacy*, Opportunities & Challenges: Open Police Data and Ensuring the Safety and Security of Victims of Intimate Partner Violence and Sexual Assault, The White House, Washington, DC, April 21, 2016.
- *What if your data regulator actually knew about computers and computer science?* IAPP Global Privacy Summit, Washington, DC, April 5, 2016.
- *Improving Authentication: Moving Beyond the Password*, White House Summit on Cybersecurity and Consumer Protection, Palo Alto, CA, February 13, 2015.
- *Capitol Hill briefing on privacy and security in a connected age* (hosted by NSF and IEEE-USA), Washington, DC, October 30, 2014.
- *Capitol Hill briefing on mobile device privacy and cyber security* (hosted by Congresswoman Sheila Jackson Lee and CMU CyLab), Washington, DC, October 30, 2014.
- *Electronic Privacy and Surveillance*. CHI 2014, Toronto, CA, April 28, 2014.
- *Leaders in Science & Technology Policy: a cross-discipline forum with campus experts*, Carnegie Mellon University, April 2, 2013.
- *David vs. Goliath: The Global Fight for Digital Privacy*, Social Media Week, New York, NY, February 19, 2013.
- *Consumer Attitudes About and Choice with Respect to Comprehensive Data Collection*, The Big Picture: Comprehensive Data Collection, Federal Trade Commission Workshop, Washington, DC, December 6, 2012.
- *Behavioral Economics and Privacy Nudging*, For Your Eyes Only: Privacy, Empowerment and Technology in the Context of Social Networks, Brussels, Belgium, November 30, 2012.
- *The Private Sector and Emerging Technology*, Ohio State Law Journal Symposium: The Second Wave of Global Privacy Protection, Columbus, OH, November 16, 2012.
- *Mobile Privacy Disclosures*, In Short: Advertising and Privacy Disclosures in a Digital World. Federal Trade Commission Workshop, Washington, DC, May 30, 2012.
- *Sex, Lies and Cookies: Web Privacy EXPOSED!* South by Southwest, Austin, TX, March 12, 2012.
- *Personal Privacy*, National Academy of Sciences Workshop on Alerts and Warnings Using Social Media: Current Knowledge and Research Needs, Irvine, CA, February 28-29, 2012.
- *Privacy and User Awareness: Self-regulation, privacy education and granular controls*, US China Internet Industry Forum, Washington, DC, December 7, 2011.
- *Company-Based Approaches to Protect Privacy*, Federal Communications Commission Forum: Helping Consumers Harness the Potential of Location-Based Services, Washington, DC, June 28, 2011.
- *Information Networking: Privacy, Security & Mobility*, Congressional Briefing on Cyber Security, Washington, DC, June 21, 2011.

- *Controversies Surrounding Online Behavioral Advertising*, AMA marketing and public policy conference, Washington, DC, June 3, 2011.
- *What's New in Consumer Privacy Research?* IAPP Privacy Summit, Washington, DC, March 11, 2011.
- *Privacy nudges: Online privacy tools and add-ons*, 32<sup>nd</sup> International Conference of Data Protection and Privacy Commissioners, Jerusalem, Israel, October 27, 2010.
- *Information Security, Privacy & Risk Management: From Research to Practice*, 8<sup>th</sup> Annual Executive Women's Forum Conference, Scottsdale, Arizona, October 22, 2010.
- *Solving the Access-Control Puzzle: Finding the Pieces and Putting Them Together*, ACM Symposium on Access Control Models and Technology, Pittsburgh, PA, June 9-11, 2010.
- *Nuts & Bolts of Online Privacy, Advertising, Notice & Choice*, The Progress & Freedom Foundation Capitol Hill Briefing, Washington, DC, May 24, 2010.
- *Locating Your Privacy*, State of the Mobile Net Conference, Washington, DC, April 21, 2010.
- *Consumer Expectations and Disclosures*, Federal Trade Commission Exploring Privacy Roundtable, Washington, DC, December 7, 2009.
- *Methodology*, Workshop on Security and Human Behaviour (SHB 2008), Boston, MA, June 30-July 1, 2008.
- *Does User Education Work?* APWG eCrmine Researchers Summit, Pittsburgh, PA, 4-5 October 2007.
- *Implications for Fair Information Practice Principles*. NTIA Online Technologies Workshop and Technology Fair, Washington, DC, September 19, 2000.
- *Getting Involved in Technical Standards Organizations*. Grace Hopper Celebration of Women in Computing, Cape Cod, Massachusetts, September 14, 2000.
- *Building Trust: Opt in or Opt out?* The Global Privacy Summit, Washington, DC, September 13, 2000.
- *Online Voting: Will the Laptop Replace the Voting Booth?*, Congressional Internet Caucus Panel Discussion, Washington, DC, September 13, 2000.
- ACM Computer and IT Policy Briefing for the 106th Congress, Washington, DC, 5 March 1999.
- *Technologies* panel, Public Meeting on Internet Privacy, U.S. Department of Commerce, Washington, DC, 24 June 1998.
- *Laws, self-regulation, and P3P: Will W3C's privacy platform help make the Web safe for privacy?* International World Wide Web Conference, Brisbane, Queensland, Australia, 14-18 April 1998.
- *Internet Privacy*, A Briefing by the Advisory Committee of the Congressional Internet Caucus, Washington, DC, 18 April 1997.

## GUEST EDITORSHIPS

- Guest editor, Communications of the ACM special section on Internet privacy, February 1999
- Special section editor, The Information Society special section on CFP2000, May-June 2002
- Special section editor, IEEE Security & Privacy special section on usability & security, September/October 2004

## EXPERT TESTIMONY AND REPORTS

- Testimony before the United States House of Representatives, Energy and Commerce Committee Subcommittee on Communications, Technology and the Internet, and Subcommittee on Commerce, Trade, and Consumer Protection, Hearing on The Collection and Use of Location Information for Commercial Purposes, February 24, 2010.
- Testimony before the Commission on Online Child Protection (COPA), Richmond, VA, June 20, 2000.
- Expert witness in challenges to Internet "harmful to minors" laws: *Cyberspace v. Engler* (Michigan), 1999; *PSINet v. Chapman* (Virginia), 2000; *American Booksellers Fdn. v. Dean* (Vermont), 2002; *Bookfriends, Inc. v. Taft* (Ohio), 2002; *Southeast Booksellers Assoc. v. McMaster* (South Carolina), 2004; *ACLU v. Gonzales*, 2006

## CONTRACT, GRANT, AND GIFT SUPPORT

*TWC: Small: Helping Teens and Parents Negotiate Online Privacy and Safety*

PI: Julie Downs (Co-PI: Lorrie Cranor)

National Science Foundation, 9/1/2016 – 8/31/2018, \$256,139

*Password Policy Security and Usability*

PI: Lorrie Cranor, Lujo Bauer, Nicolas Christin

PNC Center for Financial Services Innovation, 1/1/2016 – 12/31/2016, \$120,000

*Development of a Data-Driven Open Source Password Meter*

PI: Lorrie Cranor, Lujo Bauer, Nicolas Christin

PNC Center for Financial Services Innovation, 10/1/2015 – 6/30/2016, \$120,000

*Personalized Privacy Assistants for Big Data and the Internet of Things*

PI: Norman Sadeh (Co-PIs: Alessandro Acquisti, Lujo Bauer, Lorrie Cranor, Anupam Datta)

DARPA, 9/1/2015 – 9/30/2017, \$5,585,261

*Can Johnny Chat Securely? Evaluating Mobile Applications for Encrypted Messaging*

PI: Lorrie Cranor

Google, unrestricted gift, September 2015, \$100,000

*Providing Users Data-Driven Privacy Awareness*

PI: Lorrie Cranor (Co-PI: Blase Ur)

Data Transparency Lab, unrestricted gift, September 2015, \$56,000

*Towards personalized privacy assistants for the open Web of Things*

PI: Norman Sadeh (Co-PIs: Lujo Bauer and Lorrie Cranor)

Google, 4/2015, \$100,000

*MACRO: Models for Enabling Continuous Reconfigurability of Secure Missions*

PI: Lorrie Cranor (Co-PIs: Lujo Bauer, Nicolas Christin, Coty Gonzalez)

Army Research Lab, 09/01/2013 – 08/31/2018, \$3,246,573

[Note, Cranor left this project in November 2015]

*Towards Effective Web Privacy Notice And Choice: A Multi-Disciplinary Perspective*

PI: Norman Sadeh (Co-PIs: Lorrie Cranor, Alessandro Acquisti, Travis Breaux, Noah Smith, Joel Reidenberg, Aleecia McDonald)

National Science Foundation, 09/01/2013 – 08/31/2017, \$2,299,762

*USE: User Security Behavior*

PI: Lorrie Cranor, Rahul Telang, Alessandro Acquisti and Nicolas Christin

National Security Agency, September 2012 – May 2017, \$1,561,664

*Flash Cookie Settlement*

PI: Lorrie Cranor

Clearspring et al, unrestricted gift, October 2011, \$322,795.61

*An Empirical Study of Text-Based Passwords and Their Users*

PI: Lujo Bauer (Co-PIs: Lorrie Cranor and Nicolas Christin)

National Science Foundation, 09/01/2011 – 08/31/2014, \$493,531



*Effective Computer Security Warning Dialogs*

PI: Lorrie Cranor

National Science Foundation, 09/01/2011 – 08/31/2014, \$500,000

*An Empirical Investigation of the Usability and Effectiveness of Opt-Out Tools for Behavioral Advertising and Online Tracking*

Co-PIs: Lorrie Cranor, Yang Wang

The Privacy Projects, unrestricted gift, February 2011, \$68,000

*Google Buzz Privacy Settlement*

PI: Lorrie Cranor

Google, unrestricted gift, 2011, \$178,920

*User Perceptions of Advertising Landing Page Quality*

PI: Lorrie Cranor

Google, unrestricted gift, December 2010, \$70,000

*Nudging Users Towards Privacy*

PI: Alessandro Acquisti (Co-PIs: Lorrie Cranor, Norman Sadeh)

National Science Foundation, 60 months beginning July 2010, \$2,678,128

*Study of password complexity rules and their contribution to password entropy*

PI: Lorrie Cranor

Microsoft Research, unrestricted gift, July 2010, \$300,000

*Usability Analysis of Forensic Tools and Instrumentation Case Study*

PI: Lorrie Cranor (Co-PIs: Nicolas Christin, Alessandro Acquisti, Rahul Telang)

Naval Post-Graduate School, 15 months beginning June 2010, \$150,000

*End-User Privacy Management for Cross-System Personalization*

PI: Lorrie Cranor

Alcatel-Lucent, unrestricted gift, May 2010, \$125,000

*Privacy Nudges*

PI: Lorrie Cranor (Co-PIs: Alessandro Acquisti and Norman Sadeh)

Google, unrestricted gift, January 2010, \$400,000

*User-Controllable Policy Learning*

PI: Norman Sadeh (Co-PI: Steve Bellovin, Senior Personnel: Lorrie Cranor)

National Science Foundation, 10/01/2009 – 09/30/2013, \$723,789

*IGERT Usable Privacy and Security*

PI: Lorrie Cranor (Co-PIs: Norman Sadeh, Jason Hong, Lujo Bauer, Julie Downs)

National Science Foundation, 06/01/2009 – 07/31/2014, \$2,923,591

*Web Security and Privacy: Weaving Together Technology Innovation with Human and Policy Considerations*

PI: Norman Sadeh (Co-PIs: Lorrie Cranor, Jason Hong, Alessandro Acquisti, Jon Peha)

CMU Portugal Information and Communications Technologies Institute, 36 months beginning August 2009, approximately \$900,000

*Usable Security for Digital Home Storage*

PI: Lujo Bauer (Co-PIs: Lorrie Cranor and Greg Ganger)

National Science Foundation, 4 years beginning September 2008, \$1,000,000

*A Mental Models Approach to Ethical Decision Making*

PI: Julie Downs (Co-PI: Peter Madsen, Senior Personnel: Lorrie Cranor)  
National Science Foundation, 2 years, \$299,987

*Usable Cyber Trust Indicators*

PI: Lorrie Cranor (Co-PI: Julie Downs)  
National Science Foundation, 3 years beginning September 2008, \$386,665

*Empowering Lay Users to Control Complex Privacy and Communication Policies*

Norman Sadeh (Co-PIs: Lorrie Cranor and Jason Hong)  
Microsoft Research (CMU Center for Computational Thinking), 1 year beginning September 2008,  
\$100,000

*Empowering Mobile Users to Effectively Control their Privacy in a Friend Finder Application: Scaling up to a Campus-wide Pilot*

PI: Norman Sadeh (Co-PI: Lorrie Cranor, Jason Hong)  
CMU CyLab, 2 years beginning July 2008, \$280,000

*Privacy Decision Making*

PI: Lorrie Cranor (Co-PI: Alessandro Acquisti)  
CMU CyLab, 2 years beginning July 2008, \$235,000

*Securing the Digital Home*

PI: Lujo Bauer (Co-PI: Lorrie Cranor, Greg Ganger, Adrian Perrig)  
CMU CyLab, 2 years beginning July 2008, \$300,000

*Saferide Security*

PI: Jim Morris (Co-PI: Lorrie Cranor)  
CMU CyLab, 1 year beginning July 2008, \$75,000

*Empirical Study of the Impact of Privacy Information in Search Results*

PI: Lorrie Cranor (Co-PI: Alessandro Acquisti)  
Microsoft Research, unrestricted gift, March 2008, \$60,000

*Anti-Phishing Cooperative Research Project Carnegie Mellon University and Portugal Telecom*

PI: Lorrie Cranor (Co-PIs: Alessandro Acquisti, Jason Hong, Norman Sadeh)  
CMU Portugal Information and Communications Technologies Institute, 2 years beginning September 2007, \$245,208

*Effective Trust Indicators*

PI: Lorrie Cranor  
CMU CyLab, 1 year beginning July 2007, \$172,889

*User-Controllable Security and Privacy for Pervasive Computing*

PI: Norman Sadeh (Co-PIs: Lujo Bauer, Lorrie Cranor, Jason Hong, Bruce McLaren)  
National Science Foundation, 4 years beginning September 2006, \$1,100,000

*Open Collaborative Research Initiative*

PI: Lorrie Cranor  
IBM, 2 years beginning September 2006, \$400,000

*PrivacyFinder: Helping Internet users find web sites that respect their privacy*

PI: Lorrie Cranor  
PA Cyber Security Commercialization Initiative, 6 months (January-June 2006), \$7,500

*Searching for Privacy*

PI: Lorrie Cranor

CMU CyLab, 1 year beginning August 2006, \$85,000

*Curriculum Development: Usable Privacy and Security*

PI: Lorrie Cranor (Co-PIs: Jason Hong, Michael Reiter)

Microsoft, unrestricted gift, January 2006, \$50,000

*Supporting Trust Decisions*

PI: Lorrie Cranor (Co-PIs: Alessandro Acquisti, Julie Downs, Jason Hong, Norman Sadeh)

National Science Foundation, 3 years, beginning September 2005 [+ 2 years no cost extension], \$1,650,000

*Preventing Semantic Attacks*

PI: Lorrie Cranor (Co-PIs: Alessandro Acquisti, Julie Downs, Jason Hong, Norman Sadeh)

CMU CyLab, 2 years, beginning August 2005, \$221,024

*Privacy and Usability in Pervasive Computing Environments*

PI: Norman Sadeh (Co-PIs: Lujjo Bauer, Lorrie Cranor, Jason Hong, Bruce McLaren)

CMU CyLab, 2 years, beginning August 2005, \$268,867

*Establishment of CMU Usable Privacy and Security (CUPS) Laboratory*

PI: Lorrie Cranor

CMU CyLab, 1 year (2004-05), \$74,032

## **CONTRIBUTIONS TO EDUCATION**

### **MSIT-PRIVACY ENGINEERING MASTERS PROGRAM**

The Master of Science in Information Technology—Privacy Engineering (MSIT-PE) degree is a one-year program designed for computer scientists and engineers who wish to pursue careers as privacy engineers or technical privacy managers, playing a critical role in building privacy into future products, services, and processes. This first-of-its kind program admitted its first class in Fall 2013. The 12-month program includes two semesters of courses and concludes with a summer-long learning-by-doing, capstone project, where students are brought in as privacy consultants to work on client projects.

I worked with a colleague, Norman Sadeh, to **develop the curriculum** for this program and **propose the program for college and university approval** in 2012. Since the launch of the program in Fall 2013, I have served as **co-director** of the program with Norman Sadeh. I have been involved in curriculum design, student recruiting, admissions, fundraising, budgeting, faculty recruiting, course scheduling, teaching assignments, student advising, industry outreach, and program operations.

### **CARNEGIE MELLON USABLE PRIVACY & SECURITY DOCTORAL TRAINING PROGRAM**

The Carnegie Mellon Usable Privacy and Security (CUPS) Doctoral Training program offers PhD students at CMU a fundamentally new, cross-disciplinary training experience that prepares them to produce the key research advances necessary to reconcile ostensible tensions between security, privacy and usability, moving away from an “either-or” view of these goals to a deeper understanding of underlying tradeoffs and eventually towards solutions where security, privacy and usability are configured to reinforce each other. The goal of this program is to serve as a catalyst to shape the field of usable privacy and security by developing and training a new generation of researchers in methodologies, principles, and approaches that can be applied across systems and applications, in contrast to one-off solutions. This program was supported by an NSF IGERT grant

I was PI on the NSF IGERT grant that funded this program in 2009 and have served as director of this program from its launch. I proposed the curriculum for the program and am responsible for admissions, outreach, and program operations. I run a weekly CUPS seminar series that is attended not only by program participants, but also a large number of faculty and students from throughout the university and nearby institutions.

### **PRIVACY MODULE FOR MSIT-EBUSINESS TECHNOLOGY MASTERS PROGRAM**

I developed a two-week privacy course module for CMU’s MSIT-eBusiness Technology masters program. The module features a team project that simulates the experience of privacy consultants brought in to work with a large company. I developed the privacy module in 2006 and have updated it and taught it every year from 2006 to 2015.

### **PRIVACY POLICY, LAW, AND TECHNOLOGY COURSE**

This course focuses on policy issues related to privacy from the perspectives of governments, organizations, and individuals. We begin with a historical and philosophical study of privacy and then explore recent public policy issues. We examine the privacy protections provided by laws and regulations, as well as the way technology can be used to protect privacy. We emphasize technology-related privacy concerns and mitigation, for example: social networks, smartphones, behavioral advertising (and tools to prevent targeted advertising and tracking), anonymous communication systems, big data, and drones. The course is open to all graduate students and advanced undergraduate students who have technical backgrounds.

I developed this course in 2004 and have taught it nine times between 2004 and 2015. This was one of the first privacy courses to be offered to computer science or engineering students.

### **USABLE PRIVACY AND SECURITY COURSE**

This course is designed to introduce students to a variety of usability and user interface problems related to privacy and security and to give them experience in designing studies aimed at helping to evaluate usability issues in security and privacy systems. The course is suitable both for students interested in privacy and security who would like to learn more about usability, as well as for students interested in usability who would like to learn more about security and privacy. Much of the course is taught in a graduate seminar style in which all students are expected to do a weekly reading assignment and each week different students prepare a presentation for the class. Students also work on a group project throughout the semester. The course is open to all graduate students and advanced undergraduate students who have technical backgrounds.

I developed this course with two colleagues, Michael Reiter and Jason Hong, in 2006 and have taught it seven times between 2006 and 2015. This is one of the first usable privacy and security courses to be offered anywhere. We have made our syllabus and curriculum materials available online to be used as a model for other courses.

### **COMPUTERS AND SOCIETY COURSE**

In this course students discuss the social impacts of computing technology. The course provides a brief introduction to ethics and to the history of computing and the Internet. It focuses on a number of areas in which computers and information technology are having an impact on society including privacy, freedom of speech, intellectual property, work, distribution of wealth, and the environment. Current issues that are discussed include electronic voting, spyware, spam, and intellectual property issues associated with digital content distribution. This course is intended for freshmen and sophomore students from across the university. The course has been renamed Ethics and Policy Issues in Computing.

I developed this course in 2005 and taught in three times between 2005 and 2007.

## STUDENT ADVISING

### COMPLETED PHD STUDENTS

Rebecca Balebako, December 2014, PhD in Engineering & Public Policy

- Thesis title: Identifying and Communicating the Risks of Smartphone Data Sharing
- Current employer: RAND

Cristian Bravo-Lillo, May 2014, PhD in Engineering & Public Policy

- Thesis title: Improving Computer Security Dialogs: An Exploration of Attention and Habituation
- Current employer: RSEduca

Serge Egelman, May 2009, PhD in Computation Organizations, and Society

- Thesis title: Trust Me: Design Patterns for Constructing Trustworthy Trust Indicators
- Current employer: University of California, Berkeley

Patrick Kelley, May 2013, PhD in Computation Organizations, and Society

- Thesis title: Designing Privacy Notices: Supporting User Understanding and Control
- Current employer: University of New Mexico

Saranga Komanduri, May 2016, PhD in Societal Computing

- Thesis title: Modeling the adversary to evaluate password strength with limited samples
- Current employer: Civis Analytics

Ponnurangam Kumaraguru, May 2009, PhD in Computation Organizations, and Society

- Thesis title: PhishGuru: A System for Educating Users about Semantic Attacks
- Current employer: Indraprastha Institute of Information Technology (IIIT), Delhi

Pedro Giovanni Leon, December 2014, PhD in Engineering & Public Policy

- Thesis title: Privacy Notice and Choice in Practice
- Current employer: Central Bank of Mexico

Aleecia McDonald, September 2010, PhD in Engineering & Public Policy

- Thesis title: Footprints Near the Surf: Individual Privacy Decisions in Online Contexts
- Current employer: Self

Rob Reeder, July 2008, PhD in Computer Science

- Thesis title: Expandable Grids: A user interface visualization technique and a policy semantics to support fast, accurate security and privacy policy authoring
- Current employer: Google

Richard Shay, May 2015, PhD in Computation Organizations, and Society

- Thesis title: Creating Usable Policies for Stronger Passwords with MTurk
- Current employer: MIT Lincoln Labs

Steve Sheng, September 2009, PhD in Engineering & Public Policy

- Thesis title: Phishing Countermeasures: A Policy Analysis
- Current employer: ICANN

Manya Sleeper, August 2016, PhD in Societal Computing

- Thesis title: Everyday Online Sharing
- Current employer: Google

Janice Tsai, August 2009, PhD in Engineering & Public Policy

- Thesis title: The Impact of Salient Privacy Information on Decision-Making
- Current employer: Microsoft Research

Blase Ur, September 2016, PhD in Societal Computing

- Thesis title: Supporting Password-Security Decisions with Data
- Current employer: University of Chicago

Kami Vaniea, September 2012, PhD in Computer Science

- Thesis title: Proximity Information Displays for Access Control
- Current employer: University of Edinburgh

## **CURRENT PHD STUDENTS**

- Abigail Marsh, Societal Computing, entered 2013
- Josh Tan, Societal Computing, entered 2014
- Pardis Emami Naeini, Societal Computing, entered 2015
- Jessica Colnago, Societal Computing, entered 2016
- Hana Habib, Societal Computing, entered 2016
- Margaret Oates, Societal Computing, entered 2017

## **M.S. THESES**

- Fumiko Noma, Password Creation Strategy, MSIT-IS 2014
- Kai Wang (Jimmy Wong), Cross-Platform User Privacy Control, MSIS 2011
- Hanan Hibshi, Usability of Digital Forensics Tools, MSISTM 2011
- Ryan Mahon, PANAMA: Privacy Assured Name-Addressable Messaging Architecture For Unlinkable Instant Message Conversations, MSISTM 2005
- Pei-Chao Weng, Issues of EPAL to P3P Conversion, MSIN 2004
- Kenneth Chu, Issues of EPAL to P3P Conversion, MSIN 2005

## **M.S. OR PH.D. THESIS COMMITTEE SERVICE**

- Hanan Hibshi, COS PhD, 2017 (expected)
- Jim Graves, EPP PhD, 2016 (expected)
- Juan Roldan, The Transparency Rule in the Broadband Access Market: Is it effective? EPP PhD, 2016 (expected)
- Frankie Catota, EPP PhD, 2016
- Casey Canfield, Using Vigilance to Quantify Human Behavior for Phishing Risk, EPP PhD, 2016
- Ruogu Kang, Incognito Online: Why and How People Hide their Digital Traces, HCII PhD, 2015
- Eiji Hayashi, Uni-Auth: Building a Human-Centered Identity Management System, HCII PhD, 2015
- Michelle Mazurek, A Tag-Based, Logical Access-Control Framework for Personal Data Sharing, ECE PhD 2014
- Shah Amani, Supporting Mobile Application Inspection through Automated Traversal and Intelligent Heuristics, ECE PhD 2014
- Andrew Besmer, Configuration of Application Permissions by Contextually Utilizing Information Flow, PhD in Computing and Information Systems, University of North Carolina at Charlotte, 2013
- Maritza Johnson, Toward Usable Access Control for End-users: A Case Study of Facebook Privacy Settings, PhD in Computer Science, Columbia University, 2012
- Kursat Ozenc, Modes of Transitions: Developing Interactive Products & Service Systems For Harmony and Wellbeing, Design PhD 2011
- Alexandre Mateus, Copyright Violation on the Internet: Extent and Approaches to Detection and Deterrence, EPP PhD 2011
- Varun Dutt, Why do we prefer to delay actions to reduce our impact on climate change? EPP PhD 2011

- Michael Tschantz, A Semantics of Purpose, CSD PhD 2011
- Karen Tang, Sometimes Less is More": Exploring Privacy-Sensitive Disclosure Abstractions for Location-Aware Social Applications, HCII PhD 2010
- Brandon Salmon, Putting home storage into Perspective, ECE PhD 2009
- Cynthia Kuo, Error Reduction in Computer Security Applications, EPP PhD 2008
- Elaine Newton, Design Strategies and Policy Initiatives for Data and Identity Protection: Balancing competing legitimate individual and societal interests, EPP PhD 2009
- Eric Toan, Towards an Effective Attribute-Based Access Control Model, MSIT 2007
- Patrick Feng, Designing a 'Global' Privacy Standard: Politics and Expertise in Technical Standards-Setting, Science and Technology Studies PhD 2002 Rensselaer Polytechnic Institute



## UNIVERSITY SERVICE

### UNIVERSITY SERVICE AND COMMITTEE WORK

- Member, Faculty Committee on Diversity and Inclusion, 2016-2018
- Member, Committee on Joint Information Systems Undergraduate Program, 2016-2017
- Full Board member, Institutional Review Board, 2014-2015
- Member, Childcare Committee, 2015-2016
- Co-chair Cybersecurity and Privacy Education and Research (CAPER) Working Group, 2014-2015
- Member, Strategic Planning Committee: Focus Area 2 on Research, Creativity, Innovation and Entrepreneurship, 2014-2015
- External reviewer, Institutional Review Board, 2009-2014
- Member, Associate Vice Provost of Sponsored Programs Search Committee, 2013
- ISRI representative to Faculty Senate, 2004-2005

### SCHOOL AND DEPARTMENT SERVICE AND COMMITTEE WORK

- Member, SCS Reappointments and Promotions Committee, 2017
- Member, SCS Council, 2015-2017
- Chair, College of Engineering Center for Faculty Success Family-Friendly Policies Committee, 2015-2017
- Chair, EPP Qualifier Process Committee, 2015, 2017
- Chair, ISR Faculty Hiring Committee, 2014-2015
- Member, EPP Department Head Search Committee, 2013-2014
- Member, CIT-CFA Committee, 2013-2014
- Member, EPP Admissions Committee, 2010-2011, 2013-2015, 2016-2018
- Member, EPP Part B Qualifier Committee, 2011-2012
- Member, EPP Undergraduate Curriculum Review Committee, 2010-2012
- Implemented and administered new EPP online qualifier submission and grading system, 2006-2015
- Chair, ISR committee to explore new undergraduate program options, 2006-2008
- Organizer, ISR Seminar Series, 2004-2009
- Organizer, EPP IT Policy Group, 2005-2006
- Organized December 2006 ISR faculty summit, focused on undergraduate education

### OTHER

- Pittsburgh Science and Technology Academy mentor for high school senior “executive experience” projects, 2013-2016
- Women@INI Faculty Advisor, 2006-2015
- CyLab Social Engineering Committee Chair, 2007-2015
- Pace Setters Committee, 2010-2014
- Co-chair, CyLab Privacy Interest Group, 2006-2007
- Lecturer in CMU CS4HS program for high school teachers, 2009-2010
- Lecturer in Andrews Leap program for high school students, 2013-2016
- Lecturer in CyLab Information Assurance Capacity Building Program (IACBP), 2006-2011
- Lecturer in CMU Osher Lifelong Learning Institute, 2009
- Steinbrenner Environmental Educator (participated in EAC seminars and developed environmental module for Computers and Society course, Spring 2005)