Robert W. Reeder

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EDUCATION

Ph.D., *Carnegie Mellon University Computer Science Department*, July, 2008
Thesis: Expandable Grids: A user interface visualization technique and a policy semantics to support fast, accurate security and privacy policy authoring
M.S., *Stanford University*, Computer Science, March 1999, Specialization in Systems
B.S., *Stanford University*, Computer Science, June 1997, graduated Phi Beta Kappa

RESEARCH AND INDUSTRY EXPERIENCE

Senior Trust User Experience Researcher
Microsoft, Redmond, WA
Usable Security team; part of Microsoft's Trustworthy Computing organization
June, 2008 – present

- In my role as usable security expert at Microsoft, I have led 5 general activities with the goal of creating and sharing knowledge about developing good security- and privacy-related user experiences across the broad range of Microsoft products:
  - **Guidance:** Drove effort to define company-wide usable security design guidance for Microsoft engineers
  - **Education:** Co-developed 4-hour course on designing usable security and privacy user experiences that I teach several times per year to Microsoft engineers
  - **Research:** Conduct research on usable security- and privacy-related topics to inform guidance and product design decisions
  - **Consulting:** Consult with engineering teams as-needed on usable security issues
  - **Community building:** Maintain a distribution list, bring speakers to campus, and publish a newsletter

Ph.D. student
Computer Science Department, Carnegie Mellon University, Pittsburgh, PA
August 2001 – July 2008

- Advisor: Lorrie Faith Cranor, CMU Usable Privacy and Security Lab
- Research focused on improving user interfaces for creating, viewing, and editing security and privacy policies for applications such as file permissions, physical access control, enterprise and website privacy policies, and location disclosure policies
- Designed and built a user interface for setting file permissions policies based on Expandable Grids, a policy visualization technique I invented
- Directed 3 undergraduate summer interns in summer 2007 on three projects:
  - -- Extending my Expandable-Grids-based file-permissions interface
  - -- Conducting a user study involving the Expandable-Grids interface
  - -- Implementing an Expandable-Grids-based interface for authoring policies for Grey, a smartphone-based building access-control system

• Collaborated with other graduate students to design and build an Expandable-Grids-based user interface for presenting website privacy policies (P3P policies) to end users
• Planned, built, and launched Web-based user study to evaluate the Expandable-Grids-based user interface for presenting P3P policies
• Designed and built Salmon, an interface to help reduce human error in setting XP file permissions
• Designed and ran user study to evaluate my file permissions interface against the Windows® XP file permissions interface
• Designed and built software for collecting usability data during laboratory usability studies

Summer research intern
IBM T.J. Watson Research Center, Hawthorne, NY
May 2006 – September 2006
• Worked with an IBM research group on SPARCLE, a Web application and user interface that supports enterprise privacy policy authoring
• Invented and patented Expandable Grids, an interaction technique for visualizing large multidimensional data sets (such as security and privacy policies)
• Conducted a user study of SPARCLE
• Wrote and published a conference paper to INTERACT 2007 on SPARCLE study
• Contributed substantial functional improvements to the SPARCLE code base

Member of Research Staff, User Interface Research group
Xerox Palo Alto Research Center (PARC), Palo Alto, CA
August 1998 – July 2001
• Worked with Stuart Card and Peter Pirolli of PARC's User Interface Research (UIR) group to explore World Wide Web usage patterns and characterize user search behavior. Built two substantial pieces of software (WebLogger and WebEyeMapper) to support this effort
• Designed and developed WebLogger, written in Visual Basic and C, a program which tracks users' actions during Web browsing with Internet Explorer
• Designed and developed WebEyeMapper, written in Visual Basic, for automatically aligning, analyzing, and visualizing eyetracking data collected for Web usability studies
• Linked an application in Allegro Common Lisp to Internet Explorer (IE) through COM and OLE interfaces. Discovered how to drive IE and sink IE events in Lisp, despite sparse documentation on how to do this. Also linked the Lisp application to Microsoft Access
• Added modules to and built demonstrations for a 3D graphics library written in C++

TEACHING EXPERIENCE

Course Development
• At Microsoft, co-developed a 4-hour course and developed a 1-hour course on designing usable security and privacy user experiences that I teach several times per year to Microsoft engineers

Additional teaching assistantships
• Served as Teaching Assistant for Privacy Policy, Law, and Technology in Fall, 2004
• Served as Teaching Assistant for Introduction to Computer Music, Fall, 2003

Guest lectures
• Delivered guest lecture on designing file permissions interfaces to a class on Usable Privacy and Security

PUBLICATIONS

JOURNAL AND MAGAZINE ARTICLES

• Reeder, R.W. and Schechter, S. When the password doesn't work: secondary authentication for websites. *IEEE Security & Privacy* magazine, March 2011.

• Maxion, R.A. and Reeder, R.W. Improving User-Interface Dependability through Mitigation of Human Error. Journal article in *International Journal of Human-Computer Studies*. 63 (1-2):25-50. 2005.

REFEREED CONFERENCE PAPERS

• Reeder, R.W., Bauer, L., Cranor, L.F., Reiter, M.K., and Vaniea, K. More than Skin Deep: Measuring the Effects of the Underlying Model on Access-Control System Usability. Conference paper accepted to *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '11)*. 2011. (CHI 2011 acceptance rate: 26%)

• Lipford, H.R., Watson, J., Whitney, M., Froiland, K., and Reeder, R.W. Visual vs. Compact: A Comparison of Privacy Policy Interfaces. Conference short paper accepted to *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '10)*. 2010.

• Johnson, M.L., Bellovin, S.M., Reeder, R.W., and Schechter, S.E. Laissez-Faire File Sharing. Paper accepted to New Security Paradigms Workshop (NSPW 2009). 2009.

• McDonald, A.M., Reeder, R.W., Kelley, P.G., and Cranor, L.F. A Comparative Study of Online Privacy Policies and Formats. Conference paper accepted to *Privacy Enhancing Technologies Symposium (PETS 2009)*. 2009.

• Schechter, S., and Reeder, R.W. 1 + 1 = You: Measuring the Comprehensibility of Metaphors for Configuring Backup Authentication. Conference paper accepted to *Symposium on Usable Privacy and Security (SOUPS '09)*. 2009.

• Kelley, P.G., Bresee, J., Cranor, L.F., and Reeder, R.W. A "Nutrition Label" for Privacy. Conference paper accepted to *Symposium on Usable Privacy and Security (SOUPS '09)*. 2009.

• Bauer, L., Cranor, L.F., Reeder, R.W., Reiter, M.K., and Vaniea, K. Real Life Challenges in Access-Control Management. Conference paper accepted to *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '09)*. 2009.

• Schechter, S., Egelman, S., and Reeder, R.W. It's Not What You Know, but Who You Know: A Social Approach to Last-Resort Authentication. Conference paper accepted to *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '09)*. 2009.

• Reeder, R.W., Kelley, P.G., McDonald, A.M., and Cranor, L.F. A User Study of the Expandable Grid Applied to P3P Privacy Policy Visualization. Workshop paper accepted to *ACM Workshop on Privacy in the Electronic Society (WPES '08)*. 2008.

• Reeder, R.W., Bauer, L., Cranor, L.F., Reiter, M.K., Bacon, K., How, K., and Strong, H. Expandable Grids for Visualizing and Authoring Computer Security Policies. Conference paper accepted to *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '08)*. 2008. (CHI 2008 acceptance rate: 22%)

• Bauer, L., Cranor, L.F., Reeder, R.W., Reiter, M.K., and Vaniea, K. A User Study of Policy Creation in a Flexible Access-Control System. Conference paper accepted to *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '08)*. 2008. (CHI 2008 acceptance rate: 22%)

• Reeder, R.W., Karat, C.-M., Karat, J., and Brodie, C. Usability Challenges in Security and Privacy Policy-Authoring Interfaces. Conference paper presented at *INTERACT 2007*. Published in Springer *Lecture Notes in Computer Science* (LNCS 4663, Part II, pp. 141-155). 2007. (INTERACT 2007 acceptance rate: 34%)

• Reeder, R.W. and Maxion, R.A. User Interface Defect Detection by Hesitation Analysis. Conference paper presented at *International Conference on Dependable Systems and Networks (DSN'06)* (Philadelphia, PA, USA, June 26-29, 2006). 2006. (DSN 2006 acceptance rate: 18%)

• Reeder, R.W. and Maxion, R.A. User Interface Dependability through Goal-Error Prevention. Conference paper presented at *International Conference on Dependable Systems and Networks (DSN'05)* (Yokohama, Japan, June 28 – July 1, 2005). 2005. (DSN 2005 acceptance rate: 27%)

• Reeder, R.W., Pirolli, P., and Card, S.K. WebEyeMapper and WebLogger: Tools for Analyzing Eye Tracking Data Collected in Web-use Studies. Demonstration and extended abstract presented at *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '01)* (Seattle, WA, USA, March 31 – April 5, 2001). 2001.

• Pirolli, P., Fu, W.-T., Reeder, R., and Card, S.K. A User-Tracing Architecture for Modeling Interaction with the World Wide Web, *Advanced Visual Interfaces*, Trento, Italy, 2002. Available at http://www2.parc.com/istl/groups/uir/pubs/items/UIR-2002-07-Pirolli-AVI-UserTrace.pdf. 2002.

• Card, S.K., Pirolli, P., Van Der Wege, M., Morrison, J.B., Reeder, R.W., Schraedley, P., & Boshart, J. Information Scent as a Driver of Web Behavior Graphs: Results of a Protocol Analysis Method for Web Usability. Conference paper in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '01)* (Seattle, WA, USA, March 31 – April 5, 2001). 2001.

OTHER PUBLICATIONS

• Reeder, R.W. Usable Access Control for All. Panel and extended abstract at Symposium on Access Control Models and Technologies (SACMAT '11). 2011.

• Tam, J., Reeder, R.W., and Schechter, S. I'm Allowing What? Disclosing the authority applications demand of users as a condition of installation. Microsoft Research technical report available at http://research.microsoft.com/apps/pubs/default.aspx?id=131517. 2010.

• Beznosov, K., Inglesant, P., Lobo, J., Reeder, R., and Zurko, M.E. Usability meets access control: challenges and research opportunities. Panel and extended abstract at Symposium on Access Control Models and Technologies (SACMAT '09). 2009.

• Reeder, R.W. and Arshad, F. SOUPS 2005. *Symposium on Usable Privacy and Security* conference report published in *IEEE Security and Privacy*. September, 2005.

• Reeder, R.W., Pirolli, P., and Card, S.K. WebLogger: A Data Collection Tool for Web-use Studies. Xerox PARC technical report UIR-2000-06. Available at http://www2.parc.com/istl/groups/uir/publications/year/index.html#2000. 2000.

ACADEMIC SERVICE

Symposium on Usable Privacy and Security (SOUPS) Program Committee, *2009-2011*

Privacy Enhancing Technologies Symposium (PETS) Program Committee, *2010*

NSF grant proposal review panelist, *2009 and 2010*

PATENTS

Malkin, P.K., and Reeder, R.W. *Method and Apparatus for Visualizing Multidimensional Data Sets Using Expandable Grids with Hierarchically-Labeled Axes.* Patent application submitted August, 2006. Assigned to IBM Corp. Pending.

Card, S.K., Reeder, R.W., and Pirolli, P. *System and Method for Analyzing Eyetracker Data.* Patent application submitted December, 2000. Assigned to Xerox Corp. USP 6601021. Issued July 29, 2003.

SKILLS

- Graduate-level coursework in statistics, machine learning, machine vision, algorithms, databases, networks, operating systems, compilers, programming languages
- Java, Java Swing, Eclipse IDE
- Perl and Perl/Tk
- C/C++ for Windows, UNIX, and Macintosh platforms
- Visual Basic, Win32 API, COM, ActiveX, OLE for Windows 2000/NT/9x
- Matlab and R (an academic statistics package) programming
- Eyetracking techniques in general, experience programming ISCAN eyetracker
- Allegro Common Lisp (ACL), including ACL/OLE package

OTHER HONORS AND ACTIVITIES

- President, Carnegie Mellon Graduate Student Assembly, 2004 calendar year
- Computer Science Department Ombudsperson, summer 2005 – 2007
- Won 2000 Las Vegas International Marathon in a time of 2:17:15 in a field of nearly 3000
- Qualified for 2000 Men's Marathon Olympic Trials in Pittsburgh, PA
- Captain of Stanford Cross Country, 1994-1996
- Captain of Stanford Track & Field, 1997
- Two-time All-American in NCAA Division I Track & Field, 5000m and 10000m
- Winner of 1997 NCAA Postgraduate Scholarship