

# Kent Seamons

Professor  
Director, Internet Security Research Lab  
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## Contact Information

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## Education

Ph.D., Computer Science, University of Illinois at Urbana-Champaign (UIUC), 1996  
Dissertation topic: Parallel I/O  
Advisor: Professor Marianne Winslett  
David J. Kuck Outstanding PhD Thesis Award, 1997  
B.S., Computer Science, Brigham Young University, 1986

## Professional Experience

**Professor**, Computer Science Department, Brigham Young University, Provo, UT, 2018-present.  
**Associate Professor**, Computer Science Department, Brigham Young University, Provo, UT, 2006-2018.  
**Assistant Professor**, Computer Science Department, Brigham Young University, Provo, UT, 2000-2006.  
**Consultant**, Network Associates Laboratories, Greenbelt, MD, 2000, 2002-2003.  
**Research Scientist/Consultant**, Center for Simulation of Advanced Rockets at the University of Illinois at Urbana-Champaign, 1998-2001.  
**Senior/Associate Member of Technical Staff**, IBM Transarc Lab, Pittsburgh, PA, 1995-2000.  
**ARPA Fellow**, Database Research Laboratory, Department of Computer Science, University of Illinois at Urbana-Champaign, 1993-1995.  
**Intern, Numerical Simulation Division (NAS)**, NASA Ames Research Center, in Moffett Field, California, 1993, 1994.

**Research Assistant**, National Center for Supercomputing Applications (NCSA), University of Illinois at Urbana-Champaign, 1990-1993.

**Research Assistant**, USA-CERL, U.S. Army Corps of Engineers, Champaign, Illinois, 1989-1990.

**Member of Technical Staff**, Information Dimensions, Columbus, Ohio. 1986-1995.

**Researcher**, Family History Center, Salt Lake City, Utah, 1985-1986.

## Funding

### Total Funding Awarded as a PI or co-PI: **\$6,320,836**

1. **PI**, Usable Key Management and Forward Secrecy for Secure Email, 2018, National Science Foundation. Co-PI: Daniel Zappala (BYU). Total funding: \$498,215.
2. **PI**, Suitability Analysis of Two-factor Authentication, Key Management, and Secure Protocols, 2018, Sandia National Laboratories. Total funding: \$30,000.
3. **PI**, Mobile Phone Security, 2017, Sandia National Laboratories. Total funding: \$30,000.
4. **PI**, Usability Studies for Key Management, 2017, DHS-SBIR through a subcontract with Evernym. Total funding: \$47,400.
5. **Co-PI**, TrustBase, 2016, Department of Homeland Security, PI: Daniel Zappala (BYU). Total funding: \$527,112.
6. **PI**, Middleware for Certificate-based Authentication, 2015, National Science Foundation. Co-PI: Daniel Zappala (BYU). Total funding: \$496,900.
7. **PI**, Friend of Foe? Detecting and Reporting of TLS Proxies, 2014, Google Faculty Research Award. Co-PI: Daniel Zappala (BYU). Total funding: \$30,952.
8. **PI**, CyberSecurity Initiative (CSI), 2014, sponsored by Google. Total funding: \$2,000.
9. **PI**, CyberSecurity Initiative (CSI), 2012, sponsored by Security Metrics. Total funding: \$3,600.
10. **co-PI**, IUCRC BYU v-CAx Research Site for the Center for e-Design I/UCRC, 2011, National Science Foundation. PI: Greg Jensen (BYU). Total funding: \$356,995.
11. **PI**, Secure Email, 2010, sponsored by Kiwi Labs, LLC. Total funding: \$60,000.
12. **PI**, Automated Trust Negotiation in Open Systems, 2003-2008, sponsored by National Science Foundation. Co-PIs: Ninghui Li (Purdue), John Mitchell (Stanford), Brian Tung (USC/ISI), Will Winsborough (George Mason University), Marianne Winslett (UIUC). BYU funding: \$363,000. Total funding: \$1,750,000.
13. **PI**, Responding to the Unexpected, 2003-2008, sponsored by National Science Foundation through a subcontract with University of California-Irvine. Total amount of BYU subcontract: \$410,000. Joint proposal with researchers from UC Irvine, UC San Diego, UIUC, University of Colorado, University of Maryland, and ImageCat, Inc. PI: Sharad Mehrotra. Total funding: \$12,500,000.
14. **PI**, Trust Negotiation for Dynamic Coalitions, 2001-2004, sponsored by DARPA and administered by the Space and Naval Warfare Systems Center San Diego (SSCSD).

- BYU funding: \$949,666. Total funding: \$1,218,664.
15. **PI**, Negotiating Trust over Open Networks, 2002-2003, sponsored by Zone Labs, Inc., San Francisco, CA. Total funding: \$25,000.
  16. **PI**, Support for the Role-based Trust Management (RT) Language in TrustBuilder, 2002-2003, sponsored by DARPA through a subcontract with Network Associates Laboratories. Total funding: \$39,500.
  17. **PI**, Trust Negotiation Technology, 2000-2001, sponsored by DARPA through the Advanced Technologies for Information Assurance and Survivability (ATIAS) Program. BYU funding: \$68,379. Total funding: \$128,178.
  18. **PI**, Advances in Trust Negotiation, 2000, sponsored by DARPA through a subcontract with NAI Labs, Greenbelt MD. Total funding: \$24,000.
  19. **PI**, Trust Management in Open Systems, 1998-2000, sponsored by DARPA through a subcontract with North Carolina State University with matching funds provided by IBM Transarc Lab. IBM Transarc funding: \$336,855. Total funding: \$536,320.
  20. **PI**, Digital Credentials, 1997, sponsored by DARPA through a subcontract with the Database Research Laboratory at the University of Illinois at Urbana-Champaign. Total funding: \$66,000.
  21. **PI**, Horizon: Test Applications and Digital Library Technologies in Support of Public Access to Earth and Space Science Data, 1997, sponsored by NASA Digital Library Technology Project through a subcontract with the Database Research Laboratory at the University of Illinois at Urbana-Champaign and the National Center for Supercomputing Applications. Total project funding: \$40,000.

## Publications

Google Scholar: ~5000 citations; H-index: 32

## Journals and Magazines

1. M. O'Neill, S. Ruoti, K. Seamons, and D. Zappala. TLS Proxies: How Often and Who Cares? **IEEE Internet Computing**, Vol. 21, No. 3, pages 22-29, May/June 2017.
2. R.C. Jammalamadaka, R. Gamboni, S. Mehrotra, K. Seamons, and N. Venkatasubramanian. A Middleware Approach for Outsourcing Data Securely, **Computers & Security**, Vol. 32, pages 252-266, February 2013. Elsevier.
3. R.C. Jammalamadaka, S. Mehrotra, N. Venkatasubramanian, and K. E. Seamons. DataVault: Secure Mobile Access and Data Sharing. **Network Security** 2011(5): 16-19, May 2011. Elsevier.
4. A. Hess, J. Holt, J. Jacobson, and K.E. Seamons. Content Triggered Trust Negotiation. *ACM Transactions on Information and System Security (TISSEC)*. Vol. 7, No. 3, pages 428-456, August 2004. ACM Press.
5. T. Yu, M. Winslett, and K. E. Seamons. Supporting Structured Credentials and Sensitive Policies through Interoperable Strategies for Automated Trust Negotiation.

- ACM Transactions on Information and System Security (**TISSEC**), Vol. 6, No. 1, pages 1-42, February 2003. ACM Press.
6. M. Winslett, T. Yu, K. E. Seamons, A. Hess, J. Jacobson, R. Jarvis, B. Smith, and L. Yu. Negotiating Trust on the Web. **IEEE Internet Computing**, Vol. 6, No. 6, pages 30-37, November/December 2002.
  7. Dik L. Lee, Huei Chuang, and Kent E. Seamons. Document Ranking and the Vector-Space Model. **IEEE Software**, Vol. 14, No. 2, pages 67-75, March / April 1997.
  8. K. E. Seamons and M. Winslett. Multidimensional Array I/O in Panda 1.0. **The Journal of Supercomputing**, 10(2):191-211, 1996.

## Conferences and Workshops

1. M. O'Neill, S. Heidbrink, J. Whitehead, T. Perdue, L. Dickinson, T. Collett, N. Bonner, K. Seamons, and D. Zappala. The Secure Socket API: TLS as an Operating System Service. 28th USENIX Security Symposium, August 2018. Acceptance Rate: **19%** (100/524).
2. S. Ruoti, J. Andersen, T. Monson, D. Zappala, and K. Seamons. A Comparative Usability Study of Key Management in Secure Email. USENIX Symposium on Usable Privacy and Security (**SOUPS 2018**), August 2018. Acceptance Rate: **21%** (28/132).
3. E. Vaziripour, J. Wu, M. O'Neill, D. Metro, J. Cockrell, T. Moffett, J. Whitehead, N. Bonner, K. Seamons, and D. Zappala. Action Needed! Helping Users Find and Complete the Authentication Ceremony in Signal, USENIX Symposium on Usable Privacy and Security (**SOUPS 2018**), August 2018. Acceptance Rate: **21%** (28/132).
4. J. Reynolds, T. Smith, K. Reese, L. Dickinson, S. Ruoti, and K. Seamons. A Tale of Two Studies: The Best and Worst of YubiKey Usability, 39th IEEE Symposium on Security and Privacy (**S&P 2018**), May 2018. Acceptance Rate: **11%** (63/549).
5. T. Monson, J. Reynolds, T. Smith, S. Ruoti, D. Zappala, and K. Seamons. A Usability Study of Secure Email Deletion, European Workshop on Usable Security (**EuroUSEC 2018**), April 2018.
6. E. Vaziripour, R. Farahbakhsh, M. O'Neill, J. Wu, K. Seamons, and D. Zappala. Private But Not Secure: A Survey Of the Privacy Preferences and Practices of Iranian Users of Telegram, Workshop on Usable Security (**USEC 2018**), February 2018.
7. S. Ruoti, K. Seamons. End-to-End Passwords, New Security Paradigms Workshop (**NSPW 2017**), Santa Cruz, California, October 2017.
8. S. Ruoti, K. Seamons, D. Zappala. Layering Security at Global Control Points to Secure Unmodified Software, IEEE Secure Development Conference (**IEEE SecDev 2017**), Boston, Massachusetts, September 2017. **Best Paper Award**. Full Paper Acceptance Rate: **32%** (11/34).
9. M. O'Neill, S. Heidbrink, S. Ruoti, J. Whitehead, D. Bunker, L. Dickinson, T. Hendershot, J. Reynolds, K. Seamons, D. Zappala. TrustBase: An Architecture to Repair and Strengthen Certificate-Based Authentication, 27th **USENIX Security** Symposium, Vancouver, British, Columbia, August 2017. Acceptance Rate: **16%** (85/522).

10. S. Ruoti, T. Monson, J. Wu, D. Zappala, K. Seamons. Weighing Context and Trade-offs: How Suburban Adults Selected Their Online Security Posture, 13th Annual Symposium on Usable Privacy and Security (**SOUPS 2017**), Santa Clara, California, July 2016. Acceptance Rate: **27%** (26/98).
11. E. Vaziripour, J. Wu, M. O’Neill, R. Clinton, J. Whitehead, S. Heidbrink, K. Seamons, and D. Zappala. Is that you, Alice? A Usability Study of the Authentication Ceremony of Secure Messaging Applications, 13th Annual Symposium on Usable Privacy and Security (**SOUPS 2017**), Santa Clara, California, July 2016. Acceptance Rate: **27%** (26/98).
12. T. Smith, S. Ruoti, K. Seamons. Augmenting Centralized Password Management with Application-Specific Passwords, 3rd Workshop on “Who Are You?! Adventures in Authentication” at the Symposium on Usable Privacy and Security (**WAY 2017**). Santa Clara, California, 2017.
13. M. O’Neill, S. Ruoti, K. Seamons, D. Zappala, TLS Proxies: Friend or Foe?, ACM Internet Measurement Conference (**IMC 2016**), Santa Monica, California, October 2016. Acceptance Rate: **25%** (46/182).
14. S. Ruoti, J. Andersen, T. Hendershot, D. Zappala, and K. Seamons. Private Webmail 2.0: Simple and Easy-to-Use Secure Email, 29th ACM Symposium on User Interface Software and Technology (**UIST 2016**), Tokyo, Japan, October 2016. Acceptance Rate: **20%** (79/384).
15. A. Afanasyev, J. Halderman, K. Seamons, D. Zappala, L. Zhang, Y. Yu, S. Ruoti. Content-based Security for the Web, New Security Paradigms Workshop (**NSPW 2016**), Colorado, September 2016. Acceptance Rate: 46% (11/24).
16. S. Ruoti, M. O’Neill, D. Zappala, K. Seamons. User Attitudes Toward the Inspection of Encrypted Traffic, 12th Annual Symposium on Usable Privacy and Security (**SOUPS 2016**), Denver, Colorado, June 2016. Acceptance Rate: **28%** (22/79).
17. S. Ruoti, J. Andersen, K. Seamons. Strengthening Password-based Authentication, 2nd Workshop on “Who Are You?! Adventures in Authentication” at the Symposium on Usable Privacy and Security (**WAY 2016**). Denver, Colorado, 2016.
18. S. Ruoti, K. Seamons. Standard Metrics and Scenarios for Usable Authentication, 2nd Workshop on “Who Are You?! Adventures in Authentication” at the Symposium on Usable Privacy and Security (**WAY 2016**). Denver, Colorado, 2016.
19. E. Vaziripour, M. O’Neill, J. Wu, S. Heidbrink, K. Seamons, and D. Zappala. Social Authentication for End-to-End Encryption, 2nd Workshop on “Who Are You?! Adventures in Authentication” at the Symposium on Usable Privacy and Security (**WAY 2016**). USENIX, 2016.
20. S. Ruoti, J. Andersen, S. Heidbrink, M. O’Neill, E. Vaziripour, J. Wu, D. Zappala, and K. Seamons. “We’re on the Same Page”: A Usability Study of Secure Email Using Pairs of Novice Users, 34th Annual ACM Conference on Human Factors in Computing Systems (**CHI 2016**), San Jose, CA, May 2016. **Honorable Mention Award** given to 4% of submissions. Acceptance Rate: **23%** (565/2435).
21. K. Seamons. Recommendations for A Graduate Seminar in Usable Security. Workshop

- on Usable Security and Privacy Education, Ottawa, Canada, July 2015.
22. S. Ruoti, B. Roberts, and K. Seamons. Authentication Melee: A Usability Analysis of Seven Web Authentication Systems. In Proceedings of the 24th International World Wide Web Conference (**WWW 2015**), Florence, Italy, May 2015. Acceptance Rate: **14%** (131/929).
  23. S. Ruoti, N. Kim, B. Burgon, T. van der Horst, and K. Seamons. Confused Johnny: When Automatic Encryption Leads to Confusion and Mistakes. In Proceedings of the Ninth Symposium on Usable Privacy and Security (**SOUPS 2013**), Article 5, 12 pages, Newcastle, U.K., July 2013. ACM. Acceptance Rate: **29%** (15/51).
  24. C. Robison, S. Ruoti, T. van der Horst, and K. Seamons. Private Facebook Chat. ASE/IEEE International Conference on Social Computing (**SocialCom 2012**), Amsterdam, The Netherlands, September 2012. Acceptance Rate (full papers): **22%** (44/196).
  25. R. C. Jammalamadaka, R. Gamboni, S. Mehrotra, K E. Seamons, and N. Venkatasubramanian. iDataGuard: An Interoperable Security Middleware for Untrusted Internet Data Storage. Proceedings of the ACM/IFIP/Usenix **Middleware '08** Conference Companion, Leuven, Belgium, 2008.
  26. R. C. Jammalamadaka, R. Gamboni, S. Mehrotra, K E. Seamons, and N. Venkatasubramanian. iDataGuard: Middleware Providing a Secure Network Drive Interface to Untrusted Internet Data Storage. Demo Paper. Proceedings of the 11th International Conference on Extending Database Technology (**EDBT '08**). Nantes, France, 2008.
  27. T. W. van der Horst and K. E. Seamons. pwdArmor: Protecting Conventional Password-based Authentications. 24th Annual Computer Security Applications Conference (**ACSAC 2008**), Anaheim, CA, December 2008. Acceptance Rate: **24%** (42/173).
  28. R. S. Abbott, T. W. van der Horst, and K. E. Seamons. CPG: Closed Pseudonymous Groups. Workshop on Privacy in the Electronic Society (**WPES 2008**), Alexandria, VA, October 2008. Acceptance Rate: 36% (15/42).
  29. D. D. Walker, E. G. Mercer, and K. E. Seamons. Or Best Offer: A Privacy Policy Negotiation Protocol. IEEE International Workshop on Policies for Distributed Systems and Networks (**Policy 2008**), pages 173-180, Palisades, NY, June 2008. Acceptance Rate: **23%** (17/74).
  30. A. Harding, T. W. van der Horst, and K. E. Seamons. Wireless Authentication using Remote Passwords. 1st ACM Conference on Wireless Network Security (**WiSec 2008**), Alexandria, VA, March 2008. Acceptance Rate: **27%** (26/96).
  31. P. L. Hellewell, T. W. van der Horst, and K. E. Seamons. Extensible Pre-Authentication in Kerberos. 23rd Annual Computer Security Applications Conference (**ACSAC 2007**), pp. 201-210, Miami, FL, December 2007. Acceptance Rate: **22%** (42/191).
  32. T. W. van der Horst, and K. E. Seamons. Simple Authentication for the Web. 3rd International Conference on Security and Privacy in Communication Networks (**SecureComm 2007**), Nice, France, September, 2007. Acceptance Rate: **26%**.
  33. R. C. Jammalamadaka, R. Gamboni, S. Mehrotra, K. Seamons, N. Venkatasubramanian. gVault: A Gmail Based Cryptographic Network File System. 21st Annual IFIP

- WG 11.3 Working Conference on Data and Applications Security (**DBSec 2007**), Redondo Beach, CA, July 2007.
34. R. C. Jammalamadaka, T. W. van der Horst, S. Mehrotra, K. E. Seamons, and N. Venkasubramanian. Delegate: A Proxy Based Architecture for Secure Website Access from an Untrusted Machine. 22nd Annual Computer Security Applications Conference (**ACSAC 2006**), Miami, FL, December 2006. **30%** (40/132),
  35. T. Ryutov, L. Zhou, C. Neuman, N. Foukia, T. Leithead, and K. E. Seamons. Adaptive Trust Negotiation and Access Control for Grids. 6th IEEE/ACM International Workshop on Grid Computing, Seattle, WA, November 2005. IEEE Computer Society Press. Acceptance rate: **19%** (32/170).
  36. T. van der Horst and K. E. Seamons. Short Paper: Thor: The Hybrid On-line Repository. First IEEE Conference on Security and Privacy for Emerging Areas in Communication Networks (**SecureComm 2005**), Athens, Greece, September 2005. Acceptance rate: **31%**. (52/164).
  37. T. Ryutov, L. Zhou, C. Neuman, T. Leithead, and K. E. Seamons. Adaptive Trust Negotiation and Access Control. 10th ACM Symposium on Access Control Models and Technologies (**SACMAT 2005**), Scandic Hasselbacken, Stockholm, Sweden, June 2005. ACM Press. Acceptance rate: **21%** (19/90).
  38. T. Leithead, W. Nejdl, D. Olmedilla, K. Seamons, M. Winslett, T. Yu, and C. Zhang. How to Exploit Ontologies in Trust Negotiation. Workshop on Trust, Security, and Reputation on the Semantic Web, part of the Third International Semantic Web Conference, Hiroshima, Japan, November 2004. Acceptance rate (full papers): 41% (7/17).
  39. R. Bradshaw, J. Holt, and K. E. Seamons. Concealing Complex Policies with Hidden Credentials. Eleventh ACM Conference on Computer and Communications Security (**CCS 2004**), pages 146-157, Washington, DC, October 2004. ACM Press. Acceptance rate: **14%** (35/251).
  40. T. van der Horst, T. Sundelin, K. E. Seamons, and C. D. Knutson. Mobile Trust Negotiation: Authentication and Authorization in Dynamic Mobile Networks. Eighth IFIP TC-6 TC-11 Conference on Communications and Multimedia Security, Windermere, The Lake District, UK, edited by D. Chadwick and B. Preneel, pages 97-109, Springer, September 2004. Acceptance rate: 50%. (17/34).
  41. B. Smith, K. E. Seamons, and M. D. Jones. Responding to Policies at Runtime in TrustBuilder. 5th International Workshop on Policies for Distributed Systems and Networks (**Policy 2004**), pages 149-158, Yorktown Heights, New York, June 2004. IEEE Computer Society. Overall acceptance rate: 38% (33/87). Large paper acceptance rate: **25%** (18/71).
  42. R. Gavriloaic, W. Nejdl, D. Olmedilla, K. E. Seamons, and M. Winslett. No Registration Needed: How to Use Declarative Policies and Negotiation to Access Sensitive Resources on the Semantic Web, First European Semantic Web Symposium (**ESWC 2004**), Heraklion, Crete, Greece, May 2004. LNCS 3053, pages 342-356, Springer, 2004, ISBN 3-540-21999-4.
  43. J. Holt, R. Bradshaw, K. E. Seamons, and H. Orman. Hidden Credentials. 2nd ACM

- Workshop on Privacy in the Electronic Society (**WPES 2003**), pages 1-8, Washington, DC, October 2003. ACM Press. Acceptance rate: **30%** (15/50).
44. D. Vawdrey, T. Sundelin, K. E. Seamons, and C. Knutson. Trust Negotiation for Authentication and Authorization in Healthcare Information Systems. 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Cancun, Mexico, September 2003. Acceptance rate: 93%.
  45. A. Hess and K.E. Seamons. An Access Control Model for Dynamic Client-Side Content. 8th ACM Symposium on Access Control Models and Technologies (**SACMAT 2003**), pages 207-216, Como, Italy, June 2-3, 2003. ACM Press. Acceptance rate: 36% (23/63).
  46. K. E. Seamons, M. Winslett, T. Yu, T. Chan, E. Child, M. Halcrow, A. Hess, J. Holt, J. Jacobson, R. Jarvis, B. Smith, T. Sundelin, and L. Yu. Trust Negotiation in Dynamic Coalitions, DARPA Information Survivability Conference and Exposition (DISCEXIII), Volume II, pages 240-245, Washington, DC, April 2003. IEEE Computer Society Press.
  47. K. E. Seamons, T. Chan, E. Child, M. Halcrow, A. Hess, J. Holt, J. Jacobson, R. Jarvis, A. Patty, B. Smith, T. Sundelin, and L. Yu. TrustBuilder: Negotiating Trust in Dynamic Coalitions, DARPA Information Survivability Conference and Exposition (DISCEXIII), Volume II, pages 49-51, Washington, DC, April 2003. IEEE Computer Society Press.
  48. T. Yu, M. Winslett, and K. E. Seamons. Automated Trust Negotiation over the Internet. 6th World Multiconference on Systemics, Cybernetics and Informatics, Orlando, FL, July 14-18, 2002.
  49. K. E. Seamons, M. Winslett, T. Yu, B. Smith, E. Child, J. Jacobsen, H. Mills, and L. Yu. Requirements for Policy Languages for Trust Negotiation. 3rd International Workshop on Policies for Distributed Systems and Networks (**Policy 2002**), pages 68-79, Monterey, CA, June 2002. IEEE Computer Society. Acceptance rate: **25%** (17/67).
  50. K. E. Seamons, M. Winslett, T. Yu, L. Yu, and R. Jarvis. Protecting Privacy during On-line Trust Negotiation. 2nd Workshop on Privacy Enhancing Technologies (**PETS 2002**), San Francisco, CA, April 2002. LNCS 2482, edited by R. Dingledine and P. Syverson, pages 129-143, Springer, 2003. ISBN 3-540-00565-X. Acceptance rate: 35% (17/48).
  51. A. Hess, J. Jacobson, H. Mills, R. Wamsley, K. E. Seamons, and B. Smith. Advanced Client/Server Authentication in TLS. Network and Distributed System Security Symposium (**NDSS 2002**), pages 203-214, San Diego, CA, February 2002. Internet Society. Acceptance rate: **20%** (16/79).
  52. T. Yu, M. Winslett, and K. E. Seamons. Interoperable Strategies in Automated Trust Negotiation. 8th ACM Conference on Computer and Communications Security (**CCS 2001**), pages 146-155, Philadelphia, PA, November 2001. ACM Press. Acceptance rate: **18%** (27/153).
  53. T. Barlow, A. Hess, and K. E. Seamons. Trust Negotiation in Electronic Markets.



- Eighth Research Symposium in Emerging Electronic Markets, Maastricht, Netherlands, September 2001. Acceptance rate: 80%.
54. K. E. Seamons, M. Winslett, and T. Yu. Limiting the Disclosure of Sensitive Access Control Policies during Automated Trust Negotiation. Network and Distributed System Security Symposium (**NDSS 2001**), pages 109-124, San Diego, CA, February 2001. Internet Society. Acceptance rate: **24%** (16/66).
  55. W. H. Winsborough, K. E. Seamons, and V. E. Jones. Automated Trust Negotiation. DARPA Information Survivability Conference and Exposition (DISCEX), Volume I, pages 88-102, Hilton Head, SC, January 2000. IEEE Press.
  56. W. H. Winsborough, K. E. Seamons, and V. E. Jones. Negotiating Disclosure of Sensitive Credentials. Second Conference on Security in Communication Networks '99, Amalfi, Italy, September 1999.
  57. Y. Cho, M. Winslett, M. Subramaniam, Y. Chen, S. Kuo, and K. E. Seamons, Exploiting Local Data in Parallel Array I/O on a Practical Network of Workstations, Fifth Workshop on Input/Output in Parallel and Distributed Systems (**IOPADS 1997**), pages 1-13, San Jose, CA, November 17, 1997. ACM Press. Acceptance rate: **38%** (10/26).
  58. S. Kuo, M. Winslett, Y. Chen, Y. Cho, M. Subramaniam, and K. E. Seamons. Parallel Input/Output with Heterogeneous Disks. 9th International Conference on Scientific and Statistical Database Management (**SSDBM 1997**), pages 79-90, Olympia, WA, August 1997. IEEE Computer Society. Acceptance rate: **38%** (17/45).
  59. K. E. Seamons, W. Winsborough, and M. Winslett. Internet Credential Acceptance Policies. 2nd International Workshop on Logic Programming Tools for Internet Applications, Leuven, Belgium, July 12, 1997.
  60. S. Kuo, M. Winslett, K. E. Seamons, Y. Chen, Y. Cho, and M. Subramaniam. Application Experience with Panda. Eighth SIAM Conference on Parallel Processing for Scientific Computing, Minneapolis, MN, March 14-17, 1997. Available on CD-ROM, ISBN 0-89871-395-1.
  61. Y. Chen, M. Winslett, S. Kuo, Y. Cho, M. Subramaniam, and K. E. Seamons. Performance Modeling for the Panda Array I/O Library. **Supercomputing '96**, Pittsburgh, PA, November 1996. Published on CD-ROM by ACM and IEEE (ISBN 0-89791-854-1). Acceptance rate: **31%** (54/174).
  62. M. Winslett, K. E. Seamons, Y. Chen, Y. Cho, S. Kuo, and M. Subramaniam. The Panda Library for Parallel I/O of Large Multidimensional Arrays. Scalable Parallel Libraries Conference III (SPLC96), Mississippi State University, October 24-25, 1996.
  63. K. E. Seamons, Y. Chen, M. Winslett, S. Kuo, Y. Cho, and M. Subramaniam. Persistent Array Access Using Server-Directed I/O. 8th International Conference on Scientific and Statistical Database Management, pages 98-107, Stockholm, Sweden, June 1996. IEEE Computer Society. Acceptance rate: **35%** (18/52).
  64. Y. Chen, M. Winslett, K. E. Seamons, S. Kuo, Y. Cho, and M. Subramaniam. Scalable Message Passing in Panda. Fourth Workshop on Input/Output in Parallel and Distributed Systems (**IOPADS 1996**), pages 109-121, Philadelphia, PA, May 27, 1996.

ACM Press.

65. K. E. Seamons, Y. Chen, P. Jones, J. Jozwiak and M. Winslett. Server-Directed Collective I/O in Panda. **Supercomputing '95**, San Diego, CA, December 1995. Published on CD-ROM by ACM and IEEE (ISBN No. 0-89791-854-1, ACM Order Number: 415962, IEEE Computer Society Press Order Number: RS00126). Acceptance rate: **29%** (69/241).
66. K. E. Seamons, Y. Chen, M. Winslett, Y. Cho, S. Kuo, P. Jones, J. Jozwiak, and M. Subramaniam. Fast and Easy I/O for Arrays in Large-Scale Applications. Seventh IEEE Symposium on Parallel and Distributed Computing, Workshop on Modeling and Specification of I/O, San Antonio, TX, October 25-28, 1995.
67. K. E. Seamons and M. Winslett. A Data Management Approach for Handling Large Compressed Arrays in High Performance Computing. Fifth Symposium on the Frontiers of Massively Parallel Computation (**Frontiers 1995**), pages 119-128, McLean, VA, February 1995. IEEE Computer Society Press. Acceptance rate: 42% (56/134).
68. K. E. Seamons and M. Winslett. An Efficient Abstract Interface for Multidimensional Array I/O. **Supercomputing '94**, pages 650-659, Washington D.C., November, 1994. IEEE Computer Society Press. Acceptance rate: **28%**.
69. K. E. Seamons and M. Winslett, Physical Schemas for Large Multidimensional Arrays in Scientific Computing Applications. 7th International Conference on Scientific and Statistical Database Management (**SSDBM 1994**), pages 218-227, Charlottesville, VA, September 1994. IEEE Computer Society Press. Acceptance rate: 43% (23/54).

## Posters

1. E. Vaziripour, R. Clinton, J. Wu, M. O'Neill, J. Whitehead, S. Heidbrink, K. Seamons, and D. Zappala. Is that you, Alice? A Usability Study of the Authentication Ceremony of Secure Messaging Applications, Poster Session at the 38th IEEE Symposium on Security and Privacy, San Jose, California, May 2017.
2. K. Seamons and D. Zappala. TrustBase, NSF Secure and Trustworthy Cyberspace Principal Investigators Meeting, Arlington, Virginia, January 2017.
3. S. Ruoti, J. Andersen, T. Monson, D. Zappala, K. Seamons. A Comparison of PGP, IBE, and Password-based Secure Email, Poster Session at the Symposium on Usable Privacy and Security (SOUPS 2016). Denver, CO, 2016.
4. S. Ruoti, J. Andersen, S. Heidbrink, M. O'Neill, E. Vaziripour, J. Wu, D. Zappala, K. Seamons. "We're on the Same Page": A Usability Study of Secure Email Using Pairs of Novice Users, Poster Session at the Symposium on Usable Privacy and Security (SOUPS 2016). Denver, CO, 2016.
5. S. Ruoti, B. Roberts, K. Seamons. Authentication Melee: A Usability Analysis of Seven Web Authentication Systems, Poster Session at the Symposium on Usable Privacy and Security (SOUPS 2015). Montreal, Canada, 2015. **Distinguished Poster Award**.
6. M. O'Neill, S. Ruoti, K. Seamons, and D. Zappala. POSTER: TLS Proxies: Friend or Foe? Proceedings of the 2014 ACM SIGSAC Conference on Computer and Communications Security (CCS 2014), pages 1487-1489. Scottsdale, Arizona, USA, October

2014. ACM.

7. T. W. van der Horst, and K. E. Seamons. Poster Paper – Simple Authentication for the Web. 16th International World Wide Web Conference (WWW2007), Banff, Alberta, Canada, May 2007.

## Edited Proceedings and Book Chapters

1. Proceedings of the 8th Symposium on Identity and Trust on the Internet. K. Seamons, N. McBurnett, and T. Polk (editors), ACM, Gaithersburg, MD, April 2009.
2. Proceedings of the 7th Symposium on Identity and Trust on the Internet. K. Seamons, N. McBurnett, and T. Polk (editors), ACM, Gaithersburg, MD, March 2008.
3. W. Polk and K. Seamons. Proceedings of the 6th Annual PKI R&D “Applications-Driven PKI” Workshop, NISTIR 7427, National Institute of Standards, September 2007.
4. W. Polk, N. Hastings, and K. Seamons. Proceedings of the 5th Annual PKI R&D “Making PKI Easy to Use” Workshop, NISTIR 7313, National Institute of Standards, July 2006.
5. A. J. Lee, K. E. Seamons, M. Winslett, and T. Yu. Automated Trust Negotiation in Open Systems. In *Secure Data Management in Decentralized Systems*, edited by Ting Yu and Sushil Jajodia, Springer, December 2006.

## Technical Reports and Preprints

- S. Ruoti, J. Andersen, D. Zappala, K. Seamons. Why Johnny Still, Still Can’t Encrypt: Evaluating the Usability of a Modern PGP Client, arXiv preprint 1510.08555, September 2015.
- Jason E. Holt and Kent E. Seamons. Nym: Practical Pseudonymity for Anonymous Networks. Internet Security Research Lab Technical Report 2006-4, Brigham Young University, June 2006.

## Dissertation

Kent E. Seamons. Panda: Fast Access to Persistent Arrays Using High Level Interfaces and Server Directed Input/Output, Ph.D. Thesis, Department of Computer Science, University of Illinois at Urbana-Champaign, May, 1996. Available as Technical Report UIUCDCS-R-96-1919.

- **ACM Doctoral Dissertation Competition Nominee**, 1996, Department of Computer Science, University of Illinois at Urbana-Champaign.
- **1997 David J. Kuck Outstanding PhD Thesis Award**, Department of Computer Science, University of Illinois at Urbana-Champaign. The award is based on the quality and impact of the work.

## Patents

1. Encrypted Email Based Upon Trusted Overlays, Brigham Young University, U.S. Patent #8,521,821; August 27, 2013. Co-inventor with Timothy van der Horst.
2. Multi-channel User Authentication Apparatus System and Method, Brigham Young University, U.S. Patent #8,151,116; April 3, 2012. Co-inventor with Timothy van der Horst.
3. Automated Trust Negotiation, IBM Corporation, U.S. Patent #7,228,291, June 5, 2007. Co-inventor with William Winsborough.
4. Trust Negotiation in a Client/Server Data Processing Network Using Automatic Incremental Credential Disclosure, IBM Corporation, U.S. Patent #6,349,338, February 19, 2002. Patent applications was filed in over 21 countries due to IBM's assessment of the potential impact. Co-inventor with William Winsborough.

## Presentations

1. A Usability Study of Secure Email Deletion, European Workshop on Usable Security (EuroUSEC 2018), London, England, April 2018.
2. TrustBase: Certificate-based Authentication as an Operating System Service, Invited Talk, Visa Research, Palo Alto, California, October 2017.
3. TrustBase: Certificate-Based Authentication, Invited Talk, Cybersecurity Research Acceleration Workshop, San Francisco, California, October 2017.
4. A Tale of Two Studies: The Best and Worst of YubiKey Usability, Internet Identity Workshop, Mountain View, California, October 2017.
5. Layering Security at Global Control Points to Secure Unmodified Software, IEEE Secure Development Conference (IEEE SecDev 2017), Boston, Massachusetts, September 2017.
6. Usability and Identity Management, Internet Identity Workshop, Mountain View, California, May 2017.
7. TrustBase: An Architecture to Repair and Strengthen Certificate-based Authentication, Invited Talk, Computer Security and Privacy Seminar, University of Utah, December 7, 2016.
8. Usable Security for Passwords and Email, Invited Talk, Federal Laboratory Symposium, March 30, 2016.
9. Usable Secure Webmail for Grassroots Adoption, Invited Talk, CERIAS Security Seminar, Purdue University, March 23, 2016.
10. Security and Usability Research at BYU, Invited Talk, Brigham Young University, College of Physical and Mathematics, College Volunteer Leadership Council, October 9, 2015.
11. Recommendations for a Graduate Seminar in Usable Security, Workshop on Usable Security and Privacy Education, Ottawa, Canada, July 2015.
12. Authentication Melee: A Usability Analysis of Seven Web Authentication Systems.

- 24th International World Wide Web Conference (WWW 2015), Florence, Italy, May 2015.
13. Usable Security: When Transparency Leads to Confusion and Distrust, Security Seminar, Center for Applied Cybersecurity Research, Indiana University, February 6, 2014.
  14. Usable Security for Webmail and Single Sign-on, Invited talk, Symantec CTO Tech Exchange, Culver City, CA, October 17, 2013.
  15. How to Chose a Research Topic, Invited Talk, TITANS (Technical Internships to Advance National Security) University Week, Sandia National Labs, Albuquerque, NM, August 6, 2013.
  16. Usable Security for Cloud Computing, Invited talk, Sandia National Labs, Albuquerque, NM, August 29, 2012.
  17. Cyber Warfare, Invited talk, Air Force ROTC, Brigham Young University, March 30, 2012.
  18. Usable Secure Webmail, Works in Progress, 27th Annual Computer Security Applications Conference, Orlando, FL, December 7, 2011.
  19. 2005 Web Policy Zeitgeist, Invited panelist, The Semantic Web and Policy Workshop, Galway, Ireland, November 7, 2005.
  20. Research Directions in Trust Negotiation, Invited talk, Colloquium Series, Brigham Young University, Provo, UT, January 20, 2005.
  21. Research Directions in Policies for Secure Systems, Invited panelist, Panel on Access Control, Authorization, and Policy, NSF Cyber Trust PI Meeting, Pittsburgh, PA, August 19, 2004.
  22. TrustBuilder: Automated Trust Negotiation in Open Systems, Invited panelist, 3rd Annual PKI R & D Workshop, NIST, Gaithersburg, MD, April 11, 2004.
  23. TrustBuilder: Automated Trust Negotiation in Open Systems, Invited talk, NSF ITR-Rescue Project Community Advisory Board Meeting, University of California (Irvine), February 23, 2004.
  24. TrustBuilder: Automated Trust Negotiation in Open Systems, Invited talk, Center for Education and Research in Information Assurance and Security (CERIAS), Purdue University, February 11, 2004.
  25. Trust Negotiation for Dynamic Coalitions, DARPA Dynamic Coalitions Principal Investigator Meeting, San Antonio, TX, July 25, 2003.
  26. Trust Negotiation for Dynamic Coalitions, DARPA Dynamic Coalitions Principal Investigator Meeting, San Antonio, TX, January 31, 2003.
  27. Trust Negotiation for Dynamic Coalitions, DARPA Dynamic Coalitions Principal Investigator Meeting, Newport, RI, July 8, 2002.
  28. Requirements for Policy Languages for Trust Negotiation. 3rd International Workshop on Policies for Distributed Systems and Networks (POLICY 2002), Monterrey, CA, June 2002.
  29. Advanced Client/Server Authentication in TLS. Network and Distributed System Security Symposium, San Diego, CA, February 2002.

30. Trust Negotiation for Dynamic Coalitions, DARPA Dynamic Coalitions Principal Investigator Meeting, San Diego, CA. January 24, 2002.
31. Trust Negotiation in Electronic Markets. Eighth Research Symposium in Emerging Electronic Markets, Maastricht, Netherlands, September 2001.
32. Trust Negotiation Technology, DARPA Dynamic Coalitions Principal Investigator Meeting, Colorado Springs, CO. July 25, 2001.
33. Limiting the Disclosure of Sensitive Access Control Policies during Automated Trust Negotiation, Network and Distributed Systems Security Symposium, San Diego, CA, February 8-9, 2001.
34. Trust Negotiation Technology, DARPA Dynamic Coalitions Principal Investigator Meeting, St. Petersburg, FL, January 11, 2001.
35. Automated Trust Negotiation, Computer Science Department, Brigham Young University, March, 2000.
36. Automated Trust Negotiation, MCC, Austin, TX, March, 2000.
37. Automated Trust Negotiation: Managing Disclosure of Sensitive Certificates, The Open Group Montreal Conference, Security Program Group, July 21, 1999.
38. Using Attribute Certificates to Establish Trust between Strangers, IBM T J Watson Research Center, July 12, 1999.
39. Trust Management in Open Systems, The Open Group Singapore Conference, Security Program Group, October 30, 1998.
40. Trust Management in Open Systems Using Digital Credentials and Mobile Security Policies, Center for Secure Information Systems, George Mason University, February 27, 1998.
41. Distributed Object Technology Applied to a Federated EOSDIS and the WWW, National Center for Supercomputing Applications, July 29, 1997.
42. Internet Credential Acceptance Policies, 2nd International Workshop on Logic Programming Tools for Internet Applications, Leuven, Belgium, July 12, 1997.
43. An Object-Oriented Approach to Federated EOSDIS Services, NASA Goddard Space Flight Center, April 8, 1997.
44. Distributed Object Technology Applied to a Federated EOSDIS and the WWW, Hughes WWW SIG group meeting, Hughes Applied Information Systems, February 21, 1997.
45. The Panda Library for Parallel I/O of Large Multidimensional Arrays, Scalable Parallel Libraries Conference III (SPLC96) , Mississippi State University, October 24-25, 1996.
46. Persistent Array Access Using Server-Directed I/O, 8th International Conference on Scientific and Statistical Database Management, Stockholm, Sweden, June 1996.
47. Server-Directed Collective I/O in Panda, Supercomputing '95, San Diego, CA, December 1995.
48. Panda: Fast Access to Persistent Arrays Using High Level Interfaces and Server Directed Input/Output, Ph.D. Thesis Defense, Department of Computer Science, University of Illinois at Urbana-Champaign, July 25, 1995.
49. Server-Directed Collective I/O in Panda, Computer Science Department Seminar,

- Brigham Young University, May 16, 1995.
50. Server-Directed Collective I/O in Panda, Batelle Pacific Northwest Laboratories, April 20, 1995.
  51. Server-Directed Collective I/O in Panda, Southwest Research Institute, April 7, 1995.
  52. Server-Directed Collective I/O in Panda, Transarc Corporation, April 10, 1995.
  53. Server-Directed Collective I/O in Panda, IBM T.J. Watson Research Center, April 3, 1995.
  54. A Data Management Approach for Handling Large Compressed Arrays in High Performance Computing, The Fifth Symposium on the Frontiers of Massively Parallel Computation, McLean, VA, February 1995.
  55. Support for Persistent Arrays in Scientific Computing, ARPA Fellows Workshop, McLean, VA, February 6, 1995.
  56. Networks of Workstations Architectures, Tutorial presented to HDF and Panda Project Groups, National Center for Supercomputing Applications, December 1994.
  57. Integrating Compression and Parallel I/O in Panda, Tutorial presented to HDF and Panda Project Groups, National Center for Supercomputing Applications, December 1994.
  58. An Efficient Abstract Interface for Multidimensional Array I/O, Supercomputing '94, Washington D.C., November 1994.
  59. Physical Schemas for Large Multidimensional Arrays in Scientific Computing Applications, 7th International Conference on Scientific and Statistical Database Management, Charlottesville, Virginia, September 1994.
  60. Data Organization for Structured Grids: Database Techniques in Supercomputing, ARPA Fellows Workshop, Portland, Oregon, November 1993.

## Student Mentoring

### Graduated PhD Students

1. Scott Ruoti (Ph.D. 2016), MIT Lincoln Labs
2. Timothy van der Horst (Ph.D. 2010), Symantec

### Graduated MS Students

1. Ken Reese (M.S. 2018), Lucidchart
2. Tyler Monson (M.S. 2017), Clearwater Analytics
3. Travis Hendershot (M.S. 2016), Google
4. Jeff Andersen (M.S. 2016), Google
5. Scott Ruoti (M.S. 2015), MIT Lincoln Labs
6. Yuanzheng Song (M.S. 2014), Inside Sales
7. Ben Burgon (M.S. 2014), Xactware

8. Nathan Kim (M.S. 2013), Microsoft
9. Chris Robison (M.S. 2012), Xactware
10. Pavan Vankamamidi (M.S. 2011), Goldman-Sachs
11. Scott Robertson (M.S. 2010), MIT Lincoln Labs
12. Trevor Florence (M.S. 2009), Google
13. Ryan Segeberg (M.S. 2009), Microsoft
14. Reed Abbott (M.S. 2008), Lockheed Martin
15. Andrew Harding (M.S. 2008), Microsoft
16. Phillip Hellewell (M.S. 2007), AccessData
17. Dan Walker (M.S. 2007), Google
18. Nathan Seeley (M.S. 2006), Cluster Resources
19. Paul Porter (M.S. 2006), Amazon
20. Cameron Morris (M.S. 2006), Novell
21. Michael Edvalson (M.S. 2005), Integrinet Solutions
22. Travis Leithead (M.S. 2005), Microsoft
23. Jim Henshaw (M.S. 2005), Titan Corporation
24. Tim van der Horst (M.S. 2005), Symantec
25. Jason Holt (M.S. 2005), Google
26. Evan Child (M.S. 2004), Qualtrics
27. Thomas Chan (M.S. 2004), Xactware
28. Bryan Smith (M.S. 2004), Microsoft
29. Jared Jacobson (M.S. 2003), DoD
30. Tore Sundelin (M.S. 2003), Microsoft
31. Ryan Jarvis (M.S. 2003), Exxon Mobile
32. Adam Hess (M.S. 2003), DoD

## **Undergraduate Honors Theses**

1. RJ Crandall (2014), Title: False Confidence: WPA2-PSK Encrypted Evil Twin Attacks and the Dangers of Insecure Passphrase Distribution
2. Robert Bradshaw (2004), Title: Concealing Complex Policies with Hidden Credentials

## **Undergraduate Researchers Placed in Top Graduate Programs**

1. Joshua Reynolds (University of Illinois, PhD program)
2. Kin Hou-Lei (University of Illinois, PhD program)
3. Robert Bradshaw (University of Washington, PhD)
4. Ben Simpson (University of Michigan, PhD program), co-advisor with Daniel Zappala
5. Bryan Smith (Rice, PhD program)



6. Michael Clark (MS - University of Utah, PhD - Air Force Institute of Technology)
7. Ryan Wamsley (MS - Purdue)
8. Michael Halcrow (MS - University of Texas-Austin)
9. Sean Beck (MS - Johns Hopkins)
10. Hyrum Mills (MS - Johns Hopkins)

## **Courses Taught**

1. CS 465 - Computer Security (2000-2017)
2. CS 665 - Advanced Computer Security (2000-2017)
3. CS 601R - Seminar: Advanced Topics in Usability Research (2016)
4. CS 601R - Seminar: Security Proof Techniques (2014)
5. CS 601R - Seminar: Security and Usability (2006)
6. CS 601R - Seminar: Advanced Credential Systems (2005, 2012)
7. CS 493R - Cybersecurity Competitions (2016)
8. CS 235 - Data Structures and Algorithms (2010-2015)
9. CS 330 - Concepts of Programming Languages (2007-2009)
10. CS 345 - Operating Systems (2001-2006)

## **University Service**

### **Computer Science Department Committees**

1. Associate Chair 2017-present
2. Undergraduate Committee (Chair) 2016-2018
3. Undergraduate Committee (co-Chair) 2015-2016
4. Undergraduate Committee 2013-2015
5. PhD Recruiting Committee (Chair) 2012-2014
6. Computing Committee 2011-2013
7. Graduate Committee (Chair) 2008-2011
8. Promotion, Tenure, and Leave 2007-2008
9. External Relations Committee 2007-2008
10. Computing Committee 2007-2008
11. Undergraduate Committee 2006-2007
12. PhD Recruiting Committee 2005-2007
13. External Funding Committee 2004-2007
14. Graduate Committee 2004-2006
15. Colloquium Committee (Chair) 2002-2004

16. Colloquium Committee 2001-2002
17. Faculty Recruiting Committee 2001-2003
18. Capital Equipment Committee 2000-2001

## **College Committees**

1. College Curriculum Committee 2016-2017
2. Review Committee for Office of Research and Creative Activities 2014-2015

## **Professional Service**

### **Editorial Board**

1. Associate Editor, ACM Digital Threats: Research and Practice (DTRAP)

### **Program Committee Chair**

1. 14th Symposium on Usable Privacy and Security (SOUPS), Posters Committee Co-Chair, 2018.
2. 13th Symposium on Usable Privacy and Security (SOUPS), Posters Committee Co-Chair, 2017.
3. 8th Symposium on Identity and Trust on the Internet (IDtrust), PC Chair, 2009.
4. 7th Symposium on Identity and Trust on the Internet (IDtrust), PC Chair, 2008.
5. 6th Annual PKI R&D Workshop, PC Chair, NIST, 2007.
6. 5th Annual PKI R&D Workshop, PC Chair, NIST, 2006.

### **Session Chair**

1. Workshop on “Who Are You?! Adventures in Authentication” (WAY 2017) at the Symposium on Usable Privacy and Security (SOUPS), 2017.
2. 24th Annual Computer Security Applications Conference (ACSAC) 2008.
3. IEEE Workshop on Policies for Distributed Systems and Networks (Policy), 2008
4. 23rd Annual Computer Security Applications Conference (ACSAC) 2007
5. 4th Annual PKI R&D Workshop, NIST, 2005.
6. Trust Management Session, Third DARPA Information Survivability Conference and Exposition (DISCEX III), 2003.

### **Program Committee Member**

1. International Conference on Information Systems Security and Privacy (ICISSP), 2015, 2016, 2017, 2018.
2. IEEE Secure Development Conference (SecDev), 2017.

3. Workshop on “Who Are You?! Adventures in Authentication” (WAY 2017) at the Symposium on Usable Privacy and Security (SOUPS), 2017.
4. IEEE International Workshop on Trusted Collaboration (TrustCol), 2006, 2007, 2010, 2011, 2012, 2013, 2014, 2016.
5. Third ASE International Conference on Cyber Security, 2014.
6. ACM Workshop on Digital Identity Management (DIM), 2011, 2013.
7. ASE/IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT), 2009, 2010, 2011, 2012, 2013.
8. ASE/IEEE International Conference on Cyber Security, 2012.
9. IFIP WG 11.11 International Conference on Trust Management (IFIPTM), 2009, 2010, 2011.
10. ACM Workshop on Privacy in the Electronic Society (WPES) 2010.
11. Annual Computer Security Applications Conference (ACSAC), 2007, 2008, 2009.
12. Cybersecurity Applications and Technologies Conference for Homeland Security (CATCH), 2009.
13. 23rd International Information Security Conference (IFIP SEC), 2008.
14. Joint iTrust and PST Conferences on Privacy, Trust Management and Security (IFIPTM), 2008.
15. International Workshop on Trust and Reputation Management in Massively Distributed Computing Systems (TRAM), held in conjunction with IEEE ICDCS, 2007, 2008.
16. First Workshop on Security, Trust and Privacy in Grid Environments (STPG 2008), in conjunction with the 8th IEEE International Symposium on Cluster Computing and the Grid (CCGRID2008), 2008.
17. Workshop on Privacy Enforcement and Accountability With Semantics (PEAS) at the 6th International Semantic Web Conference and the 2nd Asian Semantic Web Conference (ISWC+ASWC’07), 2007.
18. 6th International Semantic Web Conference and the 2nd Asian Semantic Web Conference (ISWC+ASWC’07), 2007.
19. 22nd National Conference on Artificial Intelligence (AAAI-07), special track on Artificial Intelligence and the Web, 2007.
20. First International Workshop on Security Technologies for Next Generation Collaborative Business Applications (SECOBAP’07) in conjunction with the 23rd International Conference on Data Engineering (ICDE’07), 2007.
21. Eighth International Conference on Information and Communications Security (ICICS 06), 2006.
22. 2nd International Semantic Web Policy Workshop (SWPW’06), held in conjunction with the 5th International Semantic Web Conference (ISWC), 2006.
23. IEEE International Workshop on Policies for Distributed Systems and Networks (POLICY), 2004, 2005, 2006,
24. Models of Trust for the Web (MTW06), held in conjunction with the 15th International

- World Wide Web Conference (WWW2006), 2006.
25. Semantic Web and Policy Workshop (SWPW), 2005.
  26. IEEE Symposium on Multi-Agent Security and Survivability (MAS&S), 2004, 2005.
  27. Workshop on Policy Management for the Web, held in conjunction with the 14th International World Wide Web Conference, 2005.
  28. 4th Annual PKI R&D Workshop, NIST, 2005.
  29. Workshop on Trust, Security, and Reputation on the Semantic Web, part of the Third International Semantic Web Conference, 2004.
  30. First Workshop on Databases in Virtual Organizations (DIVO), held in conjunction with the ACM SIGMOD/PODS Conference, 2004.
  31. International Conference on Distributed Computing Systems (ICDCS), 2001, 2003. IEEE Computer Society.
  32. Third DARPA Information Survivability Conference and Exposition (DISCEX III), 2003. IEEE Computer Society.

## Reviewer

1. IEEE Transactions on Information Forensics & Security, 2017
2. NSF Panel ad hoc review, 2017
3. ACM Transactions on Computer-Human Interaction (TOCHI), 2016
4. IEEE Internet Computing, 2010, 2011, 2016
5. ACM CHI, 2006, 2016
6. NSF Panelist, 2004, 2005, 2015, 2016
7. ACM Symposium on User Interface Software and Technology, 2012, 2015
8. ACM Computing Surveys, 2004, 2006, 2007, 2015
9. 7th International Conference on Human-Computer Interactions with Mobile Devices and Services (MobileHCI), 2015
10. EAI Endorsed Transactions on Collaborative Computing, 2015
11. ACM Transactions on Information and System Security, 2004, 2005, 2012, 2013
12. ACM Transactions on the Web, 2006, 2007, 2009, 2010, 2012
13. Security and Communication Networks, Wiley, 2012.
14. IEEE Security and Privacy 2010
15. Pervasive and Mobile Computing, 2010
16. Mathematical and Computer Modeling, 2010
17. IEEE Transactions on Dependable and Secure Computing, 2004, 2005, 2009
18. IEEE Transactions on Mobile Computing, 2008, 2009
19. The International Journal on Very Large Data Bases, 2006
20. US-Israel Binational Science Foundation, 2005
21. IEEE Transactions on Computers, 2004, 2005

22. IEEE Transactions on Software Engineering, 2007
23. Journal of Parallel and Distributed Computing, 2004
24. Mobile Computing and Communications Review (MC2R), 2004
25. Prentice Hall, Fundamentals of Network Security, book proposal, April 2003
26. IEEE Third International Workshop on Policies for Distributed Systems and Networks, 2002
27. ACM Transactions on Database Systems, 1999
28. IEEE Transactions on Computers, 1997
29. The International Journal of Supercomputer Applications and High-Performance Computing, 1997
30. Parallel Computing, 1996
31. IEEE Transactions on Office Information Systems, 1996

## Honors and Awards

1. Best Paper Award, SecDev 2017.
2. Honorable Mention Award, CHI 2016.
3. Distinguished Poster Award, SOUPS 2015.
4. BYU Technology Transfer Award, 2010.
5. Utah Innovations Awards, Finalist, 2010.
6. Young Scholar Award, BYU College of Physical and Mathematical Sciences, 2009
7. First Patent Application Invention Achievement Award, IBM Corporation, March 2000.
8. Teamwork Award, IBM Transarc Lab, August 1999.
9. First Patent Application Invention Achievement Award, IBM Corporation, March 1999.
10. Personal Achievement Award, Transarc Corporation, October 1997.
11. David J. Kuck Outstanding PhD Thesis Award, Department of Computer Science, University of Illinois at Urbana-Champaign, 1997.
12. ACM Doctoral Dissertation Competition Nominee, Department of Computer Science, University of Illinois at Urbana-Champaign, 1996.
13. ARPA Fellowship in High Performance Computing, administered by the Institute for Advanced Computer Studies (UMIACS), University of Maryland, 1993-1995.
14. Trustees Scholar, Brigham Young University, 1980-1986.