Eric N. Eide

University of Utah
School of Computing
50 South Central Campus Drive, Room 3190
Salt Lake City, UT 84112–9205

eeide@cs.utah.edu
https://www.cs.utah.edu/~eeide/
Office: +1 801 585 5512
Home: +1 801 272 2284

Research Interests

Trustworthy systems software; programming languages, compilers, language runtimes, and middleware; computer security and malware analysis; test environments for compilers and systems software; testbed-based environments for repeatable and reproducible research.

Education

Ph.D., Computer Science, University of Utah. Advisor: Prof. Matthew Flatt. Dissertation title: "Software Variability Mechanisms for Improving Run-Time Performance." December 2012.

M.S., Computer Science, University of Utah. Advisor: Prof. Robert R. Kessler. Thesis title: "Valet: An Intelligent UNIX Shell Interface." August 1995.

B.S., Computer Science, University of Utah. Summa cum laude. June 1989.

Professional Experience

Research Associate Professor, School of Computing, University of Utah, July 2019 – present.

Research Assistant Professor, School of Computing, University of Utah, July 2013 – June 2019.

Co-Director of the Flux Research Group, School of Computing, University of Utah, September 2008 – present.

Research Associate, Research Staff Member, Project Engineering Manager, and IT Project Manager, School of Computing, University of Utah, June 1996 – June 2013.

Multimedia Developer and System Administrator, Sysdeco US Inc., Salt Lake City, Utah, May 1995 – May 1996.

Research Assistant, Department of Computer Science, University of Utah, September 1989 – July 1994.

Intern, Hewlett-Packard Company, Corvallis, Oregon, June 1988 – September 1988 and June 1989 – September 1989.

Computer Lab Consultant, Computer Center, University of Utah, July 1985 – December 1992.

Teaching Experience

Instructor, CS 7934, Computer Systems Seminar, School of Computing, University of Utah, 28 semesters. (Fall 2008, Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022.) **Received Dean's letter for teaching excellence, Fall 2010.**

Instructor, CS 4480, Computer Networks, School of Computing, University of Utah, Spring 2022. 115 students enrolled. 3 credit hours.

Instructor, CS 7930, Intro to Computing PhD, School of Computing, University of Utah, Fall 2020. 21 students enrolled. 1 credit hour.

Instructor, CS 4950, Independent Study, School of Computing, University of Utah, 2 semesters. (Spring 2020, Fall 2022.)

Instructor, CS 6950, Independent Study, School of Computing, University of Utah, 6 semesters. (Summer 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2018, Spring 2022.)

Instructor, CP SC 3500/5010, Software Practice, School of Computing, University of Utah, Spring 2005. 68 students enrolled. 4 credit hours.

Instructor, Utah High School Computing Institute, School of Computing, University of Utah, summers of 1994 and 1997–2002.

Coauthor, *Engineering Computing: An Introductory Course in Scientific Programming Using Maple and C* (online courseware for CP SC 100), Department of Computer Science, University of Utah, 1994.

Teaching Assistant, Department of Computer Science, University of Utah, September 1989 – July 1991.

Grants and Contracts

National Science Foundation CISE Research Infrastructure Program. *CloudLab Phase III: Expanding the Frontiers of Cloud Computing Through World-Class Community Infrastructure.* Robert Ricci (PI), Kuang-Ching Wang (co-PI), Aditya Akella (co-PI), Jason Wiese (co-PI), Shivaram Venkataraman (co-PI), Amy Apon (senior personnel), Eric Eide (key personnel), Hongxin Hu (senior personnel), and James Pepin (senior personnel). Award CNS–2027208. October 2020 – September 2024. Award amount: $10,000,000.

PAWR, LLC. *REU Supplement for POWDER: Platform for Open Wireless Data-driven Experimental Research.* Jacobus Van der Merwe (PI), Joseph Breen III (co-PI), Eric Eide (co-PI), Neal Patwari (co-PI), and David Schurig (co-PI). May 2020 – April 2021. Award amount: $72,000.

National Science Foundation CISE Community Research Infrastructure Program. *SaTC-CCRI: Collaborative Research: Sharing Expertise and Artifacts for Reuse through Cybersecurity CommunityHub (SEARCCH).* Eric Eide (PI); collaborative with Terry Benzel (PI) and Jelena Mirkovic (co-PI) at University of Southern California, Laura Tinnel (PI) and David Balenson (co-PI) at SRI International, and Timothy Yardley (PI) at University of Illinois at Urbana-Champaign. Award CNS–1925564. October 2019 – September 2022. Utah award amount: $300,000.

PAWR, LLC. *POWDER: Platform for Open Wireless Data-driven Experimental Research.* Jacobus Van der Merwe (PI), Joseph Breen III (co-PI), Eric Eide (co-PI), Sneha Kasera (co-PI), Chad Korb (co-PI), Neal Patwari (co-PI), Robert Ricci (co-PI), David Schurig (co-PI), Andrew Buffmire (senior personnel), Kevin Dutt (senior personnel), Pete Kruckenberg (senior personnel), and Kirk Webb (senior personnel). April 2018 – March 2023. Award amount: $17,500,000.

National Science Foundation CISE Research Resources Program. *CloudLab Phase II: Community Infrastructure to Expand the Frontiers of Cloud Computing Research.* Robert Ricci (PI), Srinivasa A. Akella (co-PI), Glenn Ricart (co-PI), Kuang-Ching Wang (co-PI), Michael H. Zink (co-PI), Amy Apon (senior personnel), James Bottum (senior personnel), Emmanuel Cecchet (senior

personnel), Eric Eide (senior personnel), Linh Ngo (senior personnel), James Pepin (senior personnel), Jacobus Van der Merwe (senior personnel), and Marcin B. Ziolkowski (senior personnel). Award CNS–1743363. October 2017 – September 2022. Award amount: $9,688,325.

National Science Foundation Computing and Communication Foundations: Core Programs. *SHF: Small: Xsmith, A Configurable Generator of Highly Effective Fuzz Testers.* Eric Eide (PI) and John Regehr (co-PI). Award CCF–1527638. September 2015 – August 2020. Award amount: $499,998.

National Science Foundation CISE Research Infrastructure Program. *CI–EN: Revitalizing Emulab for Modern Networking and Systems Research.* Eric Eide (PI) and Robert Ricci (co-PI). Award CNS–1513121. July 2015 – June 2020. Award amount: $2,199,450.

National Science Foundation CISE Research Resources Program. *CloudLab: Flexible Scientific Infrastructure to Support Fundamental Advances in Cloud Architectures and Applications.* Robert Ricci (PI), Srinivasa A. Akella (co-PI), Brig "Chip" Elliott (co-PI), Kuang-Ching Wang (co-PI), Michael H. Zink (co-PI), Eric Eide (key personnel), Mike Hibler (key personnel), Linh Ngo (key personnel), James Pepin (key personnel), James von Oehsen (key personnel), and David E. Irwin (key personnel). Award CNS–1419199. October 2014 – September 2019. Award amount: $10,999,999.

National Science Foundation Major Research Instrumentation Program. *MRI: Development of Apt, a Testbed Instrument With Adaptable Profiles for Network and Computational Science.* Robert Ricci (PI), Steve Corbató (co-PI), Eric Eide (co-PI), Julio Facelli (co-PI), and Jacobus Van der Merwe (co-PI). Award CNS–1338155. October 2013 – September 2017. Award amount: $3,400,000 including University of Utah cost-share amount.

National Science Foundation Secure and Trustworthy Cyberspace Program. *TWC: Medium: TCloud: A Self-Defending, Self-Evolving and Self-Accounting Trustworthy Cloud Platform.* Award CNS–1314945. Jacobus Van der Merwe (PI), Eric Eide (co-PI), Feifei Li (co-PI), and Robert Ricci (co-PI). September 2013 – August 2018. Award amount: $999,991.

National Science Foundation CISE Computing Research Infrastructure Program. *CI–ADDO–EN: Enhancing Emulab for Virtualization and Clouds.* Award CNS–1059440. Robert Ricci (PI), Eric Eide (co-PI), and Mike Hibler (co-PI). August 2011 – July 2013. Award amount: $1,000,000.

Raytheon BBN Technologies Corp. *Containers for Advanced Adaptive Applications.* John Regehr (PI) and Eric Eide (co-PI). September 2010 – December 2015. Award amount: $1,356,703.

The Johns Hopkins University Applied Physics Laboratory. *Extending and Integrating Emulab Software for the JHU/APL CMAC Program.* Contract 965180. John Regehr (PI) and Eric Eide (co-PI). January 2010 – August 2011. Award amount: $698,685.

Lockheed Martin. *Extending and Integrating Emulab Software for the Lockheed Martin National Cyber Range Project.* Purchase Order TT0719624. John Regehr (PI) and Eric Eide (co-PI). January 2010 – July 2011. Award amount: $460,000.

BAE Systems Information and Electronic Systems Integration, Inc. *Evaluating and Incorporating Emulab Software for the BAE National Cyber Range Project.* Contract 362408. John Regehr (PI) and Eric Eide (co-PI). January 2009 – September 2009. Award amount: $98,503.

The Johns Hopkins University Applied Physics Laboratory. *Evaluating and Incorporating Emulab Software for the JHU/APL National Cyber Range Project.* Contract 950666. John Regehr (PI) and Eric Eide (co-PI). January 2009 – January 2010. Award amount: $106,492.

Lockheed Martin. *Evaluating and Incorporating Emulab Software for the Lockheed Martin National Cyber Range Project.* Purchase Order TT0719624. John Regehr (PI) and Eric Eide (co-PI). January 2009 – September 2009. Award amount: $98,503.

SPARTA, Inc. *Evaluating and Incorporating Emulab Software for the SPARTA National Cyber Range Project.* Subcontract 09–2076. John Regehr (PI) and Eric Eide (co-PI). January 2009 – September 2009. Award amount: $151,957.

National Science Foundation Computing Research Infrastructure Program. *CRI: CRD: Raising the Standard of Scientific Publishing Through an Experiment Archive.* Award CNS–0709430. Mary Hall (PI) and Eric Eide (co-PI). October 2007 – September 2010. Award amount: $49,834. *Originally awarded to Jay Lepreau. Eric Eide became co-PI in January 2009.*

National Science Foundation Networking Technology and Systems Program. *NeTS–FIND: Collaborative Research: Towards Complexity-Oblivious Network Management.* Award CNS–0627086. John Regehr (PI) and Eric Eide (co-PI); collaborative with Paul T. Francis (PI) at Cornell University. September 2006 – August 2010. Utah award amount: $300,000. *Originally awarded to Jay Lepreau. Eric Eide became co-PI in January 2009.*

National Science Foundation Cyber Trust Program. *CT–T: A Laboratory Workbench for Security Research.* Award CNS–0524096. Juliana Freire (PI) and Eric Eide (co-PI). August 2005 – July 2010. Award amount: $1,466,666. *Originally awarded to Jay Lepreau and Juliana Freire. Eric Eide became co-PI in March 2009.*

National Science Foundation Embedded and Hybrid Systems Program. *Collaborative Research: EHS: Components and Aspects for Embedded Middleware.* Award CNS–0410285. Matthew Flatt (PI), Eric Eide (co-PI), and John Regehr (co-PI); collaborative with Raymond Klefstad (PI) at University of California, Irvine. September 2004 – August 2008. Utah award amount: $360,002.

Equipment Grants and Gifts

DriveScale, Inc. *Datacenter equipment for storage management and datacenter disk chassis with 152 disk drives* in support of the CloudLab testbed. October 2019. Value: $42,245.

VIAVI Solutions, Inc. *Various technical equipment* in support of the POWDER testbed. March 2019 – June 2019. Value: $283,014.

CommScope. *Various technical equipment* in support of the POWDER testbed. January 2019 – November 2019. Value: $57,544.

Keysight Technologies. *Various technical equipment* in support of the POWDER testbed. October 2018 – November 2019. Value: $709,734.

National Instruments. *Various technical equipment* in support of the POWDER testbed. May 2017 – August 2019. Value: $802,072.

Dell. *Dell 4320 projector.* March 2016. Value: $1,499.

Refereed Publications

David Balenson, Terry Benzel, Eric Eide, David Emmerich, David Johnson, Jelena Mirkovic, and Laura Tinnel. Toward findable, accessible, interoperable, and reusable cybersecurity artifacts. In *Proceedings of the 15th Workshop on Cyber Security Experimentation and Test (CSET)*, pages 65–70, August 2022.

Richard Li, Min Du, Zheng Wang, Hyunseok Chang, Sarit Mukherjee, and Eric Eide. LongTale: Toward automatic performance anomaly explanation in microservices. In *Proceedings of the 13th ACM/SPEC International Conference on Performance Engineering (ICPE)*, pages 5–16, Beijing, China, April 2022. **Received the ICPE '22 Best Paper–Research Track Award**.

Joe Breen, Andrew Buffmire, Jonathon Duerig, Kevin Dutt, Eric Eide, Anneswa Ghosh, Mike Hibler, David Johnson, Sneha Kumar Kasera, Earl Lewis, Dustin Maas, Caleb Martin, Alex Orange, Neal Patwari, Daniel Reading, Robert Ricci, David Schurig, Leigh B. Stoller, Allison Todd, Jacobus Van der Merwe, Naren Viswanathan, Kirk Webb, and Gary Wong. POWDER: Platform for open wireless data-driven experimental research. *Computer Networks*, 197, October 2021.

Joe Breen, Jonathon Duerig, Eric Eide, Mike Hibler, David Johnson, Sneha Kasera, Dustin Maas, Alex Orange, Neal Patwari, Robert Ricci, David Schurig, Leigh Stoller, Jacobus Van der Merwe, Kirk Webb, and Gary Wong. Demo: Mobile and wireless research on the POWDER platform. In *Proceedings of the 19th International Conference on Mobile Systems, Applications, and Services (MobiSys)*, pages 509–510, June–July 2021.

Pierce Darragh, William Gallard Hatch, and Eric Eide. Clotho: A Racket library for parametric randomness. In Baptiste Saleil and Michael D. Adams, editors, *Proceedings of the 2020 Scheme and Functional Programming Workshop*, University of Michigan Technical Report CSE–TR–001–21, pages 3–13, January 2021.

Richard Li, Min Du, Hyunseok Chang, Sarit Mukherjee, and Eric Eide. Deepstitch: Deep learning for cross-layer stitching in microservices. In *Proceedings of the 6th International Workshop on Container Technologies and Container Clouds (WoC)*, pages 25–30, Delft, The Netherlands, December 2020.

Joe Breen, Andrew Buffmire, Jonathon Duerig, Kevin Dutt, Eric Eide, Mike Hibler, David Johnson, Sneha Kumar Kasera, Earl Lewis, Dustin Maas, Alex Orange, Neal Patwari, Daniel Reading, Robert Ricci, David Schurig, Leigh B. Stoller, Jacobus Van der Merwe, Kirk Webb, and Gary Wong. POWDER: Platform for open wireless data-driven experimental research. In *Proceedings of the 14th International Workshop on Wireless Network Testbeds, Experimental Evaluation and Characterization (WiNTECH)*, pages 17–24, September 2020.

Richard Li, Min Du, David Johnson, Robert Ricci, Jacobus Van der Merwe, and Eric Eide. Fluorescence: Detecting kernel-resident malware in clouds. In *Proceedings of the 22nd International Symposium on Research in Attacks, Intrusions and Defenses (RAID)*, pages 367–382, Beijing, China, September 2019.

Dmitry Duplyakin, Robert Ricci, Aleksander Maricq, Gary Wong, Jonathon Duerig, Eric Eide, Leigh Stoller, Mike Hibler, David Johnson, Kirk Webb, Aditya Akella, Kuangching Wang, Glenn Ricart, Larry Landweber, Chip Elliott, Michael Zink, Emmanuel Cecchet, Snigdhaswin Kar, and Prabudh Mishra. The design and operation of CloudLab. In *Proceedings of the 2019 USENIX Annual Technical Conference (ATC)*, pages 1–14, Renton, WA, July 2019.

Hyunwook Baek, Eric Eide, Robert Ricci, and Jacobus Van der Merwe. I heard it through the firewall: Exploiting cloud management services as an information leakage channel. In *Proceedings of the 2018 ACM Symposium on Cloud Computing (SoCC)*, pages 361–373, Carlsbad, CA, October 2018.

David Johnson, Elijah Grubb, and Eric Eide. Supporting Docker in Emulab-based network testbeds. In *Proceedings of the 11th USENIX Workshop on Cyber Security Experimentation and Test*

(CSET), Baltimore, MD, August 2018.

Anton Burtsev, David Johnson, Josh Kunz, Eric Eide, and Jacobus Van der Merwe. CapNet: Security and least authority in a capability-enabled cloud. In *Proceedings of the 2017 ACM Symposium on Cloud Computing (SoCC)*, pages 128–141, Santa Clara, CA, September 2017.

Prashanth Nayak, Mike Hibler, David Johnson, and Eric Eide. A Wingman for virtual appliances. In Shuvendu Lahiri and Giles Reger, editors, *Runtime Verification: 17th International Conference, RV 2017*, volume 10548 of *Lecture Notes in Computer Science*, pages 390–399. Springer, September 2017.

Junguk Cho, Jonathon Duerig, Eric Eide, Binh Nguyen, Robert Ricci, Aisha Syed, Jacobus Van der Merwe, Kirk Webb, and Gary Wong. Demo: Repeatable mobile networking research with PhantomNet. In *Proceedings of the 22nd Annual International Conference on Mobile Computing and Networking (MobiCom)*, pages 489–490, New York City, NY, October 2016. **Received the MobiCom '16 Best Demo Award**.

Anton Burtsev, David Johnson, Mike Hibler, Eric Eide, and John Regehr. Abstractions for practical virtual machine replay. In *Proceedings of the 12th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE)*, pages 93–106, Atlanta, GA, April 2016.

Richard Li, Dallin Abendroth, Xing Lin, Yuankai Guo, Hyun-wook Baek, Eric Eide, Robert Ricci, and Jacobus Van der Merwe. Potassium: Penetration testing as a service. In *Proceedings of the 6th ACM Symposium on Cloud Computing (SoCC)*, pages 30–42, Kohala Coast, HI, August 2015.

Xing Lin, Mike Hibler, Eric Eide, and Robert Ricci. Using deduplicating storage for efficient disk image deployment. In *Proceedings of the 10th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TRIDENTCOM)*, Vancouver, BC, June 2015.

David Johnson, Mike Hibler, and Eric Eide. Composable multi-level debugging with Stackdb. In *Proceedings of the 10th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments (VEE)*, pages 213–225, Salt Lake City, UT, March 2014.

Alex Groce, Chaoqiang Zhang, Mohammad Amin Alipour, Eric Eide, Yang Chen, and John Regehr. Help, help, I'm being suppressed! The significance of suppressors in software testing. In *Proceedings of the 24th IEEE International Symposium on Software Reliability Engineering (ISSRE)*, pages 390–399, Pasadena, CA, November 2013.

Anton Burtsev, Nikhil Mishrikoti, Eric Eide, and Robert Ricci. Weir: A streaming language for performance analysis. In *Proceedings of the 7th Workshop on Programming Languages and Operating Systems (PLOS)*, Farmington, PA, November 2013.

Aaron Paulos, Partha Pal, Richard Schantz, Brett Benyo, David Johnson, Mike Hibler, and Eric Eide. Isolation of malicious external inputs in a security focused adaptive execution environment. In *Proceedings of the 8th International Conference on Availability, Reliability and Security (ARES)*, pages 82–91, Regensburg, Germany, September 2013.

Yang Chen, Alex Groce, Chaoqiang Zhang, Weng-Keen Wong, Xiaoli Fern, Eric Eide, and John Regehr. Taming compiler fuzzers. In *Proceedings of the 34th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, pages 197–208, Seattle, WA, June 2013.

Partha Pal, Richard Schantz, Aaron Paulos, Brett Benyo, David Johnson, Mike Hibler, and Eric Eide. A3: An environment for self-adaptive diagnosis and immunization of novel attacks. In

Proceedings of the 6th IEEE International Conference on Self-Adaptive and Self-Organizing Systems Workshops (SASOW), pages 15–22, Lyon, France, September 2012.

Alex Groce, Chaoqiang Zhang, Eric Eide, Yang Chen, and John Regehr. Swarm testing. In *Proceedings of the 2012 International Symposium on Software Testing and Analysis (ISSTA)*, pages 78–88, Minneapolis, MN, July 2012.

John Regehr, Yang Chen, Pascal Cuoq, Eric Eide, Chucky Ellison, and Xuejun Yang. Test-case reduction for C compiler bugs. In *Proceedings of the 33rd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, pages 335–346, Beijing, China, June 2012. **Received the ACM SIGPLAN Most Influential PLDI 2012 Paper Award**.

Xuejun Yang, Yang Chen, Eric Eide, and John Regehr. Finding and understanding bugs in C compilers. In *Proceedings of the 32nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, pages 283–294, San Jose, CA, June 2011. **Received the ACM SIGPLAN Most Influential PLDI 2011 Paper Award**.

Cody Cutler, Mike Hibler, Eric Eide, and Robert Ricci. Trusted disk loading in the Emulab network testbed. In *Proceedings of the 3rd Workshop on Cyber Security Experimentation and Test (CSET)*, Washington, DC, August 2010.

Eric Eide and John Regehr. Volatiles are miscompiled, and what to do about it. In *Proceedings of the 8th ACM International Conference on Embedded Software (EMSOFT 2008)*, pages 255–264, Atlanta, GA, October 2008.

Venkat Chakravarthy, John Regehr, and Eric Eide. Edicts: Implementing features with flexible binding times. In *Proceedings of the 7th International Conference on Aspect-Oriented Software Development (AOSD 2008)*, pages 108–119, Brussels, Belgium, March–April 2008.

Nathan Cooprider, Will Archer, Eric Eide, David Gay, and John Regehr. Efficient memory safety for TinyOS. In *Proceedings of the 5th ACM Conference on Embedded Networked Sensor Systems (SenSys 2007)*, pages 205–218, Sydney, Australia, November 2007.

Sean Walton and Eric Eide. Resource management aspects for sensor network software. In *Proceedings of the 4th Workshop on Programming Languages and Operating Systems (PLOS 2007)*, Stevenson, WA, October 2007.

Eric Eide, Leigh Stoller, and Jay Lepreau. An experimentation workbench for replayable networking research. In *Proceedings of the 4th USENIX Symposium on Networked Systems Design and Implementation (NSDI '07)*, pages 215–228, Cambridge, MA, April 2007.

John Regehr, Nathan Cooprider, Will Archer, and Eric Eide. Efficient type and memory safety for tiny embedded systems. In *Proceedings of the 3rd Workshop on Programming Languages and Operating Systems (PLOS 2006)*, San Jose, CA, October 2006.

Eric Eide, Leigh Stoller, Tim Stack, Juliana Freire, and Jay Lepreau. Integrated scientific workflow management for the Emulab network testbed. In *Proceedings of the 2006 USENIX Annual Technical Conference (USENIX '06)*, pages 363–368, Boston, MA, May–June 2006.

Venkat Chakravarthy and Eric Eide. Binding-time flexibility for managing variability. In the 2nd Workshop on Managing Variabilities Consistently in Design and Code (MVCDC 2) at OOPSLA 2005, October 2005. Extended abstract.

Sean Walton and Eric Eide. Feature typing: An early aspects technique. In the Workshop on Early Aspects at OOPSLA 2005, October 2005.

Eric Eide, Tim Stack, John Regehr, and Jay Lepreau. Dynamic CPU management for real-time, middleware-based systems. In *Proceedings of the 10th IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS 2004)*, pages 286–295, Toronto, ON, May 2004.

Tim Stack, Eric Eide, and Jay Lepreau. Bees: A secure, resource-controlled, Java-based execution environment. In *2003 IEEE Conference on Open Architectures and Network Programming Proceedings (OPENARCH 2003)*, pages 97–106, San Francisco, CA, April 2003.

Eric Eide, Alastair Reid, John Regehr, and Jay Lepreau. Static and dynamic structure in design patterns. In *Proceedings of the 24th International Conference on Software Engineering (ICSE 2002)*, pages 208–218, Orlando, FL, May 2002.

Eric Eide, Alastair Reid, Matthew Flatt, and Jay Lepreau. Aspect weaving as component knitting: Separating concerns with Knit. In the Workshop on Advanced Separation of Concerns in Software Engineering at ICSE 2001, May 2001.

Alastair Reid, Matthew Flatt, Leigh Stoller, Jay Lepreau, and Eric Eide. Knit: Component composition for systems software. In *Proceedings of the 4th Symposium on Operating Systems Design and Implementation (OSDI 2000)*, pages 347–360, San Diego, CA, October 2000.

Eric Eide, James L. Simister, Tim Stack, and Jay Lepreau. Flexible IDL compilation for complex communication patterns. *Scientific Programming*, 7(3, 4):275–287, 1999.

Eric Eide, Jay Lepreau, and James L. Simister. Flexible and optimized IDL compilation for distributed applications. In David O'Hallaron, editor, *Languages, Compilers, and Run-Time Systems for Scalable Computers (LCR '98)*, volume 1511 of *Lecture Notes in Computer Science*, pages 288–302. Springer, May 1998.

Eric Eide, Kevin Frei, Bryan Ford, Jay Lepreau, and Gary Lindstrom. Flick: A flexible, optimizing IDL compiler. In *Proceedings of the ACM SIGPLAN '97 Conference on Programming Language Design and Implementation (PLDI)*, pages 44–56, Las Vegas, NV, June 1997.

Joseph L. Zachary, Christopher R. Johnson, Eric N. Eide, and Kenneth W. Parker. An entry-level course in computational engineering and science. In *The Papers of the 26th SIGCSE Technical Symposium on Computer Science Education (SIGCSE '95)*, pages 209–213, Nashville, TN, March 1995.

Non-Refereed Publications

Hyunwook Baek, Eric Eide, Robert Ricci, and Jacobus Van der Merwe. Monitoring the update time of virtual firewalls in the cloud. Technical Report UUCS–18–005, University of Utah, May 2018.

Arijit Banerjee, Junguk Cho, Eric Eide, Jonathon Duerig, Binh Nguyen, Robert Ricci, Jacobus Van der Merwe, Kirk Webb, and Gary Wong. PhantomNet: Research infrastructure for mobile networking, cloud computing and software-defined networking. *ACM GetMobile*, 19(2):28–33, April 2015.

Robert Ricci, Eric Eide, and the CloudLab Team. Introducing CloudLab: Scientific infrastructure for advancing cloud architectures and applications. *;login:*, 39(6):36–38, December 2014.

Eric Eide, Gilles Muller, Wolfgang Schröder-Preikschat, and Olaf Spinczyk. Summary of PLOS 2011: The 6th workshop on programming languages and operating systems. *Operating Systems Review*, 45(3):1–4, December 2011.

Eric Eide. Toward replayable research in networking and systems, May 2010. Position paper for Archive '10, the NSF Workshop on Archiving Experiments to Raise Scientific Standards.

Eric Eide, Gilles Muller, and Olaf Spinczyk. PLOS 2009: 5th workshop on programming languages and operating systems: Workshop overview. *Operating Systems Review*, 43(4):31–34, December 2009.

John Regehr, Nathan Cooprider, Will Archer, and Eric Eide. Memory safety and untrusted extensions for TinyOS. Technical Report UUCS–06–007, University of Utah, June 2006.

Bin Xin, Sean McDirmid, Eric Eide, and Wilson C. Hsieh. A comparison of Jiazzi and AspectJ for feature-wise decomposition. Technical Report UUCS–04–001, University of Utah, March 2004.

Jay Lepreau and Eric Eide. Session summaries from the 17th Symposium on Operating Systems Principles (SOSP '99). *Operating Systems Review*, 34(2):4–41, April 2000.

Software

C-Reduce. C-Reduce inputs a large C or C++ program that has a property of interest (e.g., triggering a compiler bug) and automatically produces a much smaller C/C++ program that has the same property. Yang Chen, Eric Eide, and John Regehr. Most recent release May 2019; most recent published update January 2022. Available via https://embed.cs.utah.edu/creduce/. **Received Google Open Source Peer Bonus recognition for C-Reduce, February 2018.**

Clotho. Clotho provides controllable randomness functions for Racket programs, allowing sequences of random values to be recorded, replayed, and manipulated at a fine grain. Pierce Darragh, Eric Eide, and William Gallard Hatch. Most recent release December 2020. Available via https://www.flux.utah.edu/project/xsmith.

Csmith. Csmith randomly generates C programs that are useful for testing compilers, static analyzers, and other tools. Yang Chen, Eric Eide, John Regehr, and Xuejun Yang. Most recent release June 2017; most recent published update February 2021. Available via https://embed.cs.utah.edu/csmith/.

Emulab. Emulab is testbed-management software that supports networking and systems research; it runs the Utah Emulab testbed site, CloudLab, Apt, PhantomNet, and dozens of other testbed around the world. The Flux Research Group. Most recent release June 2020; most recent published update August 2022. Available via https://www.emulab.net/software.php3.

Potassium. Potassium extends the OpenStack cloud-management software to support "penetration testing as a service," enabling security testing of cloud-hosted systems with minimal disruption to those systems. Dallin Abendroth, Hyun-wook Baek, Eric Eide, Yuankai Guo, Richard Li, Xing Lin, Robert Ricci, and Jacobus Van der Merwe. Most recent update August 2015. Available by request.

Stackdb. Stackdb is a debugging library, based on virtual machine introspection, that allows one to monitor and control a virtual machine and its guest at multiple levels of the software stack (e.g., OS, process, and runtime). Eric Eide, Mike Hibler, and David Johnson. Most recent release December 2014; most recent published update July 2017. Available via https://www.flux.utah.edu/project/a3.

Weir. Weir is a scripting language for implementing systems analyses as pipelines over streaming data. Anton Burtsev, Eric Eide, David Johnson, Nikhil Mishrikoti, and Robert Ricci. Most recent release April 2014. Available via https://www.flux.utah.edu/project/a3.

Wingman. Wingman is a kernel-focused framework, utilizing virtual machine introspection, for detecting and repairing anomalies within virtual appliances. Eric Eide, Mike Hibler, David Johnson, and Prashanth Nayak. Most recent release September 2014. Available via https://www.flux.utah.edu/project/a3.

Xsmith. Xsmith is a library and domain-specific language for creating sophisticated random program generators that are useful for testing compilers, interpreters, and other tools. Pierce Darragh, Eric Eide, and William Gallard Hatch. Most recent release October 2020; most recent published update October 2021. Available via https://www.flux.utah.edu/project/xsmith.

Software prior to 2013 includes *Bees*, *CPU Broker*, *Edicts*, *Flick*, *Jiazzi*, *Knit*, *OSKit*, *randprog*, and *Safe TinyOS*.

Awards and Scholarships

ACM SIGPLAN Most Influential PLDI 2012 Paper Award, 2022.

ICPE '22 Best Paper–Research Track Award, 2022.

ACM SIGPLAN Most Influential PLDI 2011 Paper Award, 2021.

Google Open Source Peer Bonus (for "exceptional contributions to open source" related to C-Reduce), 2018.

MobiCom '16 Best Demo Award, 2016.

Funded Research Honoree, Celebrate U: A Showcase of Extraordinary Faculty Achievements, 2015.

Dean's letter for teaching excellence, 2010.

SOSP Student Scholarship (to attend SOSP conference), 2007.

USENIX Student Grant (to attend NSDI conference), 2007.

Department of Energy Undergraduate Computational Engineering and Science Award, 1996.

College of Engineering Outstanding Teaching Assistant Award, 1991.

University of Utah President's Scholarship, 1985–1989.

Students

Advisor

Guy Watson, University of Utah. Current M.S. student.

Ashton Wiersdorf, University of Utah. Current Ph.D. student.

Pavan Kalyan Tummala, University of Utah. M.S. project title: "Automatic Extraction of Search Terms for Cybersecurity Code Artifacts." May 2022.

William Gallard Hatch, University of Utah. Ph.D. dissertation title: "Implementation, Integration, and Application of Embedded Domain-Specific Languages." December 2021. *Co-advised with Prof. Matthew Flatt.*

Cai "Richard" Li, University of Utah. Ph.D. dissertation title: "Tenant-Oriented Anomaly Detection in Clouds." December 2020.

Shane Brown, University of Utah. M.S. May 2017.

Prashanth Nayak, University of Utah. M.S. thesis title: "Detecting and Mitigating Malware in Virtual Appliances." December 2014.

Supervisory Committee Member

David Hancock, University of Utah. Current Ph.D. student.

Hao "Harry" Jiang, University of Utah. Current Ph.D. student.

Vsevolod Livinskii, University of Utah. Current Ph.D. student.

Jubi Taneja, University of Utah. Current Ph.D. student.

William Shupe, University of Utah. M.S. project title: "Testing Browser Layout via Fuzzing." December 2020.

Anmol Vatsa, University of Utah. M.S. project title: "Multi-Cloud Capability Network." December 2019.

Hyunwook Baek, University of Utah. Ph.D. dissertation title: "Interparty Visibility in a Cloud Computing Platform." December 2018.

Travis Taylor, University of Utah. M.S. December 2018.

Pradeep Kumar Beri, University of Utah. M.S. project title: "A Study on Various Open-Source LTE/EPC Implementations." May 2018.

Marko Dimjašević, University of Utah. Ph.D. dissertation title: "Enhancing Automatic Software Testing for Broader Applicability." May 2018.

Michael Ballantyne, University of Utah. M.S. December 2017.

Xiangqi Li, University of Utah. Ph.D. dissertation title: "Debugging with Domain-Specific Events via Macros." December 2017.

Peter Marheine, University of Utah. M.S. project title: "RKOS: Unikernel Design for Safety and Performance." December 2016.

Matthew Fernandez, University of New South Wales. Ph.D. thesis title: "Formal Verification of a Component Platform." November 2016.

Scott Bauer, University of Utah. M.S. project title: "Fip-see: A Low Latency, High Throughput IPC Mechanism." May 2016.

Shishir Bhargav, University of Utah. M.S. May 2016.

Tomasz Buchert, University of Lorraine. Ph.D. thesis title: "Managing Large-Scale, Distributed Systems Research Experiments with Control-Flows." January 2016.

Jithu Joseph, University of Utah. M.S. thesis title: "CeNet—Capability Enabled Networking: Towards Least-Privileged Networking." December 2015.

Saurav Singh, University of Utah. M.S. December 2015.

Makito Kano, University of Utah. M.S. thesis title: "SeaCat: An SDN End-to-End Containment Architecture." August 2015.

Xuejun Yang, University of Utah. Ph.D. dissertation title: "Random Testing of Open Source C Compilers." May 2015.

Anton Burtsev, University of Utah. Ph.D. dissertation title: "Deterministic Systems Analysis." May 2013.

Chung Hwan Kim, University of Utah. M.S. project title: "Iterative Backtracking via Deterministic Virtual Machine Replay and Virtual Machine Introspection." August 2012.

Kevin Atkinson, University of Utah. Ph.D. dissertation title: "Application Binary Interface Compatibility Through a Customizable Language." December 2011.

Sean Walton, University of Utah. M.Phil. May 2011.

Venkat Chakravarthy, University of Utah. M.S. thesis title: "Adaptive Product Line Design using Aspects and Design Patterns." May 2009.

Johan Ovlinger, Northeastern University. Ph.D. dissertation title: "Combining Aspects and Modules." April 2004.

Mentor

Da Long, University of Utah. Provided advice and guidance related to graduate school during the first 1.5 years of Da's Ph.D. studies. January 2022–December 2022.

Richard "Hunter" Moffat, University of Utah. Supervised NSF Research Experiences for Undergraduates (REU) project and related training. May 2020–August 2020.

Mei Walker, University of Utah. Supervised NSF Research Experiences for Undergraduates (REU) project and related training. May 2020–August 2020.

Ashim Gupta, University of Utah. Provided advice and guidance related to graduate school during the first year of Ashim's Ph.D. studies. August 2019–May 2020.

Indra "Lizzie" Kumar, University of Utah. Provided advice and guidance related to graduate school during the first year of Lizzie's Ph.D. studies. August 2019–May 2020.

Mark Van der Merwe, Academy for Math, Engineering, and Science (a charter high school in Murray, Utah). Supervised internship with the Flux Research Group. July–August 2015.

Talks

"Reflections on Artifact Evaluation." Invited keynote at NDSS 2022 Workshop on Learning from Authoritative Security Experiment Results (LASER), April 2022.

"Discover 'Deep' Programming Language Bugs with Xsmith." Presentation at Racketfest '21 virtual conference, March 2021.

"Experiment Artifact Sharing: Challenges and Solutions." Invited panelist, NDSS 2021 Workshop on Learning from Authoritative Security Experiment Results (LASER), February 2021.

"Finding and Understanding 'Deep' Bugs in Compilers." Guest lecture for CS 3020 (Research Forum) at the University of Utah, September 2020.

"Finding and Understanding 'Deep' Bugs in Compilers." Invited talk at the Department of Computer Science and Technology, Tsinghua University, Beijing, China, September 2019.

"Fluorescence: Detecting Kernel-Resident Malware in Clouds." Paper presentation at RAID '19 conference, September 2019.

"POWDER and Repeatable Wireless Experimentation." Invited keynote at 1st IEEE Workshop on Cyber-Physical Networking (CPN), January 2019.

"Supporting Docker in Emulab-Based Network Testbeds." Paper presentation at CSET '18 workshop, August 2018.

"Opportunities and Challenges in Experimentation and Test." Invited panelist, 11th USENIX Workshop on Cyber Security Experimentation and Test (CSET), August 2018.

Invited panelist for discussion of research integrity and journal publishing, Utah Research Reproducibility conference, University of Utah, June 2018.

"Cybersecurity Challenges and POWDER." Talk at Cybersecurity Experimentation of the Future (CEF) community engagement event, USC Information Sciences Institute, May 2018.

"A Generator of Highly Effective Fuzz Testers." Invited talk at Dagstuhl Seminar 17502 (Testing and Verification of Compilers), Wadern, Germany, December 2017.

"Reproducibility in Computer Science." Talk in "Grand Rounds: Research Reproducibility" lecture series, Eccles Health Sciences Library, University of Utah, November 2017.

"A Wingman for Virtual Appliances." Paper presentation at RV '17 conference, September 2017.

"A DSL for Secure Cloud-Based Collaboration." Invited talk at meeting of IFIP TC2 Working Group 2.16 on Programming Language Design (WGLD), August 2017.

"Finding and Understanding Bugs in C Compilers." Invited talk at the Department of Computer Science and Engineering, New Mexico Institute of Mining and Technology, October 2016.

Invited panelist for discussion of research reproducibility, PHIL 7570 (Research Ethics) at the University of Utah, September 2016.

"Network Testbeds and Repeatable Research." Invited talk at Dagstuhl Seminar 16111 (Rethinking Experimental Methods in Computing), Wadern, Germany, March 2016.

"A Look at Utah's Network Testbeds and Their Support for Repeatable Research." Invited talk at LORIA (Lorraine Laboratory of Research in Computer Science and its Applications), January 2016.

"Random Testing of C Compilers." Guest lecture for CS 5959 (Writing Solid Code) at the University of Utah, November 2015.

Invited guest, KPCW's "Cool Science Radio" program, December 2014.

"Cybersecurity Experimentation of the Future." Invited panelist, 7th Workshop on Cyber Security Experimentation and Test (CSET), August 2014.

"The Emulab Network Testbed." Guest lecture for CS 3020 (Research Forum) at the University of Utah, September 2013.

"Scripting Languages and Emulab." Guest lecture for CS 5959 (Scripting Language Design and Implementation) at the University of Utah, April 2012.

"Adventures in Modular Systems." Invited speaker and panelist for the AOSD 2011 conference Student Forum, March 2011.

"Using Static Analyses to Improve Embedded Software." Invited talk at the Department of Computer Science, Friedrich-Alexander University Erlangen-Nuremberg, December 2007.

Professional Activities

Organizing Committee Member

Co-Organizer, 11th Workshop on Programming Languages and Operating Systems (PLOS), 2021.

Artifact Evaluation Committee Co-Chair, 14th USENIX Symposium on Operating Systems Design and Implementation (OSDI), 2020.

Program Chair, 10th Workshop on Programming Languages and Operating Systems (PLOS), 2019.

Finance Chair, 23rd Annual International Conference on Mobile Computing and Networking (MobiCom), 2017.

Program Co-Chair, 4th International Workshop on Computer and Networking Experimental Research Using Testbeds (CNERT), 2017.

Program Co-Chair, 9th USENIX Workshop on Cyber Security Experimentation and Test (CSET), 2016.

Artifact Evaluation Committee Co-Chair, 36th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), 2015.

Artifact Evaluation Committee Co-Chair, 35th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), 2014.

Steering Committee Member, 7th Workshop on Programming Languages and Operating Systems (PLOS), 2013.

Co-Organizer, 6th Workshop on Programming Languages and Operating Systems (PLOS), 2011.

Workshop Co-Chair, 25th European Conference on Object-Oriented Programming (ECOOP), 2011.

Co-Organizer, NSF Workshop on Archiving Experiments to Raise Scientific Standards, 2010.

Co-Organizer, 5th Workshop on Programming Languages and Operating Systems (PLOS), 2009.

Co-Organizer, 4th Workshop on Programming Languages and Operating Systems (PLOS), 2007.

Program Chair and Co-Organizer, 4th AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2005.

Publicity Chair, 4th International Conference on Aspect-Oriented Software Development (AOSD), 2005.

Workshop and Tutorial Co-Chair, 3rd International Conference on Aspect-Oriented Software Development (AOSD), 2004.

Program Chair and Co-Organizer, 2nd AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2003.

Tutorial Chair, 2nd International Conference on Aspect-Oriented Software Development (AOSD), 2003.

Program Chair and Co-Organizer, 1st AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2002.

Technical Program Committee Member

USENIX Annual Technical Conference (ATC), 2023.

44th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), 2023.

15th Workshop on Cyber Security Experimentation and Test (CSET), 2022.

17th European Conference on Computer Systems (EuroSys), 2022.

14th Workshop on Cyber Security Experimentation and Test (CSET), 2021.

16th European Conference on Computer Systems (EuroSys), 2021.

13th USENIX Workshop on Cyber Security Experimentation and Test (CSET), 2020.

12th USENIX Workshop on Cyber Security Experimentation and Test (CSET), 2019.

USENIX Annual Technical Conference (ATC), 2019.

10th Workshop on Scientific Cloud Computing (ScienceCloud), 2019.

1st IEEE Workshop on Cyber-Physical Networking (CPN), 2019.

11th USENIX Workshop on Cyber Security Experimentation and Test (CSET), 2018.

48th Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN), 2018.

9th Workshop on Scientific Cloud Computing (ScienceCloud), 2018.

9th Workshop on Programming Languages and Operating Systems (PLOS), 2017.

5th Workshop on Learning from Authoritative Security Experiment Results (LASER), 2017.

USENIX Annual Technical Conference (ATC), 2017.

36th IEEE International Conference on Distributed Computing Systems (ICDCS), track on Cloud Computing and Data Center Systems, 2016.

3rd International Workshop on Computer and Networking Experimental Research Using Testbeds (CNERT), 2016.

8th Workshop on Programming Languages and Operating Systems (PLOS), 2015.

2nd International Workshop on Computer and Networking Experimental Research Using Testbeds (CNERT), 2015.

7th Workshop on Cyber Security Experimentation and Test (CSET), 2014.

1st International Workshop on Reproducible Research Methodologies and New Publication Models in Computer Engineering (TRUST), 2014.

1st Conference on Timely Results in Operating Systems (TRIOS), 2013.

32nd IEEE International Conference on Distributed Computing Systems (ICDCS), track on Distributed Operating Systems and Middleware, 2012.

6th Workshop on Programming Languages and Operating Systems (PLOS), 2011.

9th AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2010.

5th Workshop on Programming Languages and Operating Systems (PLOS), 2009.

23rd European Conference on Object-Oriented Programming (ECOOP), 2009.

Hawaii International Conference on System Sciences (HICSS–42), mini-track on Variability Management in Software-Intensive Systems, 2009.

2nd Workshop on Virtual Machines and Intermediate Languages for Emerging Modularization Mechanisms (VMIL), 2008.

1st Workshop on Isolation and Integration in Embedded Systems (IIES), 2008.

7th International Conference on Aspect-Oriented Software Development (AOSD), 2008.

4th Workshop on Programming Languages and Operating Systems (PLOS), 2007.

6th AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2007.

6th International Conference on Aspect-Oriented Software Development (AOSD), 2007.

6th International Workshop on Software Engineering and Middleware (SEM), 2006.

Workshop on Generative Programming and Component Engineering for QoS Provisioning in Distributed Systems (GPCE4QoS), 2006.

3rd Workshop on Programming Languages and Operating Systems (PLOS), 2006.

5th AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2006.

Hawaii International Conference on System Sciences (HICSS–39), mini-track on Adaptive and Evolvable Software Systems, 2006.

4th AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2005.

Hawaii International Conference on System Sciences (HICSS–38), mini-track on Adaptive and Evolvable Software Systems, 2005.

2nd AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2003.

1st AOSD Workshop on Aspects, Components, and Patterns for Infrastructure Software (ACP4IS), 2002.

1st International Conference on Aspect-Oriented Software Development (AOSD), 2002.

Editor

Chair, Artifact Evaluation Board, *Journal of Systems Research*, November 2020–.

Guest editor, *Operating Systems Review*, 49(1), January 2015. Special issue on repeatability and sharing of experimental artifacts.

External Journal Reviewer

ACM Transactions on Computer Systems, 2021.

IEEE Transactions on Software Engineering, 2020, 2021.

ACM Transactions on Software Engineering and Methodology, 2017, 2021.

IEEE Transactions on Dependable and Secure Computing, 2018, 2019.

IEEE Transactions on Parallel and Distributed Systems, 2002, 2017, 2018.

Software: Practice and Experience, 2011, 2012, 2013, 2014.

Automated Software Engineering Journal, 2010.

IEEE Software, 2005, 2010.

Transactions on Aspect-Oriented Software Development, 2005, 2006, 2008.

IET Software, 2007.

Journal of Functional Programming, 2006.

Information and Software Technology, 2005.

ACM Transactions on Programming Languages and Systems, 2004, 2005.

Journal of Parallel and Distributed Computing, 2004.

Evolutionary Computation Journal, 2003.

External Conference/Workshop Reviewer

ACSAC 2021 Workshop on Learning from Authoritative Security Experiment Results (LASER), 2021.

Workshop on Programming Languages and Operating Systems (PLOS), 2021.

ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2017.

ACM SIGPLAN Symposium on Principles of Programming Languages (POPL), 2017.

International Conference on Computer Aided Verification (CAV), 2015.

ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), 2000, 2001, 2010.

ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP), 2010.

International Conference on Embedded Software (EMSOFT), 2009.

USENIX Annual Technical Conference, 2006.

IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2004.

Symposium on Operating Systems Design and Implementation (OSDI), 2002.

University-Level Service

Member of Senate Advisory Committee on Information Technology (SACIT), University of Utah, June 2021–.

Member of Strategic Information Technology Committee (SITC), University of Utah, July 2018–.

Department-Level Service

Member of faculty recruiting committee for computer engineering area, University of Utah School of Computing, 2021–2022.

Member of committee to consider retention and promotion of career-line faculty, University of Utah School of Computing, 2019, 2020, 2021.

Mentor for junior research faculty member, 2021–.

Member of graduate admissions committee for systems area, University of Utah School of Computing, 2010, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021.

Member of faculty mentoring committee, University of Utah School of Computing, 2020–2021.

Member of faculty recruiting committee for cryptography area, University of Utah School of Computing, 2017–2018.

Member of faculty recruiting committee for operating systems and distributed systems area, University of Utah School of Computing, 2013–2014.

Member of web committee, University of Utah School of Computing, 2010–.

Organizer of the "compilers reading group," 2003–2010.

Other Service

Proposal review panelist, NSF CISE Community Research Infrastructure (CCRI) Program, 2022.

Proposal review panelist, NSF Secure and Trustworthy Cyberspace (SaTC) Program, 2015, 2016, 2019, 2022.
Ad hoc reviewer for NSF SaTC Program, 2021.

Member of advisory council for NSF CISE Community Research Infrastructure Virtual Organization (CCRI-VO), 2020–2022.

Member of expert committee regarding systems-area faculty hiring, Norwegian University of Science and Technology (NTNU), 2020.

Proposal review panelist, NSF Computer Systems Research (CSR) Program, 2020.

Member of ACM Special Interest Group Governing Board Replication Taskforce, 2015–2016.

Member of Research Data Alliance (RDA) Repeatability Interest Group, 2014–.

USENIX Campus Representative to the University of Utah, 2012–.

Judge, ACM SIGPLAN Student Research Competition (SRC) at AOSD, 2011.

Proposal review panelist, NSF SBIR/STTR Phase I Program, 2001, 2003, 2004.

Professional Memberships

ACM, ACM SIGOPS, ACM SIGPLAN, ACM SIGSOFT
IEEE
USENIX