

MARGO I. SELTZER

*University of British Columbia
Computer Science
2366 Main Mall
Vancouver, BC V6T 1Z4, Canada
Email: mseltzer@cs.ubc.ca*

Research Interests

My research interests are in systems, construed broadly: systems for capturing and accessing provenance, file systems, databases, transaction processing systems, storage and analysis of graph-structured data, new architectures for parallelizing execution, interpretable machine learning, and systems that apply technology to problems in healthcare.

Education

- 1988 - 1992 Ph.D., Computer Science, University of California at Berkeley.
Dissertation: "File System Performance and Transaction Support." Advisor: Michael Stonebraker. Minors in Computer Theory and Japanese.
- 1979 - 1983 A.B., Applied Mathematics, Computer Science concentration, Magna cum Laude, Harvard/Radcliffe College.

Experience

- 2018 - present Canada 150 Research Chair
David Cheriton Family Chair in Computer Systems
Conducts research in computer systems, construed broadly, including operating systems and file systems, data provenance, transaction systems, graph analytic engines and databases, interpretable machine learning, and program synthesis. Teaches introductory, undergraduate and graduate courses in systems, operating systems and database systems.
- 2017 - present Director, Berkman Center for Internet and Society (Harvard University)
- 2017 - 2018 Professor in Harvard Business Analytics Program
- 2017 - 2018 Visiting Professor, Harvard Business School.
- 2015 - 2018 Faculty Director, Center for Research on Computation and Society
- 2004 - 2018 Herchel Smith Professor of Computer Science, Harvard University,
Conducts research in many areas of computer systems, such as file systems, transaction systems, data provenance, graph analytic engines and databases, and healthcare informatics. Also conducting research in instructional pedagogy and the retention of women in computer science. Teaches undergraduate and graduate courses in operating systems and database systems. Also collaborates with Harvard Business School faculty in teaching courses on Innovating in Health Care, both on campus and as a combination MOOC/SPOC via EdX.
- 2012 - present Advisory Board, Boston University Academy, co-chair 2016-present.
- 2006 - present Architect, Oracle Corporation, Redwood Shores, CA.

One of two architects of the Berkeley DB product line.

- 2002 - 2006 Associate Dean for Computer Science and Engineering, Harvard University,
Responsible for overall administration of Computer Science and Electrical Engineering including curricular planning, Jr. faculty recruiting and mentoring, departmental communication, and Industrial outreach.
- 2005 - 2010 Harvard College Professor, Harvard University,
- 2000 - 2004 Gordon McKay Professor of Computer Science, Harvard University,
- 1997 - 2000 Associate Professor of Computer Science, Harvard University,
- 1992 - 1997 Assistant Professor of Computer Science, Harvard University, Cambridge, MA.
Responsible for teaching introductory computer science and graduate and undergraduate database and operating systems. Conducting research in file systems, performance analysis, new operating system architectures, web application architectures and database systems.
- 1996 - 2006 Chief Technical Officer, Sleepycat Software, Lincoln, MA.
Responsible for system architecture of a fully recoverable transactional database storage system. Personally responsible for hash access method, and the locking, transaction and recovery systems.
- 1988 - 1992 Research Assistant, University of California, Berkeley, CA.
Investigated file system allocation strategies, performance, and transaction support. Using both simulation and implementation, evaluated the performance of read-optimized and write-optimized file systems across a variety of workloads representing transaction processing applications, supercomputer applications and time sharing environments. Designed, implemented, and evaluated a new log-structured file system for distribution with 4.4BSD.
- 1988 - 1992 Manager of Software Development, Quantum Consulting, Berkeley, CA.
Managed a team of programmers responsible for the design, implementation and support of Microsoft Windows'-based graphical user interfaces for economic models.
- 1986 - 1987 Senior Engineer, Kendall Square Research Corp., Cambridge, MA.
Responsible for VLSI logic design and simulation of full custom proprietary RISC CPU. Participated in design of instruction set architecture and interchip communication protocols. Also responsible for tape out of Kendall Square's first chip including DRC, ERC, layout versus schematic verification and MEBES generation. Designed and managed the implementation of automated CAD environment.
- 1985 - 1986 Senior Programmer, Stratus Computer Corp., Marlboro, MA.
Member of the file system and transaction processing group. Designed and implemented new queuing mechanisms to provide increased concurrency in the operating system. Implemented performance enhancements to the transaction processing subsystem and performance metering facilities in the file system.
- 1983 - 1985 Senior Engineer, Sequoia Systems, Inc., Marlboro, MA.
Member of the data management group. Responsible for design and implementation of Sequoia's indexed file system with transaction support. Participated in system design as well as design of buffer management support in the operating system. Ported the INGRES relational database system to the Sequoia Hardware.

PhD Students Graduated

- Christopher Small 1998
- Ellie Baker 1999
- Yasuhiro Endo 2000
- Keith Smith 2001
- Xiaolan Catherine Zhang 2002
- Kostas Maoutis 2003
- David Sullivan 2003
- Dan Ellard 2004
- Robert Fischer 2004
- Griffin Weber 2005
- Alexandra (Sasha) Fedorova 2006
- Christopher Alexander Stein 2007
- Jonathan Ledlie 2007
- Jeffrey Shneidman 2008
- Kiran-Kumar Muniswamy-Reddy 2010
- Chaki Ng 2011
- Jason Waterman 2012
- Uri Braun 2014
- Elaine Angelino 2014
- Peter Macko 2015
- Daniel Margo 2017

Awards

- CRA-E Undergraduate Research Mentoring Award, 2017
- Statistical Learning and Data Mining Student Paper Competition, American Statistical Association, 2016 (Hongyu Yang).
- ACM Fellow, 2011.

- Capers and Marion McDonald Award for Excellence in Mentoring and Advising, 2010.
- Best Paper, 2002 USENIX Technical Conference.
- Nominated to the National Academy of Engineering's Celebration of Women in Engineering, 1999.
- IBM Faculty Award, 2002, 2004, 2005
- Roslyn Abramson Teaching Award, 1999.
- Best Student Paper, 1999 USENIX NT Symposium.
- Phi Beta Kappa Prize for Excellence in Teaching, 1996.
- Radcliffe Junior Faculty Fellowship, 1996 - 1997.
- Best Student Paper, 1996 USENIX Technical Conference.
- Award Paper, 1995 Symposium on Operating Systems.
- Best Student Paper, 1995 USENIX Technical Conference.
- Sloan Foundation Fellowship in Computer Science, 1994 - 1996.
- NSF Career Award, 1994-1996.
- 1993 USENIX Lifetime Achievement Award (Contributor).
- Best Presentation, 1993 Winter USENIX Conference.
- Best Student Paper, 1991 Winter USENIX Conference.
- Best Student Paper, 1990 Winter USENIX Conference.
- University of California Microelectronics Scholarship, 1988.
- Elizabeth Cary Agassiz Scholarship (for grade point average).
- John Harvard Scholarship (for grade point average).

University Service

- Computer Science Faculty Diversity Committee (2017-2018)
- Computer Science Diversity Committee (2016-2018)
- Computer Science Awards Committee (2016-2018)
- FAS EPC Committee on Quantitative Reasoning Requirement (2016-2018)
- FAS EPC Committee on Undergraduate Honors (2015-2016)
- Advisor to Women in Computer Science (WiCS) (2012-2018)

- HarvardX Research Committee (2013-2018)
- Co-Chair for President's Innovation Challenge (2014-2016)
- SEAS Resource Advisory Committee (2013-2016)
- IACS Advisory/Program Committee (2011-2018)
- SEAS Entrepreneurship Committee (2013-2015)
- SEAS Graduate Admissions Diversity Committee (2012-2016; chair 2014-2016)
- President's Challenge Judge Co-Chair (2014-2015)
- FAS Committee on the Status of Women (2000-2014)
- Student Information Systems Advisory Committee (2012-2013)
- Computer Science Curriculum Sub Committee (chair 2009-2010)
- Speaker for the Women's Leadership Project (3/2009)
- FAS IT Committee (2009-2010)
- PRISE Guest Lecturer (2008)
- Faculty Chair for Reaccreditation (2008-2009)
- SEAS Committee on Higher Degrees (2007-2012, chair 2010-2011)
- FAS Committee on Pedagogical Improvement (2007-2010, chair 2008-2009)
- FAS Committee on Writing and Speaking (2007-2008)
- FAS Committee on Activity-Based Learning (Chair: 2007-2008)
- FAS Educational Policy Committee (2003-2006, 2007-2009)
- Provost's Committee on Technology Transfer (2003-2006)
- Provost's Committee on Science (2002-2003)
- Provost's Committee on the Life Sciences (2002-2003)
- Provost's Committee on Computational Biology (2002-2003)
- Faculty Advisor to the Student Entrepreneurship Counsel (2003-2006)
- Committee on Higher Degrees in the Joint Information Technology PhD Program (2002-2006)
- DEAS Dean's Advisory Group (2002-2008).
- FAS Standing Committee on the Library (2000 - 2001).

- Board of Freshman Advisors (2000-2001, 2002-2003, 2006-2018).
- Reunion Speaker for the 55th Reunion Class, 1999.
- Faculty Council (1998-1999).
- Committee on Undergraduate Education (1998-1999).
- Harvard Hoopes Selection Committee (1993, 1995, 1996).
- Herchel Smith Harvard Scholarship Selection Committee (1996).
- GSAS Alumni Day Presentation (1993, 1996).
- DEAS Building Committee (1996).
- DEAS Committee on Teaching Practices (1995 - 1996).
- DEAS Admissions Committee 1994-1996, 1998-2001.
- DEAS Graduate Orientation 1997-1999.
- University Committee on Rights and Responsibilities (1995 - 2001).
- FAS Standing Committee on Information Technology (1993 - 2002).
- Faculty advisor for the Harvard University Band (1994-2018).
- Faculty advisor to the Harvard chapter of the Society of Women Engineers.
- Frequent participant in development office panels on the role of information technology in undergraduate education.
- Radcliffe Science Alliance Program (1993, 1994). Freshman week panel on Women in Science (1996-1998).
- Coordinated gatherings for undergraduate Computer Science Concentrators.
- Women in Science at Harvard/Radcliffe speaker.
- Panelist on the Academic Panel for the Women's Leadership Conference (1999, 2000, 2002).
- Panelist for orientation of the Radcliffe Bunting Institute (2000).

Invited Talks

- Distinguished Lecture on Systems Research, Construed Broadly, University of Washington (2018).
- Distinguished Lecture on Automatically Scalable Computation, Johns Hopkins (2018),
- An NVM Carol, University of California, Santa Cruz (2018), Keynote ICDE (2018), UBC Computer Science 50th Anniversary Celebration (2018).

- Flipped on Teaching: Harvard Club of Rochester Annual Meeting (2018).
- Automatically Scalable Computation, DE Shaw (2018), Systor Keynote (2018), CodeMesh London Keynote (2017), 2Sigma (2016), International Conference on SuperComputing (ICS-2015), VMware (2015), RICON East Keynote (2013).
- Data Provenance: From Theory to Practice, IEEE Computer Society, Cambridge (2-17)
- Berkeley DB: The Good, The Bad and the Ugly. Workshop on Failed Aspirations in Database Systems (FADS) (2017)
- Provenance in Digital Collections, Library of Congress (2012).
- Provenance Everywhere. Distinguished Lecturer, Brown University (2011), University of Massachusetts, Amherst (2011), Simon Fraser University (2011), Distinguished Lecturer University of Chicago (2010), Grace Murray Hopper Speaker, University of Pennsylvania (2010).
- Provenance Everywhere, MIT (2011).
- A Day without Provenance is a like a day without Sunshine (HPTS, 2011).
- Speaker in the E-Science Institute Symposium on Provenance in Secure and Advanced Systems (5/09).
- Invited speaker to the eScience Institute Provenance Workshop (5/09).
- Panelist for Tufts Engineering Panel on Engineering Leadership (4/09).
- Mentoring and Management: SEAS Professional Development Seminar (4/09).
- Panelist for Berkman Center's Gender and Technology Workshop (3/09).
- Invited Speaker for the First Workshop on the Theory and Practice of Provenance (2/09).
- Riding the Tiger versus Petting the Cat: Different models for software startups, Invited Speaker for the Harvard Computer Society Technology Career Conference (12/08).
- Provenance-Aware Storage Systems, Florida International University (1/08), Northwestern University (10/07), State University of New York, Stonybrook (4/06).
- The Cat's Eye View: Building a Business on Open Source, Sun Microsystems First Friday Talk (4/2006).
- Doing It All, National Symposium on the Advancement of Women In Sciences (4/05).
- Princeton Long-range planning workshop, "Recruiting and Retaining Junior Faculty," Princeton, NJ, November 2003.
- Distinguished Lecture Series, University of Wisconsin, Madison Hourglass: An Architecture for Pervasive Applications (3/03).
- CRAW Distinguished Lecture Series, University of Toronto, Operating System Extensibility to Improve Application Performance and Functionality (12/00).
- Invited Talk on Embedded Database Systems, 1999 USENIX Technical Conference (6/99).

- Invited Panelist on Embedded Database Systems, 1999 SIGMOD Conference (6/99).
- Invited Talk on Measuring Computer Systems, 1997 USENIX Technical Conference (1/97).
- Invited Panelist on The Source Dilemma, 1997 USENIX Windows NT workshop.
- Invited Speaker for the CSTB Workshop on Information Survivability, "Why Safe Languages and Java Don't Matter," (2/97)
- PCTV UNIX Series, UNIX Architecture and Philosophy, (aired 9/96).
- Invited Panelist for CRA Workshop on Academic Careers for Women (11/94).
- Invited speaker to the President's Council of Advisors on Science and Technology (6/92).
- Distinguished Lecturer for the 1994, 1995, 1996, 1997 Research Summer Institute Program at MIT.
- Invited Speaker on Information Technology, Beneficial Board of Directors (8/95).

Publicly Released Software

- CamFlow: Provenance capture software (<http://www.camflow.org>), FRAPpucino Intrusion Detection system (<https://github.com/michael-hahn/frap>).
- Certifiably Optimal Rule Lists (CORELS): Website (<https://corels.eecs.harvard.edu/>), Source code repository (<https://github.com/nlarusstone/corels>).
- Scalable Bayesian Rule Lists: R Package on CRAN (<https://cran.r-project.org/web/packages/sbrl/index.html>), Github Repository for C library and R package (<https://github.com/Hongyuy/sbrlmod>).
- Scalable Host-tree Embeddings for Efficient Partitioning: Software (<https://github.com/dmargo/sheep>).
- Linked-node analytics using Large Multiversioned Arrays: Software (<https://github.com/goatdb/llama>).

Talks

- Data Modeling for Non-Relational Data, Dr. Dobbs Architecture World (7/08).
- Erlang + EDTK + BDB: Disrupting the Web, HPTS (10/07).
- Matching Database Needs with Database Solutions, EBay (3/05), Juniper Systems (3/05).
- An Architecture A Day Keeps the Hacker Away, IBM (3/05).
- Provenance Aware Storage Systems, IBM (3/06), EMC (1/06), Network Appliance(4/05), Sun Microsystems (1/05).
- Berkeley DB, Veritas Software (5/04), Yahoo (3/04).
- Non-Relational Data Management, IBM (5/04).

- Hourglass: An Architecture for Pervasive Applications, Princeton University (11/02), Tufts University (2/04), Amherst College (9/04).
- Issues and Challenges for the WWW, Lucent Technologies (5/98) Lotus Corporation (3/97).
- Issues and Challenges in Extensible Operating Systems, Cornell University (3/98), Intel Corporation (6/97), University of Wisconsin, Madison (4/97), Hewlett-Packard Laboratories (4/97).
- The VINO Project, HP Research Laboratories, IBM Almaden Research Center (1/97).
- Application Performance in the VINO Operating System, Bunting Institute (12/96).
- The VINO Operating System, Dartmouth College (11/96).
- Clustering, Logging, and Journaling: Approaches to High Performance File System Design, Depauw University (7/96).
- Panelist on Research and Education at the 1996 NSF Infrastructure PI Workshop (7/96).
- World Wide Web Developments, Lotus Corporation (3/97), IBM Almaden (7/96), World Wide Web Consortium Workshop (4/96).
- The VINO Project, Sun Eastern Research Lab (9/95), Novell Corporation (1/96).
- The Berkeley Fast File System, Clam Associates (3/95).
- Approaches to High Performance File Systems, MIT (2/95), Sun Eastern Research Lab (3/95).
- The Harvard Ubiquitous Information Project, Xerox PARC (5/93).
- File systems and transaction support, Digital Equipment Corporation (11/93), Tandem Computers (5/93), MIT (5/93), Boston University (4/93), IBM Almaden Research Center (1/93), Auspex Computer (1/93), Harvard University (11/91), Hewlett Packard (6/91), Sequent Computer Corp. (2/91), Portland State University (2/91).

Professional Activities

- CRA Outstanding Undergraduate Award Selection Committee (2017-2020).
- DARPA Information Science and Technology Study Group (ISAT) (2017-2020).
- National Academies Computer Science and Telecommunications Board (CSTB) (2016-present).
- USENIX Representative to the Computing Research Association (CRA) (2014-2017).
- President of the USENIX Association, 2012-2014; Acting Executive Director 2011-2012; Vice-President, 2008-2012; Director at Large, 2006-2008, 1996 - 1998. Chair of the scholastic committee, responsible for variety of student programs including the student research projects program.
- NSF PROBE Steering Committee (2012 - 2017)
- Sloan Selection Committee (2011-2017).

- Nominating Committee of the CCC (2010-2012, Chair 2012).
- Member of the Computing Community Consortium of the CRA (2010-2013, Executive Committee 2012-2013).
- Program Co-Chair for the 2010 Workshop on Theory and Practice of Provenance (TaPP 2010).
- Program Chair for the 2009 High Performance Transaction Processing Workshop (HPTS 2009).
- Steering Committee for the USENIX Workshop on Theory and Practice of Provenance (2009-2016).
- Program Co-Chair for the 2009 File and Storage Technologies Symposium (FAST'09).
- CMU Visiting Committee (2006).
- Program Chair for the 2005 Workshop on Hot Topics in Operating Systems (HotOS'05).
- Program Co-Chair for the 2004 ACM Conference on Electronic Commerce.
- National Academy Panel on Digital Archiving (2002-2004).
- Steering Committee for the USENIX Symposium on File and Storage Technologies (2002-2018).
- Steering Committee for the USENIX Symposium on Network Design and Implementation (2006-2009).
- Program Co-Chair for the 1998 Symposium on Operating System Design and Implementation (OSDI 1998).
- Member of the HTTP-NG Working Group on Web Characterization, 1998.
- Steering Committee for the USENIX Workshop on NT.
- Awards Chair for the 1997 International Conference on Data Engineering.
- Program Co-Chair for 1994 Summer USENIX Conference.
- Program committee member for the 1992 Summer USENIX, 1993 Workshop on Workstation Operating Systems, 1994 Winter USENIX, 1994 ASPLOS conference, 1994 SIGMOD conference, 1995 Symposium on Operating System Principles, 1996 International Workshop on Object Orientation in Operating Systems, 1997 Workshop in Internet Systems and Technologies, 2001 USENIX Technical Conference, 2001 Symposium on Operating System Principles, 2003 USENIX File And Storage Technologies Symposium, 2003 Workshop on Hot Topics in Operating Systems, 2004 ACM Conference on Electronic Commerce, 2004 Symposium on Operating System Design and Implementation, 2004 ACM Conference on High Performance Distributed Computing, 2008 USENIX File and Storage Technologies Symposium, 2011 Symposium on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2011 Workshop on the Theory and Practice of Provenance (TaPP), 2011 High Performance Transaction Processing (HPTS), 2011 Workshop on Hot Topics in Security (HotSec), 2011 Symposium on Operating System Principles (SOSP), 2012 Symposium on File and Storage Technology (FAST), 2012 Workshop on Hot Topics in Storage Systems (HotStorage), 2013 Symposium on File and Storage Technology(FAST), 2013 ACM International Systems and Storage Conference (SYSTOR), 2013 High Performance Transaction Processing Workshop (HPTS), 2014 Symposium on File and Storage Technology (FAST), 2015 Hot Topics in Operating Systems (HotOS).
- Referee for IEEE Computer, IEEE Software Practice and Experience, IEEE Transactions on Computer Systems, IEEE Parallel and Distributed Technology: Systems and Applications, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Knowledge and Data Engineering, VLDB Journal, Digital Systems Journal,

Communications of the ACM, and Algorithmica.

- Reviewer for 1992, 1996 ASPLOS Conference, 1993 SOSP Conference, 1994 ISCA. 1994 Workshop on Operating System Design and Implementation, 1995 USENIX Technical Conference, 1996 Symposium on Operating System Design and Implementation, 1997 International Symposium on Computer Architecture, 1997 Symposium on Internet Systems and Technologies, 1999 International Conference on Distributed Computing Systems, 1999 Symposium on Operating System Principles, 2001 Hot Topics in Operating Systems Workshop.
- Book reviewer for Addison-Wesley, Prentice Hall, Kluwer Associates and John Wiley & Sons, Inc.
- Board of Directors, Blue Leaf (2009-2011).
- Chairman of the Sleepycat Software Board of Directors (1996-2006).
- Member of the Traxit Board of Directors (2000-2001)
- Member of the Marble Technical Advisory Board and Board of Directors (1996-1997).
- Member ACM, USENIX Association.
- Contributor to 4.4BSD Project.
- Nominating Committee for the USENIX Board of Directors, 1994, 1999.

Refereed Publications

Pasquier, T., Han, X., Moyer, T., Bates, A., Herman, O., Eysers, D., Bacon, J., Seltzer, M., “Runtime Analysis of Whole-System Provenance,” Proceedings of the 2018 Conference on Computer and Communications Security (CCS’18), Toronto CA, October 2018.

Han, X., Pasquier, T., Seltzer, M., “Provenance-based Intrusion Detection: Opportunities and Challenges,” Proceedings of the Workshop on the Theory and Practice of Provenance (TaPP’18), London UK, July 2018.

Huang Y., Pavlovic, M., Marathe, V., Seltzer, M., Harris, T., Byan, S., “Closing the Performance Gap Between Volatile and Persistent Key-Value Stores Using Cross-Referencing Logs,” Proceedings of the 2018 USENIX Annual Technical Conference, Boston MA, June 2018.

Rao, M., Bacon, D.F., Parkes, D., Seltzer, M., “Incentivizing Deep Fixes in Software Economics,” IEEE Transactions on Software Engineering, DOI 10.1109/TSE.2018.2842188, 2018.

Pasquier, T., Lau, M., Han, X, Fong, E., Lerner, B., Boose, E., Crosas, M., Ellison, A, Seltzer, M., “Sharing and Preserving Computational Analysis for Posterity with Encapsulator,” IEEE Computing in Science and Engineering 20(4), 2018.

Angelino, E., Larus-Stone, N., Alabi, D., Seltzer, M., Rudin, C., “Learning Certifiably Optimal Rule Lists for Categorical Data,” Journal of Machine Learning Research 18(234): 1--78, 2018.

Pasquier, T., Lau, M., Trisovic, A., Boose, E., Couturier, B., Crosas, M., Ellison, A., Gibson, V., Jones, C., Seltzer, M., “If these data could talk,” Nature Scientific 18:5, 2017.

Pasquier, T., Singh, J., Powles, J., Eysers, D., Seltzer, M., Bacon, J., “Data Provenance to Audit Compliance with Privacy Policy in the Internet of Things,” Journal of Personal and Ubiquitous Computing.

Yang, H., Rudin, C., Seltzer, M., “Scalable Bayesian Rule Lists,” Proceedings of the International Conference on Machine Learning (ICML2017),” Sydney, Australia, August 2017.

Angelino, E., Larus-Stone, N., Alabi, D., Seltzer, M., Rudin, C., “Learning Certifiably Optimal Rule Lists for Categorical Data,” Proceedings of the 23rd ACM Conference on Knowledge Discovery and Data Mining (KDD2017),”

Halifax, Nova Scotia Canada, August 2017.

Han, X., Pasquier, T., Ranjan, T., Goldstein, M., and Seltzer, M., "FRAPpuccino: Fault-detection through Runtime Analysis of Provenance," Proceedings of the Workshop on Hot Topics in Cloud Computing (HotCloud'17), USENIX Association, Santa Clara, CA, July 2017.

Marathe, V., Seltzer, M., Byan, S., Harris, T., "Persistent Memcached: Bringing Legacy Code to Byte-Addressable Persistent Memory." Proceedings of USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage 17) USENIX Association, Santa Clara, CA, July 2017.

Whitehill, J., Seltzer, M., "A Crowdsourcing Approach to Collecting Tutorial Videos -- Toward Personalized Learning-at-Scale." In Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale (L@S <https://doi.org/10.1145/3051457.3053973>)

Margo, D., Seltzer, M., "A Scalable Distributed Graph Partitioner," Proceedings of the 41st International Conference on Very Large Databases (VLDB), Kohola Coast, HA, September 2015.

Eldridge, S., Appavoo, J., Joshi, A., Waterland, A., Seltzer, M., "Towards General-Purpose Neural Network Computing," Proceedings of the 13th International Conference on Parallel Architectures and Compilation Techniques (PACT 2015), Petrozavodsk Russia, September 2015.

Balakrishnan, N., Bytheway, T., Carata, L., Chick, O., Snee, J., Akoush, S., Sohan, R., Seltzer, M., Hopper, A., "Recent Advances in Computer Architecture: The Opportunities and Challenges for Provenance," Proceedings of the 7th Workshop on the Theory and Practice of Provenance (TaPP 2015), Edinburgh Scotland, July 2015.

Macko, P., Margo, D., Marathe, V., Seltzer, M., "LLAMA: Efficient Graph Analytics Using Large Multiversioned Arrays," Proceedings of the 31st IEEE International Conference on Data Engineering (ICDE 2015), Seoul Korea, April 2015.

Carata, L., Sherif A., Balakrishnan, N., Bytheway, T., Sohan, R., Seltzer, M., and Hopper, A.. "A primer on provenance." Communications of the ACM 57, no. 5 (2014): 52-60.

Appavoo, J., Waterland, A., Eldridge, S, Zhao, K., Joshi, A, Homer, S, Seltzer, M, "Programmable Smart Machines: A Hybrid Neuromorphic approach to General Purpose Computation," Proceedings of the first workshop on Neuro-morphic Architectures (NeuroArch) collocated with ISCA 2014.

Angelino, E., Kohler, E., Waterland, A., Seltzer, M., Adams, M., "Accelerating MCMC via parallel predictive prefetching," Proceedings of the 2014 Conference on Uncertainty in Artificial Intelligence (UAI '14), Quebec City, Quebec Canada, July 2014.

Rao, M., Parkes, D., Seltzer, M., and Bacon, D., "A Framework for Incentivizing Deep Fixes," Proceedings of the AAAI 2014 Workshop on Incentives and Trust in E-Communities (WIT-EC'14), Quebec City, Quebec Canada, July 2014.

Carata, L., Akoush, S., Balakrishnan, N., Bytheway, T., Sohan, R., Seltzer, M., and Hopper, A., 2014. A primer on provenance. Commun. ACM 57, 5 (May 2014), 52-60. DOI=10.1145/2596628 <http://doi.acm.org/10.1145/2596628>.

Waterland, A., Angelino, E., Adams, R., Appavoo, J., Seltzer, M., "ASC: Automatically Scalable Computation" Proceedings of the 2014 Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '14), Salt Lake City Utah, March 2014.

Herzlinger, R., Seltzer, M., Gaynor, M., "Applying KISS to Healthcare Information Technology," Computer 46(11), November 2013, 72--74.

Borkin, M., Yeh, C., Boyd, M., Macko, P., Gajos, K., Seltzer, M., Pfister, H., "Evaluation of Filesystem Provenance Visualization Tools," Proceedings of the 2013 Conference on Information Visualization (Vis 2013), Atlanta Georgia, October 2013.

Macko, P., Margo, D., Seltzer, M., "Local Clustering in Provenance Graphs," Proceedings of the 2013 International Conference on Information and Knowledge Management (CIKM 2013), Burlingame CA, October 2013.

Waterland, A., Angelino, E., Cubuk, E., Kaziras, E., Adams, R., Appavoo, J., Seltzer, M., "Computational Caches," Proceedings of the 2013 SYSTOR Conference, Haifa Israel, July 2013.

- Macko, P., Margo, D., Seltzer, M., "Performance Introspection of Graph Databases," Proceedings of the 2013 SYSTOR Conference, Haifa Israel, July 2013.
- Holland, D., Angelino, E., Wald, G., Seltzer, M., "Flash Caching on the Storage Client," Proceedings of the 2013 USENIX Annual Technical Conference, San Jose, CA, June 2013.
- Guo, P., Seltzer, M., "Burrito: Wrapping Your Lab Notebook in Computational Infrastructure," Proceedings of the Fourth Workshop on the Theory and Practice of Provenance (TaPP 2012), Boston MA, June 2012.
- Macko, P., Seltzer, M., "A General-Purpose Provenance Library," Proceedings of the Fourth Workshop on the Theory and Practice of Provenance (TaPP 2012), Boston MA, June 2012.
- Waterland, A., Appavoo, J., Seltzer, M., "Parallelization by Simulated Tunneling," Proceedings of the Fourth USENIX Conference on Hot Topics in Parallelism (HotPar 2012), Berkely, CA, June 2012.
- Macko, P., Seltzer, M., "Provenance Map Orbiter: Interactive Exploration of Large Provenance Graphs," Proceedings of the Third Workshop on the Theory and Practice of Provenance (TaPP 2011), Heraklion Greece, June 2011.
- Angelino, E., Braun, U., Holland, D., Macko, P., Margo, D., Seltzer, M., "Provenance Integration Requires Reconciliation," Proceedings of the Third Workshop on the Theory and Practice of Provenance (TaPP 2011), Heraklion Greece, June 2011.
- Macko, P., Chiarini, M., Seltzer, M., "Collecting Provenance via the Xen Hypervisor," Proceedings of the Third Workshop on the Theory and Practice of Provenance (TaPP 2011), Heraklion Greece, June 2011.
- Holland, D., Seltzer, M., "Multicore OSES: Looking Forward from 1991, er, 2011," Proceedings of the 2011 Workshop on Hot Topics in Operating Systems (HOTOS XIII), May 2011, Napa, CA.
- Tarasov, V., Bhanage, S., Zadok, E., Seltzer, M., "Benchmarking File System Benchmarking: It *IS* Rocket Science," Proceedings of the 2011 Workshop on Hot Topics in Operating Systems (HOTOS XIII), May 2011, Napa, CA.
- Bailis, P., Reddi, V., Gandhi, S., Brooks, D., Seltzer, M., "Dimetrodon: Processor-level Preventive Thermal Management via Idle Cycle Injection," Proceeding of the 2011 Design Automation Conference (DAC 2011), San Diego, CA, June 2011.
- Maclean, D., Seltzer, M., "Mining the Web for Medical Hypotheses: A Proof-of-Concept System," Proceedings of the International Conference on Health Informatics, Rome Italy, January 2011.
- Macko, P., Seltzer, M., Smith, K.A., "Tracking Back References in a Write-Anywhere File System," Proceedings of the 8th Conference on File and Storage Technologies (FAST'10), San Jose, CA, February 2010.
- Muniswamy-Reddy, K., Macko, P., Seltzer, M., "Provenance for the Cloud," Proceedings of the 8th Conference on File and Storage Technologies (FAST'10), San Jose, CA, February 2010.
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