Steven Swanson

Associate Professor
Computer Science & Engineering
University of California, San Diego

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Appointments

Associate Professor — 2012-present
Department of Computer Science & Engineering
University of California, San Diego.

Assistant Professor — 2006-2012
Department of Computer Science & Engineering
University of California, San Diego.

Graduate Research Assistant — 1999-2006
Department of Computer Science & Engineering
University of Washington.

Education

Ph.D., Computer Science & Engineering — 2006
Advisors: Mark Oskin & Susan Eggers
Dissertation: "The WaveScalar Architecture"
University of Washington, Seattle, WA.

M.S., Computer Science & Engineering — 2001
Advisors: Susan Eggers & Hank Levy
University of Washington, Seattle, WA.

B.S., Computer Science and Mathematics with Honors — 1999
The University of Puget Sound, Tacoma, WA.

Refereed Journal and Conference Publications

Michael Wei, Matias Bjørling, Philippe Bonnet, and Steven Swanson. I/O Speculation for the Microsecond Era. In *2014 USENIX Annual Technical Conference (USENIX ATC 14)*, pages 475–481, USENIX Association, Philadelphia, PA, June 2014**,** .

Qiaoshi Zheng, Nathan Goulding-Hotta, Scott Ricketts, Steven Swanson, Michael Bedford Taylor, and Jack Sampson. Exploring Energy Scalability in Coprocessor-Dominated Architectures for Dark Silicon. *ACM Trans. Embed. Comput. Syst.*, volume 13(4s):130:1–130:24, April 2014**,** .

Steven Swanson and Adrian M. Caulfield. Refactor, Reduce, Recycle: Restructuring the I/O Stack for the Future of Storage. *Computer*, volume 46(8):52–59, 2013**,** .

Joel Coburn, Trevor Bunker, Meir Shwarz, Rajesh K. Gupta, and Steven Swanson. From ARIES to MARS:Transaction Support for Next-Generation Solid-State Drives. In *Proceedings of the 24th International Symposium on Operating Systems Principles (SOSP)*, 2013**,** .

Laura M. Grupp, John D. Davis, and Steven Swanson. The Harey Tortoise: Managing Heterogeneous Write Performance in SSDs. In *Proceedings of the 2013 USENIX Annual Technical Conference*, USENIX ATC'13, pages 1–12, USENIX Association, Berkeley, CA, USA, 2013**,** .

Adrian M. Caulfield and Steven Swanson. QuickSAN: A Storage Area Network for Fast, Distributed, Solid State Disks. In *ISCA '13: Proceeding of the 40th Annual International Symposium on Computer Architecture*, pages 1–11, ACM, New York, NY, USA, June 2013**,** .

P. Gupta, Y. Agarwal, L. Dolecek, N. Dutt, R.K. Gupta, R. Kumar, S. Mitra, A. Nicolau, T.S. Rosing, M.B. Srivastava, S. Swanson, and D. Sylvester. Underdesigned and Opportunistic Computing in Presence of Hardware Variability. *Computer-Aided Design of Integrated Circuits and Systems, IEEE Transactions on*, volume 32(1):8–23, jan. 2013**,** .

Arup De, Maya Gokhale, Rajesh Gupta, and Steven Swanson. Minerva: Accelerating Data Analysis in Next-Generation SSDs. In *Proceedings of The 21st IEEE International Symposium on Field-Programmable Custom Computing Machines*, pages 1–8, 2013**,** .

Trevor Bunker and Steven Swanson. Latency-Optimized Networks for Clustering FPGAs. In *Proceedings of the 21st Annual IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2013)*, pages 1–8**,** .

MD Kamruzzaman, Steven Swanson, and Dean Tullsen. Load-Balanced Pipeline Parallelism. In *Proceedings of the Supercomputing '13*, 2013**,** .

V. Mohan, T. Bunker, L. Grupp, S. Gurumurthi, M.R. Stan, and S. Swanson. Modeling Power Consumption of NAND Flash Memories Using FlashPower. *Computer-Aided Design of Integrated Circuits and Systems, IEEE Transactions on*, volume 32(7):1031–1044, 2013**,** .

Md kamruzzaman, Steven Swanson, and Dean M. Tullsen. Underclocked Software Prefetching: More Cores, Less Energy. *IEEE Micro*, volume 32(4):32–41, July 2012**,** .

Hung-Wei Tseng, Laura M. Grupp, and Steven Swanson. Underpowering NAND Flash: Profits and Perils. In *50th Design Automation Conference (DAC 2013)*, pages 1–6, June 2013**,** .

Keaton Mowery, Michael Wei, David Kohlbrenner, Hovav Shacham, and Steven Swanson. Welcome to the Entropics: Boot-Time Entropy in Embedded Devices. In *IEEE Symposium on Security and Privacy (Oakland 2013)*, pages 1–15**,** .

Md Kamruzzaman, Steven Swanson, and Dean M. Tullsen. Coalition Threading: Combining Traditional and Non-Traditional Parallelism to Maximize Scalability. In *Proceedings of the 21st International Conference on Parallel Architectures and Compilation Techniques*, pages 1–10, September 2012**,** .

Ryan Gabrys, Eitan Yaakobi, Laura M. Grupp, Steven Swanson, and Lara Dolecek. Tackling Intracell Variability in TLC Flash Through Tensor Product Codes. In *International Symposium on Information Theory*, ISIT, pages 1–5, 2012**,** .

Laura M. Grupp, John D. Davis, and Steven Swanson. The Bleak Future of NAND Flash Memory. In *Proceedings of the 10th USENIX conference on file and storage technologies*, FAST'12, pages 1–8, USENIX Association, 2012**,** .

Adrian M. Caulfield, Todor I. Mollov, Louis Eisner, Arup De, Joel Coburn, and Steven Swanson. Providing Safe, User Space Access to Fast, Solid State Disks. In *Proceeding of the 17th international conference on Architectural support for programming languages and operating systems*, ACM, New York, NY, USA, March 2012**,** .

Ganesh Venkatesh, John Sampson, Nathan Goulding, Sravanthi Kota Venkata, Steven Swanson, and Michael Taylor. QsCores: Configurable Co-processors to Trade Dark Silicon for Energy Efficiency in a Scalable Manner. In *Proceedings of The 44th International Symposium on Microarchitecture*, pages 1–12, 2011**,** .

Ryan Gabrys, Laura Grupp, Steven Swanson, and Lara Dolecek. Tackling Temporal Variability in Multilevel Flash: New Error-Control Code Design and Architectural Validation. In *Invited Talk, Forty-Ninth Annual Allerton Conference***,** .

Jack Sampson, Manish Arora, Nathan Goulding-Hotta, Ganesh Venkatesh, Jonathan Babb, Vikram Bhatt, Steven Swanson, and Michael Bedford Taylor. An Evaluation of Selective Depipelining for FPGA-based Energy-Reducing Irregular Code Coprocessors. In *2011 International Conference on Field Programmable Logic and Applications*, IEEE, September 2011**,** .

Pravin Prabhu, Ameen Akel, Laura Grupp, Wing-Key Yu, G. Edward Suh, Edwin Kan, and Steven Swanson. Extracting Device Fingerprints from Flash Memory by Exploiting Physical Variations. In *Proceedings of the 4th International Conference on Trust and Trustworthy Computing*, pages 1–17, 2011**,** .

Michael Wei, Laura M. Grupp, Frederick E. Spada, and Steven Swanson. Reliably Erasing Data From

Flash-based Solid State Drives. In *Proceedings of the 9th USENIX conference on File and storage technologies*, FAST'11, pages 1–13, USENIX Association, Berkeley, CA, USA, 2011**,** .

Steven Swanson and Michael Bedford Taylor. GreenDroid: Exploring the next evolution in smartphone application processors. *Communications Magazine, IEEE*, volume 49(4):112–119, April 2011**,** .

Manish Arora, Jack Sampson, Nathan Goulding-Hotta, Jonathan Babb, Ganesh Venkatesh, Michael Bedford Taylor, and Steven Swanson. Reducing the Energy Cost of Irregular Code Bases in Soft Processor Systems. *Field-Programmable Custom Computing Machines, Annual IEEE Symposium on*, volume 0:210–213, 2011**,** .

Hung-Wei Tseng, Laura M. Grupp, and Steven Swanson. Understanding the Impact of Power Loss on Flash Memory. In *48th Design Automation Conference (DAC 2011)*, pages 1–6, June 2011**,** .

Nathan Goulding-Hotta, Jack Sampson, Ganesh Venkatesh, Saturnino Garcia, Joeseph Auricchio, Po-Chao Huang, Manish Arora, Siddhartha Nath, Vikram Bhatt, Jonathan Babb, Steven Swanson, and Michael Bedford Taylor. The GreenDroid Mobile Application Processor: An Architecture for Silicon's Dark Future. *Micro, IEEE*, volume 31(2):86–95, march-april 2011**,** .

Joel Coburn, Adrian M. Caulfield, Ameen Akel, Laura M. Grupp, Rajesh K. Gupta, Ranjit Jhala, and Steven Swanson. NV-Heaps: Making Persistent Objects Fast and Safe With Next-Generation, Non-Volatile Memories. In *Proceedings of the sixteenth international conference on Architectural support for programming languages and operating systems*, ASPLOS '11, pages 105–118, ACM, 2011**,** .

Md Kamruzzaman, Steven Swanson, and Dean M. Tullsen. Inter-core prefetching for multicore processors using migrating helper threads. In *Proceedings of the sixteenth international conference on Architectural support for programming languages and operating systems*, ASPLOS '11, pages 393–404, ACM, New York, NY, USA, 2011**,** .

Jack Sampson, Ganesh Venkatesh, Nathan Goulding, Saturnino Garcia, Steven Swanson, and Michael Bedford Taylor. Efficient Complex Operators for Irregular Codes. In *Proceedings of the 17th IEEE International Symposium on High-Performance Computer Architecture Conference (HPCA 17)*, pages 1–12, 2011**,** .

Adrian M. Caulfield, Arup De, Joel Coburn, Todor I. Mollov, Rajesh K. Gupta, and Steven Swanson. Moneta: A High-Performance Storage Array Architecture for Next-Generation, Non-volatile Memories. In *Proceedings of the 2010 43rd Annual IEEE/ACM International Symposium on Microarchitecture*, MICRO '43, pages 385–395, IEEE Computer Society, Washington, DC, USA, 2010**,** .

David G. Andersen and Steven Swanson. Rethinking Flash in the Data Center. *IEEE Micro*, volume 30(4):52 –54, july-aug. 2010**,** .

Adrian M. Caulfield, Joel Coburn, Toder I. Mollov, Arup De, Ameen Akel, Jiahua He, Arun Jagatheesan, Rajesh K. Gupta, Allan Snavely, and Steven Swanson. Understanding the Impact of Emerging Non-Volatile Memories on High-Performance, IO-Intensive Computing. In *Proceedings of the 2010 ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis*, SC '10, pages 1–11, IEEE Computer Society, Washington, DC, USA, 2010**, Nominated for Best Technical Student Paper**.

Ganesh Venkatesh, Jack Sampson, Nathan Goulding, Saturnino Garcia, Vladyslav Bryksin, Jose Lugo-Martinez, Steven Swanson, and Michael Bedford Taylor. Conservation cores: reducing the energy of mature computations. In *Proceedings of the fifteenth edition of ASPLOS on Architectural support for programming languages and operating systems*, ASPLOS '10, pages 205–218, ACM, New York, NY, USA, 2010**,** .

Md Kamruzzaman, Steven Swanson, and Dean M. Tullsen. Software data spreading: leveraging distributed caches to improve single thread performance. In *Proceedings of the 2010 Conference on Programming Language Design and Implementation*, volume 45, pages 460–470, ACM, New York, NY, USA, June 2010**,** .

Adrian M. Caulfield, Laura M. Grupp, and Steven Swanson. Gordon: An Improved Architecture for Data-Intensive Applications. *IEEE Micro*, volume 30:121–130, 2010**, IEEE Micro Top Picks**.

Laura M. Grupp, Adrian M. Caulfield, Joel Coburn, Steven Swanson, Eitan Yaakobi, Paul H. Siegel, and Jack K. Wolf. Characterizing flash memory: anomalies, observations, and applications. In *Proceedings of the 42nd Annual IEEE/ACM International Symposium on Microarchitecture*, MICRO 42, pages 24–33, ACM, New York, NY, USA, 2009**,** .

Adrian M. Caulfield, Laura M. Grupp, and Steven Swanson. Gordon: using flash memory to build fast, power-efficient clusters for data-intensive applications. In *ASPLOS '09: Proceeding of the 14th international conference on Architectural support for programming languages and operating systems*, pages 217–228, ACM, New York, NY, USA, 2009**, Selected as an IEEE Micro TopPick**.

Steven Swanson, Anderw Putnam, Martha Mercaldi, Ken Michelson, Andrew Petersen, Andrew Schwerin, Mark Oskin, and Susan J. Eggers. Area-Performance Trade-offs in Tiled Dataflow Architectures. In *Proceedings of the 33rd annual international symposium on Computer Architecture*, ISCA '06, pages 314–326, IEEE Computer Society, Washington, DC, USA, 2006**,** .

Steven Swanson, Andrew Schwerin, Martha Mercaldi, Andrew Petersen, Andrew Putnam, Ken Michelson, Mark Oskin, and Susan J. Eggers. The WaveScalar Architecture. *ACM Transactions Computer Systems*, volume 25(2):4, 2007**,** .

Steven Swanson, Ken Michelson, Andrew Schwerin, and Mark Oskin. WaveScalar. In *Proceedings of the 36th annual IEEE/ACM International Symposium on Microarchitecture*, MICRO 36, pages 291–302, IEEE Computer Society, Washington, DC, USA, 2003**,** .

Steven Swanson, Luke K. McDowell, Michael M. Swift, Susan J. Eggers, and Henry M. Levy. An evaluation of speculative instruction execution on simultaneous multithreaded processors. *ACM Transactions on Computer Systems*, volume 21(3):314–340, 2003**,** .

Martha Mercaldi, Steven Swanson, Andrew Petersen, Andrew Putnam, Andrew Schwerin, Mark Oskin, and Susan J. Eggers. Instruction scheduling for a tiled dataflow architecture. In *Proceedings of the 12th international conference on Architectural support for programming languages and operating systems*, ASPLOS-XII, pages 141–150, ACM, New York, NY, USA, 2006**,** .

Andrew Petersen, Andrew Putnam, Martha Mercaldi, Andrew Schwerin, Susan J. Eggers, Steven Swanson, and Mark Oskin. Reducing control overhead in dataflow architectures. In *Proceedings of the 15th international conference on Parallel architectures and compilation techniques*, PACT '06, pages 182–191, ACM, New York, NY, USA, 2006**,** .

Martha Mercaldi, Steven Swanson, Andrew Petersen, Andrew Putnam, Andrew Schwerin, Mark Oskin, and Susan J. Eggers. Modeling instruction placement on a spatial architecture. In *Proceedings of the eighteenth annual ACM symposium on Parallelism in algorithms and architectures*, SPAA '06, pages 158–169, ACM, New York, NY, USA, 2006**,** .

Robert Grimm, Janet Davis, Eric Lemar, Adam Macbeth, Steven Swanson, Thomas Anderson, Brian Bershad, Gaetano Borriello, Steven Gribble, and David Wetherall. System support for pervasive applications. *ACM Transactions on Computer Systems*, volume 22(4):421–486, 2004**,** .

Perry Fizzano and Steven Swanson. Scheduling Classes on a College Campus. *Comput. Optim. Appl.*, volume 16(3):279–294, September 2000**,** .

Steven Swanson and Perry Fizzano. General Techniques for Multithreading Algorithms. In *Proceedings of 1999 International Conference on Parallel and Distributed Techniques and Algorithms*, 1999**,** .

Patents

U.S. Patent No. 8,868,867: Method for reducing latency of accessing data stored in a file system on a computer storage device by caching file system permission information in the computer storage device

U.S. Patent No. 7,657,882: Wavescalar architecture having a wave order memory and processing in cache

Workshops

Michael Wei and Steven Swanson. SYS: Synchronize Your System with Simple Hardware. In *LADIS 2013: The 7th Workshop on Large-Scale Distributed Systems and Middleware*, Farmington, PA, USA, 2013**,** .

Meenakshi Sundaram Bhaskaran, Jian Xu, and Steven Swanson. BankShot: Caching Slow Storage in Fast Non-Volatile Memory. In *1st Workshop on Interactions of NVM/Flash with Operating Systems and Workloads*, INFLOW'13, 2013**,** .

Ameen Akel, Adrian M. Caulfield, Todor I. Mollov, Rajesh K. Gupta, and Steven Swanson. Onyx: A Prototype Phase-Change Memory Storage Array. In *Proceedings of the 3rd USENIX conference on Hot topics in storage and file systems*, HotStorage'11, pages 1–5, USENIX Association, 2011**,** .

Laura M. Grupp, Adrian M. Caulfield, Joel Coburn, Steven Swanson, Eitan Yaakobi, Paul H. Siegel, and Jack K. Wolf. Characterizing flash memory: anomalies, observations, and applications. In *2010 Non-Volatile Memories Workshop*, April 2010**,** .

Adrian M. Caulfield, Arup De, Joel Coburn, Todor I. Mollov, Rajesh K. Gupta, and Steven Swanson. Moneta: A High-performance Storage Array Architecture for Next-generation, Non-volatile Memories. In *2011 Non-Volatile Memories Workshop*, March 2011**,** .

Joel Coburn, Trevor Bunker, Rajesh K. Gupta, and Steven Swanson. Fast, Flexible Support for Transactions in a Next-Generation, Solid-State, Storage Array. In *2012 Non-Volatile Memories Workshop*, March 2012**,** .

Joel Coburn, Adrian Caulfield, Laura M. Grupp, Ameen Akel, and Steven Swanson. New Abstractions for Fast, Non-Volatile Storage. In *2010 Non-Volatile Memories Workshop*, March 2010**,** .

Nathan Goulding, Jack Sampson, Ganesh Venkatesh, Saturnino Garcia, Joe Auricchio, Jonathan Babb, Michael Taylor, and Steven Swanson. GreenDroid: A Mobile Application Processor for a Future of Dark Silicon. In *Proceedings of HotChips*, 2010**,** .

Eitan Yaakobi, Paul H. Siegel, Steven Swanson, Jack Wolf, Laura Grupp, and Jing Ma. Error Characterization and Coding Schemes for Flash Memories. In *IEEE Globecom 2010 Workshop on Application of Communication Theory to Emerging Memory Technologies (ACTEMT 2010)*, pages 1–5, Miami, Florida, USA**,** .

Laura Grupp, Adrian M. Caulfield, Joel Coburn, John Davis, and Steven Swanson. Beyond the Datasheet: Using Test Beds to Probe Non-Volatile Memories' Dark Secrets. In *IEEE Globecom 2010 Workshop on Application of Communication Theory to Emerging Memory Technologies (ACTEMT 2010)*, pages 1–6, Miami, Florida, USA**,** .

Sungjin Lee, Kermin Fleming, Jihoon Park, Keonsoo Ha, Adrian M. Caulfield, Steven Swanson, Arvind, and Jihong Kim. BlueSSD: An Open Platform for Cross-layer Experiments for NAND Flash-based SSDs. In *The 5th Workshop on Architectural Research Prototyping*, pages 1–5, 2010**,** .

Steven Swanson and Mark Oskin. Towards a Universal Building Block of Molecular and Silicon Computation. In *Workshop on Non-Silicon Computing*, 2002**,** .

Steven Swanson, Ken Michelson, and Mark Oskin. The Death of ILP. In *ASPLOS XI Wild and Crazy Idea Session*, 2004**,** .

Andrew Schwerin, Steve Swanson, and Mark Oskin. Measuring the Complexity-effectiveness of Future-generation Silicon Architectures using FPGAs: A Status Report. In *Workshop on Complexity-effective Design*, June 2003**,** .

Steven Swanson, Ken Michelson, Andrew Schwerin, and Mark Oskin. Dataflow: The Road Less Complex. In *Workshop on Complexity-effective Design*, 2003**,** .

Steven Swanson, Ken Michelson, and Mark Oskin. Configuration by Combustion: Online Simulated Annealing for Dynamic Hardware Configuration. In *ASPLOS X Wild and Crazy Idea Session*, 2002**,** .

Robert Grimm, Janet Davis, Eric Lemar, Adam MacBeth, Steven Swanson, Tom Anderson, Brian Bershad, Gaetano Borriello, Steven Gribble, and David Wetherall. System-level Programming Abstractions for Ubiquitous Computing. In *Workshop on Application Models and Programming Tools for Ubiquitous Computing*, 2001**,** .

Robert Grimm, Janet Davis, Eric Lemar, Adam MacBeth, Steven Swanson, Tom Anderson, Brian Bershad, Gaetano Borriello, Steven Gribble, and David Wetherall. Systems Directions for Pervasive Computing. In *Proceedings of the 8th Workshop on Hot Topics in Operating Systems*, 2001**,** .

Tech Reports

Rajesh K. Gupta Joel Coburn, Trevor Bunker and Steven Swanson. From ARIES to MARS: Reengineering Transaction Management for Next-Generation, Solid-State Drives. Technical Report CS2012-0981, Department of Computer Science & Engineering, University of California, San Diego, June 2012**.** .

Louis Alex Eisner, Todor Mollov, and Steven Swanson. Quill: Exploiting Fast Non-Volatile Memory by Transparently Bypassing the File System. Technical Report CS2013-0991, Department of Computer Science & Engineering, University of California, San Diego, Jan 2013. .

Steven Swanson. Destroying Flash Memory-Based Storage Devices. Technical Report cs2011-0968, Unviersity of California, San Diego Computer Science & Engineering. .

Michael Wei and Steven Swanson. SAFE: Fast, Verifiable Sanitization for SSDs. Technical Report cs2011-0963, Unviersity of California, San Diego Computer Science & Engineering. .

Trevor Bunker, Michael Wei, and Steven Swanson. Ming II: A Flexible Platform for NAND Flash-based Research. Technical Report CS2012-0978, Department of Computer Science & Engineering, University of California, San Diego, May 2012. .

Andrew Putnam, Steven Swanson, Ken Michelson, Martha Mercaldi, Andrew Petersen, Andrew Schwerin, Mark Oskin, and Susan J. Eggers. The Microarchitecture of a Pipelined WaveScalar Processor: An RTL-Based study. Technical Report TR-2005-11-02, Unviersity of Washington Computer Science & Engineering, 2005. .

Steven Swanson, Martha Mercaldi, Andrew Petersen, Andrew Putnam, Andrew Schwerin, Mark Oskin, and Susan J. Eggers. Balancing Parallelism and Sequentiality in Dataflow Models: Wave-ordered Memory. Technical Report TR-2005-10-03, Unviersity of Washington Computer Science & Engineering, 2005. .

Robert Grimm, Janet Davis, Eric Lemar, Adam MacBeth, Steven Swanson, Tom Anderson, Brian Bershad, Gaetano Borriello, Steven Gribble, and David Wetherall. Programming for Pervasive Computing Environments. Technical Report UW-CSE-01-06-01, Unviersity of Washington Computer Science & Engineering, 2001. .

Awards

NSF CAREER Award	2007-2012
University of Washington CSE Microsoft Endowed Fellowship	2004-2005
Best Student Presentation, 36th Annual International Symposium on Microarchitecture	2003
Intel Graduate Research Fellowship	2002-2003
National Science Foundation Graduate Research Fellow	1999-2002

Talks and Presentations

"Why Your SSD Should be More like a GPU: Storage Interfaces for a Solid State World" January 2014
Stanford

"Why Your SSD Should be More like a GPU: Storage Interfaces for a Solid State World" January 2014
Samsung

"Why Your SSD Should be More like a GPU: Storage Interfaces for a Solid State World" January 2014
IBM Almanden

"Why Your SSD Should be More like a GPU: Storage Interfaces for a Solid State World" January 2014
VMWare

"Why Your SSD Should be More like a GPU: Storage Interfaces for a Solid State World" January 2014
FusionIO

"Why Your SSD Should be More like a GPU: Storage Interfaces for a Solid State World" January 2014
HP Labs

"Software Considered Harmful: Restructuring the Storage Stack for Fast Non-volatile Memories" January 2014
AMD

"Software Considered Harmful: Restructuring the Storage Stack for Fast Non-volatile Memories" August 2013

Google

"Software Considered Harmful: Restructuring the Storage Stack for Fast Non-volatile Memories" August 2013
EMC

"Software Considered Harmful: Restructuring the Storage Stack for Fast Non-volatile Memories" August 2013
Facebook

"BankShot: Caching Storage with Fast Non-Volatile Memories" August 2013
Netapp

"Validating the Sanitization of a Coast Guard Flight Data Recorder" April 2012
Presented to US Coast Guard

"Experimentally Verifying Solid State Device Sanitization Techniques" March 2012
National Association for Information Destruction 2012 Annual Conference

"Moneta: Engineering Storage for the Data Age" October 2011
Harvard University.

"Moneta: Engineering Storage for the Data Age" October 2011
MIT.

"Moneta: Engineering Storage for the Data Age" October 2011
University of Michigan.

"Engineering Storage for the Data Age" October 2011
UCSD Departmental Colloquium.

"Moneta: Engineering Storage for the Data Age" October 2011
University of Pennsylvania.

"Moneta: Engineering Storage for the Data Age" August 2011
Oracle

"Moneta: Engineering Storage for the Data Age" August 2011
Hitachi Research

"Moneta: Engineering Storage for the Data Age" August 2011
FusionIO

"Moneta: Engineering Storage for the Data Age" May 2011
University of California, Santa Cruz

"Moneta: Engineering Storage for the Data Age" April 2011
University of California, Santa Barbara

"Moneta: Engineering Storage for the Data Age" June 2011
Carnegie Mellon University

"Moneta: Engineering Storage for the Data Age" May 2011
University of Wisconsin, Madison

"Moneta: Engineering Storage for the Data Age" May 2011
University of Illinois, Urbana

"Moneta: Engineering Storage for the Data Age" June 2011
IBM T.J. Watson

"Redefining System Interfaces to Exploit Fast Non-Volatile Memories" March 2011
Samsung

"Redefining System Interfaces to Exploit Fast Non-Volatile Memories" March 2011
CCR West

"Engineering a Fast PCIe-Attached Storage Array for Next-Generation Non-Volatile Memories" December

2010
Google

"The Quick and the Durable: Redefining Interfaces to Exploit Fast Non-volatile Memories" December 2010
University of Virginia, Charlottesville.

"Fast Non-Volatile Memories are Coming and We are Not Ready" August 2010
HP Labs.

"Non-volatile, Solid-state memories: Challenges and Opportunities" May 2010
Microsoft Research, Redmond

"Characterizing Flash Memory: Beyond the Datasheet" November 2009
Microsoft Research, Silicon Valley.

"Efficiency in the Face of Technology Challenges and Opportunities" August 2008
Intel, Santa Clara, California.

"Area-Performance Trade-offs in Tiled Dataflow Architectures" June 2006
International Symposium on Computer Architecture

"WaveScalar" Dec. 2004
Technical University of Catalonia (UPC)

"Abandoning the Sinking Chip: The Case for a New Class of Microprocessors" Sept. 2005
University of Puget Sound, Department of Computer Science and Mathematics.

"WaveScalar" April 2005
IBM Yorktown Research Center.

"WaveScalar" Dec. 2003
36th Annual International Symposium on Microarchitecture.

"WaveScalar and the WaveCache: Execution Without Fetch" Oct. 2002
Intel, Hillsborro, Oregon.

"The Effect of SMT on Speculation" Summer 2001
Sun Microsystems and Compaq WRL.

Teaching

CSE 141: Intro/Computer Architecture		Wi15 Sp14 Sp13 Wi12 Wi11, Fa09, Sp09, Wi08
CSE 141L: Project/Computer Architecture		Sp13 Wi12 Wi11, Fa09, Sp09, Wi08
CSE 240A: Graduate Processor Architecture		Fa07, Fa10, Fa11,Sp14,
CSE 240C: Advanced Microarchitecture		Wi09, Sp10, Sp11,Sp13,
CSE 249A: Topics/Seminar	The Hardware/Software Interface	Fa06
	Advanced Parallel Architecture (precursor to CSE 240B)	Sp07
	Storing and Managing Bits	Fa08

Professional Service

Program Committee Member for MICRO	2013, 2015
Steering Committee INFLOW	2015
Program Committee Member for SOSP	2015
Program Committee Member for FAST	2013–2014
Program Committee Chair for HotStorage	2014
Program Committee Member for HotStorage	2013
Reviewer, Computer Architecture Letters	2012
Reviewer Transactions on IEEE Transactions on Computers	2012

Reviewer Transactions on Storage	2012
Program Committee Member for HPCA	2012
Program Committee Member for ASPLOS	2008, 2012
Co-General Chair Non-volatlie Memories Workshop	2010–2015
Reviewer for Computer Architecture Letters	2011
Program Committee Member for Micro TopPicks	2008
Program Committee Member for HotPower	2010
Wild and Crazy Idea Chair, ASPLOS	2008
Program Committee Member for PACT	2007
Program Committee Member for FoCS	2007
Program Committee Member for HiPC	2007
Program Committee Member for WEST	2011
Program Committee Member for WECRSS	2011
Web chair for ISCA	2007
Reviewer for Embedded Systems Letters	2010, 2011
External reviewer for HPCA	2004–2005
External reviewer for ISCA	2001, 2003–2005, 2007, 2011, 2013
External reviewer for ASPLOS	2004, 2006
External reviewer for MICRO	2003, 2008, 2010
External reviewer for CGO	2010