

John H. Hartman

Department of Computer Science
The University of Arizona
Tucson, AZ 85721

jhh@cs.arizona.edu
520-621-2733
<http://www.cs.arizona.edu/~jhh>

Education

Ph.D. (Computer Science) University of California at Berkeley, December 1994
Title: "The Zebra Striped Network File System"
Advisor: John K. Ousterhout
M.S. (Computer Science) University of California at Berkeley, May 1990
Title: "Performance Measurements of a Sprite Multiprocessor Kernel"
Advisor: John K. Ousterhout
Sc.B. (Computer Science) Brown University, May 1987

Professional Experience

University of Arizona
Associate Professor in Computer Science, 2001-present
Princeton University
Research Fellow, August 2003 - January 2004
Progeny Linux Systems, Inc.
Chief Scientist, 2001-2007
CTO and Founder, 2000-2001
University of Arizona
Assistant Professor in Computer Science, 1994-2001
University of California at Berkeley
Research Assistant in Computer Science, 1988-1994
Teaching Assistant in Computer Science, 1987-1988
Brown University
Undergraduate Teaching Assistant in Computer Science, 1985-1987
Microsoft Corporation
Summer Intern, 1987 & 1988
IBM Federal Systems Division
Summer Intern, 1986

Awards and Honors

Graduated *magna cum laude* from Brown University, 1987
California Fellowship in Microelectronics, 1987

Research Support

Co-Principal Investigator: *Accelerating Comparative Metagenomics through an Ocean Cloud Commons*, NSF (\$496,066), 2017-2019

Co-Principal Investigator: *Give Your Data the Edge: A Scalable Data Delivery Platform*, NSF (\$3,804,911), 2015-2017

Co-Principal Investigator: *Virtual Watts: Energy Management in Virtual Environments*, NSF (\$300,000), 2008-2011.

Principal Investigator: *A Provisioning Service for Long-Term GENI Experiments*, BBN Technologies Corp. (\$300,000) 2008-2011

Co-Principal Investigator: *Energy: A Crucial Resource in Cell Phone as a Platform for Health Care*, Microsoft (\$94,000), 2008-2009

Principal Investigator: *Bootstrapping Broad-coverage Network Services*, NSF (\$94,000), 2004-2005.

Co-Principal Investigator: *Better Fault-Tolerance via Application-Enhanced Networks*, DARPA (\$1,291,485), 2000-2003.

Principal Investigator: *Liquid Software: A New Paradigm for Networked Systems*, DARPA (\$1,443,000), 1996-1999.

Contributing Investigator: *A Laboratory for Scalable Systems*, NSF (\$1,000,000), 1995-2000.

Principal Investigator: *A Caching Infrastructure*, NSF Career Program, (\$200,000), 1996-2000.

Principle Investigator: *Scout: A Communication-Oriented Operating System for the NII*, DARPA (\$1,336,706), 1995-1999.

Faculty Associate: *Operating System Support for Scalable I/O*, Subcontract from Cal Tech (\$462,615), 1995-1999.

Co-Principal Investigator: *Scalable Network Storage via Software Specialization*, Intel Corporation, (\$76,000), 1995-1996

Principal Investigator: *Scalable Network Storage*, AT&T Foundation, (\$10,000), 1995-1996

Journal Publications

Abhinav K. Jha, Matthew A. Kupinski, Harrison H. Barrett, Eric Clarkson, and John H. Hartman. "A Three-dimensional Neumann-Series Approach to Model Light Transport in Non-uniform Media". *Journal of the Optical Society of America A*. 29, 9, (2012) 1885-1899.

John H. Hartman, Scott Baker, and Ian Murdock. "Customizing the Swarm Storage System using Agents", *Software: Practice & Experience*. 36,2, (2006), 117-223.

Scott Baker and John H. Hartman. "The Design and Implementation of the Gecko NFS Web proxy", *Software: Practice & Experience*. 31, 7, (2001), 637-665.

Larry Peterson, Yitzchak Gottlieb, Steve Schwab Mike Hibler, Patrick Tullmann, Jay Lepreau, and John Hartman. "An OS Interface for Active Routers", *IEEE Journal on Selected Areas in Communications --Active and Programmable Networks*. (2001).

Prasenjit Sarkar and John H. Hartman. "Hint-based Cooperative Caching", *ACM Transactions on Computer Systems* 18, 4 (2000), 387-419.

John H. Hartman, Larry Peterson, Andy Bavier, Peter Bigot, Patrick Bridges, Brady Montz, Rob Piltz, Todd Proebsting, and Oliver Spatscheck. "Experiences Building a Communication-Oriented JavaOS" *Software: Practice & Experience*. 30, 10, (August 2000), 1107-1126.

Oliver Spatscheck, Jorgen S. Hansen, John H. Hartman, and Larry L. Peterson. "Optimizing TCP Forwarder Performance", *IEEE/ACM Transactions on Networking*. 8, 2 (April 2000), 146-157.

Tammo Spalink, John H. Hartman, and Garth Gibson. "A Mobile Agent's Effect on File Service", *IEEE Concurrency*, 8, 2, (April--June 2000), 62-69. An earlier version of this paper appeared as "The Effect of Mobile Agents on File Service", in *Proceedings of the Joint Symposium on Agent Systems and Applications (ASA '99) and Mobile Agents (MA '99)*, October 1999.

Scott Baker and John H. Hartman. "The Gecko NFS Web Proxy", *Computer Networks* 31 (1999), 1725-1736.

John H. Hartman, Larry Peterson, Andy Bavier, Peter Bigot, Patrick Bridges, Brady Montz, Rob Piltz, Todd Proebsting, and Oliver Spatscheck. "Joust: A Platform for Communications-Oriented Liquid Software" *IEEE Computer* 32, 4, April 1999, 50-56.

John H. Hartman, Todd A. Proebsting, and Rajesh Sundaram. "Index-Based Hyperlinks", *Computer Networks and ISDN Systems* 29 (1997), 1129-1135.

John H. Hartman and John K. Ousterhout. "The Zebra Striped Network File System", *ACM Transactions on Computer Systems* 13, 3, August 1995, 279-310.

Refereed Conference Publications

Lei Y, Chris Gniady, and John H. Hartman. "Energy-Efficient Memory Management in Virtual Machine Environments", *Proceedings of the IEEE International Green Computing Conference*, 2011.

Lei Ye, Gen Lu, Sushanth Kumar, Chris Gniady, and John H. Hartman. "Energy-Efficient Storage in Virtual Machine Environment", *Proceedings of the 6th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments*, 2010.

Igor Crk, Fahd Albinali, Chris Gniady, and John Hartman, "Understanding Energy Consumption of Sensor Enabled Applications on Mobile Phones", *Proceedings of the IEEE EMBS Conference*, September 2009.

Justin Cappos, Justin Samuel, Scott Baker, and John H. Hartman, "A Look In the Mirror: Attacks on Package Managers", *ACM Conference on Computer and Communications Security*, October 2008.

Justin Cappos and John H. Hartman, "San Fermin: Aggregating Large Data Sets using a Binomial Swap Forest", *Proceedings of the 5th USENIX Symposium on Networked Systems Design and Implementation*, April 2008.

J. Cappos, S. Baker, J. Plichta, D. Nyugen, J. Hardies, M. Borgard, J. Johnston, and J. H. Hartman. "Stork: Package Management for Distributed VM Environments", *Proceedings of the 2007 LISA Conference*, November 2007.

Huilong Huang, John H. Hartman, and Terril Hurst, "Efficient and Robust Query Processing for Mobile Wireless Sensor Networks", *Proceedings of the 2006 IEEE Globecom Conference*, November 2006.

Huilong Huang, John H. Hartman, and Terril Hurst, "Data-Centric Routing in Sensor Networks using Biased Walk", *Proceedings of the 2006 IEEE SECON Conference*, September 2006.

M. Linn, M. Rajagopalan, S. Baker, C. Collberg, S. K. Debray and J. H. Hartman. "Protecting Against

Unexpected System Calls”. *Proceedings of the 2005 Usenix Security Conference*, August 2005.

Christian Collberg, John H. Hartman, Sridivya Babu, and Sharath K. Udupa. “Slinky: Static Linking Reloaded”. *Proceedings of the 2005 Usenix Technical Conference*, April 2005.

Steve Muir, Larry Peterson, Marc Fiuczynski, Justin Cappos, and John Hartman. “Proper: Privileged Operations in a Virtualised System Environment” (short paper), *Proceedings of the 2005 Usenix Technical Conference*, April 2005.

Scott Baker and John H. Hartman. The Mirage NFS router. *Proceedings of the 29th IEEE Conference on Local Area Networks*, Tampa, FL, November 2004.

Eugenio de la Rosa, John H. Hartman, and Terril Hurst. “Analysis of RBQ: a new cooperative Web caching model that adapts to link congestion.”, *Proceedings of the SPIE ITCOM Conference*, 2003.

Ian Murdock and John H. Hartman. “Swarm: A Log-Structured File System for Linux”, *Proceedings of the FREENIX Track: 2000 USENIX Annual Technical Conference*, June 2000.

John H. Hartman, Ian Murdock, and Tammo Spalink. “The Swarm Scalable Storage System”, *Proceedings of the 19th IEEE International Conference on Distributed Computing Systems*, June 1999, 74-81.

Todd A. Proebsting, Gregg Townsend, Patrick Bridges, John H. Hartman, Tim Newsham, and Scott A. Watterson. “Toba: Java For Applications: A Way Ahead of Time (WAT) Compiler”, *Proceedings of the 3rd USENIX Conference on Object-Oriented Technologies and Systems (COOTS'97)*, June 1997.

Prasenjit Sarkar and John H. Hartman. “Efficient Cooperative Caching using Hints”, *Proceedings of the Second Symposium on Operating Systems Design and Implementation*, October 1996, 35-46.

Ann L. Drapeau, Ken Shirriff, John H. Hartman, Ethan L. Miller, Srinivasan Seshan, Randy H. Katz, Ken Lutz, David A. Patterson, Edward K. Lee, Peter M. Chen, and Garth A. Gibson. “RAID-II: A High-Bandwidth Network File Server”, *Proceedings of the 1994 International Symposium on Computer Architecture*, April 1994, 234-244.

Mary G. Baker, John H. Hartman, Michael D. Kupfer, Ken W. Shirriff, and John K. Ousterhout. “Measurements of a Distributed File System”, *Proceedings of the 13th Symposium on Operating Systems Principles*, December 1991, 198-212.

John H. Hartman and John K. Ousterhout. “Performance Measurements of a Sprite Multiprocessor Kernel”, *Proceedings of the Summer 1990 USENIX Conference*, June 1990, 279-287.

Workshop Papers

Illyoung Choi, Alise J. Ponsero, Ken Youens-Clark, Matthew Bomhoff, Bonnie L. Hurwitz, and John H. Hartman, “Libra: Improved Partitioning Strategies for Massive Comparative Metagenomics Analysis”, *Proceedings of the 9th Workshop on Scientific Cloud Computing*, 2018.

Russell Lewis and John H. Hartman, “Accordion: Multi-Scale Recipes for Adaptive Detection of Duplication”, *In HotStorage*, 2015.

Larry Peterson, Scott Baker, Marc De Leenheer, Andy Bavier, Sapan Bhatia, Jude Nelson, Mike Wawrzoniak, and John Hartman, “XOS: An Extensible Cloud Operating System”, *In ACM International Workshop on Software-Defined Ecosystems (BigSystem15)*, 2015.

Justin Cappos and John H. Hartman, “Rapidly Aggregating Large Datasets using Dynamic Binomial Trees”, *In Eurosys Authoring Workshop*, 2006.

Justin Cappos and John H. Hartman. “Why it is hard to build a long-running service on PlanetLab”, *In USENIX Workshop on Real, Large Distributed Systems (WORLDS)*, 2005.

Other Publications

Larry Peterson and John H. Hartman. "A Simple Approach to CDN Interconnection", IETF Internet Draft, 2011.

John H. Hartman. “The Zebra Striped Network File System”, Ph.D. Thesis, Computer Science Division, University of California, Berkeley, December 1994. Also available as Technical Report UCB/CSD-95-867.

John H. Hartman and John K. Ousterhout. “Zebra: A Striped Network File System”, *Proceedings of the USENIX Workshop on File Systems*, May 1992, 71-78.

B. Welch, M. Baker, F. Douglis, J. Hartman, M. Rosenblum, K. Shirriff, and J. Ousterhout. “Sprite Position Statement: Use Distributed State for Failure Recovery”, *Proceedings of the Second Workshop on Workstation Operating Systems*, September, 1989, 130-133.

John Hartman and Paul Heckbert. “A PostScript Ray Tracer”, *The Ray Tracing News* 2, 2 (June 1988).

Invited Talks

“Network-attached Storage”, IBM Tucson, 1998.

“The Swarm Scalable Storage System”, Joint Storage Networking Industry Association (SNIA) and National Storage Industry Consortium (NSIC) Workshop, March 1998.

“Network-attached Storage”, Network Appliance Corp., November 1997.

“Scalable Network Storage”, IEEE Broadband’97 Workshop, January 1997.

“Empowering the Clients”, HICSS-30 Task Force on Network Storage Architecture, January 1997.

“File Append vs. Overwrite in a Sprite Cluster”, LADDIS SPEC benchmark committee, January 1992.

Professional Activities

Program Committees:

NSDI '06
Supercomputing '02
OpenArch '02
OSDI '99
IOPADS '99
SIGMETRICS '98
ICPP '98

NSF Panels:

PDOS 2005
CAREER 2003

Referee:

IEEE Computer
ACM Computing Surveys
IEEE Transactions on Computers
Symposium on Operating Systems Principles
International Conference on Architectural Support for Programming Languages and Operating Systems
International Symposium on Computer Architecture
USENIX conference
SIGGRAPH conference
OSDI
NSDI

Member:

ACM
IEEE
USENIX

Served as local arrangements chair for HotOS-VII 1999.

Served as local arrangements chair for Hot Mobile Workshop 2007.