

Hakim Weatherspoon, PhD

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Citizenship: United States

EDUCATION:

Ph.D. in Computer Science. October 2006.

University of California, Berkeley – Berkeley, CA.

Design and Evaluation of Distributed Wide-Area On-line Archival Storage Systems.

Model and implementation for an archival system that stores data in a global, durable, verifiable, and self-maintainable manner.

Advisor: John D. Kubiawicz.

Committee: Anthony Joseph and John Chuang

Bachelor Degree in Computer Engineering; Minor – Math: June 1999.

University of Washington – Seattle, WA.

RELATED EXPERIENCE:

Research

CORNELL UNIVERSITY 2008 - present
Assistant Professor — Ithaca, NY, Computer Science Department
Research focus: Fault-tolerance, reliability, security, and performance of Internet-scale systems.

CORNELL UNIVERSITY 2006 - 2008
Research Associate — Ithaca, NY, Computer Science Department
Research, design, and implement fault-tolerant distributed systems.

UNIVERSITY OF CALIFORNIA, BERKELEY 1999 - 2006
PhD Candidate/Graduate Student Researcher – Berkeley, CA, Computer Science Department.
Design and implement a global utility infrastructure to provide continuous access to persistent information.

IBM Summer 2002
Researcher – San Jose, CA, Almaden Research Center.
Surveyed Journaling File Systems for scalable cluster-scale storage system solutions (i.e. collective intelligent bricks).
Recommended best journaling file system.

INTEL CORPORATION 1995-2001
Researcher – Berkeley, CA Intel Research Lab Summer 2001
Implemented the OceanStore Archival Layer as a set of event-driven stages separated by queues.
OceanStore is a global-scale data store being developed at UC Berkeley.
The Archival Layer is responsible for the persistence of data.

Graduate Engineer – Automation Portland Technology Development (PTD) site Summer 1999
Developed a program that is tightly integrated into manufacturing and reports directly to the V.P. of PTD daily.
Participated in evaluation team for new automation systems of Intel's newest Fab (Fab will produce Pentium 0.5-1GHz).

Engineer – Design Automation Portland Technology Development site. Summer 1998
Wrote programs in Perl that are used by microprocessor designers in their designing tasks.
Designed some microprocessor reliability verification tools.

Engineer - Thin Films Group at Portland Technology Development site. Summer 1997
Worked on Px60 process (Pentium 860 or 1260 process which is above Pentium 500MHz range) .
Tested and wrote procedures to test new thin films that will be used in future integrated circuits.

Engineering Technician - Fab 15 in implant on the Pentium 854 process Summer 1996
Wrote a "white paper" which changed part of the Pentium 854 (Pentium 100-200MHz range) affection millions of dollars.
Coordinated Fab15 and Fab 5's Thermowave (measures implant) enabling technician's to use either Fab.

Self – Sustaining Technician - Fab 4 Lithography at stepper Summer 1995
Stepper operator and technician.
Learned the science (chemistry and physics) of the fabrication process and how to work effectively in a team environment.

Teaching

CORNELL UNIVERSITY Fall 2008, Spring 2007
Instructor – Ithaca, NY, Computer Science Department.
Taught upper division undergraduate Operating Systems Course.
Supervised teaching assistants and graders.
Created homework, midterm, and final.

UNIVERSITY OF CALIFORNIA, BERKELEY Spring 2003
Teaching Assistant – Berkeley, CA, Computer Science Department.
Taught two sections for undergraduate Operating Systems Course.
Counseled each group on group project.
Graded quizzes, midterms, project code, initial and final documents.

RESEARCH INTERESTS:

Low-Power, Large Scale, File Systems and Storage Systems. Fault-Tolerant Distributed Systems. Distributed Storage Systems.
Peer-to-Peer Systems. Routing Overlays.

TEACHING INTERESTS:

Graduate and Undergraduate Operating System, Network, and Distributed System Courses.

FELLOWSHIPS/ HONORS / AWARDS:

- Cornell University, Provost Postdoctoral Fellowship (2007-2008)
- Intel PhD Foundation Fellowship (2005-2006)
- Intel Masters Apprenticeship Program (IMAP) (1999-2001)
- Torch Bearer: National Society of Black Engineers UW (1997-2002)
- Intel Minority Engineering Scholarship Program (MESP) (1997-1999)
- Pac-10 All-Academic Team for Football (1998)
- University of Washington, Husky Football Player (1995-1999)
- Intel Honors Internship Program (iHIP) (1999-2006)
- Best Poster Award–Richard Tapia Tech Conf (2003)
- Rhodes Scholar Finalist (1998)
- Fellow: National Society of Black Engineers (1997)
- Undergraduate Scholar Award (1995-1999)
- Microsoft Technical Scholar Award (1999)
- NASA Space Grant Award (1996-1999)

PROGRAM COMMITTEES:

- ACM Symposium on Operating Systems Principles (SOSP), Scholarship Committee 2007
- USENIX Symposium on Operating Systems Design and Implementation (OSDI) 2008
- USENIX Conference on File and Storage Technologies (FAST) 2008
- USENIX Workshop on Hot Topics in System Dependability (HotDep) 2008
- IEEE International Symposium on Network Computing and Applications (NCA) 2008
- IEEE Workshop on Decentralized Self Management for Grids, P2P, and User Communities (SELFMAN) 2008
- IEEE International Conference on Distributed Computing Systems (ICDCS) 2009
- International Workshop on Peer-to-Peer Systems (IPTPS) 2009

AFFILIATIONS:

Association for Computing Machinery (ACM) (2001-2008)
Special Interest Group Operating Systems (ACM – SIGOPS) (2001-2008)
USENIX Association (Advanced Computing Systems Association) (2001-2008)
National Society of Black Engineers (NSBE) (1996 – 2008)
Black Graduate Science Engineering Science Students (BGESS) association (1999-2007)

PUBLICATIONS:

Thesis

Design and Evaluation of Distributed Wide-Area On-line Archival Storage Systems, Hakim Weatherspoon. Appears in *U.C. Berkeley PhD Dissertation*, Technical Report No. UCB/EECS-2006-130, October 13, 2006.

Books

Future Directions in Distributed Computing, Andre Schiper, Alex Shvartsman, Hakim Weatherspoon, Ben Zhao (*Editors*). *Lecture Notes in Computer Science*, Volume 2584, ISBN 3-540-00912-4, May 2003, 219 pages.

Awarded State-of-the-Art LNCS subseries.

Journals

GOSSIP: Gossiping Over Storage Systems Is Practical, Hakim Weatherspoon, Hugo Miranda, Konrad Iwanicki, Ali Ghodsi, Yann Busnel. Appears in *ACM Operating Systems Review (OSR)*, Volume 41, No 5, October 2007, pp 75-81.

Exploiting the Synergy Between Gossiping and Structured Overlays, Ali Ghodsi, Seif Haridi, and Hakim Weatherspoon. Appears in *ACM Operating Systems Review (OSR)*, Volume 41, No 5, October 2007, pp 61-66.

Maintenance-Free Global Data Storage, Sean Rhea, Chris Wells, Patrick Eaton, Dennis Geels, Ben Zhao, Hakim Weatherspoon, and John Kubiatowicz. Appears in *IEEE Internet Computing*, Volume 5, No 5, September/October 2001, pp 40-49.

Refereed Papers

Maelstrom: Transparent Error Correction for Lambda Networks, Mahesh Balakrishnan, Tudor Marian, Ken Birman, Hakim Weatherspoon, Einar Vollset, Appears in *Proceedings of the 5th USENIX Symposium on Networked Systems Design and Implementation (NSDI '08)*, April 2008.

Optimizing Power Consumption in Large Scale Storage Systems, Lakshmi Ganesh, Hakim Weatherspoon, Mahesh Balakrishnan, Ken Birman. Appears in *Proceedings of the 11th ACM Workshop on Hot Topics in Operating Systems (HotOS '07)*, May 2007.

Antiquity: Exploiting a Secure Log for Wide-Area Distributed Storage, Hakim Weatherspoon, Patrick Eaton, Byung-Gon Chun, and John Kubiatowicz. Appears in *Proceedings of the 2nd ACM European Conference on Computer Systems (Eurosys '07)*, March 2007.

Efficient Replica Maintenance for Distributed Storage Systems, Byung-Gon Chun, Frank Dabek, Andreas Haeberlen, Emil Sit, Hakim Weatherspoon, M. Frans Kaashoek, John Kubiatowicz, and Robert Morris. Appears in *Proceedings of the 3rd USENIX Symposium on Networked Systems Design and Implementation (NSDI '06)*, May 2006.

Proactive replication for data durability, Emil Sit, Andreas Haeberlen, Frank Dabek, Byung-Gon Chun, Hakim Weatherspoon, Robert Morris, M. Frans Kaashoek, and John Kubiatowicz. Appears in *Proceedings of the Fifth International Workshop on Peer-to-Peer Systems (IPTPS '06)*, February 2006.

ChunkCast: An Anycast Service for Large Content Distribution, Byung-Gon Chun, Peter Wu, Hakim Weatherspoon, and John Kubiatowicz. Appears in *International Workshop on Peer-to-Peer Systems (IPTPS '06)*, February 2006.

Efficiently Binding Data to Owners in Distributed Content-Addressable Storage Systems, Patrick Eaton, Hakim Weatherspoon, and John Kubiatowicz. Appears in *Proceedings of the 3rd International IEEE Security in Storage Workshop (IEEE SISW 2005)*, December 2005.

Pond: the OceanStore Prototype, Sean Rhea, Patrick Eaton, Dennis Geels, Hakim Weatherspoon, Ben Zhao, and John Kubiatowicz. Appears in *Proceedings of the 2nd USENIX Conference on File and Storage Technologies (FAST '03)*, March 2003.

Awarded best student paper.

Introspective Failure Analysis: Avoiding Correlated Failures in Peer-to-Peer Systems, Hakim Weatherspoon, Tal Moscovitz, and John Kubiawicz. Appears in *Proceedings of International Workshop on Reliable Peer-to-Peer Distributed Systems*, October 2002.

Efficient Heartbeats and Repair of Softstate in Decentralized Object Location and Routing Systems, Hakim Weatherspoon and John Kubiawicz. Appears in *Proceedings of the SIGOPS European Workshop*, September 2002.

Naming and Integrity: Self-Verifying Data in Peer-to-Peer Systems, Hakim Weatherspoon and John Kubiawicz. Appears in *Proceedings of the International Workshop on Future Directions in Distributed Computing (FuDiCo 2002)*, June 2002.

Erasure Coding vs. Replication: A Quantitative Comparison, Hakim Weatherspoon and John Kubiawicz. Appears in *Proceedings of the First International Workshop on Peer-to-Peer Systems (IPTPS 2002)*, March 2002.

OceanStore: An Architecture for Global-Scale Persistent Storage, John Kubiawicz, David Bindel, Yan Chen, Steven Czerwinski, Patrick Eaton, Dennis Geels, Ramakrishna Gummadi, Sean Rhea, Hakim Weatherspoon, Westley Weimer, Chris Wells, and Ben Zhao. Appears in *Proceedings of the Ninth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2000)*, November 2000.

Submitted for Publication

Smoke and Mirrors: Shadowing Files at a Geographically Remote Location Without Loss of Performance, Hakim Weatherspoon, Lakshmi Ganesh, Tudor Marian, Mahesh Balakrishnan, and Ken Birman, Submitted for Publication, December 2008.

Reactively Reconfiguring Byzantine Fault-Tolerant Systems, Hakim Weatherspoon, Robbert van Renesse, Patrick Eaton, Byung-Gon Chun, and John Kubiawicz, Submitted for Publication, December 2008.

Technical Reports

Long-Term Data Maintenance: A Quantitative Approach, Hakim Weatherspoon, Byung-Gon Chun, Chiu Wah So, John Kubiawicz. *UC Berkeley Technical Report UCB//CSD-05-1404*, July 2005

Monitoring, Analyzing, and Controlling Internet-scale Systems with ACME, David Oppenheimer, Vitaliy Vatkovskiy, Hakim Weatherspoon, Jason Lee, David A. Patterson, and John Kubiawicz. *UC Berkeley Technical Report UCB//CSD-03-1276*, October 2003

Silverback: A Global-Scale Archival System, Hakim Weatherspoon, Chris Wells, Patrick R. Eaton, Ben Y. Zhao, and John D. Kubiawicz. *UC Berkeley Technical Report: UCB//CSD-01-1139*, March 2000.

OceanStore: An Extremely Wide-Area Storage System, John Kubiawicz, David Bindel, Yan Chen, Patrick Eaton, Dennis Geels, Ramakrishna Gummadi, Sean Rhea, Hakim Weatherspoon, Westley Weimer, Chris Wells, and Ben Zhao. *UC Berkeley Technical Report UCB//CSD-00-1102*, May 1999.

REFERENCES:

John Kubiawicz, Assoc. Professor, University of California, Berkeley, 673 Soda Hall, Berkeley, CA, 94720, (510) 643-6817
Anthony D. Joseph, Assoc. Professor, University of California, Berkeley, 465 Soda Hall, Berkeley, CA, 94720, (510) 643-7212
Ken Birman, Professor, Cornell University, 4119B Upson Hall, Ithaca, NY 14853 (607) 255-9199
Robbert van Renesse, Principal Research Scientist, Cornell University, 4119A Upson Hall, Ithaca, NY, 14853 (607) 255-1021
John Chuang, Associate Professor, University of California, Berkeley, Berkeley, CA, 94720 (510) 642-7253
Edward Lazowska, Bill & Melinda Gates Chair, University of Washington, 419 Sieg Hall, Seattle, WA 98195, (206) 543-4755
Debra Friedman, Dean, Arizona State University, 411 N Central Avenue, Suite 600, Phoenix, AZ 85004, (602) 496-0402