

# REMZI H. ARPACI-DUSSEAU

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## Education

Computer Science Division, University of California, Berkeley 1993–1999  
Ph.D., December 1999. *Performance Availability for Networks of Workstations*  
M.S., May 1996. *Communication Behavior of a Distributed Operating System*  
Advisor: David A. Patterson

Department of Electrical Engineering and Computer Science, University of Michigan, Ann Arbor 1989–1993  
B.S. in Computer Engineering, *Summa cum laude*

## Professional Experience

Professor of Computer Sciences (courtesy appt. with ECE), University of Wisconsin–Madison 2009–present  
Visiting Scientist, Google, Mountain View 2014–2015  
Visiting Professor, Stanford University 2014–2015  
Visiting Professor, EPFL, Lausanne Summer 2010  
Visiting Professor, University of Michigan, Ann Arbor 2006–2007  
Associate Professor of Computer Sciences, University of Wisconsin–Madison 2006–2009  
Assistant Professor of Computer Sciences, University of Wisconsin–Madison 2000–2006

## Memberships

IEEE, ACM, USENIX, Tau Beta Pi, Eta Kappa Nu, Fellow of the UW Teaching Academy

## Honors and Awards

**Research:** Mark Weiser Award for “outstanding leadership, innovation, and impact in storage and computer systems research” (’18), Grace Wahba Professor of Computer Sciences (since Fall ’18), FAST Best Paper Award (’18, ’17, ’13, ’11, ’10, ’09, ’08, ’04), EuroSys Best Paper Award (’14), SOSP Best Paper Award (’11), USENIX ATC Best Paper Award (’09), NetApp Faculty Fellowship (’11, ’09), IBM Faculty Partner Award (’03).

**Teaching:** UW-Madison Chancellor’s Distinguished Teaching Award (’16), SACM Student’s Choice Professor of the Year (’18, ’13, ’11, ’10, ’09, ’00), Division of University Housing Honored Instructor Award (’11), SACM Student’s Choice Professor of the Year Runner-up (’03, ’02, ’01), Carolyn Rosner Excellent Educator Award (’11).

**Other:** MinuteSort World Record (’97, ’98), Datamation World Record (’97, ’98, ’01–present).

## Professional Activities

**Program Chair:** SOSP ’19 (with Y.Y. Zhou), SOCC ’14 (with Johannes Gehrke), OSDI ’10 (with Brad Chen), FAST ’07 (with A. Arpaci-Dusseau). USENIX ATC ’04 (with A. Arpaci-Dusseau).

**Editor:** Associate Editor for ACM TOCS (’14–present).

**Program Committees:** FAST (’17, ’14, ’09, ’03), OSDI (’14, ’12, ’08), SOSP (’17), USENIX (’09) Syster (’15, ’13), NVMWS (’14), SOCC (’13), DSN (’12), NSDI (’11), HotStorage (’11), SPEED (’08), HPDC (’06, ’05, ’04, ’03), VLDB (’04, ’01).

**Other Committees:** FAST Steering ’08–present, OSDI Steering ’10, ’11, ’12, FAST Test of Time Award Chair ’11, ’12, ’13, NSF Committee of Visitors (CISE CNS) ’09,

## Refereed Publications

- [1] Suli Yang, Jing Liu, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Principled Schedulability Analysis for Distributed Storage Systems using Thread Architecture Models. In *Proceedings of the 13th Symposium on Operating Systems Design and Implementation (OSDI '18)*, San Diego, California, October 2018.
- [2] Ramnatthan Alagappan, Aishwarya Ganesan, Jing Liu, Andrea Arpaci-Dusseau, and Remzi Arpaci-Dusseau. Fault-Tolerance, Fast and Slow: Exploiting Failure Asynchrony in Distributed Systems. In *Proceedings of the 13th Symposium on Operating Systems Design and Implementation (OSDI '18)*, San Diego, California, October 2018.
- [3] Edward Oakes, Leon Yang, Dennis Zhou, Kevin Houck, Tyler Harter, Andrea Arpaci-Dusseau, and Remzi Arpaci-Dusseau. SOCK: Rapid task provisioning with serverless-optimized containers. In *USENIX Annual Technical Conference (USENIX ATC '18)*, Boston, MA, 2018.
- [4] Sudarsun Kannan, Nitish Bhat, Ada Gavrilovska, Andrea Arpaci-Dusseau, and Remzi Arpaci-Dusseau. Redesigning Isms for nonvolatile memory with novelism. In *USENIX Annual Technical Conference (USENIX ATC '18)*, Boston, MA, 2018. USENIX Association.
- [5] Eunji Lee, Youil Han, Suli Yang, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. How to teach an old file system dog new object store tricks. In *10th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '18)*, Boston, MA, 2018.
- [6] Zev Weiss, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Densefs: a cache-compact filesystem. In *10th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '18)*, Boston, MA, 2018.
- [7] Yuvraj Patel, Mohit Verma, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Revisiting concurrency in high-performance nosql databases. In *10th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '18)*, Boston, MA, 2018.
- [8] Remzi H. Arpaci-Dusseau, Andrea Arpaci-Dusseau, and Venkat Venkataramani. Cloud-native file systems. In *10th USENIX Workshop on Hot Topics in Cloud Computing (HotCloud '18)*, Boston, MA, 2018.
- [9] Jun He, Sudarsun Kannan, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. The Unwritten Contract of Solid State Drives. The 9th Non-Volatile Memories Workshop (NVMW '18), March 2018.
- [10] Sudarsun Kannan, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Yuangang Wang, Jun Xu, and Gopinath Palani. Designing a True Direct-Access File System with DevFS. In *Proceedings of the 16th USENIX Conference on File and Storage Technologies (FAST '18)*, Oakland, California, February 2018.
- [11] Ramnatthan Alagappan, Aishwarya Ganesan, Eric Lee, Aws Albarghouthi, Vijay Chidambaram, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Protocol-Aware Recovery for Consensus-Based Storage. In *Proceedings of the 16th USENIX Conference on File and Storage Technologies (FAST '18)*, Oakland, California, February 2018.
- [12] Aishwarya Ganesan, Ramnatthan Alagappan, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Redundancy Does Not Imply Fault Tolerance: Analysis of Distributed Storage Reactions to File-System Faults. *ACM Transactions on Storage (TOS)*, 13(3), September 2017.
- [13] Thanumalayan Sankaranarayanan Pillai, Ramnatthan Alagappan, Lanyue Lu, Vijay Chidambaram, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Application crash consistency and performance with cdfs. *ACM Transactions on Storage (TOS)*, 13(3), September 2017.

- [14] Aishwarya Ganesan, Ramnatthan Alagappan, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Redundancy Does Not Imply Fault Tolerance: Analysis of Distributed Storage Reactions to Single Errors and Corruptions. ;login: *The USENIX Magazine*, 42(2), 2017.
- [15] Samer Al-Kiswany, Suli Yang, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. NICE: Network-Integrated Cluster-Efficient Storage. In *The 26th International Symposium on High Performance Parallel and Distributed Computing (HPDC '17)*, June 2017.
- [16] Leo Arulraj, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Improving Virtualized Storage Performance with Sky. In *Proceedings of the 13th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments, VEE '17*, pages 112–128, 2017.
- [17] Jun He, Sudarsun Kannan, Andrea Arpaci-Dusseau, and Remzi Arpaci-Dusseau. The Unwritten Contract of Solid State Drives. In *Proceedings of the EuroSys Conference (EuroSys '17)*, Belgrade, Serbia, April 2017.
- [18] Lanyue Lu, Thanumalayan Sankaranarayana Pillai, Hariharan Gopalakrishnan, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. WiscKey: Separating Keys from Values in SSD-Conscious Storage. *ACM Transactions on Storage (TOS)*, 13(1), March 2017.
- [19] Thanumalayan Sankaranarayana Pillai, Ramnatthan Alagappan, Lanyue Lu, Vijay Chidambaram, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Application Crash Consistency and Performance with CCFS. In *Proceedings of the 15th USENIX Conference on File and Storage Technologies (FAST '17)*, Santa Clara, California, February 2017.
- [20] Aishwarya Ganesan, Ramnatthan Alagappan, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Redundancy Does Not Imply Fault Tolerance: Analysis of Distributed Storage Reactions to Single Errors and Corruptions. In *Proceedings of the 15th USENIX Conference on File and Storage Technologies (FAST '17)*, Santa Clara, California, February 2017.
- [21] Ramnatthan Alagappan, Aishwarya Ganesan, Yuvraj Patel, Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Correlated Crash Vulnerabilities. In *Proceedings of the 12th Symposium on Operating Systems Design and Implementation (OSDI '16)*, Savannah, Georgia, November 2016.
- [22] Scott Hendrickson, Stephen Sturdevant, Tyler Harter, Venkateshwaran Venkataramani, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Serverless Computation with OpenLambda. In *The Eighth USENIX Workshop on Hot Topics in Cloud Computing (HotCloud'16)*, Denver, Colorado, June 2016.
- [23] Suli Yang, Kiran Srinivasan, Kishore Udayashankar, Swetha Krishnan, Jingxin Feng, Yupu Zhang, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Tombolo: Performance Enhancements for Cloud Storage Gateways. In *Proceedings of the 32nd IEEE Conference on Massive Data Storage (MSST '16)*, Santa Clara, California, June 2016.
- [24] Ivo Jimenez, Carlos Maltzahn, Jay F. Lofstead, Adam Moody, Kathryn Mohror, Remzi H. Arpaci-Dusseau, and Andrea C. Arpaci-Dusseau. Characterizing and Reducing Cross-Platform Performance Variability Using OS-Level Virtualization. IPDPS Workshop '16, 2016.
- [25] Lanyue Lu, Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. WiscKey: Separating Keys from Values in SSD-conscious Storage. In *Proceedings of the 14th USENIX Conference on File and Storage Technologies (FAST '16)*, Santa Clara, California, February 2016.
- [26] Tyler Harter, Brandon Salmon, Rose Liu, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Slacker: Fast Distribution with Lazy Docker Containers. In *Proceedings of the 14th USENIX Conference on File and Storage Technologies (FAST '16)*, Santa Clara, California, February 2016.

- [27] Suli Yang, Tyler Harter, Nishant Agrawal, Salini Selvaraj Kowsalya, Anand Krishnamurthy, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Split-Level I/O Scheduling. In *Proceedings of the 25th ACM Symposium on Operating Systems Principles (SOSP '15)*, Monterey, California, October 2015.
- [28] Zev Weiss, Sriram Subramanian, Swaminathan Sundararaman, Vinay Sridhar, Nisha Talagala, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Mjolnir: Collecting Trash in a Demanding New World. In *Interactions of NVM/Flash with Operating-Systems and Workloads (INFLOW '15)*, Monterey, California, October 2015.
- [29] Ramnatthan Alagappan, Vijay Chidambaram, Thanumalayan S. Pillai, Aws Albarghouthi, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Beyond Storage APIs: Provable Semantics for Storage Stacks. In *The Fifteenth Workshop on Hot Topics in Operating Systems (HotOS XV)*, Kartause Ittingen, Switzerland, May 2015.
- [30] Yiyang Zhang, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Removing the Costs and Retaining the Benefits of Flash-Based SSD Virtualization with FSDV. In *Proceedings of the 31st IEEE Conference on Massive Data Storage (MSST '15)*, Santa Clara, California, May 2015.
- [31] Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Ramnatthan Alagappan, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Crash Consistency: Rethinking the Fundamental Abstractions of the File System. *ACM Queue*, 13(7), July 2015.
- [32] Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Ramnatthan Alagappan, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Crash Consistency. *Communications of the ACM*, 58(10), October 2015.
- [33] Zev Weiss, Sriram Subramanian, Swaminathan Sundararaman, Nisha Talagala, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. ANViL: Advanced Virtualization for Modern Non-Volatile Memory Devices. In *Proceedings of the 13th USENIX Conference on File and Storage Technologies (FAST '15)*, Santa Clara, California, February 2015.
- [34] Jun He, Duy Nguyen, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Reducing File System Tail Latencies with Chopper. In *Proceedings of the 13th USENIX Conference on File and Storage Technologies (FAST '15)*, Santa Clara, California, February 2015.
- [35] Sriram Subramanian, Swaminathan Sundararaman, Nisha Talagala, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Snapshots in a Flash with ioSnap. In *Proceedings of the EuroSys Conference (EuroSys '14)*, Amsterdam, Netherlands, April 2014.
- [36] Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Fractured Processes: Adaptive, Fine-Grained Process Abstractions. In *Proceedings of the 2014 Conference on Timely Results in Operating Systems (TRIOS '14)*, Broomfield, Colorado, October 2014.
- [37] Thanumalayan Sankaranarayana Pillai, Vijay Chidambaram, Ramnatthan Alagappan, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. All File Systems Are Not Created Equal: On the Complexity of Crafting Crash-Consistent Applications. In *Proceedings of the 11th Symposium on Operating Systems Design and Implementation (OSDI '14)*, Broomfield, Colorado, October 2014.
- [38] Lanyue Lu, Yupu Zhang, Thanh Do, Samer Al-Kiswany, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Physical Disentanglement in a Container-Based File System. In *Proceedings of the 11th Symposium on Operating Systems Design and Implementation (OSDI '14)*, Broomfield, Colorado, October 2014.

- [39] Tyler Harter, Dhruba Borthakur, Siying Dong, Amitanand Aiyer, Liyin Tang, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Analysis of HDFS Under HBase: A Facebook Messages Case Study. In *Proceedings of the 12th USENIX Symposium on File and Storage Technologies (FAST '14)*, Santa Clara, California, February 2014.
- [40] Lanyue Lu, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Shan Lu. A Study of Linux File System Evolution. *ACM Transactions on Storage*, 10(1), Feb 2014.
- [41] Ao Ma, Chris Dragga, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. ffsc: The Fast File System Checker. *ACM Transactions on Storage*, 10(1), Feb 2014.
- [42] Vijay Chidambaram, Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Optimistic Crash Consistency. In *Proceedings of the 24th ACM Symposium on Operating Systems Principles (SOSP '13)*, Nemacon Woodlands Resort, Farmington, Pennsylvania, October 2013.
- [43] Zev Weiss, Tyler Harter, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. ROOT: Replaying Multi-threaded Traces with Resource-Oriented Ordering. In *Proceedings of the 24th ACM Symposium on Operating Systems Principles (SOSP '13)*, Nemacon Woodlands Resort, Farmington, Pennsylvania, October 2013.
- [44] Lanyue Lu, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Shan Lu. A Study of Linux File System Evolution. *login: The USENIX Magazine*, 38(3), June 2013.
- [45] Yupu Zhang, Chris Dragga, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. StrongBox: Towards Reliability and Consistency in Cloud-Based File Synchronization Services. In *5th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '13)*, San Jose, CA, June 2013.
- [46] Lanyue Lu, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Fault Isolation And Quick Recovery in Isolation File Systems. In *5th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '13)*, San Jose, CA, June 2013.
- [47] Yupu Zhang, Daniel S. Myers, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Zettabyte Reliability with Flexible End-to-end Data Integrity. In *Proceedings of the 29th IEEE Conference on Massive Data Storage (MSST '13)*, Long Beach, California, May 2013.
- [48] Yiyang Zhang, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau. Warped Mirrors for Flash. In *Proceedings of the 29th IEEE Conference on Massive Data Storage (MSST '13)*, Long Beach, California, May 2013.
- [49] Yiyang Zhang, Gokul Soundararajan, Mark W. Storer, Lakshmi N. Bairavasundaram, Sethuraman Subbiah, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Warming up Storage-Level Caches with Bonfire. In *Proceedings of the 11th USENIX Symposium on File and Storage Technologies (FAST '13)*, San Jose, California, February 2013.
- [50] Mohit Saxena, Yiyang Zhang, Michael M. Swift, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Getting Real: Lessons in Transitioning Research Simulations into Hardware Systems. In *Proceedings of the 11th USENIX Symposium on File and Storage Technologies (FAST '13)*, San Jose, California, February 2013.
- [51] Ao Ma, Chris Dragga, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. ffsc: The Fast File System Checker. In *Proceedings of the 11th USENIX Symposium on File and Storage Technologies (FAST '13)*, San Jose, California, February 2013.

- [52] Lanyue Lu, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Shan Lu. A Study of Linux File System Evolution. In *Proceedings of the 11th USENIX Symposium on File and Storage Technologies (FAST '13)*, San Jose, California, February 2013.
- [53] Thanh Do, Tyler Harter, Yingchao Liu, Haryadi S. Gunawi, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. HARDFS: Hardening HDFS with Selective and Lightweight Versioning. In *Proceedings of the 11th USENIX Symposium on File and Storage Technologies (FAST '13)*, San Jose, California, February 2013.
- [54] Nitin Agrawal, Leo Arulraj, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Emulating Goliath Storage Systems with David. *ACM Transactions on Storage*, 7(4), Jan 2012.
- [55] Tyler Harter, Chris Dragga, Michael Vaughn, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. A File is Not a File: Understanding the I/O Behavior of Apple Desktop Applications. *ACM Transactions on Computing Systems*, 30(3), August 2012.
- [56] Yiying Zhang, Leo Arulraj, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. De-indirection for Flash-based SSDs with Nameless Writes. In *Proceedings of the 10th USENIX Symposium on File and Storage Technologies (FAST '12)*, San Jose, California, February 2012.
- [57] Vijay Chidambaram, Tushar Sharma, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Consistency Without Ordering. In *Proceedings of the 10th USENIX Symposium on File and Storage Technologies (FAST '12)*, pages 101–116, San Jose, California, February 2012.
- [58] Tyler Harter, Chris Dragga, Michael Vaughn, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. A File is Not a File: Understanding the I/O Behavior of Apple Desktop Applications. In *Proceedings of the 23rd ACM Symposium on Operating Systems Principles (SOSP '11)*, Cascais, Portugal, October 2011.
- [59] Abhishek Rajimwale, Vijay Chidambaram, Deepak Ramamurthi, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Coerced Cache Eviction and Discreet-Mode Journaling: Dealing with Misbehaving Disks. In *Proceedings of the International Conference on Dependable Systems and Networks (DSN '11)*, Hong Kong, China, June 2011.
- [60] Swaminathan Sundararaman, Laxman Visampalli, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Refuse to Crash with Re-FUSE. In *Proceedings of the EuroSys Conference (EuroSys '11)*, Salzburg, Austria, April 2011.
- [61] Swaminathan Sundararaman, Yupu Zhang, Sriram Subramanian, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Making the Common Case the Only Case with Anticipatory Memory Allocation. In *Proceedings of the 9th USENIX Symposium on File and Storage Technologies (FAST '11)*, San Jose, California, February 2011.
- [62] Thanumalayan Sankaranarayana Pillai, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Quarantine: Fault Tolerance for Concurrent Servers with Data-Driven Selective Isolation. In *3rd USENIX Workshop on Hot Topics in Parallelism (HotPar '11)*, Berkeley, California, May 2011.
- [63] Nitin Agrawal, Leo Arulraj, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Emulating Goliath Storage Systems with David. In *Proceedings of the 9th USENIX Symposium on File and Storage Technologies (FAST '11)*, San Jose, California, February 2011.
- [64] Haryadi S. Gunawi, Thanh Do, Pallavi Joshi, Peter Alvaro, Joseph M. Hellerstein, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Koushik Sen, and Dhruva Borthakur. FATE and DESTINI: A Framework for Cloud Recovery Testing. In *Proceedings of the 8th Symposium on Networked Systems Design and Implementation (NSDI '11)*, Boston, Massachusetts, April 2011.

- [65] Swaminathan Sundararaman, Sriram Subramanian, Abhishek Rajimwale, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Michael M. Swift. Membrane: Operating System Support for Restartable File Systems. *ACM Transactions on Storage*, 6(3), Sep 2010.
- [66] Swaminathan Sundararaman, Sriram Subramanian, Abhishek Rajimwale, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Michael M. Swift. Membrane: Operating System Support for Restartable File Systems. In *Proceedings of the 8th USENIX Symposium on File and Storage Technologies (FAST '10)*, San Jose, California, February 2010.
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- [69] John Bent, Remzi Arpaci-Dusseau, Andrea Arpaci-Dusseau, Miron Livny, and Timothy Denehy. Data-Driven Batch Scheduling. In *The Second International Workshop on Data-Aware Distributed Computing*, Munich, Germany, June 2009.
- [70] Swaminathan Sundararaman, Sriram Subramanian, Abhishek Rajimwale, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Michael M. Swift. Why panic()? Improving Reliability with Restartable File Systems. In *Workshop on Hot Topics in Storage and File Systems (HotStorage '09)*, Big Sky, Montana, October 2009.
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- [74] Ashok Anand, Sayandeep Sen, Andrew Krioukov, Florentina Popovici, Aditya Akella, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Suman Banerjee. Avoiding File System Micromanagement with Range Writes. In *Proceedings of the 8th Symposium on Operating Systems Design and Implementation (OSDI '08)*, San Diego, California, December 2008.
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## Books, Book Chapters, Theses

- [1] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. *Operating Systems: Three Easy Pieces*. Arpaci-Dusseau Books, 0.9 edition, 2014.
- [2] John L. Hennessy and David A. Patterson. *Computer Architecture: A Quantitative Approach (4th Edition)*. Morgan Kaufmann, 2006. With contributions by Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Krste Asanovic, Robert P. Colwell, Thomas M. Conte, Jose Duato, Diana Franklin, David Goldberg, Wen-mei W. Hwu, Norman P. Jouppi, Timothy M. Pinkston, John W. Sas, David A. Wood.
- [3] John Bent, Venkateshwaran Venkataramani, Nick Leroy, Alain Roy, Joseph Stanley, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Miron Livny. NeST - A Grid Enabled Storage Appliance. In Jan Weglarz, Jarek Nabrzyski, Jennifer Schopf, and Maciej Stroinski, editors, *Grid Resource Management*, chapter 22, pages 341–358. Kluwer Academic Publishers, June 2003.
- [4] Remzi H. Arpaci-Dusseau. *Performance Availability for Networks of Workstations*. PhD thesis, University of California, Berkeley, 1999.
- [5] Remzi H. Arpaci. The Communication Behavior of a Distributed Operating System. Master’s thesis, University of California, Berkeley, 1996.

## Technical Reports

- [1] Muthian Sivathanu, Vijayan Prabhakaran, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Improving Storage System Availability with D-GRAID. Technical Report CS 1473, University of Wisconsin, Madison, 2003.
- [2] Doug Thain, John Bent, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Miron Livny. The Architectural Implications of Pipeline and Batch Sharing in Scientific Workloads. Technical Report CS 1463, University of Wisconsin, Madison, 2003.
- [3] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Stop All File Systems Research. Technical Report CS 1466, University of Wisconsin, Madison, 2003.
- [4] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Infokernel: An evolutionary approach to operating system design. Technical Report CS 1465, University of Wisconsin, Madison, 2003.
- [5] John Bent, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, and Miron Livny. Migratory File Services for Scientific Applications. Technical Report CS 1460, University of Wisconsin, Madison, 2002.
- [6] Nisha Talagala, Remzi H. Arpaci-Dusseau, and Dave Patterson. Microbenchmark-based Extraction of Local and Global Disk Characteristics. Technical Report CSD-99-1063, University of California, Berkeley, 1999.

## Patents

- [1] Michael Swift, Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Swaminathan Sundararaman, Sriram Subramanian, and Abhishek Rajimwale. Providing Restartable File Systems Within Computing Devices. U.S. Patent No. 8,510,597, February 2011. Granted August, 2013.
- [2] Muthian Sivathanu, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau. Computer Storage Device Providing Implicit Detection of Block Liveness. U.S. Patent No. 7,536,521, May 2007. Granted July, 2009.

## Invited Lectures

- [1] Measure, Then Build. *Distinguished Lecture at Research Triangle*, March 2017.
- [2] Isolation in the Datacenter. *Invited Lecture at U. Chicago*, November 2016.
- [3] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Data@Scale Event*, June 2016.
- [4] Your Storage Is Broken. *Invited Talk at Huawei*, May 2016.
- [5] Isolation in the Datacenter. *Distinguished Lecture at Purdue*, November 2015.
- [6] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Pure Storage*, June 2015.
- [7] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at EMC*, June 2015.
- [8] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Datos*, June 2015.
- [9] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Facebook*, June 2015.
- [10] Performance vs. Correctness in the Local Storage Stack. *Keynote at Veritas Internal Conference*, May 2015.
- [11] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Infosys*, May 2015.
- [12] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Cloudera*, April 2015.
- [13] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Nutanix*, April 2015.
- [14] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at Meraki*, April 2015.
- [15] Performance vs. Correctness in the Local Storage Stack. *Invited Talk at U.C. San Diego*, February 2015.
- [16] The Application/Storage Interface: We're Still Doing It Wrong. *Keynote at HotStorage '14*, June 2014.
- [17] Crash Consistency and the Cloud. *Invited Talk at IBM T.J. Watson Labs*, June 2013.
- [18] Crash Consistency and the Cloud. *Invited Talk at NEC Labs*, June 2013.
- [19] The Write Stuff. *Invited Talk at University of Minnesota*, May 2013.
- [20] The Write Stuff. *Invited Talk at Seagate*, May 2013.
- [21] The Write Stuff. *Invited Talk at Stonybrook*, March 2013.
- [22] Software-defined Storage Systems. *Invited Talk at VMware*, 2012.
- [23] Software-defined Storage Systems. *Invited Talk at Google (Madison)*, 2012.
- [24] Software-defined Storage Systems. *Invited Talk at EMC*, 2012.
- [25] Software-defined Storage Systems. *Invited Talk at Cloudera*, 2012.
- [26] Software-defined Storage Systems. *Invited Talk at VMware*, 2012.
- [27] Five Years of Reliability Research. *Invited Talk at Apple*, August 2012.
- [28] Trust in the Storage Stack. *Keynote at SYSTOR '12*, 2012.

- [29] Trust in the Storage Stack. *Invited Talk at Fusion-IO*, February 2012.
- [30] Five Years of Reliability Research. *Invited Talk at U.C. Berkeley*, December 2010.
- [31] Five Years of Reliability Research. *Distinguished Lecture at Illinois*, October 2010.
- [32] Five Years of Reliability Research. *Invited Talk at EPFL*, June 2010.
- [33] Five Years of Reliability Research. *Invited Talk at Google (Seattle)*, September 2010.
- [34] The Next Great Systems Language. *Keynote at NSF Workshop on Future Directions in Computer Systems Research*, March 2010.
- [35] Five Years of Reliability Research. *Invited Talk @ facebook*, February 2010.
- [36] Five Years of Reliability Research. *Invited Talk at Columbia*, April 2010.
- [37] Five Years of Reliability Research. *Invited Talk at Purdue*, February 2010.
- [38] Five Years of Reliability Research. *Invited Talk at Northwestern*, March 2010.
- [39] Systems Research: Past and Future. *Google (Madison)*, August 2009.
- [40] Wisconsin HaRD. *NSF HECURA Meeting*, August 2009.
- [41] File Systems Are Broken. *Microsoft Invited Seminar*, June 2009.
- [42] An Overview of Storage Research at Wisconsin. *IBM Almaden Tech Talk*, February 2009.
- [43] On Reliability. *NSF HECURA Meeting*, August 2008.
- [44] An Overview of Storage Research at Wisconsin. *Symantec Tech Talk*, October 2008.
- [45] Declarative File System Checking. *Network Appliance Tech Talk*, September 2008.
- [46] File Systems Are Broken. *Invited Talk: Waterloo Database Seminar*, November 2007.
- [47] The Wisconsin PASS Project. *NSF HECURA Meeting*, August 2007.
- [48] Beyond IRON File Systems. *Invited Talk: SUNY-Stonybrook Systems Seminar*, May 2007.
- [49] Beyond IRON File Systems. *Invited Talk: Cornell Systems Seminar*, April 2007.
- [50] IRON File Systems. *Network Appliance Technical Talk*, November 2006.
- [51] IRON File Systems. *Carnegie Mellon University (Systems Seminar)*, February 2006.
- [52] Living in a Layered World. *Invited Lecture at Network Appliance*, August 2005.
- [53] Predictable Computing Systems. *NSF Grand Challenge Workshop*, September 2005.
- [54] Improving Availability with D-GRAID. *Invited Lecture at SNIA CIFS Conference*, August 2005.
- [55] IRON File Systems. *Distinguished Lecture at Florida International University*, April 2005.
- [56] An Overview of Autonomic Computing. *Workshop on Storage Devices and Systems*, April 2004.
- [57] Autonomic Computing: Research Directions. *Workshop on Storage Devices and Systems*, April 2004.

- [58] Semantically-smart Disk Systems. *Carnegie Mellon University*, May 2003.
- [59] Knowledge is Power. *HP Research Labs*, April 2003.
- [60] Knowledge is Power. *IBM Almaden Research Lab (Off-site Retreat)*, April 2003.
- [61] Semantically-Smart Disk Systems. *University of Michigan Systems Seminar*, November 2002.
- [62] Semantically-Smart Disk Systems. *Joint Duke/North Carolina Systems Seminar*, October 2002.
- [63] Informed File Systems. *IBM Almaden Research Lab*, June 2002.
- [64] Storage Research at Wisconsin. *IBM Almaden Research Lab*, April 2001.
- [65] Performance Issues in Component-Based Systems. *National Storage Industries Council*, May 1999.
- [66] Consistent versus Peak Performance: Challenges in Cluster I/O. *Hewlett-Packard Laboratories*, February 1998.

## Conference Presentations

- [1] Removing the Costs of Flash Indirection with Nameless Writes. *HotStorage '10*, June 2010.
- [2] Making Beautiful Graphs with Zplot. 14th Annual Tcl Workshop, September 2007.
- [3] Semantically-smart Disk Systems. *Second Annual Conference on File And Storage Technologies (FAST '03)*, March 2003.
- [4] Fail-Stutter Fault Tolerance. *Workshop on Hot Topics in Operating Systems (HotOS 8)*, May 2001.
- [5] Manageable Storage via Adaptation in WiND. *International Symposium on Cluster Computing and the Grid (CCGrid'2001)*, April 2001.
- [6] Cluster I/O with River: Making the Fast Case Common. *IOPADS '99*, May 1999.
- [7] Searching for the Sorting Record: Experiences in Tuning NOW-Sort. *SPDT '98*, August 1998.
- [8] The Architectural Costs of Streaming I/O: A Comparison of Workstations, Clusters, and SMPs. *HPCA '98*, February 1998.
- [9] High-Performance Sorting on Networks of Workstations. *SIGMOD '97, IBM Almaden Research Center*, May 1997.
- [10] Empirical Evaluation of the CRAY-T3D: A Compiler Perspective. *ISCA-22*, June 1995.

## Other Presentations

- [1] Graduate School Keys To Success. *Graduate School Visit Day '13*, April 2013.
- [2] Graduate School Keys To Success. *Graduate School Visit Day '12*, April 2012.
- [3] Graduate School Keys To Success. *Graduate School Visit Day '12*, April 2012.
- [4] File Systems Are Broken. *Systems Seminar*, November 2007.



- [5] Semantically-Smart Disk Systems. *Wisconsin Operating Systems Seminar*, September 2003.
- [6] Great Ideas in Computer Systems. *University of Wisconsin CS 200 Seminar*, November 2002.
- [7] Semantically-Smart Disk Systems. *Wisconsin Operating Systems Seminar*, September 2002.
- [8] Flexibility, Manageability, and Performance in a Grid Storage Appliance. *GriPhyN All-Hands Meeting (Argonne)*, April 2002.
- [9] Storage Research at Wisconsin. *Wisconsin Operating Systems Seminar*, November 2001.
- [10] Storage Appliances for the Grid. *GriPhyN All-Hands Meeting (Los Angeles)*, July 2001.
- [11] Manageable Storage via Adaptation. *Database Affiliates Meeting*, October 2000.
- [12] Operating Systems and Databases. *Wisconsin Database Seminar*, September 2000.
- [13] Adaptation versus Instrumentation: Experiences with Parallel Systems. *Condor/Paradyn Week*, March 2000.
- [14] Why You Should Be A Systems Person At Wisconsin. *Wisconsin CS Department Visit Day*, January 2000.
- [15] Performance Assumptions Considered Harmful. *Introduction to the Wisconsin CS Department*, January 2000.
- [16] Performance Availability for Networks of Workstations. *Dissertation Defense*, December 2000.
- [17] Robust I/O Performance With River. *NOW Retreat*, June 1998.
- [18] A Balanced-Systems Approach To Parallel I/O. *NOW Retreat*, January 1998.
- [19] The Architectural Costs of Data Movement. *NOW Retreat*, July 1997.
- [20] Communication Behavior of a Distributed Operating System. *NOW Retreat*, July 1996.
- [21] Resource Allocation in NOW: On the Increasing Irrelevance of the CPU. *NOW Retreat*, January 1996.
- [22] A Summer with Solaris MC. *Sun Laboratories*, August 1996.

## Research Funding and Equipment Grants

- [1] Remzi Arpaci-Dusseau, Aditya Akella, Suman Banerjee, Kassem Fawaz, and Shiv Venkataraman. ECDI: Computation, Communication, and Storage Infrastructure For The Roaming Edge. NSF/VMware Research Grant, 2018. *\$3,000,000.00*.
- [2] Aditya Akella, Mike Swift, and Andrea Arpaci-Dusseau. Security and Isolation in the Era of Microservices. NSF Research Grant, 2018. *\$1,200,000.00*. R. Arpaci-Dusseau is senior personnel.
- [3] Remzi H. Arpaci-Dusseau and Jignesh Patel. Microsoft Research Grant. Grant from Microsoft Through Gray Systems Laboratory, 2018. *\$328,000*.
- [4] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Research Gift. NetApp Gift, 2018. *\$50,000. Cash Donation*.
- [5] Remzi H. Arpaci-Dusseau and Jignesh Patel. Microsoft Research Grant. Grant from Microsoft Through Gray Systems Laboratory, 2017. *\$328,000*.
- [6] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Research Gift. VMWare Gift, 2016. *\$72,000. Cash Donation*.
- [7] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Research Gift. Huawei Research Gift, 2016. *\$100,000. Cash Donation*.
- [8] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Matthew Curry, and Nathan DeBardeleben. Modeling Reliability in Storage Systems. DOE Grant, 2016. *\$1,350,000*.
- [9] Robert Ricci, Brig Chip Elliott, Michael Zink, Kuang-Ching Wang, and Srinivasa Akella. CloudLab: Flexible Scientific Infrastructure to Support Fundamental Advances in Cloud Architectures and Applications. NSF Research Grant, 2014. *\$10,000,000.00*.
- [10] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). EMC Research Gift, 2014. *\$50,000. Cash Donation*.
- [11] Remzi H. Arpaci-Dusseau. CSR:CC:Small:Application-Level Consistency for Cloud-based Computing. NSF CSR Research Grant, 2014. *\$499,753.00*.
- [12] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). NetApp Research Gift, 2014. *\$100,000. Cash Donation*.
- [13] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Storage Research. Research Grant, 2014. *\$150,000. Research Grant*.
- [14] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Storage Research. Huawei Research Gift, 2014. *\$136,000. Cash Donation*.
- [15] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Storage Research. Research Grant, 2014. *\$80,000. Research Grant*.
- [16] Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Storage Research. Research Grant, 2014. *\$80,000. Research Grant*.

- [17] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). VMware Research Gift, 2013. *\$50,000. Cash Donation.*
- [18] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). NetApp Research Gift, 2013. *\$100,000. Cash Donation.*
- [19] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). Facebook Research Gift, 2013. *\$75,000. Cash Donation.*
- [20] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). Huawei Research Gift, 2013. *\$50,000. Cash Donation.*
- [21] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). Fusion-io Research Gift, 2013. *\$50,000. Cash Donation.*
- [22] Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau, Aditya Akella, Paul Barford, Somesh Jha, Tom Ristenpart, and Michael Swift. Wisconsin Institute on Software-defined Datacenters Of Madison (WISDOM). EMC Research Gift, 2012. *\$50,000. Cash Donation.*
- [23] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. The Wisconsin Specialized Support for Storage Clouds (WiS3C) Project. NSF CSR Research Grant, 2012. *\$440,000.00.*
- [24] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Mobile Storage Workloads: Analysis and Storage-System Support. Sandia National Laboratories Research Grant, 2012. *\$100,000.*
- [25] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Wisconsin Next Generation Benchmarks (WiNG). NSF CSR Research Grant, 2010. *\$499,440.00.*
- [26] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. HDFS Security Analysis. Sandia National Laboratories Research Grant, 2010. *\$50,000.*
- [27] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Wisconsin HaRD. Network Appliance Faculty Fellowship, 2009. *\$40,000. Cash Donation.*
- [28] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Wisconsin HaRD: Hierarchically-Decoupled, Redundant Storage. Google Research Gift, 2009. *\$50,000. Cash Donation.*
- [29] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Wisconsin HaRD: Hierarchically-Decoupled, Redundant Storage. NSF HECURA Grant, 2009. *\$680,000.*
- [30] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Declarative File System Checking. Network Appliance Research Gift, 2009. *\$45,000. Cash Donation.*
- [31] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Wisconsin Arrays in Software Project (WASP). NSF Grant, 2008. *\$420,000.*
- [32] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Wisconsin Lie Detection (LID). NSF Grant, 2008. *\$350,000.*

- [33] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. The RAW Project. Network Appliance Research Gift, 2007. \$100,000. *Cash donation.*
- [34] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Robust Storage Systems. Network Appliance Research Gift, 2006. \$100,000.
- [35] Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Ben Liblit, Miron Livny, and Michael Swift. HEC: Formal Failure Analysis for Storage Systems. NSF HECURA, 2006-2009. \$951,044.
- [36] Remzi H. Arpaci-Dusseau, Mark Hill, and David Wood. Sun Machine Donation: Cluster of Machines. Sun Hardware Gift, 2006. *Cluster of machines valued at \$100,000.*
- [37] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. *EMC Centera Storage Research.* EMC Gift, 2005. \$25,000.
- [38] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. *EMC Centera Storage Research.* EMC Hardware Donation, 2005. *One Centera machine valued at \$100,000.*
- [39] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. Improving Failure-Handling and Performance of Modern File Systems with Virtual Machine Technology. Network Appliance Research Gift, 2005. \$25,000.
- [40] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. CSR-PDOS: Semantic Failure Analysis and Management. NSF CNS Computer Systems, 2005-2008. \$700,000.
- [41] Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Paul Barford, Jeffrey Naughton, and David Dewitt. *EMC Centera Storage Research.* EMC Gift, 2004. \$100,000.
- [42] Andrea C. Arpaci-Dusseau, Remzi H. Arpaci-Dusseau, Paul Barford, Jeffrey Naughton, and David Dewitt. *EMC Centera Storage Research.* EMC Hardware Donation, 2004. *Two Centera machines valued at \$300,000.*
- [43] Remzi Arpaci-Dusseau. *Achieving High Availability Through Semantically-Smart Disk Systems.* IBM Faculty Partner Award, 2003. \$30,000.
- [44] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. ITR: NSF-02-168 Wisconsin Semantic Disks (WiSe). NSF ITR Medium Group Grants, 2003-2006. \$600,000.
- [45] Juan J. De Pablo, David C. Schwartz, Paul Barford, Miron Livny, Remzi H. Arpaci-Dusseau, Paul M. DeLuca Jr., Robert Jeraj, Sridhara R. Dasu, Francis Halzen, Albrecht Karle, Don Reeder, and Wesley Smith. Acquisition of the GLOW Distributed Computing System at the University of Wisconsin - Madison. NSF MRI, 2003-2006. \$1,186,405.
- [46] Remzi H. Arpaci-Dusseau and Paul Barford. *Storage Research in the WAIL Environment: Equipment.* EMC Systems Donation, 2002. \$700,000 (*est.*).
- [47] Remzi H. Arpaci-Dusseau and Paul Barford. *Storage Research in the WAIL Environment: Cash Gift.* EMC Cash Donation, 2002. \$30,000.
- [48] Remzi Arpaci-Dusseau. *Self-Managing Storage through Informed Systems.* IBM Faculty Partner Award, 2002. \$30,000.
- [49] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. *Building Operating System Services with Gray-Box Techniques.* HP/Intel Itanium-Based System Grant, 2001. \$129,177.

- [50] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. *Networking Support for Data-Intensive Clusters*. Intel, 2000. \$128,000.
- [51] Remzi H. Arpaci-Dusseau. *The Linux Profiling Infrastructure*. Usenix Undergraduate Research Funding, 2001. \$3,000.
- [52] Ian Foster and Paul Avery. *GriPhyN: Towards Petascale Virtual Datagrids*. NSF ITR/ACS, 2001-2006. \$1,995,546.
- [53] Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau. *Manageable Network-Attached Storage Via Adaptation*. NSF OS CCR-0098274, 2001-2004. \$310,000.
- [54] Remzi H. Arpaci-Dusseau. *Robust Adaptive Cluster Programming Environments*. NSF Career CCR-0092840, 2001-2006. \$250,000.

## Classes Taught

Undergraduate Operating Systems (CS 537)	Spring 2018 (6.75/7)
Graduate Distributed Systems (CS 739)	Fall 2017 (6.25/7)
Introduction to Systems (CS 354)	Spring 2017 @ Epic
Graduate Distributed Systems (CS 739)	Fall 2016 (6.17/7)
Undergraduate Operating Systems (CS 537)	Spring 2016 (6.92/7)
Graduate Distributed Systems (CS 739)	Fall 2015 (4.50)
Graduate Operating Systems (CS 736)	Spring 2014 (4.78)
Undergraduate Operating Systems (CS 537)	Fall 2013 (4.86)
Virtualization (CS 838)	Spring 2013 (4.59)
Starting a Software Company (CS 638)	Spring 2013
Introduction to Systems (CS 354)	Fall 2012 (5.00)
Starting a Software Company (CS 638)	Fall 2012
Undergraduate Operating Systems (CS 537)	Spring 2012 (4.98)
Undergraduate Operating Systems (CS 537)	Fall 2011 (4.93)
Undergraduate Operating Systems (CS 537)	Spring 2011 (4.94)
Graduate Operating Systems (CS 736)	Fall 2010 (5.00)
Undergraduate Operating Systems (CS 537)	Spring 2010 (4.96)
Undergraduate Operating Systems (CS 537)	Fall 2009 (4.88)
Undergraduate Operating Systems (CS 537)	Spring 2009 (4.94)
Undergraduate Operating Systems (CS 537)	Fall 2008 (4.92)
Graduate Operating Systems (CS 736)	Spring 2008 (4.95)
Graduate Operating Systems (CS 736)	Fall 2007 (4.95)
Building a Brain (CS 838)	Fall 2007
Graduate Storage Systems (CS 838)	Spring 2006 (4.50)
Graduate Operating Systems (CS 736)	Spring 2005 (4.80)
Undergraduate Operating Systems (CS 537)	Fall 2004 (4.63)
Graduate Distributed Systems (CS 739)	Spring 2004 (4.93)
Graduate Operating Systems (CS 736)	Fall 2003 (4.85)
Graduate Distributed Systems (CS 739)	Spring 2003 (4.29)
Graduate Operating Systems (CS 736)	Fall 2002 (4.56)
Undergraduate Operating Systems (CS 537)	Spring 2002 (4.79)
Integrating Networks and Storage (CS 838)	Fall 2001 (4.86)
Undergraduate Operating Systems (CS 537)	Spring 2001 (4.44)
Graduate Operating Systems (CS 736)	Fall 2000 (4.59)
Graduate Operating Systems (CS 736)	Spring 2000 (4.76)

## Post-Doctoral Matriculation

Sudarsun Kannan \*, Ph.D., *Device File Systems* Spring '16 (Professor @ Waterloo)  
Samer Al-kiswany \*, Ph.D., *Network-Integrated Storage* Summer '18 (Professor @ Rutgers)

## Ph.D. Student Matriculation

Zev Weiss \*, Ph.D., *Systems Support for Evolving Hardware* Spring '18 (SimpleMachines)  
Leo Arulraj \*, Ph.D., *Non-Invasive I/O Classification Techniques and Applications* Spring '18 (Datrium)  
Suli Yang \*, Ph.D., *Schedulability in Storage Systems* Fall '18 (Alibaba)  
Thanu Sankaranarayana \*, Ph.D., *Crash Consistency in Modern Applications* Spring '16 (Google)  
Tyler Harter \*, Ph.D., *Measurement-based Systems Design* Spring '16 (MS Gray Lab)  
Lanyue Lu \*, Ph.D., *Physical Separation in Modern Storage Systems* Fall '15 (Google)  
Vijay Chidambaran \*, Ph.D., *Orderless and Eventually Durable File Systems* Spring '15 (Professor @ Texas–Austin)  
Thanh Do \*, Ph.D., *Towards Reliable Cloud Systems* Spring '14 (Microsoft)  
Yupu Zhang \*, Ph.D., *Integrated Data Protection* Spring '14 (HP Labs)  
Yiying Zhang \*, Ph.D., *Indirection in Storage Stacks* Spring '13 (Professor @ Purdue)  
Sriram Subramanian \*, Ph.D., *Revisiting the Storage Interface for Flash* Spring '13 (Fusion-I/O)  
Swami Sundararaman \*, Ph.D., *Recovery Techniques to Improve File System Reliability* Spring '11 (Fusion-I/O)  
Joe Meehan<sup>+</sup>, Ph.D., *Towards Transparent CPU Scheduling*, Spring '11 (Professor @ Lynchburg)  
Haryadi Gunawi \*, Ph.D., *Towards Reliable Storage Systems*, Fall '09 (Professor @ U. Chicago)  
Nitin Agarwal \*, Ph.D., *Enabling Realistic and Practical File-System Benchmarking* Fall '09 (NEC Labs)  
Lakshmi Bairavasundaram \*, Ph.D., *Characteristics, Impact, and Tolerance of Disk Failures* Spring '08 (NetApp)  
Florentina Popovici \*, Ph.D., *Data-Driven Models in Storage System Design* Spring '07 (Google)  
Todd Jones \*, Ph.D., *Implicit Operating System Awareness in a VMM* Spring '07 (Sandia National Labs)  
Tim Denehy \*, Ph.D., *Information and Collaboration in the Storage Stack* Spring '06 (Google)  
Nathan Burnett \*, Ph.D., *Information and Control in File System Buffer Management* Spring '06 (VmWare)  
Vijayan Prabhakaran \*, Ph.D., *IRON File Systems* Spring '06 (Microsoft Silicon Valley)  
John Bent<sup>+</sup>, Ph.D., *Data-driven Batch Scheduling* Spring '05 (Los Alamos National Labs)  
Muthian Sivathanu \*, Ph.D., *Semantically-smart Disk Systems* Spring '05 (Google)

## Masters Student Matriculation

Dennis Zhou \*, M.S. Spring '18 (Facebook)  
Brandon Davis \*, M.S. Spring '15 (Pure Storage)  
Chris Dragga \*, M.S. Spring '13 (NetApp)  
Ao Ma \*, M.S. Spring '12 (EMC)  
Ishani Ahuja \*, M.S. Spring '12 (LinkedIn)  
Deepak Ramamurthi \*, M.S. Spring '11 (Google)  
Laxman Visampalli \*, M.S. Spring '10 (QualComm)  
Abhishek Rajimwale \*, M.S. Fall '09 (Data Domain)  
Shweta Krishnan \*, M.S. Spring '07 (Cisco)  
Meenali Rungta \*, M.S. Spring '06 (Google)  
James Nugent \*, M.S. Summer '05  
Camille Fournier \*, M.S. Spring '05 (Goldman Sachs)  
Brian Forney \*, M.S. Spring '03 (Cassatt)  
Venkateshwaran Venkataramani (with M. Livny) Spring '02 (Oracle, Facebook)

Stirling Martin\*, M.S.  
 Omer Zaki, M.S.  
 Matt McCormick, M.S.  
 Jonathan Ledlie, M.S.  
 Sambavi Muthukrishnan\*, M.S.

Spring '02 (Epic)  
 Spring '01 (IBM Almaden, Amazon)  
 Spring '01 (Microsoft)  
 Spring '01 (Harvard for Ph.D.)  
 Fall '00 (Oracle, Facebook)

## Graduate Student Researchers

Jun He\* – Arrived: Fall '13  
 Ram Alagappan\* – Arrived: Fall '13  
 Aishwarya Ganesan\* – Arrived: Fall '15  
 Jing Liu\* – Arrived: Fall '16  
 Kan Wu\* – Arrived: Fall '16  
 Leon Yang\* – Arrived: Fall '17

Key: \* (co-advised with A. Arpaci-Dusseau), + (co-advised with A. Arpaci-Dusseau and Miron Livny)

## Undergraduate Researchers

David Chen, <i>DenseFS</i>	Summer '18
Matt Parker, <i>DenseFS</i>	Summer '18
Yien Xu, <i>DenseFS</i>	Summer '18
Peng Cheng, <i>SSD-Aware Systems</i>	Summer '18
Tianyu Zhang, <i>SSD-Aware Systems</i>	Summer '18
Tanvi Bhagwat, <i>Device File Systems</i>	Summer '18
Tianyi Shan, <i>Device File Systems</i>	Summer '18
Abigail Matthews, <i>Device File Systems</i>	Summer '18
Weiping Zhou, <i>High-Performance Python</i>	Summer '18
Leon Yang, <i>Microservices</i>	Spring '17
Kevin Houck, <i>Microservices</i>	Spring '17
Peter van Sandt, <i>Faster Key-Value Storage</i>	Spring '17
Ed Oakes, <i>Microservices</i>	Summer '16–Spring '17
Jon Morton, <i>Flash-based KV Store</i>	Spring '14
Junjue Wang, <i>Flash-based KV Store</i>	Spring '14
Alan Liu, <i>Flash-based KV Store</i>	Spring '14
Jordan Friendshuh, <i>Flash-based KV Store</i>	Spring '14
Huanchen Zhang, <i>Faster File System Checking</i>	Summer '12
Yanlei Dao, <i>Faster File System Checking</i>	Summer '12
Alex Tessmer, <i>Memcache Scaling</i>	Summer '10
David Capel, <i>Memcache Scaling</i>	Summer '10
Rustam Lalkaka, <i>Memcache Scaling</i>	Summer '10
Michael Vaughn, <i>iBench</i>	Summer '09
Tyler Harter, <i>iBench</i>	Summer '09
Andrew Krioukov, <i>Parity Lost and Regained</i>	Summer '07
Andrew Konwinski, <i>iLife Fault Injection</i>	Fall '06
Andrew Krioukov, <i>Iron File Systems</i>	Fall '05
William Umboh, <i>Apple File System Study</i>	Fall '05



Tjahjono Tjandra, <i>Tracing AFS</i>	Summer '04 through Spring '05
Yahya Cahyadi, <i>Congestion-controlled UDP</i>	Fall '04 through Spring '05
Venu Bolisetty, <i>Virtualizing NFS</i>	Summer '03
Haryadi Gunawi, <i>Quantifying the Overhead of TCP/IP</i>	Spring '00 through Spring '02
Henri Tandradinata, <i>The Costs of Encrypted Communication</i>	Spring '02
Michael Christie, <i>Software-based AutoRAID</i>	Summer '02
Jason Knaster, <i>Visualizing a Disk Scheduler</i>	Summer '01
Siddarth Sawkar, <i>Disk Fingerprints</i>	Summer '01 through Fall '01
Yenni Rueslin, <i>Performance of the Ext2fs File System</i>	Fall '00
Julio Lauritz, <i>Performance of the Ext2fs File System</i>	Fall '00
Aaron Darling, <i>Secure, Fast Remote Execution</i>	Fall '00
James Olson, <i>Gigabit Ethernet Performance</i>	Fall '00

## Departmental Service

Associate Chair	'17–
Data Science Ad Hoc Committee	'18–
Chancellor's Task Force on Computing	'17–
Budget Committee	'17–'18
Merit Committee	'17–'18
Curriculum Committee	'17–'18
Curriculum Committee	'16–'17
Curriculum Committee	'15–'16
Curriculum Committee (Chair)	'12–'13
Budget Committee	'12–'13
Merit Committee	'12–'13
Recht Mid-Tenure Review (Chair)	'11–'12
Budget Committee	'11–'12
Merit Committee	'11–'12
Curriculum Committee (Chair)	'11–'12
Curriculum Committee (Chair)	'10–'11
Swift Mid-Tenure Review	'09–'10
Curriculum Committee (Chair)	'09–'10
Akella Mid-Tenure Review (Chair)	'08–'09
Graduate Admissions Committee (Chair)	'08–'09
Merit Committee	'09
Graduate Admissions Committee (Co-Chair)	'07–'08
Merit Committee	'08
Graduate Advising Committee	'05–'06
Departmental Distinguished Lecture Series (with A. Arpaci-Dusseau)	'04–'05
Curriculum Committee	'04–'05
Curriculum Committee (Chair)	'03–'04
Curriculum Committee (Chair)	'02–'03
Curriculum Committee (Chair)	'01–'02
Student Admissions	'99–'00
Rosser Lecture (Henry Fuchs)	'00–01