Ryan Stutsman

Curriculum Vitæ

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Research Interests

Large-scale software systems and database systems, low-latency in-memory database systems.

Education

Purdue University	West Lafayette, IN, USA	Computer Science	B.S. 2007
Stanford University	Stanford, CA, USA	Computer Science	M.S. 2010
Stanford University	Stanford, CA, USA	Computer Science	Ph.D. 2014

Thesis Title: *Durability and Crash Recovery in Distributed In-Memory Storage Systems*
Advisor: John Ousterhout

Microsoft Research Redmond, WA, USA Database Group Postdoctoral Researcher 2013 - 2015

Professional Experience

Jul. 15 –	Assistant Professor, School of Computing, University of Utah.
Jun. 18 – Aug. 18	Visiting Researcher, Database Group, Microsoft Research.
Dec. 13 – Jul. 15	Postdoctoral Researcher, Database Group, Microsoft Research.
Jun. 11 – Sep. 11	Summer Intern, Memcache Group, Facebook.
Jun. 08 – Sep. 08	Summer Intern, Lawrence Livermore National Laboratory.
May 07 – Sep. 07	Summer Intern, Platforms Group, Google.

Awards

- 2019 Best Paper Runner Up, ACM SoCC '19.
- Student Award – 2019 Google PhD Fellowship (Chinmay Kulkarni).
- 2019 VMware Early Career Faculty Award ($50,000).
- 2018 NSF Dagstuhl Travel Grant Awardee.
- 2017 Microsoft Research Redmond Lab Outstanding Research Project Award (joint with James Hunter, Justin Levandoski, David Lomet, Ryan Stutsman, and Sudipta Sengupta).
- 2017 and 2018 SIGMOD Distinguished Program Committee Member.
- '16–'17 AY University of Utah School of Computing Outstanding Teaching Award.
- 2013 Best Student Paper, USENIX ATC '13.
- 2007–2010 Department of Homeland Security Graduate Fellow.
- 2007 Purdue University Dept. of Computer Science Outstanding Undergraduate Research Effort.
- 2007 National Science Foundation Graduate Research Fellowship Honorable Mention.
- 2007 Purdue University CERIAS Diamond Award for Outstanding Academic Achievement.
- 2007 Computing Research Assoc. Outstanding Undergraduate Award Honorable Mention.
- 2006 Outstanding Purdue College of Science Junior.
- 2006 Harry Morrison Scholarship.
- 2006 Verizon Academic Scholarship.

- 2005 Ruzika Undergraduate Summer Research Award.
- 2005 Purdue Summer Undergraduate Research Fellowship.

Refereed Conference and Journal Publications

[1] Tian Zhang, Dong Xie, Feifei Li, and Ryan Stutsman. Narrowing the Gap Between Serverless and its State with Storage Functions. In *Proceedings of the ACM Symposium on Cloud Computing*, SoCC'19, 2019.

Best Paper Runner Up.
Utah student authors are underlined.

[2] Anirban Nag, C.N. Ramachandra, Rajeev Balasubramonian, Ryan Stutsman, Edouard Giacomin, Hari Kambalasubramanyam, and Pierre-Emmanuel Gaillardon. GenCache: Leveraging In-Cache Operators for Efficient Sequence Alignment. In *Proceedings of the 52nd IEEE/ACM International Symposium on Microarchitecture*, MICRO'19, 2019.

[3] Tao Zhu, Zhuoyue Zhao, Feifei Li, Weining Qian, Aoying Zhou, Dong Xie, Ryan Stutsman, Haining Li, and Huiqi Hu. SolarDB: Toward a Shared-Everything Database on Distributed Log-Structured Storage. *ACM Transactions on Storage*, 15(2):11:1–11:26, June 2019.

[4] Gustavo Alonso, Carsten Binnig, Ippokratis Pandis, Kenneth Salem, Jan Skrzypczak, Ryan Stutsman, Lasse Thostrup, Tianzheng Wang, Zeke Wang, and Tobias Ziegler. DPI: The Data Processing Interface for Modern Networks. In *Ninth Biennial Conference on Innovative Data Systems Research*, CIDR'19, 2019.

[5] Joe Novak, Ryan Stutsman, and Sneha Kumar Kasera. Cloud Functions for Fast and Robust Resource Auto-Scaling. In *Tenth International Conference on Communication Systems & Networks*, COMSNETS'19, 2019.

[6] Asaaf Eisenman, Asaf Cidon, Evgenya Pergament, Or Haimovich, Ryan Stutsman, Mohammad Alizadeh, and Sachin Katti. Flashield: a Hybrid Key-Value Cache that Controls Flash Write Amplification. In *Proceedings of the Sixteenth USENIX Symposium on Networked Systems Design and Implementation*, NSDI '19, 2019.

[7] Junguk Cho, Ryan Stutsman, and Jacobus Van der Merwe. MobileStream: A Scalable, Programmable and Evolvable Mobile Core Control Plane Platform. In *Proceedings of the 14th International Conference on Emerging Networking Experiments and Technologies*, CoNEXT'18, December 2018.

[8] Chinmay Kulkarni, Sara Moore, Mazhar Naqvi, Tian Zhang, Robert Ricci, and Ryan Stutsman. Splinter: Bare-Metal Extensions for Multi-Tenant Low-Latency Storage. In *Proceedings of the Thirteenth USENIX Symposium on Operating Systems Design and Implementation*, OSDI '18, 2018.

[9] Aleksander Maricq, Dmitry Duplyakin, Ivo Jimenez, Carlos Maltzahn, Ryan Stutsman, and Robert Ricci. Taming Performance Variability. In *Proceedings of the Thirteenth USENIX Symposium on Operating Systems Design and Implementation*, OSDI '18, 2018.

[10] Binh Nguyen, Tian Zhang, Bozidar Radunovic, Ryan Stutsman, Thomas Karagiannis, Jakub Kocur, and Jacobus Van der Merwe. ECHO: A Reliable Distributed Cellular Core Network for Hyper-scale Public Clouds. In *Proceedings of the 24th Annual International Conference on Mobile Computing and Networking*, Mobicom'18, October 2018.

[11] Yacine Taleb, Ryan Stutsman, Gabriel Antoniu, and Toni Cortes. Tailwind: Fast and Atomic RDMA-based Replication. In *Proceedings of the 2018 USENIX Annual Technical Conference*, USENIX ATC '18, Boston, MA, 2018. USENIX Association.

[12] Tao Zhu, Zhuoyue Zhao, Feifei Li, Weining Qian, Aoying Zhou, Dong Xie, Ryan Stutsman, Haining Li, and Huiqi Hu. Towards a Shared-Everything Database on Distributed Log-Structured Storage. In *Proceedings of the 2018 USENIX Annual Technical Conference*, USENIX ATC '18, Boston, MA, 2018. USENIX Association.

[13] Chinmay Kulkarni, Aniraj Kesavan, Tian Zhang, Robert Ricci, and Ryan Stutsman. Rocksteady: Fast Data Migration for Low-latency In-memory Storage. In *Proceedings of the Twenty-Sixth ACM Symposium on Operating Systems Principles*, SOSP '17, 2017.

[14] Asaf Cidon, Daniel Rushton, Stephen M. Rumble, and Ryan Stutsman. Memshare: Memory Resource Sharing in Multi-tenant Web Caches. In *Proceedings of the 2017 USENIX Conference on Annual Technical Conference*, USENIX ATC'17, Berkeley, CA, USA, 2017. USENIX Association.

[15] Justin Levandoski, David Lomet, Sudipta Sengupta, Ryan Stutsman, and Rui Wang. Multi-version Range Concurrency Control in Deuteronomy. *Proceedings of the VLDB Endowment*, 8(13):2146–2157, September 2015.
Presented at conference.

[16] Darko Makreshanski, Justin Levandoski, and Ryan Stutsman. To Lock, Swap, or Elide: On the Interplay of Hardware Transactional Memory and Lock-free Indexing. *Proceedings of the VLDB Endowment*, 8(11):1298–1309, July 2015.

[17] John Ousterhout, Arjun Gopalan, Ashish Gupta, Ankita Kejriwal, Collin Lee, Behnam Montazeri, Diego Ongaro, Seo Jin Park, Henry Qin, Mendel Rosenblum, Stephen Rumble, Ryan Stutsman, and Stephen Yang. The RAMCloud Storage System. *ACM Transactions on Computer Systems*, 33(3):7:1–7:55, August 2015.

[18] Ryan Stutsman, Collin Lee, and John Ousterhout. Experience with Rules-Based Programming for Distributed, Concurrent, Fault-Tolerant Code. In *Proceedings of the 2015 USENIX Conference on Annual Technical Conference*, USENIX ATC'15, Santa Clara, CA, July.
Presented at conference.

[19] Justin Levandoski, David Lomet, Sudipta Sengupta, Ryan Stutsman, and Rui Wang. High Performance Transactions in Deuteronomy. In *Seventh Biennial Conference on Innovative Data Systems*, CIDR'15, 2015.
Presented at conference.

[20] Asaf Cidon, Stephen M. Rumble, Ryan Stutsman, Sachin Katti, John Ousterhout, and Mendel Rosenblum. Copysets: Reducing the Frequency of Data Loss in Cloud Storage. In *Proceedings of the 2013 USENIX Conference on Annual Technical Conference*, USENIX ATC'13, pages 37–48, Berkeley, CA, USA, 2013. USENIX Association.
Best Student Paper Award.

[21] Diego Ongaro, Stephen M. Rumble, Ryan Stutsman, John Ousterhout, and Mendel Rosenblum. Fast Crash Recovery in RAMCloud. In *Proceedings of the Twenty-Third ACM Symposium on Operating Systems Principles*, SOSP '11, pages 29–41, New York, NY, USA, 2011. ACM.
Presented at conference.

[22] John Ousterhout, Parag Agrawal, David Erickson, Christos Kozyrakis, Jacob Leverich, David Mazières, Subhasish Mitra, Aravind Narayanan, Diego Ongaro, Guru Parulkar, Mendel Rosenblum, Stephen M. Rumble, Eric Stratmann, and Ryan Stutsman. The Case for RAMCloud. *Communications of the ACM*, 54(7):121–130, July 2011.

[23] Arjun Roy, Stephen M. Rumble, Ryan Stutsman, Philip Levis, David Mazières, and Nickolai Zeldovich. Energy Management in Mobile Devices with the Cinder Operating System. In *Proceedings of the Sixth conference on Computer Systems*, EuroSys '11, pages 139–152, New York, NY, USA, 2011. ACM.

Presented at conference.

[24] Christian Grothoff, Krista Grothoff, Ryan Stutsman, Ludmila Alkhutova, and Mikhail J. Atallah. Translation-based Steganography. *Journal of Computer Security*, 17(3):269–303, 2009.

[25] Ryan Stutsman, Mikhail Atallah, Christian Grothoff, and Krista Grothoff. Lost in Just the Translation. In *Proceedings of the 2006 ACM Symposium on Applied Computing*, pages 338–345. ACM, April 2006.
Presented at conference.

Refereed Workshop Publications

[26] Jared Plumb, Sneha Kasera, and Ryan Stutsman. Hybrid Network Clusters Using Common Gameplay for Massively Multiplayer Online Games. In *Foundations of Digital Games*, FDG '18, 2018.

[27] Jared Plumb and Ryan Stutsman. Exploiting Google's Edge Network for Massively Multiplayer Online Games. In *IEEE 2nd International Conference on Fog and Edge Computing*, ICFEC '18, 2018.

[28] Tian Zhang and Ryan Stutsman. JavaScript for Extending Low-latency In-memory Key-value Stores. In *Proceedings of the 9th USENIX Conference on Hot Topics in Cloud Computing*, HotCloud'17, Berkeley, CA, USA, 2017. USENIX Association.

[29] Aniraj Kesavan, Robert Ricci, and Ryan Stutsman. To Copy or Not to Copy: Making In-Memory Databases Fast on Modern NICs. In *4th Workshop on In-memory Data Management*, 2016.

[30] Mohammed Al-Mahfoudh, Ganesh Gopalakrishnan, and Ryan Stutsman. Toward Bringing Distributed Systems Design Upon Rigorous Footing. In *IEEE Workshop on Formal Methods and Integration (FMi)*, 2016.

[31] Mohammed Al-Mahfoudh, Ganesh Gopalakrishnan, and Ryan Stutsman. Toward Rigorous Design of Domain-Specific Distributed Systems. In *4th IEEE/ACM FME Workshop on Formal Methods in Software Engineering, FormaliSE 2016, Austin, Texas, May 15, 2016*.

[32] Ryan Stutsman and John Ousterhout. Toward Common Patterns for Distributed, Concurrent, Fault-Tolerant Code. In *Proceedings of the 13th USENIX Conference on Hot Topics in Operating Systems*, HotOS'13, Berkeley, CA, USA, 2013. USENIX Association.
Presented at workshop.

[33] Stephen M. Rumble, Diego Ongaro, Ryan Stutsman, Mendel Rosenblum, and John K. Ousterhout. It's Time for Low Latency. In *Proceedings of the 13th USENIX Conference on Hot Topics in Operating Systems*, HotOS'11, pages 11–15, Berkeley, CA, USA, 2011. USENIX Association.

[34] Stephen M. Rumble, Ryan Stutsman, Philip Levis, David Mazières, and Nickolai Zeldovich. Apprehending Joule Thieves with Cinder. In *MobiHeld '09: Proceedings of the 1st ACM Workshop on Networking, Systems, and Applications for Mobile Handhelds*, pages 49–54, 2009.
Presented at workshop.

[35] Jad Naous, Ryan Stutsman, David Mazières, Nick McKeown, and Nickolai Zeldovich. Delegating Network Security with More Information. In *Proceedings of the 1st ACM Workshop on Research on Enterprise Networking*, WREN '09, pages 19–26, 2009.

[36] Christian Grothoff, Krista Grothoff, Ludmila Alkhutova, Ryan Stutsman, and Mikhail Atallah. Translation-Based Steganography. In *Proceedings of Information Hiding Workshop*, IH 2005, pages 213–233. Springer-Verlag, 2005.

Other Publications

[37] Chinmay Kulkarni, Aniraj Kesavan, Robert Ricci, and Ryan Stutsman. Beyond Simple Request Processing with RAMCloud. *IEEE Data Engineering Bulletin*, 40(1):62–69, 2017.

[38] Justin J. Levandoski, Sudipta Sengupta, Ryan Stutsman, and Rui Wang. Transaction processing techniques for modern hardware and the cloud. *IEEE Data Engineering Bulletin*, 38(1):50–57, 2015.

[39] Stephen M. Rumble, Ryan Stutsman, Philip Levis, David Mazières, and Nickolai Zeldovich. Apprehending Joule Thieves with Cinder. *SIGCOMM Computer Communication Review*, 40(1):106–111, 2010.

[40] John Ousterhout, Parag Agrawal, David Erickson, Christos Kozyrakis, Jacob Leverich, David Mazières, Subhasish Mitra, Aravind Narayanan, Guru Parulkar, Mendel Rosenblum, Stephen M. Rumble, Eric Stratmann, and Ryan Stutsman. The Case for RAMClouds: Scalable High-Performance Storage Entirely in DRAM. *SIGOPS Operating Systems Review*, 43(4):92–105, December 2009.

Grants and Funding

1. CAREER REU Supplement, 05/2019, $8,000.
2. VMware Early Career Faculty Award, 03/2019, $50,000.
3. "CAREER: Safe and Efficient Extensions for Low-latency Multitenant Storage," sole PI, NSF, 05/2018 - 05/2023, $550,000.
4. VMware Unrestricted Gift, 12/2016, $10,000.
5. Facebook Unrestricted Gift, 09/2016, $30,000.
6. "CRII:CSR:Large-scale Systems Software Atop Scale-out In-memory Storage," sole PI, NSF, 05/2016 - 05/2018, $174,949.

Service

- Outreach
  - FIRST Lego League Junior, Assistant Coach for team of 4 girls ages 6 & 7, 2018-2019 and 2019-2020 Seasons;
  - Oregon-Davis Junior/Senior High School; Invited Speaker to 9^{th} through 12^{th} grade students about STEM and STEM research careers; Hamlet, Indiana; 2015.
  - University of Utah IT Professionals Meeting Invited Talk, "An Overview of Recent Speculative Execution Vulnerabilities", June 2019.
- Internal Service
  - College of Engineering 2020 Engineering Day Session Organizer, "Undergraduate Research in Computer Science".
  - College of Engineering Orientation Panel 2019 (3×).
  - School of Computing Mock Panel Participant 2019.
  - Office of Undergraduate Research Undergraduate Research Symposium Poster Judge, 2019 (2×).
  - School of Computing Undergraduate Research Liason 2019-present.
  - School of Computing Database Faculty Search Committee 2017.

  - School of Computing Graduate Admit Visit Day Coordinator 2017, 2018.
  - School of Computing Ph.D. Admissions Committee 2014, 2015, 2016, 2018.
  - School of Computing Undergraduate Advisory Committee (UGSAC) Faculty Advisor 2015-present.

- Academic Community Service
  - Dagstuhl Seminar #18251 Database Architectures for Modern Hardware Attendee.
  - National Science Foundation Grant Proposal Review Panelist, 2017, 2018, 2019 (2×).
  - Conference Organization:
    * HotCloud '20 Program Co-chair;
    * NSDI '19 Poster Chair.
  - Program Committee Memberships:
    * OSDI'18, '20;
    * SOSP'19;
    * NSDI'19, '20;
    * USENIX ATC '19;
    * HotCloud'19
    * SIGMOD '17, '18 (**Awarded Distinguished Program Committee Member both years**);
    * SIGMOD '16 Demo Committee;
    * VLDB '17 Industrial Track;
    * ICDE '16, '18;
    * EDBT'18;
    * ICDCS'18;
    * ACM SIGMETRICS '15;
    * IMDM '14, '15, '16.
  - Reviewer: IEEE Transactions on Cloud Computing, February 2020; ACM SIGMOD Transactions on Database Systems, March 2018; IEEE Transactions on Knowledge and Data Engineering, January 2018; ACM SIGOPS Transactions on Computer Systems, June 2017; ACM SIGOPS OSR Janunary 2015.

Teaching

16'–17' AY University of Utah School of Computing Outstanding Teaching Award

Undergraduate Research Mentees: Jacob Barzee (2× UROP award recipient), Sara Moore (Adamson) (co-author), Aaron Langford, and Daniel Rushton (co-author).

8/19–12/19 Instructor, CS6465 Advanced Operating Systems Implementation. University of Utah. 16 students; combined undergraduate/graduates.

1/19–5/19 Instructor, CS5460/6460 Operating Systems. University of Utah. 166 students; combined undergraduate/graduates. Course Rating: 5.63/6, Instructor Rating: 5.78/6.

8/18–12/18 Instructor, CS6450 Distributed Systems. University of Utah. 28 graduate/undergraduate students. Course Rating: 5.67/6, Instructor Rating: 5.80/6.

1/18–5/18 Instructor, CS5460/6460 Operating Systems. University of Utah. 147 students; combined undergraduate/graduates.
Course Rating: 5.63/6, Instructor Rating: 5.85/6.

1/18–5/18 Instructor, CS7943 Database Systems Seminar. University of Utah. 4 graduate students.

8/17–12/17 Instructor, CS6450 Distributed Systems. University of Utah. 34 (mostly) graduate students. Course Rating: 5.84/6, Instructor Rating: 5.96/6.

1/17–5/17 Instructor, CS7943 Database Systems Seminar. University of Utah. 7 graduate students.

8/16–12/16 Instructor, CS6963 Distributed Systems. University of Utah. 30 graduate students. Course Rating: 5.49/6, Instructor Rating: 5.70/6.

1/16–5/16 Instructor, CS5460/6460 Operating Systems. University of Utah. 123 students; combined undergraduate/graduates. Course Rating: 5.46/6, Instructor Rating: 5.78/6.

8/15–12/15 Instructor, CS6963 Distributed Systems. University of Utah. 19 graduate students. Course Rating: 5.73/6, Instructor Rating: 5.85/6.

1/12–3/12 Teaching Assistant, CS244B Distributed Systems. Stanford University. 45 students.

1/08–3/08 Teaching Assistant, CS240 Advanced Operating Systems. Stanford University. 30 students.

1/07–5/07 Teaching Assistant, CS180 An Introduction to Computer Science. Purdue University. 30 students in section.

Research Advising

Doctoral Advising

Amit Samanta, August 2019 - present.
Ankit Bhardwaj, August 2018 - present.
Chinmay Kulkarni, August 2016 - present.
Tian "Candy" Zhang, August 2015 - present.
Mohammed Al-Mahfoudh (Co-advised with Ganesh Gopalakrishnan), June 2015 - present.
Joe Novak (Co-advised with Sneha Kumar Kasera), August 2017 - December 2018.

Masters Thesis Advising

Aniraj Kesavan (Co-advised with Robert Ricci), August 2015 - May 2017.
Thesis: *Making Large Transfers Fast for In-memory Databases in Modern Networks*.

Masters Project Advising

Paridhi Baheti, 2019.

Undergraduate Thesis Advising

Jacob Barzee, January 2019 - Present (Utah UROP Recipient 2×).
Aaron Langford, January 2018 - August 2018.
Daniel Rushton, October 2015 - May 2018 (USENIX Travel Grant Recipient).

Doctoral Qualifying Exam and Thesis Defense Committee Member

Karl Taht, 2019.
Anirban Nag, 2019.
Rufaidia Ahmed, 2019.
Maryam Dabaghchian, 2019.
RamachandraChakenalli Nanjegowda, 2019.
Zhuoyue Zhao, 2019.
Dong Xie, 2019.

Richard Li, 2019.
Mohammed-Yacine Taleb, 2018, INRIA Rennes.
George Prekas, 2018, EPFL.
Joe Novak, 2018.
Michael Bentley, 2018.
Ren Quinn, 2018.
Junguk Cho, 2017.
David Hancock, 2017.
Aisha Syed, 2017.
Mohammed Al-Mahfoudh, 2016.
Hyun-Wook Baek, 2016.
Binh Nguyen, 2016.
Simone Atzeni, 2015.

Masters Thesis and Project Examining Committee Member

Robert Weischedel, 2019.
Pavithra Chidambaram Pappa, 2019.
Sonika Jindal, 2019.
Zirak Zaheer, 2018.
Michael Zhang, 2018.
Pallavi Aggarwal, 2017.
Abhiram Balasubramanian, 2017.
Robert Christensen, 2017.
Rui Dai, 2017.
Keith Downie, 2017.
Pankaj Kumar, 2017.
Jiten Thakkar, 2017.
Charles Jabcobsen, 2016.

External Presentations

- The Cloud Without the Fluff: Rethinking Resource Disaggregation. HPTS 2019.
- Massive Main-Memory for the Masses. Invited Talk, École Polytechnique Fédérale de Lausanne (EPFL), 2018.
- Multi-version Range Concurrency Control in Deuteronomy. VLDB 2016.
- The RAMCloud Storage System. Invited Talk, Huawei Research Silicon Valley, 2016.
- High Performance Transactions in Deuteronomy, Stanford University, 2015.
- Experience with Rules-Based Programming for Distributed, Concurrent, Fault-Tolerant Code. USENIX ATC 2015.
- High Performance Transactions in Deuteronomy. CIDR 2015.
- A Pattern for Programming Large-Scale Fault-Tolerant Systems, University of Utah, 2014.
- Durability and Crash Recovery for Distributed In-memory Storage, Facebook, 2013.
- Durability and Crash Recovery for Distributed In-memory Storage, University of Utah, 2013.
- Durability and Crash Recovery for Distributed In-memory Storage, Purdue University, 2013.
- Durability and Crash Recovery for Distributed In-memory Storage, University of British Columbia, 2013.

- Durability and Crash Recovery for Distributed In-memory Storage, University of Maryland, 2013.
- Toward Common Patterns for Distributed, Concurrent, Fault-Tolerant Code. HotOS 2013.
- Fast Crash Recovery in RAMCloud. SOSP 2011.
- Energy Management in Mobile Devices with the Cinder Operating System. EuroSys 2011.
- DARPA ISAT "Future Ideas Symposium" Invited Talk, Washington D.C., 2010.
- Apprehending Joule Thieves with Cinder. MobiHeld 2009.
- Lost in Just the Translation. ACM SAC 2006.

Open Source Software and Libraries

- Splinter Multi-tenant Extensible Key-Value Store: http://github.com/utah-scs/splinter/.
- LSM-Sim Scale-out Web-Cache Simulator: http://github.com/utah-scs/lsm-sim/.
- RAMCloud large-scale, low-latency key-value store: http://ramcloud.stanford.edu/; 344 Stars, 104 Forks on github..
- Cinder from-scratch OS for mobile phones with first class energy management: http://www.scs.stanford.edu/cinder/.
- Rose source-to-source compiler for automated program transforms: http://www.rosecompiler.org/.
- Autotest release-driven distributed regression testing for the Linux kernel: http://autotest.github.io/.

Patents

- High Performance Transactions in Database Management Systems, 2018; Patent #9928264.
- Controlling Atomic Updates of Indexes Using Hardware Transactional Memory, 2016; Pending.

Industrial Impact

- TIBCO ActiveSpaces implements Copysets (ATC'13), http://www.tibco.com/products/tibco-activespaces.
- 2017 Microsoft Research Redmond Lab Outstanding Research Project Award (joint with James Hunter, Justin Levandoski, David Lomet, Ryan Stutsman, and Sudipta Sengupta).

Media Exposure

01/20 Hacker News Frontpage, *Narrowing the gap between serverless and its state with storage functions.*

01/20 The Morning Paper, *Narrowing the gap between serverless and its state with storage functions.*

08/17 The Morning Paper, *JavaScript for Extending Low-latency In-memory Key-value Stores.*

01/16 The Morning Paper, *Experience with Rules-Based Programming for Distributed Concurrent Fault-Tolerant Code.*

11/11 Ars Technica, *Can DRAM replace hard drives and SSDs? RAMCloud creators say yes.*

10/11 HPC Wire, *RAMCloud: When Disks and Flash Memory are Just Too Slow.*

10/11 ZDNet, *RAMCloud puts everything in DRAM.*

February 12, 2020