

# Sudarsun Kannan

Assistant Professor,  
Department of Computer Science,  
Rutgers University-New Brunswick  
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## Research Interests

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Operating Systems, Computer Architecture, Storage, Distributed Systems

## Summary

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I lead the Rutgers Systems Lab (RSL), where my research group focuses on building scalable systems that leverage memory, storage, and compute heterogeneity. Our approach has been to revisit the cross-layered system design paradigm in the context of runtimes, operating systems, firmware, and accelerators to benefit from end-to-end system heterogeneity.

## Education

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### Rutgers University-New Brunswick

Assistant Professor, Dept. of Computer Science

Sep. 2018 - Current

### University of Wisconsin-Madison

Postdoctoral Research Associate, Dept. of Computer Sciences

Sep. 2016 - Aug. 2018

Advisers - Prof. Remzi H. Arpaci-Dusseau and Prof. Andrea C. Arpaci-Dusseau

### Georgia Institute of Technology, Atlanta

Ph.D. in Computer Science

May 2010 - Aug 2016

Thesis: Operating System Support for Heterogeneous Memory

Advisers - Prof. Karsten Schwan (demised), Prof. Ada Gavrilovksa

### Georgia Institute of Technology, Atlanta

M.S in Computer Science

Aug 2008 - May 2010

Masters Research Project: Virtual Storage for Mobile Devices

Advisers - Prof. Karsten Schwan (demised), Prof. Ada Gavrilovksa

### Anna University, Chennai

B.E in Computer Science (with distinction)

July 2001- May 2005

Research project: Embedded Web Server Management

## Recent Awards, Honors, & Roles

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**IEEE MICRO Top Picks '24**, Mosaic Pages: Big TLB Reach with Small Pages for our ASPLOS '23 paper

**Best Paper Award, SOSP '23**, Enabling High-Performance and Secure Userspace NVM File Systems with the Trio Architecture

**Distinguished Paper Award, ASPLOS '23**, Mosaic Pages: Big TLB Reach with Small Pages

**Google Research Scholar Award**, '22-'23

**Samsung Faculty Research Collaboration Award**, For working on heterogeneous storage and CXL research, '22-'24

**Keynote**, Heterogeneous Memory Workshop (HMEM '21, Virtual)

**Co-Chair** for ACM Workshop on Hot Topics in Storage and File Systems (HotStorage '22)

**Memorable Paper Award Finalists**, Nonvolatile Memory Workshop 2021, Cross-layered File System Design

**ISCA 25 years of Retrospective Papers**, HeteroOS: OS Design for Heterogeneous Memory Management in Datacenters (ISCA '17)

**Associate Editor**, Transactions on Storage '23-'26

## Published Conference Publications [Google Scholar](#)

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- Jian Zhang, Yujie Ren, Marie Nguyen, Changwoo Min, **Sudarsun Kannan** **FAST '24**  
OmniCache: Collaborative Caching for Near-storage Accelerators  
USENIX Conference on File and Storage Technologies, 2024
- Shaleen Garg, Jian Zhang, Rekha Pitchumani, Manish Parashar, Bing Xie, **Sudarsun Kannan** **ASPLOS '24**  
CrossPrefetch: Accelerating I/O Prefetching for Modern Storage  
Architectural Support for Programming Languages and Operating Systems, 2024
- Diyu Zhou, Vojtech Aschenbrenner, Tao Lyu, Jian Zhang, **Sudarsun Kannan**, Sanidhya Kashyap **SOSP '23**  
Enabling High-Performance and Secure Userspace NVM File Systems with the Trio Architecture  
ACM SIGOPS 30th Symposium on Operating Systems Principle, **Best Paper Award!**
- Sudarsun Kannan**, Ulrich Kremer **HotCarbon '23**  
Towards Application Centric Carbon Emission Management  
Hot Topics in Low-Carbon Computing (HotCarbon'23), 2023
- K. Gosakan, J. Han, W. Kuzmaul, I. Mubarek, N. Mukherjee, K. Sriram, M. Bender, **ASPLOS '23**  
A. Bhattacharjee, A. Conway, M. Farach-Colton, J. Gandhi, R. Johnson, **S. Kannan**, D. Porter  
Paging and the Address-Translation Problem  
Architectural Support for Programming Languages and Operating Systems, **Distinguished Paper Award**
- R. Madhava Krishnan, Diyu Zhou, Wook-Hee Kim, **FAST '23**  
**Sudarsun Kannan**, Sanidhya Kashyap, Changwoo Min  
TENET: Memory Safe and Fault-tolerant Persistent Transactional Memory  
USENIX Conference on File and Storage Technologies, 2023
- Yujie Ren, Jian Zhang, **Sudarsun Kannan** **FAST '22**  
FusionFS: Fusing I/O Operations in Firmware File Systems  
USENIX Conference on File and Storage Technologies, 2022
- Jing Liu, Anthony Rebello, Yifan Dai, Chenhao Ye, **SOSP '21**  
**Sudarsun Kannan**, Andrea C Arpaci-Dusseau, Remzi H Arpaci-Dusseau  
Scale and Performance in a Filesystem Semi-Microkernel  
Proceedings of the ACM SIGOPS 28th Symposium on Operating Systems Principle, 2021
- David Domingo, **Sudarsun Kannan** **FAST '21**  
Accelerating Filesystem Checking and Repair with pFSCK  
USENIX Conference on File and Storage Technologies, 2021
- Michael A. Bender, Abhishek Bhattacharjee, Alex Conway, Martín Farach-Colton, **Sudarsun Kannan**, **SPAA '21**  
William Kuzmaul, Nirjhar Mukherjee, Don Porter, Guido Tagliavini, Janet Vorobyeva, Evan West  
Paging and the Address-Translation Problem  
Proceedings of the 33rd ACM Symposium on Parallelism in Algorithms and Architectures, 2021
- Sudarsun Kannan**, Yujie Ren, Abhishek Bhattacharjee **ASPLOS '21**  
KLOCs: Kernel-Level Object Contexts for Heterogeneous Memory System  
Architectural Support for Programming Languages and Operating Systems, 2020
- Yujie Ren, Changwoo Min, **Sudarsun Kannan** **OSDI '20**  
CrossFS: A Cross-layered Direct-Access File System  
14th USENIX Symposium on Operating Systems Design and Implementation, 2020
- Shaleen Garg, Manish Parashar, **Sudarsun Kannan** **MEMSYS '20**  
The Need for Precise and Efficient Memory Capacity Budgeting  
The International Symposium on Memory Systems, 2020
- R.Madhava Krishnan, Jaeho Kim, Ajit Mathew, Anthony Demeri, Xinwei Fu, **ASPLOS '20**  
Changwoo Min, **Sudarsun Kannan**  
Durable Transactional Memory Can Scale with TimeStone  
Architectural Support for Programming Languages and Operating Systems, 2020

Jun He, Kan Wu, <b>Sudarsun Kannan</b> , Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau Read as Needed: Building WiSER, a Flash-Optimized Search Engine USENIX Conference on File and Storage Technologies, 2020	<b>FAST '20</b>
<b>Sudarsun Kannan</b> , Nitish Bhat, Ada Gavrilovska Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau Redesigning LSMs for Nonvolatile Memory with NovelSM USENIX Annual Technical Conference, 2018	<b>ATC '18</b>
Pradeep Fernando, <b>Sudarsun Kannan</b> , Ada Gavrilovska Greg Eisenhauer Accelerating HPC Workflows with NVRAM-based Transport for Streaming Objects 26th Symposium on High-Performance Parallel and Distributed Computing, 2018	<b>HPDC '18</b>
<b>Sudarsun Kannan</b> , Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau Yuangang Wang, Jun Xu, Gopinath Palani Designing a True Direct-Access File System with DevFS USENIX Conference on File and Storage Technologies, 2018	<b>FAST '18</b>
<b>Sudarsun Kannan</b> , Ada Gavrilovska, Vishal Gupta, Karsten Schwan HeteroOS - OS Design for Heterogeneous Memory Management in Datacenter 44th International Symposium on Computer Architecture, 2017	<b>ISCA '17</b>
Jun He, <b>Sudarsun Kannan</b> , Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau The Unwritten Contract of Solid State Drives European Conference on Computer Systems, 2017	<b>EuroSys '17</b>
<b>Sudarsun Kannan</b> , Moinuddin Qureshi, Ada Gavrilovska, Karsten Schwan Reducing Energy Overheads of Memory-based Persistence in NVMs 25th International Conference on Parallel Architectures and Compilation Techniques, 2016, Contribution: 85%	<b>PACT '16</b>
Pradeep Fernando, <b>Sudarsun Kannan</b> , Ada Gavrilovska, Karsten Schwan Phoenix: Memory Speed HPC I/O with NVM 23rd annual IEEE International Conference on High Performance Computing, Data, and Analytics, 2016	<b>HiPC '16</b>
<b>Sudarsun Kannan</b> , Ada Gavrilovska, Karsten Schwan pVM – Persistent Virtual Memory for Efficient Capacity Scaling and Object Storage European Conference on Computer Systems, 2016	<b>EuroSys '16</b>
<b>Sudarsun Kannan</b> , Ada Gavrilovska, Karsten Schwan Reducing the Cost of Persistence for Nonvolatile Heaps in End User Devices 20th International Symposium on High Performance Computer Architecture, 2014	<b>HPCA '14</b>
<b>Sudarsun Kannan</b> , Ada Gavrilovska, Karsten Schwan, Dejan Milojicic Optimizing Checkpoints Using NVM as Virtual Memory 27th IEEE International Parallel & Distributed Processing Symposium, 2013	<b>IPDPS '13</b>
<b>Sudarsun Kannan</b> , Ada Gavrilovska, and Karsten Schwan Cloud4Home – Enhancing Data Services with @Home Clouds 31st International Conference on Distributed Computing Systems, 2011	<b>ICDCS '11</b>
<b>Recent Reviewed Journal Publications</b>	
J. Han, K. Gosakan, W. Kuszmaul, I. Mubarak, N. Mukherjee, K. Sriram, M. Bender, A. Bhattacharjee, A. Conway, M. Farach-Colton, J. Gandhi, R. Johnson, <b>S. Kannan</b> , D. Porter Paging and the Address-Translation Problem IEEE Top Picks From Computer Architecture Conferences	<b>IEEE Micro '24</b>
<b>Sudarsun Kannan</b> , Ada Gavrilovska, Vishal Gupta, Karsten Schwan HeteroOS - OS Design for Heterogeneous Memory Management in Datacenter ACM SIGOPS Operating Systems Review 2018	<b>OS Review '18</b>
<b>Sudarsun Kannan</b> , Moinuddin Qureshi, Ada Gavrilovska, Karsten Schwan Energy Aware Persistence: Reducing the Energy Overheads of Persistent Memory Computer Architecture Letters, 2015	<b>CAL '15</b>

## Open-source Code Release

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- o MOSAIC, <https://github.com/oscarlab/mosaic-asplos23-artifacts>
- o CrossPrefetch, <https://github.com/RutgersCSSystems/crossprefetch-asplos24-artifacts>
- o FusionFS, <https://github.com/RutgersCSSystems/FusionFS>
- o CrossFS, <https://github.com/RutgersCSSystems/CrossFS>
- o Parallel File System Checker, <https://github.com/RutgersCSSystems/pFSCK>
- o NovelSM, [https://github.com/sudarsunkannan/lsm\\_nvsm](https://github.com/sudarsunkannan/lsm_nvsm)

## Reviewed Workshop Publications [Google Scholar](#)

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- Houjun Tang, Bing Xie, Suren Byna, Philip Carns, Quincey Koziol, **Sudarsun Kannan**, Jay Lofstead Sarp Oral, Scale and Performance in a Filesystem Semi-Microkernel  
6th International Parallel Data Systems Workshop, 2021 **PDSW '21**
- Yujie Ren, Jian Zhang, **Sudarsun Kannan**  
CompoundFS: Compounding I/O Operations in Firmware File Systems  
USENIX Workshop on Hot Topics in Storage and File Systems, 2020 **HotStorage '20**
- Babar Khalid, Nolan Rudolph, Ramakrishnan Durairajan, **Sudarsun Kannan**  
MicroMon: A Monitoring Framework for Tackling Distributed Heterogeneity  
USENIX Workshop on Hot Topics in Storage and File Systems, 2020 **HotStorage '20**
- David Domingo, **Sudarsun Kannan**, Kyle Stratton  
Accelerating Filesystem Checking and Repair with pFSCK  
USENIX Linux Storage and Filesystems Conference, 2020 **VAULT '20**
- Christopher Misa, **Sudarsun Kannan**, Ramakrishnan Durairajan  
Can We Containerize Internet Measurements?  
Applied Networking Research Workshop, 2019 **ANRW '19**
- Jing Liu, Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau, **Sudarsun Kannan**  
File System Process  
USENIX Workshop on Hot Topics in Storage and File Systems, 2019 **HotStorage '19**
- Sudarsun Kannan**, Naila Farooqui, Ada Gavrilovska, Karsten Schwan  
HeteroCheckpoint: Efficient Checkpointing for Accelerator-based Systems  
4th Workshop on Fault-Tolerance for HPC at Extreme Scale (in DSN), 2014. **FTXS '14**
- Sudarsun Kannan**, Ada Gavrilovska, Karsten Schwan  
NVM Heaps for Accelerating Browser-based Applications  
USENIX Interactions of NVM/Flash with Operating Systems and Workloads, 2013. **INFLOW '13**
- Sudarsun Kannan**, Ada Gavrilovska, Karsten Schwan, Dejan Milojicic, Vanish Talwar  
Using Active NVRAM for I/O Staging  
Petascale Data Analytics: Challenges and Opportunities, SC workshop, 2011. **PDAC '11**
- Sudarsun Kannan**, Karishma Babu, Ada Gavrilovska, Karsten Schwan  
VStore++: Virtual Storage Services for Mobile Devices  
International Workshop on Mobile Computing and Clouds, 2010. **MobiCloud '10**

## Short Papers and Posters

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- Yujie Ren, Changwoo Min, **Sudarsun Kannan**  
CrossFS: A Cross-layered Direct-Access File System  
Non-volatile Memories Workshop (NVMW), 2021, University of California San Diego.
- Changwoo Min, **Sudarsun Kannan**, R.Madhava Krishnan, Jaeho Kim, Ajit Mathew, Anthony Demeri, Xinwei Fu  
Durable Transactional Memory Can Scale with TimeStone  
Non-volatile Memories Workshop (NVMW), 2020, University of California San Diego.
- Sudarsun Kannan**, Ada Gavrilovska, Vishal Gupta, Karsten Schwan  
HeteroOS - OS Design for Heterogeneous Memory Management in Datacenter  
Non-volatile Memories Workshop (NVMW), 2018, University of California San Diego.

Jun He, **Sudarsun Kannan**, Andrea Arpaci-Dusseau, Remzi Arpaci-Dusseau  
The Unwritten Contract of Solid State Drives  
Non-volatile Memories Workshop (NVMW), 2018, University of California San Diego.

**Sudarsun Kannan**, Moinuddin Qureshi, Ada Gavrilovska, and Karsten Schwan  
Energy Aware Persistence for Nonvolatile Memory  
Non-volatile Memories Workshop (NVMW), 2016, University of California San Diego.

Pradeep Fernando, **Sudarsun Kannan**, Ada Gavrilovska, Karsten Schwan  
Fast Restarts/Recovery with NVM memory for HPC systems  
Non-volatile Memories Workshop (NVMW), 2015, University of California San Diego.

**Sudarsun Kannan**, Ada Gavrilovska, and Karsten Schwan  
Reducing I/O Sandboxing Overheads for Browser-based Applications  
Non-volatile Memories Workshop (NVMW), 2013, University of California San Diego.

**Sudarsun Kannan**, Ada Gavrilovska, and Karsten Schwan  
Rich Client Services using Persistent Memory  
Non-volatile Memories Workshop (NVMW), 2012, University of California San Diego.

Hrishi Amur, Alex Merritt, **Sudarsun Kannan**, Ada Gavrilovska, and Karsten Schwan  
MESSY Library for Memory Consistency on 48 core Intel SCC  
Intel Marc Symposium 2011, Hillsboro.

## Patents

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**Sudarsun Kannan**, Shaleen Garg, Manish Parashar  
Cross Storage Prefetching  
Application No. TBA

**Sudarsun Kannan**, Yujie Ren, Rekha Pitchumani  
System and method for caching in storage devices  
Application No. 17817640

**Sudarsun Kannan**, Yujie Ren, David Domingo, Rekha Pitchumani  
Systems and Methods For Heterogeneous Storage System  
Application No. 17/900,830

**Sudarsun Kannan**, Palo Faraboschi, Murray McLaren, Dejan Milojicic  
Checkpoint Generation  
U.S. Patent, Publication number US20140214770 A1.

**Sudarsun Kannan**, Dejan Milojicic, Vanish Talwar  
Active Non Volatile Memory Post Processing  
U.S. Patent, Publication number US9619430 B2.

James E. Donahue, Ricky Ho, **Sudarsun Kannan**, Pradnyesh S. Gore  
System and Method for Installation and Management of Cloud-Independent Multi-Tenant Applications  
U.S. Patent, Publication number US8812627 B2.

## Awarded Grants and Gifts

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- **PI**: NSF: CICI: TCR: A Unified Monitoring Approach to Enhancing the Security and Resiliency of Hazard Workflows on Heterogeneous Infrastructures, Oct. 2023 - Sept. 2026, \$1,170,202,
- **PI**: NSF: CNS Core: Small: Redesigning I/O Across Heterogeneous Systems, Oct. 2023 - Sept. 2026, \$591,363
- **PI**: NSF: CNS Core Award, File System Offloading, Oct. 2019 - Sept. 2022, \$499,899
- **Co-PI**: NSF: PPOSS Planning Grant, Efficient Address Translation with Formal Guarantees for Data-Center-Scale Applications, Oct. 2021 - Sept. 2022, \$124,998
- **PI**: Industry: Samsung Research Grant - Accelerating Applications for CXL on Linux, Jan. 2023, yearly \$145,000
- **PI**: Industry: Google Research Scholar Award, Jan. 2022, \$60,000
- **PI**: Industry: Samsung Research Grant - Disaggregated Storage Services, Jan. 2022, yearly \$100,030
- **PI**: Samsung Research Grant: Disaggregated Storage Services, Jan. 2021, yearly \$87,000

## Recent Teaching @ Rutgers

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Instructor Rating: 4.43 on 5, Course Rating: 4.34 on 5	
CS 416/518 - Operating Systems Design	Spring 2023
Instructor Rating: 4.3 on 5, Course Rating: 4.3 on 5	
CS 416/518 - Operating Systems Design	Fall 2022
Instructor Rating: 4 on 5, Course Rating: 4.2 on 5	
CS 519 - Operating Systems Theory	Fall 2021
Instructor Rating: 4.8 on 5, Course Rating: 4.6 on 5	
CS 416 - Operating Systems Design	Spring 2021
Instructor Rating: 4 on 5, Course Rating: 4 on 5	
CS 519 - Operating Systems Theory	Fall 2020
Instructor Rating: 4.6 on 5, Course Rating: 4.4 on 5	
CS 416 - Operating Systems Design	Spring 2020
Instructor Rating: 4.27 on 5, Course Rating: 4.40 on 5	
CS 519 - Operating Systems Theory	Fall 2019
Instructor Rating: 4.64 on 5, Course Rating: 4.45 on 5	
CS 416 - Operating Systems Design	Spring 2019
Instructor Rating: 4.21 on 5, Course Rating: 4.05 on 5	
CS 519 - Operating Systems Theory	Fall 2018
Instructor Rating: 4.17 on 5, Course Rating: 4.33 on 5	

### **Rutgers and CS Departmental Services**

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Spring 2021, 2022, 2023: Faculty Recruitment Committee  
 Spring 2023 - Present: M.S. Advising Committee  
 Spring 2019 - Present: Graduate Committee (Admissions, Curriculum, Scholarships, Awards, Ph.D. Visit)  
 Fall 2018 - Current: Rutgers Honors Faculty Mentor  
 Fall 2018 - Summer 2019: Faculty Recruitment Committee  
 Fall 2019 - Spring 2020: Graduate Committee  
 Fall 2018 - Current: Systems Reading Group Organizer

### **Graduated Doctoral Advisees**

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Ph.D.: Yujie Ren, First Appointment: Postdoc at EPFL	Fall 2018-2023
Thesis: Toward Scalable and High-Performance I/O with Cross-layered Storage Design	

### **Current Doctoral Student Advisees**

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Jian Zhang, 3rd year PhD Student	Fall 2020-current
CXL, Smart Storage	
Lingfeng He, 1st year PhD Student	Fall 2023-current
Memory-centric Computing	
David Domingo, 4th year PhD Student	Fall 2018-current
File System Reliability	

### **M.S. Advisees**

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Sreeram Maddineni	Fall 2019 - Fall 2020
Distributed Cloud Monitoring	
Jae Woo Joo	Fall 2018 - Spring 2019
Heterogeneous Memory Management	
Shaleen Gard	Fall 2019 - Spring 2023
Storage Prefetching	

## Undergraduate Mentoring

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Atharva Patil, Senior Address Santizers - Aresty Research	Fall 2023
Daniel Elwell, Junior Optimizing Recommendation Systems - Aresty Research	Fall 2023
Paul John, Senior Heterogeneous Storage Management - Aresty Research	Fall 2021
Vaishnavi Mathena, Senior Memory Efficiency and Compression	Summer 2021
Kyle Stratton, Senior File System Reliability	Spring 2019-Fall 2019

## PhD Defense Committee

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Yujie Ren, Fall 2023, Heterogenous Storage Management  
Alex Conway, Spring 2020, Understanding Dictionaries at the Intersection of Theory and Practice  
Shaohua Duan, Spring 2020, Addressing Fault Tolerance for Staging-Based Scientific Workflows  
Adarsh Yoga, Fall 2019, Parallelism-Driven Performance Analysis Techniques for Task Parallel Programs  
Zi Yan, Fall 2018, Virtual Memory for Next-Generation Tiered Memory Architectures

## PhD Qualification Committee

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David Pham, April 2021  
Kun Wang, April 2020  
Shaohua Duan, Spring 2019  
Xun Zhang, May 2019  
Pengxiang Xu, April 2019  
Mohammadreza Soltaniyeh, January 2019

## Recent Panels - Conference and Journal Services

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2024 - Program Committee - 30th ACM Symposium on Operating Systems Principles (SOSP)  
2024 - Program Committee - USENIX Conference on Operating Systems Design and Implementation (OSDI)  
2024 - Program Committee - USENIX Conference on File and Storage Technologies (FAST)  
2024 - Program Committee - Architectural Support for Programming Languages and Operating Systems (ASPLOS)  
2023 - Program Committee - Architectural Support for Programming Languages and Operating Systems (ASPLOS)  
2023 - Program Committee - USENIX Annual Technical Conference (USENIX ATC)  
2023 - Program Committee - USENIX Conference on File and Storage Technologies (FAST)  
2022 - Program Co-Chair - ACM Workshop on Hot Topics in Storage and File Systems (HotStorage)  
2022 - Program Committee - USENIX Conference on File and Storage Technologies (FAST)  
2021 - National Science Foundation - Review Panel for Research Proposals (NSF)  
2021 - Swiss National Science Foundation - Review Panel for Research Proposals (SNSF)  
2021 - Program Committee - USENIX/ACM Workshop on Hot Topics in Storage and File Systems (HotStorage)  
2021 - Program Committee - 12th Annual Non-Volatile Memories Workshop (NVMW)  
2021 - Area Chair - Journal of Systems Research (JSys) - Active Storage Area  
2021 - Program Committee - 14th ACM International Systems & Storage Conference (Systor)  
2020 - Program Committee - USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)  
2020 - Program Committee - USENIX Annual Technical Conference (USENIX ATC)  
2020 - Program Committee - International Parallel & Distributed Processing Symposium (IEEE IPDPS)  
2019 - Best Paper Award Committee - 10th Annual Non-Volatile Memories Workshop (NVMW)  
2019 - Session Chair - 10th Annual Non-Volatile Memories Workshop (NVMW)  
2019 - Review Panel - National Science Foundation - Scalable Parallelism in the Extreme  
2019 - Program Committee - USENIX Annual Technical Conference (USENIX ATC)  
2019 - Extended Review Committee - 46th International Symposium on Computer Architecture (ISCA)  
2019 - Program committee - IEEE International Conference on Cloud Engineering (IC2E)

2019 - Program committee - 35th International Conference on MassiveStorage Systems and Technology (MSST)  
 2019 - Program committee - 10th Annual Non-Volatile Memories Workshop (NVMW)  
 2018 - Reviewer - IEEE Computer Architecture Letters (CAL)  
 2017 - Program committee - 46th International Conference on Parallel Processing (ICPP) 2017 - Reviewer - IEEE Transactions on Computers (TC)  
 2017 - Shadow PC committee - European Conference on Computer Systems (EuroSys) 2017 - Reviewer - Science of Computer Programming  
 2016 - Shadow PC committee - European Conference on Computer Systems (EuroSys)  
 2016 - Reviewer - IEEE Computer Architecture Letters (CAL)  
 2016 - Reviewer - IEEE Transactions on Computers (TC)  
 2014 - Reviewer - IEEE Transactions on Cloud Computing (TCC)  
 2012 - Reviewer - IEEE Transactions on Parallel and Distributed Systems (TPDS)

## Teaching Before 2018

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**Guest Lecturer, UW-Madison**  
 CS 461 - Advanced Operating Systems, Fault tolerance and recovery Spring 2017

**Guest Lecturer, UW-Madison**  
 CS 461 - Distributed Systems, Logical clocks, SSD storage Fall 2017

**Head Teaching Assistant, Georgia Tech**  
 CS 3210 - Undergraduate OS Introduction, Lectures, project design, grading Spring 2016

**Guest Lecturer, Georgia Tech**  
 CS 3210, Undergraduate OS Introduction, OS memory management, synchronization Spring 2015

**Guest Lecturer, Georgia Tech**  
 CS 6210 - Advanced OS, OS memory management, synchronization, virtualization Fall 2014

**Teaching Assistant, Georgia Tech**  
 CS 4210 - Graduate OS Introduction, Lectures, project design and grading Fall 2012

## Student Mentoring Before Rutgers

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Tanvi Bhagwat, BS Student at UW-Madison Summer 2018- Fall 2018  
 Device-level File System

Abigail Matthews, BS Student at UW-Madison Summer 2018- Fall 2018  
 Device-level File System

Tianyi Shan, BS Student at UW-Madison Summer 2018- Fall 2018  
 Device-level File System

Hakan Memisoglu, Ph.D. Student at UW-Madison Fall 2017- Fall 2018  
 Optimizing file system for fast storage

Pradeep Fernando, Ph.D. Student at Georgia Tech Fall 2015- Fall 2018  
 Resilience in HPC applications and other topics

Thaleia-Dimitra Doudali, Ph.D. Student at Georgia Tech Spring 2016  
 Resource allocation in Cloud

Andrea Hu, BS Student at Georgia Tech Spring 2016  
 Graph analytics and storage performance

Albert, BS Student at Georgia Tech Spring 2016  
 Persistent memory durability overheads

Nitish Bhatt, MS Student at Georgia Tech (now at VMWare) 2016  
 NoSQL database on new memory technologies

Amaro Emmanuel, MS Student at Georgia Tech, (Ph.D. Student, U.C. Berkeley) Spring 2015  
 Reducing virtualization system call cost

Preethi Sreenivasan, MS Student at Georgia Tech, (now at Amazon) Summer 2015  
 Architectural analysis of thin clients



Ravi Mangal, Ph.D. Student at Georgia Tech  
Virtual storage for @home cloud

Spring 2011

Sasi Siddharth, MS Student @ Georgia Tech, (now at HP)  
Virtual storage for @home cloud

Spring 2011

## Select Recent Talks

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- Rethinking I/O in the world of heterogeneous memory and storage, NSF CSR PI Workshop, Durham, October 2023
- Towards Application Centric Carbon Emission Management, Hot Carbon Workshop, Boston, July 2023
- Redesigning Systems for Heterogeneity, Invited Talk, University of Waterloo, November 2021 (Virtual)
- Heterogeneous Memory Management and Beyond, Keynote, Heterogeneous Memory Workshop, July 2021 (Virtual)
- Kernel Objects for Heterogeneous Memory, ASPLOS April. 2021 (Virtual)
- Micro-monitoring in Datacenters, HotStorage, July 2020 (Virtual)
- Device-level File Systems, Aug. 2018, Longmont Colorado, Seagate Technology.
- Persistent Memory Key Value Store, Oct. 2018, Durham, North Carolina, NetApp Inc
- Device-level File Systems, FAST, Feb. 2018, Oakland.
- Designing Operating Systems for Heterogeneous Systems, Feb. 2018 - April 2018, University of Arizona, North Carolina State University, University of Waterloo, Penn State University, George Washington University, University of California, Santa Barbara, University of Oregon, University of Virginia, Rutgers University, University of California, Santa Cruz, University of Massachusetts - Amherst, University of Minnesota - Twin Cities, Stony Brook University
- OS design for Heterogeneous Memory Management in Datacenter, ISCA June 2017, Toronto.
- Reducing Energy Overheads of Memory-based Persistence in NVMs, PACT, Sep. 2016, Haifa.
- Persistent Virtual Memory for Capacity Scaling and Object Storage, Eurosys, Mar. 2016, London.
- Heterogeneous Memory Management, Univ. of Wisconsin-Madison, May 2016, Madison.
- Energy Aware Persistence, NVMW, March 2016, Univ. of Sand Diego, Sand Diego.
- Reducing the Cost of Persistence for Nonvolatile Heaps, HPCA, Feb. 2014, Orlando.
- NVM for Rich Client Services, Intel Labs, Aug 2013, Hillsboro, Oregon.
- Optimizing Checkpoints Using NVM as Virtual Memory, IPDPS, June 2013, Boston.
- NVM Heaps for Accelerating Browser-based Applications, INFLOW (SOSP Workshop), Nov. 2013, Pennsylvania.
- Using Active NVRAM for I/O Staging, PDAC, Nov. 2011 (SC Workshop), Seattle.
- Active NVRAM for in-memory processing, HP Labs, Aug. 2011, Palo Alto.
- Cloud4Home – Enhancing Data Services with @Home Clouds, ICDCS, June 2011, Minneapolis.

## References

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Prof. Ada Gavrilovska  
College of Computing  
Georgia Institute of Technology  
ada@cc.gatech.edu

Prof. Remzi Arpaci-Dassaeu  
Department of Computer Sciences  
University of Wisconsin-Madison  
remzi@cs.wisc.edu

Prof. Andrea Arpaci-Dassaeu  
Department of Computer Sciences  
University of Wisconsin-Madison  
dusseau@cs.wisc.edu

Dr. Dejan Milojicic  
Distinguished Technologist  
Hewlett Packard Labs  
Palo Alto, California  
dejan.milojicic@hp.com

Prof. Thu Nguyen  
Dean of Mathematical and Physical Sciences  
Rutgers University, New Brunswick  
tdnguyen@cs.rutgers.edu