David Domingo

✉ DaveedDomingo@gmail.com DavidDomingo.com DavidJDomingo DaveedDomingo

EDUCATION

Rutgers University – School of Graduate Studies, *New Brunswick, NJ*
Ph.D. in Computer Science *Sept. 2018 – May. 2025 (expected)*
Advisor: Dr. Sudarsun Kannan

Rutgers University – School of Arts and Sciences, *New Brunswick, NJ*
B.S. in Computer Science *Sept. 2013 – May. 2017*

RESEARCH EXPERIENCE

Contextual I/O for Optimized Dataflows
Guide: Sudarsun Kannan (Rutgers University) *Jan. 2019 – Present.*
- Develop framework to identify application I/O requirements to automatically adapt data placement, fetching, and caching.

Kamino: Cache Scheduling for Cloud VM Allocation
Guide: Ishai Menache(Microsoft Research), Sudarsun Kannan (Rutgers University) *March. 2020 – Present.*
- Optimize VM request scheduling and routing to maximize cache performance and reduce VM request latencies.

PolyStore: Flexible Heterogeneous Storage Management
Guide: Sudarsun Kannan, Yujie Ren (Rutgers University) *June. 2021 – May. 2023*
- Develop flexible data placement and dynamic I/O thread scheduling to automatically exploit storage performance across multiple storage devices (eg. NVMe, SSD, HDD) within a system.

pFSCK: Accelerating File System Crash Recovery
Guide: Sudarsun Kannan (Rutgers University) *Jan. 2019 – May. 2021*
- Utilize modern parallel programming and adaptive scheduling techniques to exploit modern storage capabilities and reduce the runtime of modern file system checking and recovery for EXT file systems.

WORK EXPERIENCE

Rutgers University, *New Brunswick, NJ*
Research Assistant (Department of Computer Science) *June. 2021 – Present.*
- Research I/O scheduling and performance scalability for I/O-intensive applications on modern storage technologies
- Research carried out as part of the Rutgers System Research Lab, advised by Dr. Sudarsun Kannan

Rutgers University, *New Brunswick, NJ*
Teaching Assistant (Department of Computer Science) *Sept. 2018 – Dec. 2024*
- Lead recitations as well as develop projects exploring various computer science topics such as Computer Assembly, Operating System Mechanisms, RPCs, Restful Web Services, and distributed computing frameworks such as MapReduce
- Courses include: CS419: Computer Security, CS417: Distributed Systems, CS416: Operating Systems Design, CS336: Principles of Information and Data Management, CS211: Computer Architecture

Google, *Madison, WI*
Student Researcher *June. 2023 – Dec. 2023*
- Research and analyze patterns in I/O performed on Google's distributed file system
- Generate workflows to aid in generation and analysis of distributed storage traces

Microsoft Research, *Redmond, WA*
Research Intern (Cloud Operations Research Group (CORE)) *March. 2022 – June. 2022*
- Research Azure VM allocator architecture, scheduling, and load balancing algorithms
- Develop scheduling and caching simulator to test improved scheduling and load balancing algorithms

Rutgers University, *New Brunswick, NJ*
Instructor (Department of Computer Science) *May. 2020 – Aug. 2020*
- Developed and presented lectures for CS211: Computer Architecture, covering topics around computer architecture such as computing components, C programming, assembly, digital logic, and caching
- Managed teaching assistants to assist with development of course projects and forum discussions

iCIMS, *Holmdel, NJ*
Software Engineer *Jan. 2018 – Aug. 2018*
- Test Lead for iCIMS strategic integrations agile team (team of 5)
- Used Java/Spring and Javascript/Node.js to develop integration services communicating with iCIMS Recruit software
- Developed initial scalable test plans and approaches to allow for fast continuous integration and deployment
- Researched testing tools for Node.js that allowed for scalable development of automated test cases
- Led frequent discussions to ensure our architectural approach for our services will yield testable/verifiable features
- Aided project progress by expanding outside of test and developed integration service features alongside main developers
- Researched and architected approaches to handle user forwarding to create a seamless user interaction with microservices

IBM, *Durham, NC*
Software Developer Intern *June. 2015 – Dec. 2015*

- Software Developer intern for IBM's Rational Team Concert source code management software which focussed on aiding the agile development of enterprise applications running on IBM's mainframe systems
- Utilized Java and ANT scripting to develop various tools for project data migration for internal SCM integration efforts.
- Carry out regression testing to verify proper functionality of vital software components throughout the agile development lifecycle

PUBLICATIONS AND PATENTS

[1] David Domingo, Hugo Harbalho, Marco Molinaro, Kuan Liu, Abhisek Pan, David Dion, Thomas Moscibroda, Sudarsun Kannan, and Ishai Menache. Kamino: Efficient VM Allocation at Scale with Latency-Driven Cache-Aware Scheduling. In *19th USENIX Symposium on Operating Systems Design and Implementation* (*OSDI '25*), (To Appear).

[2] Yujie Ren, David Domingo, Jian Zhang, Paul John, Rekha Pitchumani, Sanidhya Kashyap, and Sudarsun Kannan. PolyStore: Exploiting Combined Capabilities of Heterogeneous Storage. In *23rd USENIX Conference on File and Storage Technologies* (*FAST '25*), 2025.

[3] Sudarsun Kannan, Yujie Ren, Rekha Pitchumani, and David Domingo. Systems and methods for heterogeneous storage systems, March 12 2024. US Patent 11,928,336.

[4] David Domingo and Sudarsun Kannan. pFSCK: Accelerating File System Checking and Repair for Modern Storage. In *19th USENIX Conference on File and Storage Technologies* (*FAST '21*), 2021.

[5] David Domingo and Sudarsun Kannan. Accelerating filesystem checking and repair with pFSCK. Santa Clara, CA, February 2020. USENIX Association.

INVITED TALKS AND PRESENTATIONS

Linux Storage and Filesystems Conference (VAULT '20), *Santa Clara, CA*
Topic: Accelerating Filesystem Checking and Repair with pFSCK *February 2020*

AWARDS AND GRANTS

- Travel Grant Recipient: USENIX Conference on File and Storage Technologies (FAST '25)
- Travel Grant Recipient: USENIX Symposium on Networked Systems Design and Implementation (NSDI '21)
- Travel Grant Recipient: USENIX Conference on File and Storage Technologies (FAST '20)
- Travel Scholarship Recipient: ACM Symposium on Operating Systems Principles (SOSP '19)
- ACM Student Research Competition Travel Award: ACM Symposium on Operating Systems Principles (SOSP '19)

TEACHING EXPERIENCE

Rutgers University, *New Brunswick, NJ*
Topic: Teaching Assistant for the Department of Computer Science *Sept. 2018 – Present.*
CS416: Operating Systems Design (Fall '19, Spring '20, Fall '20, Fall '24), CS417: Distributed Systems (Fall '18, Spring '21), CS336: Principles of Information and Data Management (Summer '24), CS211: Computer Architecture (Summer '19), CS419: Computer Security (Spring '19),

Rutgers University, *New Brunswick, NJ*
Topic: Instructor for the Department of Computer Science *May. 2020 – Aug. 2020*
CS211: Computer Architecture (Summer '20)

ACADEMIC PROJECTS

Bitcoin Transaction Latency
Guide: Dr. Richard Martin, Rutgers University *Sept. 2017 – Dec. 2017*

- Semester long project exploring the latency of the Bitcoin network by performing statistical analysis on public Bitcoin transaction data.

Distributed Social Networking
Guide: Dr. Naftaly Minsky, Rutgers University *May. 2017 – Aug. 2017*

- Independent study exploring Social Network Analysis Theory and Distributed Computing models to determine a feasible distributed social networking model utilizing Moses middleware developed at Rutgers University.

SKILLS & OTHERS

Programming Languages: C/C++, C#, Java, Python, JavaScript, MySQL, Matlab, Shell, Assembly
Frameworks: Hadoop, MapReduce, Spark, Spring, Node.js, Flask, Nvidia CUDA, OpenCL
Development Tools: Git, Maven, Gradle, MSBuild, Docker, GDB, QEMU, Valgrind, Intel VTune, Perf
Software and Applications: Microsoft Office, Adobe Photoshop, Jupyter Notebook
Markup Languages: HTML, CSS, XML, Markdown, LaTeX