

Ziyang Jiao

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EDUCATION

• Syracuse University, New York

Aug 2020 – May 2025

Ph.D. in Computer & Information Science & Engineering (GPA: 3.8/4.0)

- Dissertation: Towards the next generation of storage stack for NAND flash memory-based systems
- Advisor: Dr. Bryan S. Kim

• Washington University in St. Louis, Missouri

Aug 2019 – Aug 2020

M.S. in Computer Science (GPA: 4.0/4.0)

RESEARCH INTERESTS

Imbue minimal yet meaningful knowledge into various layers of the I/O stack, thereby enabling a more efficient, synergistic, and adaptive storage ecosystem.

1. File and storage systems: how to interact and manage storage components efficiently.
2. Solid state drives: how to optimize the tradeoffs between capacity, performance, and reliability.
3. Green computing and sustainability: how to improve resource utilization and design sustainable storage architectures.

PUBLICATIONS AND TALKS

1. Ziyang Jiao, Omkar Desai, Jaeho Kim, Jongmoo Choi, and Bryan S. Kim. "paRAID: A Sustainable Storage Architecture with Heterogeneous SSDs." *Submitted to Anonymized Conference on Storage and File Systems, 2026 (Under review)*.
2. Omkar Desai, Ziyang Jiao, Shuyi Pei, Janki Bhimani, and Bryan S. Kim. "Preparation Meets Opportunity: Enhancing Data Preprocessing for ML Training With Seneca." *Submitted to Anonymized Conference on Storage and File Systems, 2026 (Under review)*.
3. Xiangqun Zhang, Ziyang Jiao, and Bryan S. Kim. "ByteZ: When ZNS Meets Byte Interface." *Submitted to Anonymized Workshop on Storage and File Systems, 2025 (Under review)*.
4. Xiangqun Zhang, Ziyang Jiao, Farzana Rahman, and Bryan S. Kim. "Filling in the Missing Piece: Integrating Storage into CompOrg Courses." *In American Society for Engineering Education (ASEE) Annual Conference and Exposition, 2025 (To appear)*.
5. Ziyang Jiao and Bryan S. Kim. "Asymmetric RAID: Rethinking RAID for SSD Heterogeneity." *In ACM Workshop on Hot Topics in Storage and File Systems, 2024*.
6. Ziyang Jiao, Xiangqun Zhang, Hojin Shin, Jongmoo Choi, and Bryan S. Kim. "The Design and Implementation of a Capacity-Variant Storage System." *In USENIX Conference on File and Storage Technologies, 2024*.
7. Ziyang Jiao, Janki Bhimani, and Bryan S. Kim. "Wear Leveling in SSDs Considered Harmful." *In ACM Workshop on Hot Topics in Storage and File Systems, 2022 (Best Paper Award)*.
8. Ziyang Jiao and Bryan S. Kim. "Generating Realistic Wear Distributions for SSDs." *In ACM Workshop on Hot Topics in Storage and File Systems, 2022*.
9. Ziyang Jiao and Bryan S. Kim. "The Fast-Forwardable SSD Aging Framework." *In USENIX Conference on File and Storage Technologies (WiP), 2022*.

EXPERIENCE AND INTERNSHIP

•Syracuse University

May 2020 – Now

Research Assistant

Syracuse, NY

- Advisor: Prof. Bryan S. Kim
- **All-flash array and sustainable systems**: optimizing system performance and storage sustainability by exploiting device heterogeneity from a larger SSD pool.
- **Failure-resilient storage systems**: exploiting the tradeoffs among capacity, performance, and reliability (CPR) in SSDs for performance stability and aging-resilience.
- **ML for storage and storage for ML**: (1) imbuing intelligence to the storage systems so that they can self-learn, self-configure, and self-manage. (2) designing a data loading system that optimizes cache partitioning and data sampling for the data processing pipeline.
- **Next-generation storage stack with emerging devices**: exploring the design of a storage stack using emerging devices (e.g., Flexible Data Placement) instead of traditional block devices.

•Syracuse University

Aug 2024 – Aug 2025

Teaching Assistant

Syracuse, NY

- Advisor: Prof. Bryan S. Kim
- Course link: CIS 341 - Computer Organization & Programming Systems (Fall 24, 31 students)
Topics: Digital logic, data types and their representations, instruction set architecture, assembly language, program construction, CPU potpourri, memory hierarchy, privilege and security, input-output subsystems.
- Advisor: Prof. Farzana Rahman
- Course link: CSE 341 - Computer Organization & Programming Systems (Spring 25, 91 students)
Topics: Digital logic, data type and representation, instruction set architecture, assembly language, program construction, processors, memory hierarchy, traps and interrupts, privilege and security, I/O.

•Washington University in St. Louis

Jan 2020 – Aug 2020

Teaching Assistant

St. Louis, MO

- Advisor: Prof. Chien-Ju Ho
- Course link: CSE 417T - Introduction to Machine Learning
- Topics: Generalization in finite and infinite hypothesis spaces; Linear models; Nonlinear transformations of data; Overfitting; Modern supervised learning techniques.

•Chinese Academy of Sciences (CAS)

Nov 2018 – Jan 2019

Research Assistant

Beijing, China

- Advisor: Prof. Chao Liu
- Laboratory for Face Recognition Based on Matlab+PCA+SVM.
- Model: supporting vector machine (SVM), neural network (ANN), generative adversarial networks (GAN)

SKILLS

Core: Storage Systems, ML for Storage and Storage for ML, RAID Systems, Flash-based storage, Operating Systems, Memory Systems

Languages: C, C++, Python, Javascript, HTML5, Node.js

File systems: in-place update FSs (ext4), log-structured FSs (f2fs), file system utilities (e2fsprogs, f2fs-tools)

Databases: Transactional & analytical databases based on SQL & NoSQL (MySQL, RocksDB, LevelDB, MongoDB)

Kernel & Profiling: kernel (BCC Tools, bpftrace), block I/O (blktrace, blkparse, btreload, btreplay), performance (perf), iostat, NVMe

Virtualization platforms & Frameworks: QEMU, Docker, Kubernetes

ACADEMIC SERVICES

Reviewer, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)	
2025	
Shadow program committee, European Conference on Computer Systems (EuroSys)	2025
Artifact evaluation committee, USENIX Conference on File and Storage Technologies (FAST)	2024

HONORS AND AWARDS

Syracuse University Doctoral Award	2025
ECS Research Day Honorable Award	2024
Best Paper Award, ACM Workshop on Hot Topics in Storage and File Systems (HotStorage)	2022
Syracuse University Ph.D. Fellowship	2020, 2022
Outstanding Graduates	2019
Distinguished Undergraduate Thesis	2019
National Scholarship	2016
Outstanding Student Scholarship	2015,2016,2017,2018