Ziyang Jiao

Department of Electrical Engineering and Computer Science
Syracuse University, New York

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LinkedIn Profile

Education

•Syracuse University, New York *Aug 2020 – Now*
Ph.D. in Computer & Info Sci & Engineering

•Washington University in St. Louis, Missouri *Aug 2019 – Aug 2020*
M.S. in Computer Science

•Changchun University of Science and Technology, JiLin *Aug 2015 – Aug 2019*
B.S. in Electrical Engineering

Research Interests

1. **Aging-resilient storage systems**: how to maintain consistent performance and reliability throughout the lifetime of a storage device.
2. **File systems for modern flash storage**: how to coordinate file systems with SSDs to leverage and optimize the usage of the NAND flash media.
3. **Solid-state drive (SSD) internals**: how to design an efficient flash translation layer to decrease write amplification, reduce I/O latency, and extend the device's lifetime.

Publications and Talks

Ziyang Jiao and Bryan S. Kim, et al. "The Design and Implementation of a Capacity-Variant Storage System" *In USENIX Conference on File and Storage Technologies, 2024.*

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).*

Ziyang Jiao and Bryan S. Kim. "Generating Realistic Wear Distributions for SSDs." *In ACM Workshop on Hot Topics in Storage and File Systems, 2022.*

Ziyang Jiao and Bryan S. Kim. "The Fast-Forwardable SSD aging framework" *In USENIX Conference on File and Storage Technologies, 2022 (Work in progress report).*

Academic Skills

Programming languages: C, C++, Python
Tracing: BPF(BCC Tools, bpftrace), blktrace, blkparse, btrecord, btreplay
SSD development platforms: FTLSim, Amber, FEMU, MQSim
File system: ext4, f2fs, e2fsprogs, f2fs-tools, geriatrix, impression

Experience and Internship

•Syracuse University *May 2019 – Now*
Research Assistant Syracuse, NY
- Advisor: Prof. Bryan S. Kim
- **Capacity-variant storage systems**: exploiting the tradeoffs among capacity, performance, and reliability (CPR) in SSDs for performance stability and aging-resilience.
- **Self-learning storage systems**: imbuing intelligence to the storage devices so that they can self-learn, self-configure, and self-manage.
- **Next-generation storage stack with key-value / ZNS devices**: exploring the design of a storage stack using key-value / ZNS devices instead of traditional block devices.

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