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Ruiming Lu

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EDUCATION

Ph.D Candidate **Shanghai Jiao Tong University** **Sep 2020 – present**

- Ph.D Candidate in Computer Science, Department of Computer Science, SEIEE.
- Research Fields: Interested in analyzing the failure characteristics of massively-deployed storage devices (e.g., NVMe SSD), understanding novel failure modes (e.g., the fail-slow failure), and designing practical fault-tolerant systems.

Visiting Ph.D Student **University of Michigan** **Jun 2023 – present**

- Visiting PhD student affiliated with the CSE Department, University of Michigan, Ann Arbor.
- Advisor: Professor Ryan Huang.
- Research Fields: Gray failure characterization and detection in large distribtued system softwares.

B.Eng **Shanghai Jiao Tong University** **Sep 2016 – Aug 2020**

- B.Eng in Electrical and Computer Engineering (E.C.E.), University of Michigan - Shanghai Jiao Tong University Joint Institute.
- Graduate with distinction: **College Graduate Excellence Award of Shanghai** (top 1%).
- Core Coursework: Honors Calculus; Circuits; Signals and Systems; Data Structures; Discrete Mathematics; Linear Algebra; Probabilistic Methods; Bayesian Analysis; Computer Architecture; Operating Systems; Computer Network.
- Thesis: Six-degree-of-freedom Fixed Magnetic Levitation Device.

PUBLICATIONS

Conference Paper

[1] Yanbo Zhou, Erci Xu, Li Zhang, Kapil Karkra, Mariusz Barczak , Wayne Gao, Wojciech Malikowski, Mateusz Kozlowski, Łukasz Łasek , **Ruiming Lu**, Feng Yang, Lilong Huang, Xiaolu Zhang, Wenrui Li, Jinhu Li, Keqiang Niu, Jiaji Zhu, Jiesheng Wu. Sonic: the Next-Gen Local Disks for the Cloud. *European chapter of ACM SIGOPS (Just Accepted)*. **EuroSys'24**.

[2] **Ruiming Lu**, Erci Xu, Yiming Zhang, Fengyi Zhu, Zhaosheng Zhu, Mengtian Wang, Zongpeng Zhu, Guangtao Xue, Jiwu Shu, Minglu Li, Jiesheng Wu. Perseus: A Fail-Slow Detection Framework for Cloud Storage Systems. *In Proceedings of the 21st USENIX Conference on File and Storage Technologies*, February 2023. **USENIX FAST'23**. **Best Paper Award**. **Invited to appear in USENIX ;login: and fast-tracked to ToS**.

[3] **Ruiming Lu**, Erci Xu, Yiming Zhang, Zhaosheng Zhu, Mengtian Wang, Zongpeng Zhu, Guangtao Xue, Minglu Li, Jiesheng Wu. NVMe SSD Failures in the Field: the Fail-Stop and the Fail-Slow. *In Proceedings of the 2022 USENIX Annual Technical Conference*, July 2022. **USENIX ATC'22**.

Journal & Magazine Articles

[4] **Ruiming Lu**, Erci Xu, Yiming Zhang, Fengyi Zhu, Zhaosheng Zhu, Mengtian Wang, Zongpeng Zhu, Guangtao Xue, Jiwu Shu, Minglu Li, Jiesheng Wu. From Missteps to Milestones: A Journey to Practical Fail-Slow Detection. *ACM Transactions on Storage, Volume 19, Issue 4, 2023*. **ACM ToS** (fast-tracked).

[5] **Ruiming Lu**, Erci Xu, Yiming Zhang, Fengyi Zhu, Zhaosheng Zhu, Mengtian Wang, Zongpeng Zhu, Guangtao Xue, Jiwu Shu, Minglu Li, Jiesheng Wu. Detecting Fail-Slow Failures in Large-Scale Cloud Storage Systems. *USENIX ;login: Online, February 9, 2023*. **USENIX ;login:**.

RESEARCH EXPERIENCE

Research Intern **Alibaba Cloud** **Aug 2021 – Jun 2023**

- **Project:** Intelligent Analytic Methods for Safe Deployment in Large-Scale Cloud Infrastructures.

Research Intern   **Alibaba Cloud**   **Jan 2021 – Apr 2022**
- **Project:** NVMe SSD Failure Study.
- **Supervisor:** Dr. Erci Xu, Professor Yiming Zhang, and Professor Guangtao Xue.
- **Work:** Comb through telemetry data of NVMe SSD at Alibaba Cloud; compare NVMe SSD with SATA SSD on recent reliability changes; analyze and benchmark a novel failure type – fail-slow;

Research Assistant   **WNAI Lab, UM-SJTU JI**   **Sep 2018 – Sep 2019**
- **Project:** 3D Finger Tracking based on Acoustic Sensor Array.
- **Supervisor:** Professor Xudong Wang.
- **Work:** Establish an acoustic sensor array platform using Arduino; experiment on position tracking of moving objects using FPGA.

Research Assistant   **32th PRP, SJTU**   **Sep 2017 – Feb 2018**
- **Project:** Machine Learning based Pattern Recognition of the Eye.
- **Supervisor:** Professor Xiaohua Tian.
- **Work:** Literature review on pattern recognition; apply YOLO to detect the motion of human eyes.

Research Assistant   **15th IPP, SJTU**   **Apr 2017 – Jun 2018**
- **Project:** Research and Implementation of a Student Community for Modern University.
- **Supervisor:** Professor Jigang Wu.
- **Work:** Research in web develpment (front-end, back-end, PHP, etc.) from scratch; develop a back-end for a student community website in JI.

SCHOLARSHIPS & AWARDS
- **Huatai Technology Scholarship**, Dec 2023,
- **Youth Outstanding Paper Award Honorable Mention**, World Artificial Intelligence Conference, Jun 2023
- **USENIX FAST 2023 Best Paper Award**, Feb 2023.
- **USENIX FAST 2023 Student Travel Grant**, Jan 2023.
- **College Graduate Excellence Award of Shanghai**, Aug 2020.
- **Annual Excellence Scholarship**, Sep 2017.
- **Yu Liming Scholarship**, Jan 2018 and Jan 2020.
- **Dean's List**, Sep 2017.
- **Best Innovation Award**, the Design Expo of UM-SJTU JI, Aug 2017.

TEACHING
Teching Assistant   **UM-SJTU JI**   **Jun 2018 – Aug 2018**
- Teaching assistant for VG100: Introduction to Engineering.
- Hold weekly recitation classes and office hour; organize lab sessions.

PROFESSIONAL SKILLS
- **Programming Languages:** R; Python; Java; Go; Julia; C++; C; SQL; Matlab.
- **English Qualifications:**
  - TOFEL: 106 (Reading: 28; Listening: 28; Speaking: 24, Writing: 26).
  - CET6: 637 (Reading: 229; Listening: 214; Writing and Tranlation: 194).