

Sijie Lan

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RESEARCHES

My current research is focused on file and storage systems, mainly about Zoned Namespace SSD (ZNS). Before that, I did research on non-volatile storage devices, such as flash memory.

EDUCATION

- **The Pennsylvania State University** State College, USA
Ph.D. student in Computer Science and Engineering
(Advisors: Prof. Mahmut Kandemir & Prof. Abutalib Aghayev)
Aug 2021 - Now
- **Xiamen University** Xiamen, China
M.Eng. in Computer Technology
(Advisor: Prof. Suzhen Wu)
Aug 2018 - June 2021
- **Zhejiang Sci-Tech University** Hangzhou, China
B.Eng. in Computer Science and Technology
Sept 2013 - June 2017

PROJECTS

- **BitFlip: A Bit-Flipping Scheme for Reducing Read Latency and Improving Reliability of Flash Memory**
Each cell in NAND flash memory contains kinds of threshold voltages to store corresponding bit information. By analyzing characteristics of different threshold voltages and amounts of files in the real world, the cells' bits information with higher threshold voltages is more likely to leak their electrons to arise bit errors. Based on this observation, we proposed a method called BitFlip, which minimizes the number of the state with higher threshold voltage to achieve better performance.
- **Reco: Combine flash characteristics with deduplication characteristics**
We are combining the deduplication system with characteristics of flash memory. Traditional optimizations in deduplication focus on the features of the deduplicate process, but they rarely take the characteristics of flash memory as the research focuses. In our work, we combine the characteristics of flash memory with some key features in deduplication to improve the performance of flash memory.

PUBLICATIONS AND PATENTS

- [C1] Suzhen Wu, **Sijie Lan**, Jindong Zhou, Hong Jiang, Zhirong Shen. *BitFlip: A Bit-Flipping Scheme for Reducing Read Latency and Improving Reliability of Flash Memory*. (MSST'20)
- [P1] Suzhen Wu, **Sijie Lan**, Zhirong Shen, Bo Mao, Jindong Zhou, Zhihao Zhang. *A solid-state disk data storage method and device based on bit flipping*. China National Invention Patent.
- [P2] Suzhen Wu, Zhihao Zhang, Zhirong Shen, Bo Mao, **Sijie Lan**. *A data processing method for nonvolatile storage media and computer storage media*. China National Invention Patent.

TEACHING EXPERIENCES

- **Teaching Assistant**
CMPSC 132: Data Structures The Pennsylvania State University, 2022 Spring
- **Teaching Assistant**
CMPSC 473: Operating System The Pennsylvania State University, 2021 Fall

SKILLS SUMMARY

- **Languages** Shell, C++, L^AT_EX, Python