Leslie Su

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Education

Central South University 2022/9 – Present
Second Year Undergraduate Student of Engineering in Security Information

- Courses: Data Structure and Algorithm, Operating System, Computer Network, Database and so on.
- Organization: CSU Apple Lab, a Different Thinkers Club

Open-Source Contributions

Open Source Promotion Plan - Apache HoraeDB github.com/apache/horaedb
as Student Developer 2024/7 – Present
A High-Performance, Distributed, Cloud-Native Time-Series Database Written in Rust & Go

- **Architecture Design**. Design the architecture for compaction offload in distributed system, offload the cpu-intensive compaction task to improve the query performance and compaction performance.
- **Compaction Offload Implementation.** Introduce remote compaction service, schedule strategy and error handling mechanism to provide high-performance and fault tolerance.

Asterinas github.com/asterinas/asterinas
as Awesome Contributor 2024/3 – Present
A Secure, Fast, and General-Purpose OS Kernel Written in Rust

- **RCU Mechanism.** Add RCU (Read-Copy Update) mechanism for asterinas, which is not implemented in other famous rust-os projects.
- **Performance Improvement.** Make use of RCU in the kernel to improve the system performance and scalability.
- **Documentation.** Complete the tech document for RCU to describe its design and usage.

Projects

MIT-6.S081 xv6 github.com/LeslieKid/hack-xv6 *as independent developer* 2023/10 – 2023/11
A Unix-like Operating System Written in C

- **Linux Command Develop.** Implemented some simple command line tools such as pipe, find, pingpong.
- **Kernel Develop.** Implemented lock, copy-on-write fork, page table and a part of file system for the xv6 operating system.

CMU-15445 Bustub github.com/LeslieKid/hack-bustub *as independent developer* 2023/12 – 2024/2
A Relational Database Management System Written in C++

- **Time-Space Tradeoff.** Developed Copy-On-Write Trie to improve the concurrency performance of trie.
- **Buffer Pool Manager.** Implemented buffer pool and the disk scheduler which is using LRU-K replacement policy to optimize the access performance to the storage.
- **Hash Index.** Completed a extendible hash table for data reading/writing in the Bustub and provide reliable and efficient concurrency control.
- **Query Processing.** Added some executors and optimizers for operations such as join/aggregation/scan in Bustub's query processing layer.

Understanding DeepLearning github.com/LeslieKid/Understanding-DeepLearning 2024/5

- **Read Book.** Read the udlbook and have a general understanding of deep learning.
- **Hands-on Experience.** Finish some algorithms and DL models in Python (Jupyter Notebook).

Mini LSM Tree github.com/LeslieKid/mini-lsm *as independent developer* 2024/5

A Simple LSM-Tree Storage Engine Written in Rust

- **MemTable**. Implemented memtables based on skiplists and iterators based on binary heap.
- **SST.** Implemented SST (Sorted String Table) on disk.
- **Compaction.** Implemented tiered compaction strategy and leveled compaction strategy.
- **WAL.** Implemented simple WAL (Write-Ahead Log) based on local disk.

Skills

Programming Languages: Rust, C/C++, Go, Python
Tech Skills: Vim, Git, Docker, Copilot