



Zhiyi Liu

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🌐 homepage of Liu Zhiyi

⌚ github.com/tom-jerr

💻 Study note of C++

Education

University of Electronic Science and Technology of China
Master Computer Science and Technology (GPA: 3.81 / 4.00)

Sept. 2024 - Present
Chengdu, Sichuan

University of Electronic Science and Technology of China
Bachelor Cyberspace Security (GPA: 3.81 / 4.00)

Sept. 2020 - June 2024
Chengdu, Sichuan

Honors And Awards

- 11th in 4th Oceanbase Database Competition (11/1212), 2024
- Outstanding Student Scholarship (Grade 1), 2024

Projects

TinyKV: A highly available, scalable, and distributed transaction-supported KV database | Go

- Developed a Raft module that supports fundamental features such as Leader Election, Leader Transfer, Log Replication, Single-Step Membership Changes, and Snapshots.
- Adopts a Multi-Raft architecture, where data is partitioned based on Regions, with each Region functioning as a Raft Group. Regions support automatic splitting when the data size grows beyond a certain threshold.
- Implemented MVCC (Multi-Version Concurrency Control) and designed a distributed transaction system based on the Percolator model.

Bustub: A single-node database that supports basic SQL operations. | C++

- The underlying system is designed with an LRU-based BufferPool, providing lock-safe RAI-style guard operations for page management.
- Implemented a concurrent B+ tree index using latch crabbing.
- Adopted the Volcano model for query execution, supporting SELECT, DELETE, UPDATE, JOIN, AGGREGATION, LIMIT, and DISTINCT operations. Join operations are implemented with both Nested Loop Join and Hash Join.
- Implemented MVCC (Multi-Version Concurrency Control) to design transaction manager.

RelayServer: A relay server based on epoll | C++, linux network

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mimalloc: A high performance memory allocator based on lock-free list | C++, C

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Skills And Interests

Languages: C++, Go, Python

Technologies: Network, Distributed System, Database, LLM Inference

Interests: Inference of Large Language Model, Machine Learning System, Basketball