

Chi Zhang

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Education

Carnegie Mellon University

Master of Science in Computer Science

August 2022 – December 2023 (Expected)

Pittsburgh, PA, USA

Shanghai Jiao Tong University

B.Eng in Computer Science and Technology

September 2018 – June 2022

Shanghai, China

- GPA 93.58/100, Rank 1/149, National Scholarship 2019 (Top 0.2% national-wide)
- A+ Courses: Operating Systems, Computer Architecture, Computer Networks, and 28 others

Internship Experience

Singularity Data, Inc.

Database System R&D Intern

August 2021 – July 2022

Shanghai, China

- One of the top contributors of [🐙 RisingWave](https://github.com/risingwave) — a next-generation streaming database in the cloud. Worked on the development of almost all components related to stream computing and state store.
- Designed and implemented **shared state** to support **streaming index** in RisingWave; implemented **lookup join executor** based on shared state to support efficient **index delta joins**.
- Lead the team to investigate and analyze **performance issues** in RisingWave with benchmarks; fixed bugs and proposed strategies which improved the system throughput by 10x in a 3-month period.
- Greatly improved RisingWave's development experience by initiating the **developer ecosystem**, including **streaming system dashboard**, **developers' tool RiseDev**, and a **benchmark set-up tool** based on Terraform. They are now indispensable parts of everyone's development process.

ByteDance, Ltd.

Storage System R&D Intern, TerarkDB Team

June 2021 – August 2021

Beijing, China

- Implemented **Zone-Aware Garbage Collection** in **TerrakDB** for Zoned Namespace SSDs, which reduced 3-4x of space amplification caused by interleaving write lifetime in a single ZNS zone. [🐙](https://github.com)
- Added observability facilities to **ZenFS** (by Western Digital) to analyze bottlenecks and implemented a **WAL-Aware Zone Allocator**, which reduced the p999 tail latency by 100x. [🐙](https://github.com)

PingCAP, Inc.

Storage System R&D Intern, TiKV Storage Team

August 2020 – January 2021

Shanghai, China

- Built LSM-based storage engine **AgateDB** from ground-up. Inspired by WiscKey and BadgerDB, AgateDB separates large values from LSM tree into value log, so as to reduce write amplification. [🐙](https://github.com)

Open-Source Contributions

cmu-db/bustub

Teaching Assistant for 15-445/645 Database Systems

Fall 2022

[🐙 cmudb/bustub](https://github.com/cmudb/bustub)

- Design and implement **query processing (SQL) layer** (binder, planner, optimizer) for the bustub project and design course projects.

RisingLight Community

RisingLight Project Maintainer

January 2022 – Now

[🐙 risinglightdb](https://github.com/risinglightdb)

- Leads the development of **RisingLight**, an OLAP database system for educational purpose. RisingLight is written in Rust, supports simple TPC-H queries, and has a merge-tree based columnar storage.

TiKV Community

TiKV Maintainer

May 2020 – Now

[🐙 tikv](https://github.com/tikv)

- Maintains **TiKV Coprocessor**, the push-down execution framework of TiDB. Mentored community members to contribute features (e.g. new data types, plugin system) in the **LFX Mentorship**. [🔗](https://lfx.linuxfoundation.org/) [🔗](https://lfx.linuxfoundation.org/)

Personal Projects

4k followers [🐙 skyzh](https://github.com/skyzh)

- **type-exercise-in-rust** (☆870): Learn Rust black magics (GAT, HRTB, bypassing compiler bugs, macros) by implementing an expression framework in database systems. [🐙](https://github.com)

Skills

Programming Languages: Rust, C++, Golang, Python and Node.js

Tech Skills: Key-Value Storage Systems, SSD-optimized File Systems, Database Systems, Stream-Processing Systems