

JiaHui Niu

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Education

Tianjin Normal University

2019/09 - 2023/06

B. Eng in Software Engineering

Tianjin, China

- GPA 3.5/4.0, Rank 43/264
- Main Courses: Operating Systems, Computer Architecture, Computer Networks, and so on


Work Experience

RisingWave Labs

2021/08 - 2022/07

Database System R&D Intern

Shanghai, China

- **Top contributor of  RisingWave** as of 2023/03. RisingWave is a database system with PostgreSQL-compatible interface that incrementally maintains materialized views. Worked on the development of almost all components related to stream computing and state store.
- **Streaming Index Joins**: Designed shared state and streaming index in RisingWave; implemented index lookup join executor; implemented delta join DAG optimizer transformations; implemented distributed delta join scheduler
- **Performance Improvement**: Conducted intensive benchmarks and analyzed performance issues. Fixed bugs, proposed strategies, and led cross-team collaboration which improved the system throughput by 10x in a 3-month period
- **Developer Experience**. Initiated the RiseDev development tool to start a RisingWave cluster with one command, which is deeply integrated into the development workflow across unit testing, integration testing, and benchmarking. Built RisingWave Streaming Dashboard that shows cluster metrics and visualizes streaming query plans in one place
- **Mentoring**. Mentored database kernel interns and helped their integration into the team. Maintained overview documents of the database kernel to facilitate knowledge transfer and help new hires learn about the system.

ByteDance, Ltd.

2021/06 - 2021/08

Storage System R&D Intern, TerarkDB Team

Beijing, China


- **Co-Optimized  TerarkDB and  ZenFS**. Implemented Zone-aware Garbage Collection in TerarkDB and WAL-Aware Zone Allocator in ZenFS, which reduced 3-4x of space amplification and improved the p999 tail latency by 100x

PingCAP, Inc.

2020/08 - 2021/01

Storage System R&D Intern

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.

Open-Source Contributions

cmu-db/bustub

2022/08 - Now

- Lead the development of the BusTub database system. Added SQL support/query processing layer to the system.
- Redesigned course projects to help students better understand the concepts and apply them to real-world scenarios. Developed leaderboard tests to challenge advanced students and enable further study.



RisingLight Community

2022/01 - Now

- Lead the development of **RisingLight**, an OLAP database system for educational purpose.



TiKV Community

2020/05 - Now

- 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**.  

Personal Projects

5.3k followers  [skyzh](#)

-  **mini-lsm** (★1k) Build a simple LSM-Tree storage system in Rust in a week
-  **type-exercise-in-rust** (★1k) Learn Rust generics by implementing a vectorized expression evaluation framework

Last Updated on January 5, 2024