

# Chi Zhang

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## Education

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| <b>Carnegie Mellon University</b>  | August 2022(Expected) – December 2023 (Expected) |
| Master of Science in Computer Science  | Pittsburgh, PA                                   |
| <b>Shanghai Jiao Tong University</b>   | September 2018 – June 2022                       |
| B.Eng in Computer Science and Technology   | Shanghai, China                                  |
| <ul style="list-style-type: none"><li>• GPA 93.58/100, Rank 1/149, National Scholarship 2019 (Top 0.2% national-wide)</li><li>• A+ Courses: Operating Systems, Computer Architecture, Computer Networks, and 28 others</li></ul> |  |

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## Internship Experience

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| <b>Singularity Data, Inc.</b>  | August 2021 – July 2022    |
| Database System R&D Intern   | Shanghai, China            |
| <ul style="list-style-type: none"><li>• One of the top contributors of RisingWave — a next-generation streaming database in the cloud. Worked on the development of almost all components related to stream computing and state store.</li><li>• Designed and implemented <b>shared state</b> to support <b>streaming index</b> in RisingWave; implemented <b>lookup join executor</b> based on shared state to support efficient <b>index delta joins</b>.</li><li>• 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.</li><li>• 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.</li></ul> |                            |
| <b>ByteDance, Ltd.</b>   | June 2021 – August 2021    |
| Storage System R&D Intern, TerarkDB Team   | Beijing, China             |
| <ul style="list-style-type: none"><li>• Implemented <b>Zone-Aware Garbage Collection</b> in <b>TerrakDB</b> for Zoned Namespace SSDs, which reduced 3-4x of space amplification caused by interleaving write lifetime in a single ZNS zone.</li><li>• Added observability facilities to <b>ZenFS</b> (by Western Digital) to analyze bottlenecks and implemented a <b>WAL-Aware Zone Allocator</b>, which reduced the p999 tail latency by 100x.</li></ul>   |                            |
| <b>PingCAP, Inc.</b>   | August 2020 – January 2021 |
| Sotrage System R&D Intern, TiKV Storage Team   | Shanghai, China            |
| <ul style="list-style-type: none"><li>• Built LSM-based storage engine <b>AgateDB</b> from ground-up. Inspired by WiscKey and BadgerDB, AgateDB separates large vallues from LSM tree into value log, so as to reduce write amplification.</li></ul>   |                            |

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## Open-Source Contributions

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| <b>RisingLight Community</b>  | January 2022 – Now |
| RisingLight Project Maintainer  | risinglightdb      |
| <ul style="list-style-type: none"><li>• Leads the development of <b>RisingLight</b>, an OLAP database system for educational purpose</li><li>• Designed and implemented a merge-tree <b>column storage engine</b> with snapshot isolation support; mentored community members to add functionalities like <b>filter scan</b> and <b>statistics</b>.</li></ul> |                    |
| <b>TiKV Community</b>   | May 2020 – Now     |
| TiKV Maintainer   | tikv               |
| <ul style="list-style-type: none"><li>• Maintains <b>TiKV Coprocessor</b>, the push-down execution framework of TiDB.</li><li>• Mentored community members to contribute new feature to TiKV in the <b>LFX Mentorship</b>.</li></ul>  |                    |
| <b>Personal Projects</b>  | 4k followers skyzh |
| <ul style="list-style-type: none"><li>• <b>type-exercise-in-rust</b>(star 870): Learn Rust black magics (GAT, HRTB, bypassing compiler bugs, macros) by implementing an expression framework in database systems.</li></ul>   |                    |

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## 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