

Xiaochen Cui

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SUMMARY

Software engineer with 6+ years of experience in database and backend. Proven track record of building scalable, high-performance systems from the ground up. Passionate about clean code, efficient architecture, and solving complex system problems.

OPEN SOURCE EXPERIENCE

- **SmallDB (owner)**: A distributed relational database that supports various latch modes, transaction models, and isolation levels. ([source code](#))
Technologies used: Rust, C++
- **CockroachDB (contributor)**: A Geo-distributed Database. ([source code](#)) ([my PRs](#))

PROFESSIONAL EXPERIENCE

- **Puter Technology** - Vancouver, BC, Canada
Senior Software Engineer (2025)
 - **Low-Latency File System**: Designed and implemented the [Client-Replica File System](#), which allows users to perform file system operations without waiting for the network, speed up file system read from 100ms to 1ms.
Technologies used: Websocket, gRPC, Golang, Node.js
- **Shanghai Magus Technology Co., Ltd.** - Chongqing, China
Senior Software Engineer - Database Kernel (2021 - 2024)
 - **Vectorized Query Engine**: Designed and developed the vectorized query engine for LightningDB, which makes SQL queries 50-300 times faster than the original system. (LightningDB is an analytical database.)
Technologies used: Golang, SIMD
 - **SQL Optimizer and Planner**: Designed and developed SQL optimizer and planner for LightningDB, and developed a DSL (domain-specific language) for SQL optimization. Reduced the complexity of the SQL optimization module significantly, reduced the complexity of the query engine, and solved 80% of the bugs in the legacy system.
 - Designed the structure of data files and index files for the underlying storage, resulting in a 30% reduction in disk footprint and a 100% increase in system IO speed.
- **Burnish Technology** - Chongqing, China
Senior Software Engineer (2018 - 2020)
 - **High-Performance Gateway**: Designed and developed the IoT gateway, which loads up to 1 million packages per second.
Technologies used: Golang, Redis, Kafka, Cloud-Native Stack
 - **Cloud-Native**: Built a complete cloud-native environment, reducing the time to deploy a cluster from three weeks to two days, and the time required to release a new version from one week to one day.
Technologies used: Docker, Kubernetes, Prometheus, Grafana, Helm, Consul
 - Built and maintained an Alluxio cluster for the data analytics team, making them operate data more easily, and also doubles the speed of data processing.
 - Automated and improved various DevOps and maintenance processes.
- **Zhicheng Technology** - Chengdu, China
Software Engineer (2017)
 - Developed backend services and managed production servers for client-facing systems.
Technologies used: Python, Django, Twisted, RabbitMQ, Nginx, Linux

LANGUAGES / TECHNOLOGIES

- Languages: Python, Golang, Rust, C++, Javascript
- DevOps: Shell, Linux
- Cloud Native: Docker, Kubernetes, Prometheus, Grafana
- Distributed System: System design, Gossip protocol, Raft algorithm

EDUCATION

- **Fairleigh Dickinson University - Vancouver Campus** - Vancouver, Canada
Master of Science in Applied Computer Science (2024 - 2025)
- **Tiangong University** - Tianjin, China
Bachelor of Software Engineering (2013 - 2017)