

# Xiaochen Cui

LinkedIn: [Xiaochen Cui — LinkedIn](#)

GitHub: [XiaochenCui](#)

Blog: [XiaochenCui's Blog](#)

Email: [jcnlxc.new@gmail.com](mailto:jcnlxc.new@gmail.com)

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## SUMMARY

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

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## 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](#))

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## PROFESSIONAL EXPERIENCE

- **Shanghai Magus Technology Co., Ltd. - Chongqing, China**  
*Senior Software Engineer - Database Kernel (Apr 2021 - Apr 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

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## LANGUAGES / TECHNOLOGIES

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

## EDUCATION

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- **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)*