

# Guocheng Song



## Summary

Results-oriented and innovative Software Engineer skilled in using Java, Go and JavaScript frameworks for both front-end and back-end web application development. Demonstrates strong execution skills, excels in teamwork, and maintains high learning and work efficiency.

## Skills

**Languages:** Java, Python, Go, JavaScript, Typescript, C++

**Web tech:** Springboot, SpringCloud, Gin, LangChain

**Front end:** HTML5, CSS3, React, Bootstrap, Next.js

**DB:** MySQL, PostgreSQL, MongoDB, Redis, ElasticSearch, Chromadb

**Tools:** Git, Linux, AWS, Docker, Gradle/Maven, Rabbitmq

## Work Experience

### Datap.ai, Sydney, Australia

Full-stack developer, Part-time

2024.7 - present

- Led backend development team using **Go** and **Python** to build an AI-powered data pipeline system; developed intelligent agents for automated content extraction from images and PDFs to structured JSON format.
- Implemented ML-based ETL automation with **Airbyte** for data synchronization and **DBT** for transformation; developed natural language to code conversion agents to simplify data operations for business users.
- Optimized front-end performance using **React**; enhanced user interface for BI tools to improve data visualization and analysis capabilities.
- Collaborated with cross-functional teams to ensure seamless integration between AI/ML features, data pipeline, and front-end components.

## Projects

### NoKV - High Performance Key-Value Store Engine GitHub

2024.6 - 2024.9

- Developed a custom KV storage system in **Go**, with plans to integrate Raft consensus after completing MIT 6.824 distributed systems course
- Designed and implemented **LSM tree storage** engine with **multi-level cache** (LRU/LFU/Window-LFU), BloomFilter optimization, and WAL for crash recovery
- Achieved significant performance improvements: reduced memory usage by replacing Redis storage layer with custom LSM implementation while maintaining **p99 latency**
- Implemented **MVCC transaction** support with snapshot isolation, supporting geographical data and IOT time-series workloads
- Key technologies: Go, LSM tree, distributed transactions, MVCC, caching strategies

### Financial AI GitHub

2024.7 - 2024.11

Co-led the open-source-project, responsible for conceptual design, software architecture (UML, ERD, API), and backend/AI module development, using Agile for efficient delivery.

- Developed an AI-powered system with **Spring AI** featuring multi-agent architecture (RecordRetriever, StockAnalyzer, WeatherAnalyzer), RAG-enhanced chatbot with **Chroma DB** for vector storage, and real-time anti-fraud transaction monitoring.

+61 421436108 — email: Ericsgc@outlook.com  
 Linkedin: linkedin.com/in/guocheng-song-728580318

- Built RESTful APIs with *Spring Boot 3*; implemented robust security using *Spring Security 6* with JWT integration.
- Designed application infrastructure with *MySQL* (planned migration to *TiDB* for distribution), *Redis* for caching, and *RabbitMQ* for message queuing.
- Enhanced system observability using *Elasticsearch* and *Kibana* for comprehensive monitoring and logging.

Certificates and Awards

Kaggle Competition: Chatbot Arena Human Preference Predictions (silver medal)	2024.8
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Education

University of Sydney	Australia
Master of Computer Science(Advanced entry)	February 2024 - Present
specialisation: Software Engineering	WAM:85
University College London	United Kingdom
Bachelor of Science in Chemistry	September 2020 - June 2023