Flynn(Yinmingren) Fu

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Education

Santa Clara University Sep. 2024 – Expect Jun. 2026
Master of Science *Computer Science and Engineering* *San Jose, CA, United States*

South China University of Technology Sep. 2020 – Jun. 2024
Bachelor of Science *Information and Computing Science* *Guangzhou, Guangdong, China*

Technical Skills

Programming Language: C/C++, C#, Java, Python, Golang, JavaScript, HTML, SQL, Shell/Bash, CUDA
Platforms & Framework: Spring Boot, Zookeeper, Kafka, gRPC, Muduo, Nginx, Netty, .Net Framework, WPF
Database: MySQL, SQLServer, Redis, PostgreSQL, MongoDB
Tools: Git, Docker, Kubernetes, Android Studio, AWS, gdb, cmake, TortoiseGit, Mercurial, Github Actions

Work Experience

C++ Development Engineer Jun. 2023 – Oct. 2023
ZWSOFT *Guangzhou, Guangdong, China*

- Designed a high-performance, low-latency **memory pool** for 3D engineering software using **STL** and **Boost**.
- Implemented the **Singleton pattern** and a **simple segregated storage strategy**, providing custom malloc/free and new/delete operations for vertex, line, and polygon objects, accelerating geometry generation and export by **40%**.
- Utilized **perfect forwarding** with **templates** to eliminate unnecessary copies. Ensured **thread safety** with **std::atomic** for lock-free pointer operations and **std::mutex** for secure block allocation and recycling.
- Optimized memory usage by reducing internal fragmentation via **memory alignment** and external fragmentation through contiguous block preallocation. Used **placement new** for object reuse on pre-allocated blocks, reducing memory footprint by **15%** across 3D geometries.

Project Experience

Distributed KV database based on Raft consensus algorithm Dec 2024 – Present
Framework: C++, Boost, STL, Muduo, protobuf

- Implemented **log replication** and **leader election** for the Raft consensus algorithm, leveraging **thread pool** to manage heartbeat and election tasks, ensuring log consistency and cluster stability.
- Designed and developed an **RPC** framework with **Protobuf**, enabling remote procedure calls and serialized data transmission between Raft nodes.
- Built a **skiplist-based key-value database** for high-performance data storage and retrieval.

MathMind: LLM-powered Math Helper – Scan & Solve Instantly Dec. 2023 – May. 2024
Framework: Python, Java, Kotlin, SQL, Flask, PyTorch, Android Studio, Docker

- Designed and implemented scalable **LLM-powered** math-solving microservices in **Python**, **PyTorch**, and **Flask**, with a mobile app in **Java** and **Kotlin**.
- Developed **RESTful APIs** and **WebSocket** connections. Decoded and preprocessed **Base64-encoded** images using **OpenCV** and **Pickle**, and integrated **Transformer-based LaTeX OCR models** for text and formula recognition in scan services.
- Fine-tuned ToRA-7B and Llama3 on algebra and calculus datasets using **supervised fine-tuning (SFT)**, deployed models using **TensorRT-LLM**, and integrated remote GPT and Gemini APIs for solving services.
- Built **Docker** images, managed multi-version Python environments using **Miniconda** for subprocess calls. Orchestrated deployments with **Docker Compose** and automated deployment tasks using Shell/Bash scripts.
- Developed an Android app using **MVVM architecture**, leveraging **Kotlin Coroutines** for asynchronous tasks, **Handlers** for UI updates, and **SQLite** for local persistence of historical data.

A High-Concurrency C++ Server Library Based on Muduo Library Apr. 2023 – Jul. 2023
Framework: C++, Muduo, Boost, STL

- Implemented a high-concurrency server using **non-blocking I/O**, **multiplexing**, and the **Reactor pattern**, inspired by **Muduo** and **Boost**.
- Developed core components such as **EventLoop**, **Poller**, and **Channel** to handle **event-driven loop listening**, **request dispatching**, and **asynchronous event processing**.