Flynn (Yinmingren) Fu

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Education

Santa Clara University   **San Jose, United States**

MS, Computer Science and Engineering, College of Engineering   Sep. 2024 – Expect Jun. 2026

- Coursework: Computer Architectures, Design and Analysis of Algorithms, Operating Systems, Computer Graphics, Data Structures, Distributed Systems, Logic Design
- **Internship available start and end dates: Jun 13. 2025 – Sep 23. 2025**

South China University of Technology   **Guangzhou, China**

BS, Information and Computing Science, College of Mathematics   Sep. 2020 – Jun. 2024

- Coursework: Probability, Operations Research, Machine Learning, Computational Intelligence

Work experience

ZWSOFT   **Guangzhou, China**

C++ Development Engineer   Jul. 2023 – Oct. 2023

- Developing the **ZWMemoryPool** library by using **Boost memorypool** and **Singleton Patterns**, reducing memory usage by over **15%** and speeding up **model node import** and **rendering** by over **50%**, while optimizing the underlying memory management logic.
- Upgraded **ZWCAD export module** with VTK4.0 support, including structured and unstructured grid models. Combined model export algorithm with **memorypool** operations, speeding up model export process.
- Optimized memory management for vertex, line, polygon and other node types by replacing **new/delete/malloc/free** with **allocate/deallocate** operations in **ZWMemorypool**, reducing memory usage and accelerating allocation times.

JD.COM   **Guangzhou, China**

Software Engineer Intern   Jun. 2023 – Jul. 2023

- Utilizing data preprocessing libraries (**Pandas, Scikit-Learn, Seaborn**) to process **real corporate transaction data** and generate relevant metrics, supporting team collaboration and facilitating negotiations with enterprises.
- Implementing algorithm to identify **abnormal orders** based on **real trading data** and **Statistical Learning model** to calculate overdue probabilities, predict order handling times, and estimate payment cycles.

Project experience

Distributed KV database based on Raft consensus algorithm   **Dec. 2024 – Present**

Framework: C++, Boost, STL, Muduo, protobuf

- Implemented the **heartbeat** and **election** of the **Raft algorithm**, using a threadpool to trigger heartbeat and election tasks, ensuring the maintenance of the **cluster's log commit state**.
- Developed an **RPC communication** framework based on **Protobuf** and a custom protocol, enabling **remote procedure calls** and **data transmission** between Raft's nodes. Based on the **skiplist** to build a **skiplist K-V database**.
- Implemented the **log replication module** of the Raft algorithm, enabling the leader node to handle client requests, process responses, **log replication** and **log commitment**.

MathR: An Educational AI-Based App for Math Image Recognition and Reasoning ⬡   **Dec. 2023 – May. 2024**

Framework: Java, JavaScript, Python, Android Studio, Kotlin, SQL, Linux (Ubuntu)

- Deploying **server backend** and **pre-trained model** on Linux platform based on the **TCP Socket**, supporting **nonblocking multi-threaded socket communication** and remote model **API calls**.
- Developing an **Android app**, enabling fast and stable client-server communication and image recognition using **Android Studio** and **SQLite**.
- Training a language model on **math problem datasets** (e.g., Math, GSM8K) to enhance **recognition** and **reasoning** in **images and mathematical formulas**, integrating **LLMs** (e.g., GPT, ERNIE, Llama) with **OCR** technology (transformer-based model, CNN).

A High-Concurrency C++ Server Library Based on Muduo Library   **Apr. 2023– Jul. 2023**

Framework: C++, Linux, Muduo, Boost, STL

- Implementing a high concurrency server using **non-blocking**, **I/O multiplexing**, and the **Reactor** model, referencing the Muduo source code.
- Developing with a multi-threading model, implementing classes like **EventLoop**, **Poller**, and **Channel** to enable **loop listening**, **request dispatching**, and **event handling**.
- Gaining proficiency in basic Linux network programming and the fundamentals of **I/O multiplexing**.

Technical skills

- **Programming Language**: C/C++/C# (Advanced), Python (Advanced), Go (Advanced), Java(Advanced), JavaScript, HTML, SQL, MATLAB, R, Bash/Shell, XML
- **Platforms & Framework**: Kafka, Spring Boot, Nginx, Muduo, Netty, Windows .Net Framework /WPF, Linux, Pytorch, TensorFlow, Scikit-Learn
- **Database**: MySQL, SqlServer, Redis
- **Dev tools**: Git, Docker, Kubernetes, AWS