Huangyu Zhang

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🎓 Education

University of Southern California   2024.08 – 2026.05
Master of Science in Computer Science   Los Angeles, USA

Xi'an Jiaotong University   2020.09 – 2024.06
Bachelor of Engineering in Computer Science   Xi'an, China
- GPA: 90/100 (Top $1\% \sim 5\%$)

💼 Internship Experience

Bytedance - C++ Software Development Internship   2023.06 – 2023.10
- Developed a non-intrusive parameter serialization module using macros and template metaprogramming, and added pre-validation to ensure parameter integrity. Enabled more convenient and standardized API logging and contributed to reduced API crash rates through robust parameter validation;
- Develop a tool which can automatically generate API documentation from annotated header files. Utilized Doxygen and RapidXML parser to parse definitions and comments from header files. Transformed the parsed information into a JSON format to enable web-based documentation and cross-platform consistency;
- Developed a MessageBus using C++ STL and multi-threading, defined message types, and implemented both synchronous and asynchronous message sending methods. Used queues to optimize and simplify the asynchronous sending method, improving the response time of the multi-stream API.

🔧 Project Experience

EasyRPC   2024.06 – 2024.07
Java, Maven, Jetty, Servlet, Proxy
- Developed a Java-based RPC (Remote Procedure Call) component with Maven project management;
- Structured the project into several key modules: Protocol, Serialization, Network Transport, Server, and Client;
- For the Server module, utilized the embedded Jetty server and used Servlet for request handling. The server also maintains a HashMap to register and look up implementation classes based on the protocol data type;
- For the Client module, implemented a Java proxy class with a handler that encapsulates the remote calling logic. Utilized Java's native Proxy API to create the proxy instance for invoking remote methods.

Traffic Flow Detection System based on Visual Perception   2023.11 – 2024.03
SpringBoot, Mybatis, MySQL, Redis, Vue, Node.js
- Followed a frontend-backend separation development pattern, encompassed features such as user authentication, user management, image uploading, and traffic flow recognition;
- Utilized Spring Boot framework for backend, incorporating Redis for caching user information, effectively addressing cache penetration issues;
- Utilized Node.js and Vue for frontend, using elements from Element UI Toolkit and an open-source template;
- The visual model employed the YOLOv5 model and was trained using the UA-DETRAC dataset. A Flask architecture was used to provide the frontend with algorithmic APIs.

Socket Chat Application   2023.01 – 2023.03
C++, Socket, WaveX
- Designed and developed a server and a client in C++ to simulate a many-to-many chat room, with support for user authentication, file transfer and voice chat;
- Stored file sizes and MD5 checksums on the server to enable Breakpoint Continuation and Offline Download;
- Utilized WaveX to implement audio module, and used multiple buffers to ensure smooth audio playback.

🏆 Awards and Honors

Top 15% and Top 20% in two Kaggle Machine Learning Competitions   2023.08

The Bronze Medal in ICPC Shaanxi Provincial Contest 2023.05
The First Prize in Shaanxi Contest District in CUMCM 2022.11

⚙️ Technical Skills

- Programming Languages: Java = C++ > Python
- Technology Stack: SpringBoot、MyBatis、MySQL、Redis、Vue
- Domain Knowledge：OS Principles, Computer Networking, Database, Data Structures, JVM