HUANGYU ZHANG

(213) 994-7810 | huangyuz@usc.edu | linkedin.com/in/huangyuz | github.com/DavidZhang0710

EDUCATION

University of Southern California Aug. 2024 - May. 2026
Master of Science in Computer Science *Los Angeles, USA*

Xi'an Jiaotong University Sep. 2020 - Jun. 2024
Bachelor of Engineering in Computer Science, GPA: 3.82 *Xi'an, China*

- **Core**: Data Structures and Algorithms | Operating System Principles | Computer Network | Database System | Formal Language and Compiler | Software Engineering | Machine Learning | Data Warehousing and Mining
- **Awards**: Outstanding Undergraduate Award | Bronze Medal in ICPC Shaanxi 2023 | First Prize Scholarship

SKILLS

Languages: *Java, C & C++, Python, SQL, JavaScript*
Technology: *Spring & Spring Boot, Flask, Redis, Zookeeper, Kafka, RabbitMQ, Javassist, CMake, scikit-learn*
Tools: *Git, Docker, Maven, Linux, AWS, Postman*

EXPERIENCE

RTC SDK, Data Department, ByteDance Ltd. Jun. 2023 - Oct. 2023
Software Engineer Intern *Shanghai, China*

- Implemented a non-intrusive serializer based on **Macro** and **Template**, limiting SDK size increment to **7KB**
- Enhanced pre-validation and added unit tests using **GTest** and **GMock**, reducing crash rate from **0.7%** to **0.5%**
- Utilized **Doxygen** and **RapidXML** to parse header files, adding unique IDs to resolve function overloading
- Developed a Message Dispatcher component only based on C++ **STL**, reducing API response time by **6.9%**

Multimedia Knowledge Fusion and Engineering Institute, Xi'an Jiaotong University Mar. 2023 - Nov. 2023
Research Assistant, Advisor: Prof. Jun Liu *Xi'an, China*

Learning Path Generator

- Created a **Flask** web application based on LLMs to generate learning paths for completing specific tasks
- Adapted user interface based on language information in navigator, enabling dynamic localization support
- Divided tasks into a logical hierarchy of sub-tasks, enhancing accuracy in mathematical problems by **44.5%**

PROJECTS

EasyRPC Feb. 2024 - May. 2024

- Built up a multi-thread architecture with **Netty** IO threads, leveraging **Javassist** to optimize service proxy
- Utilized **Zookeeper** as a service registry and leveraged **Semaphore** for flow control during service registration
- Introduced **timeout retry** and **routing strategy**, optimizing load distribution and improving system reliability
- Conducted stress tests with consecutive requests ranging from **100** to **10,000** requests, observing no degradation in response time or consistency of remote method invocation

Traffic Flow Detection System Nov. 2023 - Jan. 2024

- Built up a **Spring Boot** web application for traffic flow detection, with a **Vue.js** front-end for visual interactions
- Implemented user authentication with **SHA-encrypted tokens**, simplifying API calls while enhancing security
- Utilized **Redis** caching for **MySQL** interaction data, employing a **Bloom filter** to address cache penetration
- Trained a self-supervised model achieving a $mAP_{0.5:0.95}$ of **0.948** and deployed it by **Flask** framework

Socket-based Chat Application Sep. 2022 - Nov. 2022

- Developed a **Socket** application for a multi-user chat room, with capability of up to **100** concurrent users
- Created IO threads for data transfer, with a **thread pool** to allocate resources for file transfers and voice calls
- Recorded file sizes and MD5 checksums to enable Breakpoint Continuation and Offline Transfer feature
- Leveraged **Windows Multimedia API** for voice calls, achieving a latency of **90ms** (excluding network delays), while allowing up to **5** pairs of users to talk simultaneously without adding to latency