Zhiping Liao

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EDUCATION

Carnegie Mellon University *Aug. 2023 – May 2025, Expected*
M.S. in Information Networking GPA: 4.00 / 4.00
University of Electronic Science and Technology of China *Sept. 2019 - June 2023*
B.Eng. in Software Engineering GPA: 3.93 / 4.00

EXPERIENCE

ByteDance Ltd. *Mar. 2022 – Oct. 2022*
Software Developer, Internship Beijing, China
- Full-time internship in ByteDance's codebase team that manages Git repos, code analysis services and the CI/CD orchestration engine.
- Built a git data service using ClickHouse for offline analytics and GitLab hooks for real-time data; channeled results via RocketMQ to Apache Hive, overseeing 300k commits and adeptly managing monorepos over 5 GB.
- Architected a unit test report collecting plugin using MySQL for insights and object storage for detailed outputs; showcased details via a React-driven dashboard, serving 200+ repositories.
- Implemented webhooks for CI/CD engine, reducing the sync lagging by 70% in the 90th percentile.
- Configured and maintained Grafana dashboards to monitor and visualize metrics for multiple projects.
- **Skills**: Golang, React, MySQL, Redis, ClickHouse, Apache Hive, Spark, Git, RocketMQ, Grafana, Kubernetes.

PROJECTS

malloclab | *Introduction to Computer Systems Project* *July 2023*
- Developed a dynamic memory allocator, implementing core functions: malloc, free, realloc, and calloc.
- Optimized the allocator using a splay tree-based fit algorithm and footer elimination, achieving a 15% boost in utilization and tripling throughput.
- Adopted test-driven development, crafting a comprehensive heap checker and automating tests via GitHub workflows, ensuring robust and efficient allocator functionality.
- **Skills**: C, Linux, Makefile, GDB, Git, GitHub Actions.

Signal Online Judge Platform *Nov. 2022 – Mar. 2023*
- Developed the Golang judging executor utilizing the open-source sandbox project criyle/go-judge and communicating with the backend through gRPC. Core module testing coverage over 75%.
- Contributed to backend development, including the implementation of the local problem bank, integration of the judging component, and the Spring Security + JWT authentication module.
- Integrated the central problem bank using GraphQL for backend communication and WebSocket sessions for real-time updates; leveraged Spring Webflux and CompletableFuture for efficient asynchronous communications.
- Dockerized the judging executor, streamlining deployment and enhancing scalability. Deployed and managed 10 judging instances.
- Configured the project's GitHub Actions pipeline for automated workflows.
- **Skills**: Java, Golang, SpringBoot, Spring Security, gRPC, GraphQL, WebSocket, GitHub Actions, Docker.

SiFang Compiler *May 2021 – Aug. 2021*
- Developed in C++17, the compiler targeted the ARMv7 architecture and supported the SysY language (a subset of C). It successfully passed 100% functional tests.
- Implemented code generation and register allocation functionalities within the compiler.
- Designed the intermediate representation.
- **Skills**: C/C++, CMake, Bison, Flex, ARMv7 Assembly, GDB.

TECHNICAL SKILLS

Languages: Golang, Java, C/C++, Python, SQL, ARMv7 & x64 Assembly, JavaScript
Developer Tools: Linux, Git, Docker, Kubernetes, CI/CD Workflows, GDB, Shell, CMake, Makefile
Frameworks: SpringBoot, Spring Security, Spring Webflux, JUnit, React, gRPC, GraphQL, Gin, GORM, Redis, MySQL, ClickHouse, Apache Hive, RocketMQ