Jianxin Qiu

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Education

University of Toronto   2022 – 2023
Master's Degree of Engineering, Computer Engineering, GPA: 3.90/4.00   Toronto, Canada
Beijing University of Posts and Telecommunications   2017 – 2021
Bachelor's Degree of Engineering, Computer Science, GPA: 90.66/100   Beijing, China

Work Experience

TikTok (ByteDance), Technical Infrastructure   Aug 2023 – Present
Software Engineer   Singapore

<u>AI Infrastructure</u>   2025 - Present

- Designed and launched the company-wide **Model Context Protocol (MCP)** gateway from scratch, enabling seamless integration of AI tools across the organization. Designed a flexible platform where teams can register REST/gRPC APIs as MCP tools via UI configuration, host third-party servers, or implement custom handlers programmatically, abstracting away protocol complexity, authentication, and observability concerns. Scaled the platform to host **6,000+ MCP servers** and process **2B+ requests** daily, serving as the foundational infrastructure for AI tool integration across all engineering teams.
- Engineered the **AI Sandbox platform** on the serverless infrastructure (ByteFaaS) to enable on-demand, ephemeral environments with configurable lifetimes and per-instance routing. Developed container images with remote command execution, port proxying, VNC, and browser automation capabilities, now serving 10,000+ cores daily.
- Integrated **AI agent frameworks** (LangGraph, ADK, Eino, etc.) into ByteFaaS runtime and created a one-click setup process for AI agent projects with automated repo scaffolding, CI/CD pipelines, and runtime provisioning.

<u>Serverless Platform (ByteFaaS)</u>   2024

- Unified on-prem and cloud control planes into a single Go codebase; migrated metadata for 4,000+ functions, reducing maintenance overhead and accelerating new feature delivery.
- Designed and delivered CronJob-on-FaaS, enabling existing batch workloads to run serverlessly with custom images, sidecar metrics/log collectors, and DC-aware scheduling.
- Moved the build process from self-managed build clusters to the centralized ByteBuild platform, reducing complex function build times by 50% and eliminating cluster failures.

<u>Cloud Native Infrastructure</u>   2023

- Built a metrics proxy layer exposing unified OpenTSDB APIs over Prometheus and internal observability systems to standardize metrics ingestion across environments.
- Developed a service-mesh-based traffic switcher with dependency tracking and automated cut-over policies, enabling zero-downtime migration of 5,000+ on-prem microservices to cloud infrastructure.

ByteDance, Lark Messenger   Jun – Oct 2021
Software Engineer Intern (Rust)   Beijing, China

- Contributed to Lark Messenger's core Rust components, introducing new features to the calendar module.
- Improved modularity and binary footprint through assembly-level profiling and code refactoring, reducing binary size and improving startup latency. Adopted Rust async/await patterns across shared modules to enhance reliability and maintainability.

Alibaba Cloud, ClickHouse Database Team   Jul – Aug 2020
Software Engineer Intern (Java)   Hangzhou, China

- Integrated ClickHouse and Apache Flink by developing a high-throughput database connector, employing optimizations like parallel direct shard writing, achieved over 5x higher throughput over the default JDBC connector.

SmartX Inc., ZBS Storage Team   Sep 2019 – Jan 2020
Software Engineer Intern (C++)   Beijing, China

- Enhanced the long task execution module of the distributed block storage system, implementing features like storage backup parallelization, QoS bandwidth limiting, and task status management.
- Developed Hadoop-like command-line tools for the NFS interface of the storage service.

Skills

- C, C++, Rust, Go, Python, Java, Cloud Infrastructure, Serverless, Service Mesh, Model Context Protocol (MCP), etc.