

# Avril Liu . Jarvis Consulting

Backend Engineer with 3+ years of experience building scalable SaaS and distributed systems focused on performance, reliability, and impact. Skilled in microservices, event-driven design, and data pipelines using Kafka, Redis, and SQL/NoSQL. Delivered high-throughput messaging platforms (15K+ QPS) with 99.9% uptime and real-time analytics for multi-tenant clients. Proficient in RESTful APIs, Docker/Kubernetes, and observability tools (Prometheus/ELK). Master's in Computational Science, authorized to work in Canada until 2029

## Skills

**Proficient:** Java, Go, Spring Boot, RDBMS (MySQL), MongoDB (NoSQL), Linux/Bash, Kafka, Redis, Docker, Kubernetes

**Competent:** Python (Flask/FastAPI), TypeScript/JavaScript (Next.js), REST/GraphQL APIs, AWS/GCP (Serverless), CI/CD (GitHub Actions/Jenkins), Netty

**Familiar:** gRPC, Message Queuing (RabbitMQ / SQS), Cloud Monitoring (CloudWatch / Stackdriver), PostgreSQL, Raft Consensus Algorithm

## Jarvis Projects

Project source code: [https://github.com/jarviscanada/jarvis\\_data\\_eng\\_AvrilLiu](https://github.com/jarviscanada/jarvis_data_eng_AvrilLiu)

**Linux Cluster Monitoring Agent** [GitHub]: Built a Linux monitoring agent on Rocky Linux to collect hardware and usage data via Bash scripts. Automated PostgreSQL data ingestion with crontab and Dockerized database container for analytics.

## Highlighted Projects

**Roots & Route (Nonprofit, Canada)** [GitHub]: Developed an AI-assisted trip planner using Supabase and Bolt AI, automating itinerary generation and multi-tenant route management.

**Custom Java RPC Framework (Netty):** Built a lightweight RPC framework with dynamic proxy, serialization (Kryo/Protobuf), and heartbeat checks, enabling low-latency, fault-tolerant service-to-service communication.

**Raft Consensus Algorithm:** Implemented leader election, log replication, and fault recovery to simulate distributed system consensus.

## Professional Experiences

**Software Developer, Qiniu Information Technology (Jun. 2022 – Apr. 2024):** Built a high-throughput SMS dispatch system for OTP, alerts, and marketing campaigns. Designed a Kafka-Redis pipeline (15K+ QPS) with RESTful APIs, improved throughput by 40%, and reduced latency by 70%. Expanded the system to 12+ gateways with automatic failover and SLA monitoring using Prometheus and ELK.

**Backend Developer Intern, Alibaba Cloud (Jun. 2021 – Apr. 2022):** Designed lifecycle and approval flows with gRPC/Dubbo for secure integration. Optimized MySQL indexes for 50M+ records and migrated 10M+ records losslessly via Kafka pipelines. Deployed services using Docker/Kubernetes for scalable and fault-tolerant infrastructure.

## Education

**Laurentian University (Sep 2024 – Aug 2025),** Master of Computational Science, Computational Science - Completed program in 12 months (Early Completion)

**Heilongjiang University (Sept 2018 – Jun 2022),** Bachelor of Computer Science, Internet of Things

## Miscellaneous

- Authorized to work in Canada until 2029.
- Committed to clean code, comprehensive unit testing, and code review best practices.