

Qi (Logan) Liu

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Personal Statement

I hold a Master's in Computer Science from Victoria University of Wellington (weighted average ~83%). Most recently, I built and shipped a commercial website for Moso Tea, a local NZ business—my first paid freelance project, which I initiated after noticing they lacked an online presence while visiting as a customer.

The work I'm most proud of: a PostgreSQL query optimizer using Genetic Programming, and a serverless AWS platform that supported real students all semester with zero downtime. I am AWS Solutions Architect certified and comfortable taking projects from initial idea to production independently.

Before transitioning to tech, I spent 8 years teaching Mathematics. I've found that explaining complex logic like recursion to a stakeholder is not unlike teaching algebra to a room of teenagers—both require clarity, patience, and a touch of persuasion to overcome skepticism.

Portfolio: qi.lqtechgroup.com

Skills

Programming : Python (FastAPI, Flask, PySpark), TypeScript, JavaScript (Node.js), C#, Java, SQL
Cloud & DevOps : **AWS Certified:** Lambda, API Gateway, DynamoDB, S3, IAM, CDK, Cognito, Route 53; Vercel, Git, GitHub Actions, Docker
Databases : PostgreSQL: Query Optimization, Execution Plans, Cardinality Estimation; MySQL, NoSQL (DynamoDB), Hadoop YARN
Frontend : React, Next.js, TypeScript, Tailwind CSS, GSAP Animations, HTML5/CSS3, Responsive Design
AI & Optimization: Genetic Programming (GP), Evolutionary Algorithms, Query Order Optimization, Generative AI (Prompt Engineering), Machine Learning Fundamentals
Soft Skills : Technical Communication (ex-Math Teacher), Stakeholder Management, Problem Solving, Analytical Thinking, Team Collaboration

Professional Experience

Full-Stack Developer

mosotea.co.nz

Moso Tea — Paid Freelance Commercial Website

Mar 2026

- **Business Engineering:** Identified a digital gap as a customer and successfully negotiated a contract to deliver a bespoke commercial platform, managing the full project lifecycle from analysis to deployment.
- **Full-Stack Architecture:** Built a high-concurrency booking system using **Next.js 15** and **Supabase**, implementing **PostgreSQL triggers** for race condition prevention and **HMAC-SHA256** signed tokens for secure, stateless cancellations.
- **Integrated Design:** Directed all non-engineering facets, including UI/UX design, professional photography, and a bilingual (EN/ZH) content strategy, ensuring a cohesive brand identity and user-centric experience.
- **High-Efficiency Delivery:** Leveraged **Claude Code** and modern CI/CD workflows to accelerate development, achieving a 7-day turnaround with **Lighthouse scores of 95+** across all performance and SEO metrics.

TAL Education Group

China

Mathematics Teacher

Oct 2015 – Nov 2023

- **Analytical Problem Solving:** Mentored students for mathematics competitions, fostering rigorous logical thinking and methodical approach to complex problems over an 8-year tenure.
- **Technical Communication:** Expert at distilling abstract concepts into clear, logical steps—a skill directly applied to bridging the gap between technical architectures and non-technical stakeholders.

Personal Projects

Academic Project

Victoria University of Wellington

SQL Query Optimizer for PostgreSQL

Jul 2025 – Nov 2025

- **Core Optimization:** Developed a cost-based join order optimizer for PostgreSQL using **Genetic Programming (GP)** to evolve optimal query execution plans.
- **System Engineering:** Built a custom SQL parser to extract query components and constructed query graphs for complex join tree optimization.
- **Statistical Modeling:** Applied advanced cost models using table cardinalities and join selectivity to accurately estimate intermediate result sizes.
- **Performance Validation:** Benchmarked against PostgreSQL's native optimizer using **EXPLAIN ANALYZE** and the **JOB benchmark**, achieving an **A+ grade**.

AWS Cloud-Based Online Education Platform (lqtechgroup.com)

Oct 2025

- Designed and implemented a serverless online teaching platform on AWS using Lambda, API Gateway, Cognito, S3, and DynamoDB, supporting students to submit and track assignments efficiently.
- Deployed frontend on S3 bucket and configured secure backend APIs using IAM and RBAC, ensuring reliable and secure access for all users.
- Piloted the platform with dozens of students, achieving zero downtime and enhanced grading efficiency, demonstrating resilience and effective problem-solving.

Personal Portfolio Website (qi.lqtechgroup.com)

Sep 2025 - present

- Designed and developed an interactive personal website using React and GSAP animations, providing a modern and engaging user experience.
- Deployed the site on Vercel with a custom domain and implemented a lightweight database to track visitor counts and likes.
- Demonstrated frontend development, cloud deployment, and user engagement tracking, highlighting practical web development and project management skills.

Education

Victoria University of Wellington

Master of Computer Science

Jul 2024 – Nov 2025

Southeast University

BSc in Computer Science and Technology

Sep 2011 – Jun 2015

Certifications

AWS Certified Solutions Architect – Associate

Jul 2025

AWS Certified Cloud Practitioner

Mar 2024

Foundational C# with Microsoft – freeCodeCamp

Jul 2023

Volunteer Experience

Salvation Army Family Store

Volunteer Assistant

Dec 2025 – Present

- Assisted with daily store operations, including organizing donations and supporting customers.
- Worked collaboratively with staff and volunteers to ensure smooth and efficient operations.
- Developed strong time management skills and a practical understanding of teamwork in a service-oriented environment.