Luke Lu

lukelu.dev | luke.yanglu@outlook.com | linkedin.com/in/lukeyanglu | github.com/luke-yl

EDUCATION

Bachelor of Science in Computer Science – University of British Columbia *Sept 2021 – May 2027*

- Cumulative Average: 80.4% | 2021-22 Dean's List

PROFESSIONAL EXPERIENCE

Software Development Engineer Intern – Amazon Web Services (Relational Database Service) *May 2026 – Aug 2026*

- Contributed C++ bug fixes and proposed solutions upstream to MariaDB Server alongside the RDS MySQL/MariaDB core engine team, with 3 fixes shipped in MariaDB releases across correctness, replication, and memory safety.
- Built an agent-driven database reproduction and validation workflow for MariaDB/MySQL, automating server builds, bug reproduction, fix implementation/verification, and artifact collection across parallel, isolated environments.
- Designed and built a distributed platform for parallel, fault-isolated AI-agent workflows with ephemeral compute, using Step Functions, Fargate, Lambda, EventBridge, S3, and RDS.
- Implemented RDS-backed state-machine tracking with live telemetry, persistent state/artifacts, and stage-level replay and recovery, providing end-to-end execution traceability and recoverability across concurrent, isolated AI-agent workflows.
- Delivered agentic automation for team engineering workflows, processing 400+ issues in 7 days and producing review-ready results for >25% of issues. Reduced end-to-end SDE effort required for review-ready issues by >75%.

Software Developer Intern (Co-op) – D-Wave Quantum Inc. *May 2025 – Apr 2026*

- Owned the migration of a substantial set of LEAP Quantum Cloud API endpoints from legacy Django to Django REST Framework v2, modernizing and optimizing API contracts while maintaining compatibility with dependent services.
- Reduced endpoint implementation size by >75% and request volume/server load by >30% by standardizing serializers, views, and request/response handling using Django REST Framework patterns.
- Optimized authentication/middleware and periodic tasks, improving worst-case RBAC query latency by 90% and reducing average runtime of the slowest periodic tasks by 97.5%.
- Modernized legacy components to React/TypeScript/MUI, reducing LOC by >50% and WCAG accessibility issues by >95%.

Full Stack Software Developer – Canadian Nuclear Laboratories *Sept 2023 – Apr 2025*

- Developed the .NET MAUI client and C#/.NET API service of an operational data-collection system supporting 1M+ records.
- Built internal ASP.NET Core CRUD applications, normalized SQL Server schemas, and enforced referential integrity to reject invalid relationships at form submission. Delivered SSRS reports and reduced stored-procedure execution time by >50%.

OPEN SOURCE

MariaDB Server *May 2026 – Sept 2026*

- Contributed C++ bug fixes and proposals to MariaDB Server for issues involving cached table corruption, replication/binlog replay, memory safety, and temporary table transaction logging. Three bug fixes have shipped in MariaDB releases.
- MDEV-35732 | Released 2026 Q4 Fixed failed `ALTER TABLE` handling that corrupted cached table metadata and altered subsequent statement behavior. Used local variables to avoid optimistic writes, resolving root cause for corrupted cache.
- MDEV-40385 | Released 2026 Q4 Improved memory safety by eliminating uninitialized read errors found using MSAN.
- MDEV-39689 | Released 2026 Q3 Hardened binlog parsing for `Table_map_log_event` against malformed metadata. Added bounds validation to shared buffer to prevent unsafe memory access by blocking out-of-bounds memory reads.
- MDEV-8628 | Closed Proposed fix for nondeterministic `CURRENT_USER` references in DDL during binlog replay.
- MDEV-40388 | Draft Proposed checking for `SEQUENCE` table to block temporary table transactions being written to binlog.

TECHNICAL SKILLS

Languages

- C++, Python, Java, C#, TypeScript/JavaScript, SQL

Systems/Cloud

- Linux, AWS (EC2, ECS, Fargate, Lambda, RDS, S3, EventBridge, Step Functions, Bedrock), Docker, Git, GDB

Data/Backend

- MariaDB/MySQL, SQL Server, Oracle, Django/DRF, FastAPI, .NET, Node.js, React