Zekun Liu

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EDUCATION

University of Toronto — Toronto, ON
Bachelor of Science in Computer Science, Computer Systems Specialist — *Sep. 2021 – Feb 2026*
Dean's List Scholar

WORK EXPERIENCE

Amazon — May 2025 – July 2025
Software Engineering Intern — *Toronto, ON*
- Reduced search times for vendor chargeback disputes by 99% and expanded search coverage to include new types.
- Implemented Elasticsearch mirrors of existing DynamoDB tables and automated data ingestion.
- Configured AWS infrastructure to securely handle data encryption, data access policies and VPC network access.
- Interviewed users and worked backwards to design the project around user needs.
- Optimized user interfaces to suit customer usage patterns with internal React framework.

Huawei — January 2025 – April 2025
Software Development Intern — *Markham, ON*
- Improved GaussDB multi-node TPC-H benchmark times from 24 seconds to 6 seconds.
- Developed Python test scripts and unit tests to prevent regressions and improve continuous development.
- Built an automated benchmarking system to build and test the latest GaussDB commits on schedule.
- Generated flame graphs and reports to support database designers' decision making.

IBM — January 2024 – August 2024
Software Engineering Intern — *Markham, ON*
- Maintained and enhanced services supporting IBM's online education platform with 9M+ users.
- Developed an online IDE application based on Eclipse Theia and compatible with VSCode plugins.
- Implemented a container pool system to quickly provision MySQL, PostgreSQL, and Cassandra instances.
- Implemented and improved user interfaces on several applications using React and Tailwind.
- Optimized CI/CD by engineering a method to build oversized Docker containers on GitHub Actions runners.
- Created a new microservice to provision end user Kubernetes credentials to access IBMCloud services.

UNICEF — September 2023 – December 2023
Volunteer Project Intern — *Toronto, ON*
- Developed a React application to gather software usage telemetry.
- Implemented OAuth and data storage using UNICEF's Microsoft Azure.
- Designed database schema, and implemented API endpoints using Django REST.

Onova — May 2023 – December 2023
Software Development Intern — *Toronto, ON*
- Developed an enterprise event management application using React, ChakraUI, and Next.js.
- Optimized blob file storage, designed PostgreSQL database schema, and implemented data access APIs.
- Developed an LLM-powered poker coach using LangChain and RAG for improved accuracy.
- Engineered an application to host PokerGPT; implemented user interface, auth, user messaging, and data storage.

TECHNICAL SKILLS

Languages: Bash/Zsh, C/C++, Java, JavaScript/TypeScript, Kotlin, Python, SQL, HTML/CSS
Frameworks: Django, FastAPI, Flask, LangChain, NumPy, Pandas, React, Next.js, Tailwind CSS, Express.js, Bootstrap, Spring, OpenGL
Cloud & DevOps: AWS (API Gateway, CDK, CloudFormation, CloudWatch, EC2, Lambda, OpenSearch, S3, SNS, SQS, Step Functions, VPC), IBMCloud, Docker, Kubernetes/OpenShift, Helm, Git, Swagger/OpenAPI, Smithy
Databases: PostgreSQL, MySQL, MongoDB, DynamoDB, Redis, SQLite, Supabase, Amazon Aurora, GaussDB, Pinecone, Elasticsearch/OpenSearch
Testing & Auth: Pytest, PyUnit, JUnit, JWT, OAuth, SAML