

PIERCE LUU

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Education

University of Toronto

Expected Graduation: 2029

Bachelor of Applied Science in Computer Engineering

Technical Skills

Languages: Python, C, C++, JavaScript, TypeScript, SQL (MySQL, PostgreSQL), Java
Web: FastAPI, Flask, Node.js, Express.js, Three.js, React, Next.js, Spring/Spring Boot
AI, Data & ML: PyTorch, scikit-learn, LangChain, LangGraph, NumPy, pandas
Cloud, DevOps & Tools: Git, GitHub Actions, Docker, Kubernetes, NoSQL, Redis, AWS (EC2, S3, Lambda, DynamoDB, API Gateway, EKS, CloudWatch)

Experience

Undergraduate Research Assistant

May 2026 – September 2026

University of Toronto

Toronto, Ontario

- Shipped a **Three.js** 3D virtual lab for biomedical engineering safety training used across **3 undergraduate biomedical engineering courses**, saving **3 hours** of in-lab orientation time per student
- Built **Express.js REST APIs** to store student lab performance metrics in **PostgreSQL**, leveraging indexing and **Redis** caching to reduce P95 API latency by **70%**
- Engineered an on-app LLM agent with **RAG** over course-specific rules and equipment context to draft scenarios from lab protocols, speeding generation by **40%** and saving **45+ minutes** of instructor hand authoring per scenario

Software Developer Intern

Jan 2026 – May 2026

Ontario Online Schools

Toronto, Ontario

- Built **Node.js/Express.js** enrollment services for a **Next.js** learning platform serving **40+** students, validating authentication and processing Stripe webhooks to automate payment verification and course access
- Setup a multi-modal help center AI chatbot, reducing support inquiries by **~65%**
- Configured **GitHub Actions** with **20+** unit tests to replace manual QA and releases, cutting deployment time by **70%**
- Improved SEO across **9** pages by optimizing metadata and resolving Lighthouse issues, increasing SEO scores by **15%**

Game Development QA Intern

Feb 2024 – June 2024

GamePill

Concord, Ontario

- Debugged **20+** gameplay issues in Unreal Engine (**C++**), reproducing defects and tracing root causes through logs
- Logged **150+** bugs and improvement proposals with reproducible steps and context, accelerating development by **15%**

Projects

Agentigram: Serverless Coordination for Coding Agents | TypeScript, Node.js, Hyperswarm, Hypercore, QVAC, Pear

- Built a **serverless peer-to-peer developer tool** that coordinates coding agents across multiple machines using **Hyperswarm** and **Hypercore**, eliminating the need for a central cloud server
- Built real-time file and symbol-level conflict detection, catching cross-agent conflicts in under **300 ms**
- Integrated a local **QVAC LLM** “orchestrator” agent with **Pear** to resolve agent conflicts in **~1–2s**
- Won \$1,000 Best Sovereign Tool Track at Hack the North, Canada’s largest hackathon, among **1,000+** participants

Traffer: Traffic Monitoring with MLOps Pipeline | Docker, Kubernetes, PyTorch, FastAPI

- Engineered a traffic detection and alert pipeline serving a **PyTorch** object detection model via **FastAPI** on **Kubernetes**, achieving sub-**200ms** inference and **60%** Docker image reduction through multi-stage builds
- Automated **CI/CD** running **40 Pytest** unit tests, cutting deployment time to **under 3** minutes
- Packaged **MLOps** utilities for metrics reporting, batch inference, and model versioning, achieving **95%+** code coverage

TeddyTalk: Emotion Detecting Arduino Powered Talking Robot | Arduino, Python, OpenCV, Gemini, ElevenLabs

- Developed a **Python** backend using **OpenCV** for face detection and fine-tuned a FER+ based emotion recognition model, achieving **95%+ accuracy** for real-time inference
- Won Best Use of Arduino UNO Q and Best Use of ElevenLabs API at MakeUofT (Hackathon) out of **69 teams**