

James Han

647-570-1883 | jameshan.cs@gmail.com | linkedin.com/in/jameshan27 | github.com/lxyhan | jameshan.net

EDUCATION

University of Toronto

B.Sc. Computer Science and Statistics (Co-op)

Toronto, ON

Sep. 2023 – May 2027

– Trinity College Academic Merit Grant, Leonard McLaughlin Scholarship

– Linear Algebra (A+), Data Structures and Algorithms (A+), Computational Biology (A+)

EXPERIENCE

RBC Capital Markets, Electronic Trading

Toronto, ON

Incoming

– Joining front-office desk to research **market microstructure** and develop **reinforcement learning-driven execution algorithms** for global equities; working with **kdb+/q**, stochastic modeling, and real-time order flow analysis.

Mozilla Firefox

Berlin, Germany

Full-Stack Software Engineer, Privacy Engineering

Oct 2025 – Present

– Project owner of **Felt Privacy** shipping to **250M+ users**. Authored **12+ Rust, C++, and JavaScript patches** to Gecko's anti-tracking engine: telemetry instrumentation, canvas fingerprinting defenses, SmartBlock compatibility, and cross-site tracking hardening.

– Built New Tab privacy widget end-to-end: Redux/React architecture, real-time threat aggregation pipeline processing **2M+ events/day**, ML-based anomaly detection for tracking patterns, and statistical inference algorithms. Deployed to **30M+ users**.

– Optimized fingerprinting detection via **Bloom filter implementation** in Rust, reducing lookup latency by **85%** and memory footprint by **60%**. Contributed across **20M+ line** C++/Rust codebase with rigorous code reviews.

Anthropic

Toronto, ON

Claude Builder Ambassador

Sep 2025 – Present

– Directing Toronto's AI hackathon (**400+ signups**); delivering workshops on **ML pipelines, RAG architectures**, and model fine-tuning to **1500+ students** across Canadian universities.

University of Toronto, Department of Computer Science

Toronto, ON

Software Engineer (Supervised by Prof. David Liu)

May 2025 – Aug 2025

– Contributed **23 pull requests** to PythonTA and ↗ **MarkUs**, a **Ruby on Rails** platform serving **27,000+ students**. Optimized high-traffic endpoints handling **5K+ concurrent submissions** during exam periods.

– Eliminated N+1 query problem (**200 queries → 1**) via ActiveRecord eager loading and strategic **Redis caching**; reduced page load time from **4.2s to 340ms**. Implemented database migrations, covering indexes, and async background jobs.

PROJECTS AND AWARDS

↪ 1st Place Overall, Google × Hack the Future (Revo) | GCP, Gemini, FastAPI, PyTorch

– ML fraud detection with XGBoost + Gemini; **sub-100ms** latency. Presented at Google HQ (**1st/260 teams**).

↪ 1st Place Overall, UoTHacks (Persona) | PyTorch, OpenCV, Mediapipe, Three.js

– Real-time emotion detection (Mediapipe → PyTorch) serving 3D lip-synced elevenlabs avatar. **1st/330 hackers**.

↪ PythonTA, Core Contributor | Python, Pylint, Astroid, React

– Core contributor to static analysis engine serving **10K+ students annually**. Shipped **8 major features** including recursion detection and pattern matching. Led UX redesign reducing error resolution time **30%** through A/B testing.

LEADERSHIP

Vice President, UoT Blueprint - Led 4 engineering teams building pro-bono software for non-profits

Director, UoT AI - Organizing ML workshops, research talks, and hackathons for **2,350+ students**

Orientation Coordinator, Trinity College - Led **90 volunteers** and **\$130K budget** serving **530** undergrads

TECHNICAL SKILLS

Languages: Rust, C++, Python, Go, Ruby, TypeScript, SQL, Bash

Backend & Systems: Rails, FastAPI, Node.js, Redis, PostgreSQL, gRPC, async I/O, distributed systems, Sidekiq

Infrastructure: Docker, Kubernetes, Linux, Git, CI/CD, AWS, GCP, monitoring, performance optimization

ML/Data: PyTorch, TensorFlow, scikit-learn, OpenCV, Pandas, NumPy