

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

Quantitative Trading Analyst

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

Full-Stack Software Engineer, Privacy Engineering

Berlin, Germany

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

Claude Builder Ambassador

Toronto, ON

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

Software Engineer (Supervised by Prof. David Liu)

Toronto, ON

May 2025 – Aug 2025

- Contributed **23 pull requests** to PythonTA and \leftrightarrow **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 \rightarrow 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

\leftrightarrow **1st Place Overall, Google \times Hack the Future (Revo)** | *GCP, Gemini, FastAPI, PyTorch*

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

\leftrightarrow **1st Place Overall, UofTHacks (Persona)** | *PyTorch, OpenCV, Mediapipe, Three.js*

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

\leftrightarrow **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, UofT Blueprint - Led 4 engineering teams building pro-bono software for non-profits

Director, UofT 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