

# Tarek Ibrahim

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## EDUCATION

### Carleton University

Ottawa, Ontario

Bachelor of Engineering, Software Engineering (Co-op) — 4th Year

Graduation: April 2027

Relevant Courses: Algorithms and Data Structures, Computer Architecture, Software Design, Operating Systems, Software Requirements, Advanced C++ Programming, Computer Networks, Real-Time Embedded Systems, Programming Languages

## SKILLS

**Languages:** C++, C, Python, Go, TypeScript, HTML/CSS, Java, SQL, Bash  
**Libraries:** CUDA/HIP, Boost, OpenCV, Flax, NumPy, Gymnasium, React, Next.js, Moby, Gin, gRPC  
**Development Tools:** CMake, Valgrind, Wireshark, Docker, Nginx, Kafkacat, SLURM, Gitlab, GCloud, Atlassian Suite

## RELEVANT EXPERIENCE

### Software Developer

May 2025 – December 2025

Searidge Technologies (SRT)

Ottawa, ON / Hybrid

- Developed and maintained safety-critical C++ modules for air traffic control systems, ensuring high reliability and performance in real-time environments while conforming to ED-109A software integrity assurance standards.
- Rewrote and modularized a multithreaded logger using idiomatic modern C++ practices to improve throughput, maintainability, and concurrency safety for airport software systems deployed in 21 countries and 56 sites across the globe.
- Built a multithreaded video stabilization microservice using Kafka, OpenCV, and CUDA runtime for real-time streaming.
- Drove technical improvements by contributing to code reviews through GitLab and researching new frameworks.

### Software Developer

Jan 2025 – Apr 2025

Agriculture and Agri-Food Canada (AAFC)

Ottawa, ON / Hybrid

- Deployed Nextflow bioinformatics pipelines (RNAseq, Ampliseq, Sarek) on the 2 most powerful supercomputers in Canada.
- Engineered an in-house solution to enable flexible LLM inference by deploying Ollama via Apptainer on 8x NVIDIA A100 Tensor Core GPUs, overcoming previous limitations, and serving researchers across multiple Canadian departments.
- Improved documentation and technical guides for HPC workflows, including CUDA, SLURM, AVX2, and OpenMP.
- Provided support by answering technical questions and resolving issues for users of the supercomputer infrastructure.

### Software Developer

May 2024 – Aug 2024

James Evan & Associates (JEA)

Victoria, BC / Remote

- Eliminated legacy enzyme-adapter bottleneck by migrating 500+ tests to React Testing Library enabling critical updates.
- Upgraded core Typescript dependencies and runtime environments, resolving breaking changes, deprecated features, API modifications to ensure integration with CI/CD pipelines in Jenkins.

### Undergraduate ML Researcher

May 2024 – May 2025

Carleton University

Ottawa, ON

- Co-authored “LookWhere? Efficient Visual Recognition by Learning Where to Look and What to See from Self-Supervision,” **accepted** for publication at NeurIPS 2025, a top-tier conference in machine learning and AI. Preprint available on arXiv.
- Enabled large-scale Vision Transformer (ViT) training by deploying a JAX/Flax codebase on Google Cloud TPUv4 pods.

## LEADERSHIP EXPERIENCE

### Website Coordinator

Sept 2025 – Present

Carleton Muslim Students' Association (CUMSA)

Ottawa, ON

- Led website migration from legacy WordPress to a real-time web app in React/Next behind a Nginx self-hosted server.
- Delivered a secure event management portal and integrated app-like features (supplications library, prayer directions & times, donation wall) by gathering requirements and leading a team of developers, graphic designers, and quality assurance testers.

### Vice President of Technology & Projects

Sept 2024 – Sept 2025

Carleton Artificial Intelligence Society (CUAIS)

Ottawa, ON

- Founded the club and Led a team of 15+ in collaborative open source projects growing the club to 50+ active members.
- Led design and development of CuMind, a modular Python RL library, maintaining code quality standards, organized peer code reviews with weekly standups and office hours.

### Teaching Assistant – Digital Systems

Sept 2024 – December 2024

Carleton University

Ottawa, ON

- Mentored and taught 90+ students by leading weekly lab sessions, grading assignments, and providing support for inquiries.

## PROJECTS

### Vibecheck: Tweet Guessing Game | Go, Redis, PostgreSQL, Gin, Docker, React

- Developed a full-stack web app with CRUD operations on 30k twitter tweets and extended the RESTful API to include a party guessing game for users to guess the *vibe* of a tweet, accessible via a frontend.