Tarek Ibrahim

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EDUCATION

Carleton University — Ottawa, Ontario
Bachelor of Engineering, Software Engineering (Co-op) — 3.4/4 GPA — **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

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/DO-278A integrity assurance standards.
- Rewrote and modularized a multithreaded logger to improve throughput, maintainability, and concurrency safety, boosting reliability for real-time 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.

SKILLS

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

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.