

# Tarek Ibrahim

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## EDUCATION

### Carleton University

Ottawa, Ontario

Bachelor of Engineering, Software Engineering (Co-op) — 3rd Year

Expected Graduation: April 2027

Relevant Courses: Algorithms and Data Structures, Imperative Programming, Computer Architecture, Software Design, Operating Systems, Software Requirements Engineering, Advanced C++ Programming

## SKILLS

**Languages:** C, C++, Python, Go, JavaScript/TS, Java, Bash

**Technologies:** GCP, BlueZ, STL, GTest, Kafka, JAX, React, Redis, PostgreSQL, Docker, gRPC

**Development Tools:** GDB, CMake, Github Actions, Gitlab, VS Code, JetBrains Suite, Atlassian Suite

## RELEVANT WORK EXPERIENCE

### Software Developer

May 2025 – December 2025

Searidge Technologies

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 the internal multithreaded logger to improve performance, maintainability, and concurrency, boosting reliability for real-time airport systems deployed in 56 sites across the globe.
- Participated in GitLab code reviews and contributed technical research to support framework selection decisions.

### Software Developer

Jan 2025 – Apr 2025

Agriculture and Agri-Food Canada (AAFC)

Ottawa, ON / Hybrid

- Developed Nextflow bioinformatics pipelines on the 2 most powerful supercomputers in Canada via SLURM.
- Engineered an in-house solution to deploy Ollama via Apptainer on 8x A100 GPUs, enabling flexible LLM deployment across any number of GPUs (2-7) instead of the previous limitation of 1 or all 8 GPUs.

### Junior Software Developer

May 2024 – Aug 2024

James Evan & Associates (JEA)

British Columbia / Remote

- Migrated enzyme-react-adapter to React Testing Library, updating and maintaining over 400 tests with Jest.
- Upgraded core JavaScript dependencies and runtime environments in a web application, managing breaking changes, deprecated features, and API modifications to ensure integration with CI/CD pipelines in Jenkins.

## OTHER WORK EXPERIENCE

### Vice President of Technology & Projects

Sept 2024 – Present

Carleton Artificial Intelligence Society (CUAIS)

Ottawa, ON

- Founded the club, leading and architecting an open source project, mentoring over 15 active developers.

### 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,” submitted to NeurIPS 2025 and published on arXiv.
- Enabled large-scale Vision Transformer (ViT) training by adapting a Python codebase using JAX/Flax for Google Cloud TPUv4 pods, leveraging Google’s TPU Research Cloud (TRC) and Compute Canada resources.

### Teaching Assistant – Digital Systems

Sept 2024 – December 2024

Carleton University

Ottawa, ON

- Facilitated labs, graded assignments, and supported students with course material and 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.

### TEmbedded Systems: MSP432 Microcontroller | C, Real-Time Systems

- Developed embedded systems projects leveraging MSP432 microcontroller capabilities, implementing UART, interrupts, timers, GPIO, ADC, PWM, and concurrency/synchronization using QNX real-time OS.