Tarek Ibrahim

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EDUCATION

Carleton University   Ottawa, Ontario
Bachelor of Engineering, Software Engineering (Co-op) — 3rd Year   *Expected Graduation: April 2027*
Achievements: Dr. F.W.C. Mohr Entry Scholarship (Valued at $12,000)

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, Java, JavaScript/TS, Go, Lua
Technologies:	Redis, PostgreSQL, Docker, Node.js, ReactJS, Jest, GCP, SLURM, Jax
Development Tools:	Git, Bash, Jenkins, Github Actions, VS Code, JetBrains Suite, Jira

EXPERIENCE

Bioinformatics Software Developer   Jan 2025 – Apr 2025
Agriculture and Agri-Food Canada (AAFC)   *Ottawa, ON / Hybrid*
- Optimize data pipelines for HPC using Nextflow and Snakemake with SLURM, enhancing software performance and reducing computational overhead.
- Implement and maintain software solutions in Python, Bash, PERL, and R, automating workflows and reducing manual intervention.

Junior Software Developer   May 2024 – Aug 2024
James Evan & Associates (JEA)   *British Columbia / Remote*
- Led migration from enzyme-react-adapter to React Testing Library, handling a large volume of tests with Jest and upgrading core dependencies along with ReactJS.
- Upgraded JasperReports from 6.x to 7.x, managing breaking changes and significant updates, including modifications to internal APIs and deprecated features.
- Utilized Jenkins for CI/CD, upgrading runtime environments and optimizing build scripts to enhance pipeline efficiency and deployment processes.
- Worked in a Scrum team, learning agile methodologies and contributing to the full software development lifecycle.

Research Assistant   May 2024 – Present
Carleton University   *Ottawa, ON*
- Utilized PyTorch to develop and train Generative Adversarial Networks for computer vision tasks.
- Developed cost-effective solutions for limited GCP TPU and HPC resources to optimize resources efficiency.

PROJECTS

Vibecheck: Full-Stack Web App for Tweet Vibe Guessing Game | *Go, Redis, Docker, React*
- Developed a full-stack web app with CRUD operations on 30k twitter tweets and extended the API to include a party guessing game for users to guess the vibe of a tweet, accessible via a React frontend.
- Implemented a Go backend with a RESTful API using Gin, PostgreSQL, Redis caching, and React frontend
- Utilized Docker Compose to manage services and environment variables, ensuring a clean, adjustable, and containerized architecture with properly configured Dockerfiles.

Atari AI: Reinforcement Learning Agent | *Python, JAX, Jupyter*
- Created a Deep Q-Network to play Atari games, utilizing OpenAI Gym API.
- Leveraged Weights & Biases for tracking experiments and monitering the model's performance.

TEmbedded Systems: MSP432 Microcontroller | *C, Real-Time Systems*
- Developed projects that fully leverage the capabilities of the MSP432 microcontroller from Texas Instruments.
- Showcases examples and concepts such as UART, interrupts, Timers, GPIO, ADC, basic helloworld examples, concurrency and synchronization using QNX, and PWM.