

Nabil Hersi

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Education

Carleton University

Bachelor of Computer Science, Cybersecurity Stream

Expected May 2028

Ottawa, Ontario

Relevant Coursework: Data Structures and Algorithms, Operating Systems, Object-Oriented Programming, Database Management Systems

Experience

BioCare

Software Engineer

Jan 2026 – Present

- Developed a **React Native** mobile interface for a smart prosthetic system, implementing responsive UI and device integrations (live telemetry, gesture modes, preset control) to support real-time patient use and clinical monitoring.
- Architected **Firebase** infrastructure with secure **authentication**, real-time data synchronization, and encrypted database operations, reducing load times by **300ms**.
- Built a **RESTful API** with **8** endpoints integrating front-end and back-end systems, reducing data retrieval time by **330ms** and enabling **3** new feature implementations.

Projects

Lifts (2nd Place, MLH Hack The Hill Hackathon) | *Next.js 16, TypeScript, PostgreSQL/TimescaleDB, Auth0*

- Launched a live peer-to-peer mentoring MVP mid-hackathon, driving organic adoption by **45+** teams to resolve technical blockers before the **36-hour** deadline.
- Built the scoring engine and an append-only **PostgreSQL/TimescaleDB** points ledger with **duplicate-award prevention**, plus a verification script that reconciles every award against the live leaderboard.

Warden | *Go, OAuth 2.0/OIDC, Redis, Docker, Keycloak, React, TypeScript*

- Engineering a **zero-trust** reverse proxy in **Go** that enforces **OIDC** authentication (**PKCE**), per-route **RBAC**, and step-up **MFA** in front of internal services, with **Redis**-backed session revocation.
- Hardening upstream access with **mutual TLS** and short-lived signed **JWT** assertions, testing against open redirects, path traversal, and token forgery with automated and **fuzz tests** in **GitHub Actions CI/CD**.

Real-Time ASL Recognition System | *Python, TensorFlow/Keras, MediaPipe, OpenCV*

- Trained a 2-layer **LSTM** sequence model in **TensorFlow/Keras** on **500** WLASL video sequences with wrist-centered, scale-invariant landmark normalization, achieving **55–60%** accuracy across a **20-word** vocabulary (**10–12x** the random baseline).
- Engineered a real-time **computer vision** pipeline tracking **21** hand landmarks per frame with **MediaPipe** and **OpenCV**, streaming webcam video through a rolling-buffer inference loop for live sign classification.

Technical Skills

Languages: Java, Python, Go, C, C++, JavaScript, TypeScript, SQL, HTML/CSS

Technologies & Tools: React, React Native, Next.js, Flask, Firebase, PostgreSQL, TimescaleDB, Redis, Docker, Git, GitHub Actions, CI/CD, REST APIs, Auth0, Keycloak, TensorFlow, Keras, OpenCV, MediaPipe, scikit-learn, PyTest, Linux

Security: Zero Trust, OAuth 2.0/OIDC, JWT, mTLS, RBAC, MFA, Threat Modeling, Secure Coding, Input Validation, CSRF Protection, Rate Limiting

Leadership and Community Experience

BGC Ottawa Thunderbolts

Youth Basketball Coach

2023 – Present

Ottawa, ON

- Plan and lead structured practices, adapting instruction across varied experience levels to build team accountability and communication.
- Mentor youth in leadership, discipline, and resilience, supporting both athletic and academic development.

Barrier-Free Educational Nonprofit

Coding Tutor

2025 – Present

Ottawa, ON

- Taught computational thinking and programming fundamentals (**Scratch, Python**) to underserved youth, adapting instruction to individual learning needs.
- Guided students toward post-secondary opportunities by supporting scholarship applications, helping students secure funding to continue their education.