Youssuf Helaly

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EDUCATION

University of Ottawa — Expected Jun. 2027
Bachelor of Applied Science in Software Engineering (Co-op) | GPA: 3.95/4.0 — *Ottawa, ON*

EXPERIENCE

Software Engineering Intern — Sep. 2025 – Dec. 2025
Trend Micro — *Ottawa, ON*
- Enhanced **Go**-based **digital twin** platform with **network** and **API** improvements, adding **Prometheus** monitoring and enabling 30% more complex cybersecurity simulations.
- Independently designed and built a real-time **cybersecurity** event processor that converts raw logs into structured attack narratives with phase detection and impact scoring, processing 1000+ events per attack for **stakeholders**.
- Led the design and development of an **AI-powered** world generation system using **MCP** to autonomously create 100+ realistic environments with dynamic network topologies and CVE embedding, cutting manual setup by 80%.

Full-Stack Engineering Intern — Jan. 2025 – May 2025
Nokia — *Ottawa, ON*
- Improved system reliability by 20% by fixing service-layer defects and reducing Tomcat log errors in **Java Spring**.
- Automated **Elasticsearch** index config, cutting data inconsistencies by 40% and raising backend data quality.
- Improved **React** workflows with **Redux** and **API** integration, enhancing form handling and interface responsiveness, reducing page load times by 25% and improving user experience.
- Partnered with engineers, PMs, and designers in a fast-paced **Agile Scrum** team to accelerate feature delivery.
- Authored **PostgreSQL** migration scripts, ensuring 100% data integrity and accelerating database update cycles.

Software Engineering Intern — May 2024 – Aug. 2024
Solink — *Ottawa, ON*
- Developed scalable **Python RESTful APIs** managing 20+ **YAML**-configured endpoints, enabling rapid feature launches in collaboration with front-end and product teams.
- Designed and implemented 50+ automated test cases, raising release quality and reducing manual testing by 30%.
- Automated test execution workflows, saving $2,000+ monthly and accelerating release cycles.
- Diagnosed and fixed CI/CD failures and flaky tests, increasing reliability and reducing regression false positives.

PROJECTS

ClipIt *(Proprietary) | TypeScript, Rust, TensorFlow, Firebase, React Native*
- Built a real-time **ML** video intelligence mobile app in **React Native** (*iOS/Android*) with a **3-tier** pipeline using **YAMNet** and contextual models, achieving under 500ms latency and 85% detection confidence.
- Optimized on-device **ML** inference with **TensorFlow.js**, **WebGL** acceleration, and memory-efficient **TypedArrays**, enabling stable 30+ second rolling buffers with zero memory leaks.
- Engineered a high-throughput backend in **Rust** using **Actix-Web** and **FFmpeg**, reliably processing concurrent 50MB uploads and delivering optimized, stitched video outputs for end users.

Image Analysis Web Application *| ReactJS, Flask, AWS, SQL*
- Developed a scalable web app for image analysis using **React** and **Flask**, leveraging **AWS Rekognition** for image processing and **S3** for storage, improving search efficiency by 40%.
- Managed image uploads, user authentication, and filtering, processing 500+ images in seconds.
- Optimized **SQLite** database queries to enhance application performance and reduce processing redundancy.

TECHNICAL SKILLS

Languages: JavaScript, Python, Rust, Go, SQL, Java, TypeScript, HTML, CSS
Libraries/Frameworks: Spring Boot, React (Native), TensorFlow (.js), Actix-Web, Flask, Redux, Next.js, JUnit
Tools: Git, Docker, Kubernetes, AWS, Firebase, Linux, ElasticSearch, PostgreSQL, Redis, MCP, Prometheus

LEADERSHIP EXPERIENCE

Volunteering – Led volunteer teams, collaborating with staff and partners to support the homeless — Jan 2025
Sports – Gold medalist captain and regional champion in soccer, showcasing leadership and determination — May 2024
Conferences – Attended leadership and professional conferences to strengthen skills for future success — Nov 2024