Rami Laham

Ottawa, ON (Can Relocate) | EN | FR | AR

Computer Engineer
AI | Chipset | CyberSec

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PROFILE

Computer Engineer with **hands-on experience** supporting and **securing 1,000+ mobile endpoints** in a regulated **federal environment** and building embedded, **hardware-integrated systems end-to-end.** Strong in **embedded / real-time systems, computer architecture, networking / security, and applied AI,** with a focus on **secure & reliable system design**, and **performance-driven** engineering.

TECHNICAL SKILLS & DOMAINS

Digital Logic & FSM Design | Boolean Algebra | VHDL / Verilog / SystemC | RTL & Pipelined CPU Design | FPGA Prototyping (Intel Quartus II) | Microcontrollers & Peripheral Interfaces | ARM & HCS12 Assembly | Bare-Metal Drivers | Interrupts, DMA & Polling I / O | Real-Time Systems (Hard Vs Soft RT) | PCB Layout | CI / CD Pipelines | WCET & Rate-Monotonic Analysis | Task Synchronization & Concurrency | Fault Tolerance & Reliability Concepts | OS Internals (Process Scheduling, MMU, Virtual Memory) | Neural-Net Training | Networking (OSI / TCP-IP, Routing Basics) | Packet Analysis & Port / TLS Hygiene | IAM Lifecycle Concepts | Secure System Design & Threat Modeling (STRIDE & OWASP) | Data Structures & Algorithmic Analysis | Computer Vision Fundamentals | SQL & Data Modeling | Agile / SCRUM

TECHNOLOGIES & TOOLS

Python | C | C++ | CUDA | Java | JavaScript | TypeScript | SQL | Assembly | Git | GitHub | Docker | Jira | Trello | VS Code | Intel Quartus II | ModelSim | KiCad | Fusion360 | MATLAB | FreeRTOS | STM32CubeIDE | Arduino | Wireshark | Cisco Packet Tracer | Kali Linux | INetSim | REMnux | FLARE VM | Burp Suite | Nmap | Metasploit | Procmon | Azure | MS Defender for Endpoint | Firebase | Android Studio | React | React Native | Jupyter | PyTorch | TensorFlow | Keras | Scikit-learn | Pandas | NumPy | OpenCV | VirtualBox | VMWare Workstation | WSL | Windows | Linux | macOS

PROJECTS

Interactive Chessboard (ICB) - GitHub

September 2024 - Present

In-Progress towards manufacturing; Led a team of 6 engineers to develop a Python, C / C++ & TypeScript-powered smart chessboard that tracks every piece in real time, displays FIDE-legal moves, flags mistakes and integrates an adaptive AI chess engine that can either coach you or switch to rival-level play. Paired with an online 3D web platform for gameplay, analysis, and training.

- Built a real-time sensing pipeline using a 64-cell sensor matrix with LED feedback for intuitive move guidance.
- Migrated the embedded controller from Arduino to ESP32 to support DFM, improving integration flexibility while maintaining performance.
- Achieved ~99% piece detection accuracy, enabling reliable state tracking for legal-move validation and automated game progression.
- Integrated chess engine that can coach the player and also play competitively as an opponent.
- Paired to an online 3D web platform for match visualization, review, and training workflows.

Biometric Electoral System - GitHub

December 2024

Collaborated with a team of 6 to design and prototype a secure, biometric-based voting workflow on Raspberry Pi, emphasizing identity verification and protection of sensitive voter data using a fingerprint scanner with AES for cryptography.

- Owned the hardware integration of the fingerprint sensor: bring-up, validation, and end-to-end device testing on Raspberry Pi.
- Implemented AES-based encryption in the pipeline to protect biometric/voter data during processing and storage.
- Supported the authentication/validation workflow with attention to system reliability, traceability, and secure-system design principles.

PC Builders - GitHub — December 2024

Collaborated with a team of 6 to develop PC Builders, a Java & Kotlin-based Android application designed for managing PC hardware inventory and facilitating user-friendly system-building processes, tailored to client specifications.

- Implemented core features: inventory tracking, stock visualizer, item creation, and quantity updates.
- Used Android Jetpack and Firebase for scalable data storage and retrieval.
- Coordinated GitHub collaboration: version control practices, code integration, and team workflows.
- Delivered a client-facing demo highlighting usability and real-world applicability.

Access-19 - GitHub — December 2023

Collaborated with a team of 5 members to design and develop Access-19, an accessible Android / iOS application using JavaScript in React Native with Machine Learning, aimed at assisting visually impaired users in interpreting universal test strip results through verbal output.

- Gathered requirements through recurring client meetings; iterated deliverables based on feedback.
- Refined requirements through client meetings and accessibility-oriented design decisions.
- Integrated and evaluated an ML model via TensorFlow for test-strip classification.
- Built image analysis and audio output for Positive / Negative / Inconclusive results.
- Enhanced UX with React Native animations for an intuitive, accessible flow.
- Presented at Engineering Design Day, highlighting technical innovation and social impact.

EXPERIENCE

Indigenous Services Canada - *Mobile IT Specialist* — Jun 2022 - Dec 2023

- Led logistics and rollout of 1,000+ iOS / Android endpoints for a national department, coordinating stakeholders to reduce deployment friction and maintain operational continuity across Canada.
- Resolved 40+ tickets / week via remote and on-site support; diagnosed hardware / software / network issues and restored service with high user satisfaction in a time-sensitive environment.
- Supported incident response by triaging issues, isolating root causes, and documenting technical resolution steps for repeatability and faster future remediation.
- Executed Identity & Access Management (IAM) lifecycle tasks (provisioning, deprovisioning, access changes), reinforcing access control hygiene and reducing account risk.
- Produced clear internal documentation and knowledge transfer notes to improve consistency across support workflows.

Kallisto Greek Restaurant - *Computer Technician and Floor Manager* — Jun 2017 - Nov 2024

- Diagnosed and resolved POS / hardware issues to minimize downtime during peak service hours; translated technical fixes into simple guidance for non-technical staff.
- Built freezer & fridge temperature alert with Arduino, preventing $10K+ spoilage events per year.
- Led and scheduled medium sized teams, handled escalations, and maintained calm operations in fast-paced conditions, transferable to on-call, lab, and deployment environments.
- Streamlined workflows with technology-driven solutions, showcasing troubleshooting and problem-solving skills.

EDUCATION

University of Ottawa - *BASc Computer Engineering* — 2021 - 2026

Dean's Honour Roll | Relevant Courses: Advanced Computer Systems Design, Data Communication & Networking, Real-Time & Embedded Systems, Introduction to A.I, Computer Architecture, Software Construction, Electronics & Circuit Theory, Control Systems & Signals, Data Structures & Algorithms, Operating Systems and Databases.