MAHMOUD ZOUROB

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Education

University of Ottawa **Sep. 2023 – Present**
Bachelor of Applied Science in Computer Engineering and Management Option *Ottawa, ON*

Relevant Coursework

- Data Structures
- Software Methodology
- Algorithms Analysis
- Engineering Design
- Electronics
- Circuit Theory
- Software Construction
- Computer Architecture

Experience

National Research Council **May 2025 – Present**
Co-op Student Intern *Ottawa, ON*

- 3D printed custom porous electrodes using UV-curable resins and syringe-based extrusion with the Hyrel System 30M printer.
- Programmed and debugged G-code to coordinate UV curing and resin deposition with micro-scale precision.
- Collaborated with multidisciplinary teams to streamline battery testing workflows across electrical, chemical, and AI domains.

KFUPM(King Fahd University of Petroleum and Minerals) **October 2024 – February 2025**
GSR Conference International Student Ambassador *Ottawa, ON*

- Tracked and reported on the representation and activities of GSR, including numbers and progress.
- Built connections with international peers, decision-makers, and academic leaders.
- Advocated for the GSR Ambassadors Program and the conference as a whole within Ontario.
- Motivated students to engage with GSR by submitting their research papers and participating in events.

BloomKSA **Sept 2022 – May 2023**
Model United Nations (MUN) Chief of Operations *Riyadh, Saudi Arabia*

- Oversaw committee management and supervise operational staff to ensure effective session handling.
- Managed logistics and delegate support for smooth MUN conference operations.
- Handled crises, collaborated with the Secretariat, and gathered feedback for continual improvement of MUN conference.

Projects

AI-Driven Market Research Assistant | *Python, NLP, React, Plotly, GCP, Docker* **May 2024**

- Developed a tool leveraging NLP and sentiment analysis to extract trends and customer insights from social media and news.
- Built scalable scrapers, and interactive dashboards, and deployed them on AWS with Docker.

Financial Analysis & Profit Prediction Model | *Python, ARIMA, Pandas, API Integration* **December 2024**

- Building Forecasting Tools with ARIMA, API Integration, and Python to predict profit growth and provide financial insight based on balance sheets and income statements.

Service Rental Application | *Java, Android Studio, Firebase, XML* **November 2024**

- Built Rentify, a scalable Android app for item rentals, featuring role-based access (Admin, Lessor, Renter).
- Utilized Java, XML, and Firebase for real-time databases, authentication, and streamlined rental management, including item listings and requests.

VR Simulation on Autonomous Systems | *Unity, C#, Oculus SDK, VR Development* **December 2023**

- Engineered a Unity-based VR simulation highlighting challenges with autonomous systems.
- Integrated Oculus Quest, real-time audio synchronization, NPC behavior, and user feedback loops for enhanced realism and engagement.

University Login Portal & Meetings App | *Java, Android Studio, PostgreSQL, Swing* **November 2023**

- Developed a secure, scaleable application using Java, PostgreSQL, and Swing.
- Implemented role-based authentication, dynamic CRUD operations, meeting scheduling, and optimized search and sort algorithms with real-time database integration.
- Utilized the layout editor to create a UI for the application in order to allow different scenes to interact with each other.

Smart Home & Garden Automation | *Arduino, C++, IoT, Sensors, Embedded Systems* **May 2023**

- Developed an Arduino-based system with integrated sensors (humidity, motion, rain, light) and actuators.
- Programmed in C++ using DHT11 libraries and optimized power management with Arduino WiFi.

Technical Skills

Languages: Python, Java, C++, C#, SQL, XML, HTML, CSS, JavaScript
Developer Tools: Android Studio, Jetpack Compose, JFrame, Unity, Firebase, API Integration, Google Cloud Platform, Docker
Technologies/Frameworks: GitHub, Jenkins, Unity, WordPress, Firebase, Arduino, PrusaSlicer, Android SDK, GCP, Selenium WebDriver

Leadership / Extracurricular

Palestinian Student Association   **Fall 2024 – Present**
Events Executive member   *University of Ottawa*
- Achieved 2nd place in Cultural Club of the Year at the annual Student Life Awards.
- Collaborating 20+ members creating events ideas and plan their execution to improve and promote community engagement, advocating, and unity.

Uottawa Supermileage   **Fall 2023 – Summer 2024**
Electrical Team   *University of Ottawa*
- Designed and implemented a real-time telemetry system to collect, transmit, and visualize vehicle performance data (e.g., speed, RPM, battery voltage).
- Integrated sensors and microcontrollers (e.g., Arduino, ESP32) with CAN bus communication to support efficient vehicle diagnostics.
- Collaborated with mechanical and software subteams to align sensor placements and data formats with aerodynamic and control system requirements.
- Optimized power management and signal integrity across the electrical system to meet energy efficiency competition constraints.