

Bassam Mahdi

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Education

University of Ottawa

Sept 2020 – Apr 2025

BASc in Electrical Engineering; Engineering Management & Entrepreneurship

Ottawa, ON

- University Entrance Scholarship recipient
- **Relevant Coursework:** Electrical Power Transmission, Electric Machines & Power Systems, Wireless Communications, Modern Control Systems, Electronics I-III, Engineering Design, Capstone Project

Professional Experience

University of Ottawa

Sept 2024 – Apr 2025

Electrical Engineering Lead – Energy Storage Capstone

Ottawa, ON

- Led the electrical and controls design of a solar-powered thermal energy storage (TES) system utilizing phase change materials (PCM) to improve energy efficiency and system reliability.
- Designed system-level electrical architecture including sensors, wiring, protection, and control interfaces to support safe charge and discharge cycles.
- Developed control logic for temperature monitoring, energy flow, and safety thresholds to protect components during transient and peak operating conditions.
- Performed analytical calculations and simulations to support component sizing, thermal behavior validation, and expected system performance.
- Collaborated closely with mechanical and thermal subteams to align electrical requirements with physical constraints and testing procedures.
- Produced professional technical documentation including block diagrams, wiring diagrams, testing plans, and design reports, and presented results in formal design reviews.

uOttawa Autonomous Vehicle Team

Oct 2022 – Sept 2023

Electrical Engineer

Ottawa, ON

- Designed and tested electrical circuits for autonomous vehicle subsystems, supporting iterative prototyping and field validation.
- Analyzed motor performance under varying voltage and load conditions to improve system reliability and efficiency.
- Collaborated with mechanical and software teams to integrate sensors, actuators, and control logic into a cohesive robotic platform.

Starbucks

May 2022 – Present

Barista

Ottawa, ON

- Consistently delivered high-quality customer service in a fast-paced, high-volume environment while maintaining operational accuracy.
- Trained and mentored new employees, improving onboarding efficiency and reinforcing company standards.
- Ensured compliance with health, safety, and cleanliness protocols through proactive station organization and equipment maintenance.

Projects

Fitness Tracker System | Arduino Uno, Sensors

- Developed a wearable health monitoring system using temperature, ECG, and pulse sensors for real-time physiological data collection.
- Implemented signal processing and data analysis logic to improve measurement accuracy and reliability.

Printer Availability Monitoring System | Raspberry Pi, ROS, SolidWorks

- Built a real-time printer usage monitoring system using ROS to display availability status across multiple devices.
- Designed and fabricated the physical enclosure using SolidWorks, performing soldering and wiring for system integration.

Accessible Donation Bin | SolidWorks, Multisim

- Designed an accessible mechanical structure focused on usability and inclusivity using SolidWorks.
- Validated electronic circuitry with Multisim while minimizing cost through the use of recycled materials.

Technical Skills

Programming Languages: Python, C, C++, MATLAB, Java, Assembly, Verilog

Power & Control Systems: MATLAB/Simulink, PowerWorld, STATCOM Modeling, SCADA, PID Control

Hardware & Embedded: Arduino, Raspberry Pi, Microcontrollers, Sensors, Motors, Generators

EDA / Design Tools: LTSpice, Multisim, KiCad, Altium Designer, Quartus II

Automation & PLC: Siemens Step 7, FESTO, ThingSpeak, PuTTY

CAD & Visualization: Revit, AutoCAD, SolidWorks, CDEGS, AGI32, OnShape

Lab Equipment: Oscilloscopes, Multimeters, Logic Analyzers, Function Generators