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 *Ottawa, ON*

- Designed and simulated a complete power generation, transmission, and distribution system capable of delivering **500 MW** using MATLAB/Simulink and PowerWorld.
- Engineered step-up and step-down transformer configurations (Y/Delta) achieving **90% system efficiency** while meeting NEC and CEC compliance standards.
- Developed a SCADA-based monitoring and control system using Siemens Step 7, achieving **99% fault detection accuracy** for transmission line anomalies.
- Modeled and implemented a STATCOM solution in MATLAB/Simulink, reducing voltage deviation to within **10%** under fluctuating load conditions.
- Produced detailed electrical layouts and grounding studies using Revit and CDEGS for a **10,000 m^2** facility, validating a transmission loss margin below **5%**.
- Led technical documentation, design reviews, and final project presentation, demonstrating system-level engineering and project management skills.

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