

Zain Mahmoud

Electrical & Mechanical Engineer | 2B Mechatronics Student at the University of Waterloo

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🐙 [GitHub](#)

🌐 [LinkedIn](#)

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Skills

- Team player with highly effective communication skills demonstrated through several successfully executed projects.
- Proficient in C/C++, Python, VHDL; microprocessors, FPGAs, DSPs.
- Expert in circuit testing tools and Autodesk Fusion 360 for PCB designs as well as Microsoft office tools.
- Skilled in AutoCAD, SolidWorks, 3D printing, EAGLE, and LTSpice for comprehensive design, simulation, and prototyping.
- Detailed oriented and focused to deliver high quality technical documentation.

Education

2022 - 2027

University of Waterloo, Waterloo, ON

Bachelor Of Applied Science (BSc) In Mechatronics Engineering Honors, Co-operative Program

Cumulative GPA: 3.0/4.0

2019 - 2022

George Brown College, Toronto, ON

Advanced Diploma in Electromechanical Engineering Technology

Cumulative GPA: 3.8/4.0; Dean's List

Relevant Experience

Hardware & Software Engineer

Sept 2023 - Dec 2023

Hub and Neuro-Engineering Solutions (University of Lethbridge), Lethbridge AB

- Utilized Python to automate experimental caging systems to quantify the growth of test subjects as well as provide automated control environmental management.
- Programmed a calibration system to efficiently tare autonomous systems to enhance data collection utilizing a PD controller.
- Enhanced animal detection algorithms with OpenCV, increasing recognition accuracy by 25% in controlled settings.
- Summarized project software, mechanical, and electrical design in a technical report for ongoing co-op students.

Junior Software Developer

Jan 2017 - Sep 2022

LeslieVille Home Improvements, Toronto ON

- Created layout drawings for residential projects to aid client visualization of structural, electrical and HVAC home renovation upgrades using AutoCAD.
- Represented unique design options to clients selecting ideal home renovation projects that suited their needs, leading to high customer retention and satisfaction.

Projects

Electrium Mobility Design Team

Feb 2023 - Present

- Worked with a team of engineers to optimize PCB layouts of an EV bike using Autodesk Fusion 360 and LTSpice, reducing defects by 20%.
- Coached team members on effective soldering practices to reduce shorting components on PCB's.
- Diagnosed and fixed software-related electrical faults utilizing electrical test tools such as multimeters and test software.

Smart HUD Glasses

May 2023 - Present

- Integrated Raspberry Pi microcontrollers with air quality sensors and a security camera featuring AI facial recognition, enhancing environmental monitoring and security.
- Constructed a React and Flask-based system with MySQL for robust data visualization and management, improving accessibility and system reliability.

Indoor Air Quality Relay (AQR)

March 2022

- Enhanced a dual Raspberry Pi system with air quality sensors and AI facial detection which significantly improved response efficiency and strengthened security monitoring.
- Created and deployed a React-based user interface and Flask-driven backend using MySQL, increasing system reliability and improving data accessibility.