Zaid Hoda

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Education

University of Calgary September 2022 – April 2027

Bachelor of Science in Electrical Engineering, Minor in Mechatronics Engineering *GPA: 3.5/4.0*

Coursework: *Computer Architecture, Digital Systems, Control Systems, Communications and Networks, Mechatronics*

Awards: *Dean's List, Jason Lang Scholarship, SSE Summer Research Award, CNRL Building Futures Scholarship*

Skills

Programming Languages: C/C++, Python, SystemVerilog, HTML/CSS, JavaScript
Software and Tools: KiCad, Altium Designer, LTSpice, Multisim, Xilinx Vivado, Linux, GitHub, ROS 2
Hardware and Embedded Systems: FPGAs, microcontrollers (Arduino, Raspberry Pi, ESP32), soldering

Experience

Schulich School of Engineering | **Research Assistant (GitHub)** January 2025 – present

- Developing a prosthetic device to emulate finger movements at the HERO lab under Dr. Junho Park.
- Conducted an in-depth literature review on existing research, investigating machine learning methods for prosthetic design including reinforcement learning and neural networks.
- Designed and optimized various neural networks in TensorFlow to classify real-world EMG signals, achieving up to **98%** classification accuracy.
- Built a real-time data collection and classification pipeline in MATLAB and Python using a portable EMG sensor device (BioRadio).

CalgaryToSpace | **Electrical Subteam Member** January 2024 – present

- Contributed to the design, assembly, and testing of various PCBs for Calgary's first student-made satellite, utilizing KiCad and Altium Designer for PCB design and implementing custom testing and troubleshooting procedures to ensure device safety and functionality.
- Developed an Arduino program in C++ to interface a load tester for the solar panels used by the satellite, reducing testing time by approximately **90%**.
- Trained new members in Arduino/C++ and circuit board testing, improving team efficiency.

Schulich School of Engineering | **Research Intern (GitHub)** May 2024 – August 2024

- Worked on the development of an assistive humanoid robot for the City of Calgary under Dr. Henry Leung at the Autonomous Systems and Intelligent Sensing Laboratory.
- Implemented 7 custom ROS 2 packages for real-time data processing using a Hokuyo UST-20XL laser scanner, enabling mapping and navigation functionality for the robot.
- Developed a ROS 2 pipeline to convert serial data from an MPU6050 IMU interfaced in Arduino/C++ into structured ROS 2 messages, allowing for real-time integration with the robot's localization and navigation stack.

Projects

Disease Prediction App (GitHub) March 2025

- Led the development of a web app for disease detection, winning **1st place** at BioHack 2025, a two-day health hackathon at the University of Calgary.
- Analyzed five real-world medical datasets and trained a suite of machine learning models using Python (pandas, scikit-learn), achieving up to **95%** accuracy.
- Built a user-friendly interface for patient data input and disease susceptibility prediction. Developed the front-end in HTML, CSS, and JavaScript, and the back-end in Python using Flask.

TrashAuto (GitHub) January 2025 - April 2025

- Managed a group of five electrical engineering students in developing an autonomous garbage collection robot.
- Developed the robot's navigation system in Python on a Raspberry Pi 5, implementing sensors such as an IMU, wheel encoders, and LiDAR for accurate motion tracking, path planning, object detection and classification, and obstacle avoidance.