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: 3.6/4.0*

Coursework: *Electric Circuits 1-2, Digital Circuits, Differential Equations, Signals and Transforms, Computer Architecture, Semiconductor Electronics, Digital Systems Design, Digital Electronic Circuits*

Awards: *Dean's List, President's Admission Scholarship, Alexander Rutherford Scholarship, Jason Lang Scholarship, SSE Summer Research Award*

Skills

Languages: C/C++, Python (NumPy, Matplotlib, pandas), Assembly Language (AVR), Verilog/SystemVerilog
Software: Altium Designer, KiCad, LTSpice, Xilinx Vivado, Arduino IDE, Intel Quartus Prime, VS Code, Jupyter
Tools and Frameworks: Linux (Ubuntu), Git/GitHub, ROS 2
Hardware: FPGAs, Arduino, breadboards, oscilloscopes, multimeters, soldering
Concepts: PCB design, circuit design, data analysis, object-oriented programming (OOP), technical writing

Experience

Schulich School of Engineering | *Electrical Engineering Research Intern* May 2024 – August 2024

- Implemented 7 custom ROS 2 packages for real-time data processing using a Hokuyo UST-20XL laser scanner, allowing for mapping and navigation.
- Engineered an IMU data publisher by writing Arduino C++ code to interface an MPU6050 gyroscope/accelerometer with an Arduino ESP32 Wroom and developing a custom ROS 2 node for converting serial data to ROS 2 IMU messages.
- Diagnosed and troubleshooted network issues concerning the laser scanner and its Ethernet interface.
- Administered version control and general organization by maintaining a GitHub repository for the project as well as technical documentation to ensure clarity and reproducibility for future users.

CalgaryToSpace | *Electrical Subteam Member* January 2024 – present

- Gained experience in PCB design with Altium Designer and KiCad, contributing to the development of various circuit boards for Calgary's first student-made satellite.
- Assembled and tested several boards. Implemented custom testing procedures to ensure safety and proper device function, and troubleshooting methods to fix faulty boards.
- Developed an Arduino program in C++ to interface a load tester for the solar panels used by the satellite.
- Mentored and trained new team members in Arduino/C++ programming and circuit board troubleshooting/testing, facilitating effective integration into the team and fostering skill development.

Schulich Ignite | *Programming Mentor* October 2023 – April 2024

- Mentored students on programming with Python through weekly online and in-person workshops. Responsibilities included weekly lectures, assignment grading, and offering further programming help.
- Yielded very positive feedback and noticeable improvements in students' programming abilities.

Projects

Automated Solar Panel Array | *C, Technical Writing* January 2024 – April 2024

- Worked with a team of five to develop an automated sun-tracking solar panel powered by an AVR microcontroller.
- Received excellent feedback on technical reports, presentations, and demonstrations throughout the semester.

Retro Game Console & Indoor Garden | *Arduino/C++, Technical Writing* January 2023 – April 2023

- Collaborated with a team of four to design and build a retro video game console with a built-in reaction time game and F1-themed wheel, and a fully automated indoor garden with moisture and light sensors and a water pump.
- Presented and pitched both designs and received very positive feedback. Wrote a thorough technical report on the design process of the console and received a grade of 100%.