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, Verilog/SystemVerilog, AVR Assembly
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, microcontrollers, oscilloscopes, multimeters, soldering
Concepts: PCB design, circuit design, data analysis, object-oriented programming

Experience

CalgaryToSpace | *Electrical Subteam Member* January 2024 – present

- Contributed to the design, assembly, and testing of 7+ circuit boards for Calgary's first student-made satellite, utilizing Altium Designer and KiCad 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%.
- Onboarded new members and provided training in Arduino/C++ programming and circuit board troubleshooting/testing, facilitating effective integration into the team and fostering skill development.

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

- Worked on the development of a 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.
- Wrote Arduino C++ code to interface an MPU6050 gyroscope/accelerometer with an Arduino ESP32 Wroom and developed a custom ROS 2 node for converting serial data to ROS 2 IMU messages.
- Diagnosed and troubleshooted network issues concerning the robot's 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.

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

- Mentored 20+ students on programming with Python through weekly online and in-person workshops.
- Yielded very positive feedback and self-reported improvements in students' programming abilities.

Projects

Automated Solar Panel Array | *C, Autodesk Fusion, 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.
- Wrote C code to interface the servo-powered turning system and used Fusion360 for 3D design. Contributed to technical reports and presentations, receiving excellent grades and feedback throughout.

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.
- Wrote Arduino C++ code and developed circuits to interface sensors, the water pump, and a gyroscope. Authored a comprehensive technical report on the design process of the console and received a grade of 100%.