Anubhav Saini

2205 Lower Mall, Vancouver, B.C.
604-750-0819 sainianubhav01@gmail.com Portfolio LinkedIn GitHub

Education

4th Year Engineering Physics Undergrad: University of British Columbia **September 2021 – Present**
Specialized in Electrical Engineering and Robotics *Vancouver, BC*

Technical Skills

Software: Python, Java, C/C++, CNNs, Tensorflow, ROS, OpenCV, Linux, Assembly
Electrical: Systems Design, PCB Design, Sensor Design, Altium, Microcontrollers (STM32, Arduino), I2C, SPI, CAN

Experience

Electrical Engineering Intern **September 2024 – December 2024**
Sarcomere Dynamics Inc. *Vancouver, BC*

- Expedited firmware development an in-house magnet-based Force Sensor **5-10 times cheaper** than on-shelf solutions.
- Reconstructed sensor output by creating a linear data mapping scheme to output Normal Force and Shear Direction from raw magnet data with **more than 90% accuracy**.
- Designed a Motor Driver PCB in **Altium Designer** implementing SPI, I2C, and CAN communication between ICs.

Product Engineering Intern **May 2024 – August 2024**
Microchip Technology *Burnaby, BC*

- Programmed Python test scripts and custom firmware to test SERDES I3C Pad against performance requirements.
- Formulated and deployed Multi-threaded testing procedure to **reduce testing time by more than 40%**.
- **Reduced power consumption by 15%** via systematic voltage/temperature regularization scheme.
- Successfully characterized SERDES's I3C Pad, gaining experience in the testing and analysis of mixed-signal ICs.

Robotics Engineering Intern **January 2023 – April 2023**
Cloverdale Robotics Inc. *Surrey, BC*

- Directed a **team of 3** in building and testing two prototypes of a self-watering Hydroponics Plant system, achieving comprehensive control of system's water level based on sensor data.
- Wrote code to analyze data outputs and enhanced apparatus design to **successfully attain system repeatability**.

Personal Projects

UBC Uncrewed Aircraft - Electrical Engineer | *Altium, PCB Design, RF*

- Reshaped Aircraft's power distribution scheme via a central Buck Converter (Altium) to **step down 60V input to a 5V output with up to 5A** current draw.
- Optimized Layout of Antenna Tracker system to establish data transmission/receiving **speeds of 50-150 Mbps** at distances up to 750 m.
- Restructured aircraft's Antenna Control system by synthesizing a Antenna Sensors/Control PCB.

Machine Learning Detective Robot | *Python, Linux, OpenVC, ROS*

- Employed Convolution Neural Networks and Computer Vision to train an autonomous rule-abiding car in Gazebo sim.
- Trained and tuned a CNN to achieve **Character Recognition** with more than **98% accuracy**.
- Utilized ROS Publisher/Subscriber Framework to create communication protocols between Gazebo and AI Model.

Automated Robot Race-Car | *C/C++, Embedded Systems, Analog Circuit Design, PID*

- Designed and built circuitry to integrate sensors (IMU, Magenetometer, self-built rotary encoder) with STM32 to obtain real-time orientation and global location data with **more than 85% accuracy**.
- Applied PID to ensure autonomous navigation along optimal path acheiving **fastest lap time by 4 seconds**.
- Implemented robust recalibration methods and compartmentalized when debugging elec, firmware, and software issues.

Motor Control Feedback Circuit | *Control Loop Design, Circuit Testing/Debugging*

- Latch/Reset: Detected and stored motor RPM Values on an 8-Bit counter (74HC393) and sent timed reset signals.
- Error Signal Amplifier/Buffer: Converted digital speed data into analog data using a R2R ladder (DAC), compared speed to desired value, and controlled current going to motor.