Brianna Gopaul *Electrical Engineering Internship*

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Education

University of British Columbia, *B.ASc Engineering Physics* 2021 – 2026
- Focus on upper-level mathematics and physics with a blend of Electrical Engineering, Mechanical Engineering and Software Engineering.
- Specializing in ELEC. Courses: ELEC401-Analog Integrated Circuits, ELEC341-Control Systems, ELEC462-Microelectromechanical systems

Skills

Electrical Engineering
Altium, Debugging Tools (Oscilloscope, Multimeter), Reading Datasheets

Mechanical
SolidWorks, Laser/Waterjet Cutting, Machining

Software
Python, Java, Matlab, OpenCV, Tensorflow, Keras

Misc
PCR, Gel Electrophoresis, UHV Vacuum Equipment

Engineering Experience

Sensors & Comms Elec Aerodesign Member, *UBC Aerodesign* 04/2024 – present
- Created schematics for Sensorboard PCB in **Altium**
  - Sensor board contains key electronics for collecting flight data and controlling plane's flight path: IMU (Gyroscope, Accelerometer, Magnetometer) STM32 Microcontroller, Pressure Sensor etc. and uses **I2C** and **CAN** protocols.
- Currently designing Sensorboard PCB in **Altium**

Autonomous Overcooked Playing Robot, *Altium, Solidworks, C++* 05/2024 – 08/2024
- Created schematic, designed PCB and soldered IR sensing board that detects an IR beacon using peak detection and various filtering circuits in **Altium**
- Designed and soldered H Bridge PCBs and optical tape following PCBs in **Altium** to enable robot to drive and follow black tape
- Debugged protoboards and PCBs using **oscilloscope** and multimeter
- Robot won fourth place in ENPH253 competition

License Plate Scanning AI, *Python, OpenCV, ROS, Gazebo, Tensorflow* 01/2024 – 04/2024
- Wrote **Python** scripts to generate and augment training data using OpenCV
- Programmed a CNN in Keras to enable robot to read and detect signs while driving. CNN achieved 94% accuracy on validation set

R&D Engineering Intern, *General Fusion* 05/2021 – 08/2021
- Conducted material science experiments to find suitable plasma-facing components for General Fusion's commercial fusion reactor involving UHV Vaccum systems, liquid lithium evaporation setups, and more
- Designed and assembled a functioning liquid lithium syringe in **Solidworks** to dispense controlled amounts of lithium

Inertial Confinement Fusor, *Vacuum, High Voltage, Soldering,* 09/2020 – 04/2021
- Self guided learning on how Inertial Electrostatic Confinment (IEC) Fusors work
- Sourced parts and created a vacuum system with a foreline pressure of 4 microns
- Designed a spherical tungsten cathode using hand tools
- Project halted due to undergraduate degree but created a video showcasing the progress: Fusor Progress Video

Awards

Emergent Ventures Fellow, *Mercatus Center* 2021
Grant program that supports entrepreneurs and brilliant minds with highly scalable, "zero to one" ideas for meaningfully improving society. Won $10,000 CAD grant to source parts and fund IEC Fusor project