Sudharshan Kannan

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Education

University of British Columbia — Vancouver, BC
Bachelor of Applied Science in Engineering Physics — *Sep. 2021 – Apr. 2026 (Expected)*

Experience

Jr. Electrical Engineer Intern — April 2023 – July 2023
Orbital Research — *Burnaby, BC*

- Thoroughly tested SATCOM products including Low-Noise Downconverters (LNBs) and Low Noise Amplifiers (LNAs)
- Designed and began implementing an automated firmware testing setup using Python, as well as lab equipment such as power supplies, switch boxes, and oscilloscopes.
- Created and maintained internal scripts and tools to control equipment such as network analyzers and temperature control chambers.

Electrical Division Member — Sept 2023 – August 2024
UBC Supermileage — *Vancouver, BC*

- Designed and specced Safety PCB on our Hydrogen Fuel Cell powered vehicle
- PCB responsible for ensuring safety of the driver by cutting off the power supply from the fuel cell if any spikes in power are detected, or if it receives a signal from a separate control board.
- Gained familiarity with KiCAD
- Version control and file sharing performed through Git.

Manufacturing and Production Co-op — Jan 2023 – May 2023
Moment Energy — *Coquitlam, BC*

- Efficiently and accurately produced electrical assemblies for second-life energy storage systems
- Performed hands-on work soldering and harnessing electrical systems, with all finished harnesses passing QA
- Built and debugged various PCBs used in test benches as well as final products
- Supported development of test benches and helped perform quality control on manufactured parts

Projects

Autonomous Racing Robot | *Circuit Design, Microcontrollers, H-Bridges, Motors, ICs, Harnessing* — 2023

- In a group, built an autonomous robot that would follow electrical tape to compete in a head to head race.
- Designed, built, and debugged all circuits and harnesses in the robot, including H-bridges, power distribution, and signal sensing and processing circuits.
- Circuits and sensors were controlled through use of a STM-32 microcontroller.

Servo Control Loop Circuit | *Schmitt-Trigger Inverters, D-Latches, Op-Amps, Servos* — 2022

- Designed, set up, and debugged a servo control loop circuit that used feedback to precisely control the speed of a servo motor.
- Circuit featured various components such as Schmitt-Trigger Inverters, D-Latches, counter chips, Op-Amps, and various types of transistors
- Debugging and analysis was performed through the use of oscilloscopes, function generators, and multimeters

Cardboard Claw | *Arduino, CAD, Sonar, Servos* — 2022

- Played an integral part of a team in order to design and build an automated mechatronic claw capable of lifting various small objects using cardboard, arduino boards, sensors, and servo motors.
- Claw was able to lift items with diverse shapes, from a golf ball to a piece of paper
- Servo was used for the opening and closing mechanism in the claw
- An arduino was used for automation, with the sonar sensor detecting when the claw has grasped the object

Technical Skills

Electrical: KiCad, Circuit Design, Soldering, Harnessing
Mechanical: CAD, Machine Design
Software: Scripting, Machine Learning, Testing
Languages: Java, Python, C, Javascript, HTML, CSS, SQL, Git