

# Sudharshan Kannan

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## EDUCATION

### University of British Columbia

*Bachelor of Applied Science in Engineering Physics*

| Sep. 2021 – Apr. 2026 (Expected)

*Vancouver, BC*

## PROFESSIONAL EXPERIENCE

### Electrical Division Member

*UBC Supermileage*

| Sept 2023 – August 2024

*Vancouver, BC*

- Designed and specced a safety PCB using KiCAD and Git for a hydrogen fuel cell-powered vehicle, ensuring driver safety by automatically cutting off power during anomalies.
- Collaborated with team members to integrate control systems that monitor power spikes and prevent equipment failure.

### Manufacturing and Production Co-op

*Moment Energy*

| Jan 2023 – May 2023

*Coquitlam, BC*

- Produced precise electrical assemblies for second-life energy storage systems, contributing to enhanced product reliability.
- Developed test benches and executed hands-on soldering and harnessing of PCBs, consistently meeting quality assurance standards.

## PROJECTS

### Portfolio Website | *HTML, CSS, JavaScript, Github Pages*

| 2024

- Built a personal portfolio from scratch, showcasing technical projects and skills with interactive JavaScript elements and responsive design.

### Simulated Driving Detective | *AI, Machine Learning, Computer Vision, Python, ROS, Gazebo, CNNs*

| 2024

- Programmed a simulated autonomous vehicle that placed in the top 3 of a competitive course using ROS nodes for real-time communication.
- Developed a convolutional neural network achieving 100% accuracy in recognizing track signposts, integrating computer vision techniques for optimal navigation.
- Used image processing and computer vision techniques from the OpenCV Python library to process camera input in order to stay on the track, read signs, and avoid obstacles.

### Mario Kart Robot | *Circuit Design, Microcontrollers, CAD, Soldering*

| 2023

- Led circuit design and debugging for an autonomous robot competing in a head-to-head race, including the development of H-bridges and sensor circuits.
- Collaborated in a team to implement precise sensor control using a STM-32 microcontroller for effective navigation along electrical tape.

### Servo Control Loop Circuit | *Circuit Analysis, Circuit Design, Lab Equipment*

| 2022

- Engineered and refined a servo control loop circuit employing feedback mechanisms to control motor speed, using oscilloscopes and function generators for testing.
- Integrated components such as op-amps, Schmitt-trigger inverters, and transistor arrays to ensure precise control.

### Cardboard Claw | *Arduino, CAD, Sonar, Servos*

| 2022

- Collaborated in designing an automated mechatronic claw capable of lifting varied objects, using Arduino-based control and sonar sensors for precise operation.

## TECHNICAL SKILLS

**Languages:** Python, C++, JavaScript, Java, HTML, CSS, Git

**Software:** Pandas, scikit-learn, TensorFlow, Computer Vision

**Electrical:** KiCad, LTSpice, Circuit Design, Soldering, Harnessing