

Savar Gupta

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EDUCATION

Simon Fraser University

Bachelor of Applied Science in Mechatronic Systems Engineering

- Expected Graduation: 2026

Surrey, BC

Sept. 2021 – Present

TECHNICAL EXPERIENCE

SFU Rocketry

Propulsion Team Member

Surrey, BC

Jan. 2023 – Present

- Developed and designed a LOX/Ethanol Liquid Rocket Engine meeting requirements for maximum efficiency
- Modeled a detailed and manufacturable 3D Model of the engine using **SolidWorks**
- Developed and modelled an automated system to open and close chemical tank valves using **SolidWorks**

Mechanical Team Member

Oct. 2022 – April 2023

- Designing an Environmental Chamber to test hardware exposed to the stratosphere
- Modeled 3D Model of the enclosure using **SolidWorks**, meeting all manufacturing specifications and requirements
- Designed and fabricated full-scale heating and cooling prototype systems for testing and evaluation
- Collaborated with the Software team to automate heating and cooling systems, ensuring seamless integration between hardware and software components

Software Coordinator, Aqua Analyzer

Oct. 2023 – Present

Enactus SFU

Burnaby, BC

- Developing software and hardware for an Aqua Analyzer which tests water quality through measurement of total dissolved solids, pH, and temperature
- Implemented firmware to read sensor data using an **Arduino**
- Established communication between an **Arduino** and **ESP32** using SPI Serial Communication

Electro-Mechanical Engineer, Co-op

May 2023 – Aug. 2023

Algo Communication Products Ltd.

Burnaby, BC

- Performed testing for assembled units to ensure the programming and functionality of a given unit were meeting quality standards, while also recording the results of all tests for production metrics and analysis
- Conducted comprehensive investigations to diagnose and resolve issues in both production line units and customer returns
- Programmed PCBs using a pre-defined JAVA Script

TECHNICAL PROJECTS

Robot Modeling & Control

Jan. 2023 – May 2023

- Modeled a two-degree-of-freedom robot with two revolute joints on **SolidWorks**, which would be used to mill letters
- Utilized **MATLAB** to simulate the robot milling letters
- Used kinematics and dynamics for end-effector path planning, and selecting suitable motors by conducting force and torque analysis

Design & Finite Element Analysis of a Bike Frame

Oct. 2022 – Dec. 2022

- Researched suitable alloys that have adequate strength and are low cost based on an endurance fatigue limit
- Modeled bike in **SolidWorks** and analyzed stress on the frame, with a given loading condition, using **Finite Element Analysis**
- Investigated weakest joints in the frame and made geometric design improvements, resulting in a higher Factor of Safety by over 150%

Blackjack Card Game | C++

Nov. 2021 – Dec. 2021

- Developed a Blackjack card game simulator in **C++** using VS Code
- Implemented a dynamic system employing multiple decks of cards, randomized shuffling, and continuous play
- Researched various blackjack strategies to design and implement an analytics feature that empowers users with insights to improve their odds of winning

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TECHNICAL PROJECTS CONT.

Machine Design of a Sterling Engine

Nov. 2021 – Dec. 2021

- Utilized **SolidWorks** to design a set of components for a sterling engine, including a flywheel, pistons, top and bottom plates, and a power cylinder
- Assembled all parts together using the assembly feature in **SolidWorks**, resulting in a functional and high-precision assembly
- Created an exploded view and dimensioned engineering drawing of the final assembly providing a clear and detailed representation of the assembled sterling engine, including all parts and their relative positions

OTHER WORK EXPERIENCE

Sales Associate

Dec. 2019 – Aug. 2021

Sport Chek FGL Sports Ltd.

Langley, BC

- Developed comprehensive knowledge of the company's products which ensured customer satisfaction and led to increased sales and strong customer relationships
- Successfully utilized sales strategies to increase revenue by suggesting add-ons and understanding customer's needs
- Trained new sales associates which led to consistent customer satisfaction and overall team performance

VOLUNTEER EXPERIENCE

Vice President, Professional Relations

June 2023 – Present

SFU Mechatronic Systems Engineering Student Society

Surrey, BC

- Developing and maintaining relations with the tech industry
- Managing and directing SFU Surrey's Annual Tech Career Fair, SystemsFair
- Organizing and collaborating with other student committees to host events, such as MATLAB Workshops

Teaching Assistant

July 2021 – Present

Kumon, Math & Reading Program

North Delta, BC

- Provided instructions and clarified difficulties in solving homework which developed students' skills and understanding of fundamental concepts in various subjects
- Communicated with parents to illustrate their child's progress which ensured they were satisfied with my services

Junior Instructor

July 2020 – Sept. 2020

UBC Geering Up Engineering Outreach

Vancouver, BC

- Devised a teaching plan to instruct elementary school students on the fundamentals of coding which familiarized and provided them with the necessary concepts and skills to design their own basic-level program
- Collaborated with a team to effectively provide all students with an enjoyable and memorable learning experience

Elderly Home Volunteer

Jan. 2020 – March 2020

Kinsmen Lodge

Surrey, BC

- Organized activities for the residents, including arts and crafts, and games which helped to boost morale and engage the elderly in meaningful activities
- Provided companionship and support to the residents by maintaining strong relationships

TECHNICAL SKILLS

Mechanical: SolidWorks Design and Simulation, Machine Design, GD&T, Power & Hand Tools, 3D Printing (FDM)

Electrical: Altium, Arduino, ESP32, Circuit Analysis, Oscilloscope, DMM, Function Generators

Software: C/C++, Python, MATLAB, VS Code, LabView, MS Office