Sujay Basnet

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EDUCATION

University of Colorado Boulder *Graduation Date: May 2026*

Bachelor of Science in Aerospace Engineering

Minor in Electrical Engineering, Minor in Computer Science, Minor in Business

Relevant Coursework: Aerospace Vehicle Design, Aerodynamics, Statics and Structures, Thermodynamics and Heat Transfer, Electronics and Communications, Aerospace Vehicles Dynamics and Controls, Aircraft Dynamics, Propulsion

EXPERIENCE

Solar Car Club *04/2023 – PRESENT*

President & Founder

- Leading an 8-member team in designing, building, and racing a solar-powered endurance car across 3,000 kilometers in the harsh Australian Outback
- Designed the chassis, brakes, steering, and suspension systems using SolidWorks to optimize performance and efficiency
- Performed FEA simulations to enhance structural strength, ensuring a lightweight yet safe racecar

Colorado Space Grant *09/2021 – 05/2022*

Software Development & Design Lead

Plasma Propulsion

- Designed an experiment to evaluate a plasma-based rocket engine as a potential alternative propulsion system for space flight
- Featured no moving parts and no degrading electrodes, enhancing reliability and longevity
- Engineered to achieve 2x or greater the specific impulse of chemical propulsion while offering extended burn times and sustained accelerations

Bluetooth Beacon

- Built a Bluetooth based beacon and receiver system for utilization on extraterrestrial rovers
- Implemented triangulation with multiple receivers to precisely determine the beacon's direction and distance
- Developed custom Arduino software to gauge distance within 3 meters

PROJECTS

Bottle Rocket Glider *01/2023 – 05/2023*

Vehicle Design Lab

- Programmed a glide performance simulation with varying vehicle design parameters using MATLAB
- Verified models by benchmarking against experimental data of a prototype space shuttle developed by NASA
- Built and flew a top 10 performing glider

Truss Performance Analysis *08/2023 – 09/2023*

Aerospace Sciences Lab

- Analyzed bending and moment stress of a 16-bay truss utilizing the FEM model, MATLAB, and ANSYS

Heat Conduction Analysis *09/2023 – 11/2023*

Aerospace Sciences Lab

- Compared experimental data to analytical steady state and transient heat conduction through various metal rods

Analysis of Airfoil Aerodynamics *11/2023 – 12/2023*

Aerospace Sciences Lab

- Modeled the aerodynamics of different airfoils utilizing Vortex Panel Method and Prandtl Lifting Line Theory

TECHNICAL SKILLS

SolidWorks, ANSYS Mechanical, ANSYS FEA, MATLAB, Arduino, C/C++, Python, React Native, LaTeX, Microsoft Office, Google Suite

ADDITIONAL EXPERIENCE

Server | Pho Hong, **Cashier |** Sprouts Farmer's Market, **Team Associate |** Walmart, **Crew Member |** McDonald's