

Cameron Wolfe

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I am a Junior majoring in Mechanical/ Controls engineering at Dartmouth College with a deep passion for space. Through participating in internships, research, and projects, I have developed an analytical, systems based approach to break apart and solve hard problems. Outside of work and classes, I am a varsity athlete on the Dartmouth Ski Team.

Experience

Henbot LLC

Electrical Design Engineer Jan 2022 - Present

- Designed circuit schematics for battery management, motor control, and data collection.
- Created efficient PCB layouts, converting schematics into physical hardware.
- Performed physical testing on systems to ensure they functioned properly, and iterated on initial designs to improve functionality.

Thayer School of Engineering at Dartmouth

Presidential Scholars Undergraduate Research Assistant Aug 2021 - Present

- Developed simulations in MATLAB and C to model impact of projectiles into lunar regolith as well as the dynamics of our system for software-in-the-loop testing.
- Performed research through reading academic literature and performing physical tests to model the behavior of our system both before and during impact.
- Involved in both mechanical and electrical design of system by creating models in Solidworks, choosing electrical hardware and writing embedded software to run on the system.

Teaching Assistant (Dynamics) Dec 2021 - Mar 2022

- Ran homework review sessions to explain concepts in dynamics to students and answer questions about the course material.
- Deepened my understanding of the subject of dynamics by being forced to teach concepts clearly.
- Assisted in the grading of assignments, giving detailed feedback in a timely manner.

Neukom Scholars Undergraduate Research Assistant Jun 2021 - Aug 2021

- Extracted data from the encoders on the daVinci S and Xi surgical robots using C and Python to create a kinematic model of the robot in MATLAB.
- Employed Solidworks and 3D printing to create a fiducial holder so that the true position of the robot grasper could be determined using an optical tracker.
- Used data from optical sensors and performed registrations to determine the accuracy of the model, and used numerical optimization methods to minimize error and calibrate the model.

Special Aerospace Services, LLC (SAS) / SAS Flight Factory

R&D Engineering Intern Mar 2021 - Jun 2021

- Designed parts for static, pneumatic, and hydraulic applications in Solidworks as a part of multiple different projects.
- Performed mathematical analyses in MATLAB as well as Finite Element Analysis and Computational Fluid Dynamics using ANSYS Mechanical and Fluent to ensure that designs met specifications.
- Used 3D printing and physical testing to iterate on designs and provide additional improvements to designs.
- Supported the submission of an SBIR proposal by doing research on existing technologies, presenting to my coworkers on my findings, and writing parts of the proposal.

Skills

Non-Technical	Fluent in Spanish, Proposal Writing, Communication and presentation, Sales, Punctuality, Organization, Curiosity, Fast Learner, Leadership, Management, Microsoft Office
Programming	Python, Java, Git, Javascript, C#, C, Web Development, Matlab & Simulink
Technical	3D Printing, Advanced Excel, CAD (SolidWorks, Fusion360), Finite Element Analysis, Computational Fluid Dynamics, Analogue Circuit Design, Digital Circuit Design, Laser Cutting, Lathe, Milling, CNC, Control System Design, System Identification, Problem Solving, Iterative Development, Rapid Prototyping, Engineering Drawings

Education

Dartmouth College

Bachelors of Engineering, 3.93 GPA

Sep 2019 - Present

- Exercised self motivation and time management skills to balance an accelerated course load with varsity athletics, research, and multiple jobs.
- Participated in multiple group design projects such as a bridge building robot, an inverted pendulum car, and a motorized dynamic splint for elbow injury rehabilitation.
- Was an active member of multiple clubs including the Dartmouth Aerospace Club, Dartmouth Formula Hybrid, and the Dartmouth Club Table Tennis.

Projects

Quadcopter and Flight Controller

Dec 2021 - Present

Designed a quadcopter from the ground up, working on the structural design, the circuitry, and the control software

- Designed custom electrical components to create output signals to the motor from flight controller inputs.
- Used first principles to model the system and design a controller to make the system stable, then used closed loop system identification to get a more accurate model of the system.
- Used CAD and 3D printing to design structure of quadcopter and provide housing for electronics.
- Developed mechanical and electrical design skills such as CAD, 3D printing, Matlab, Simulink, C programming, and linear/ digital circuit design.

Remote Controlled Bridge Building Robot

Sep 2021 - Nov 2022

A robot design to build a small span using provided materials

[🔗 Project Video and Report](#)

- Created gearboxes and mechanisms to amplify torque and control motor speeds.
- Worked in a team to prototype and iterate on our design to identify opportunities for improvement and increase effectiveness.
- Developed mechanical design skills such as CAD, 3D printing, dimensional drawings, and physical testing.

Inverted Pendulum Car

Nov 2021 - Nov 2021

Designed a controller to keep an inverted pendulum balancing on a car upright

[🔗 Project Writeup](#)

- Used first principles and physical testing to develop a model of the system.
- Used this model to develop a PID controller to stabilize the car.
- Implemented the PID controller in hardware, and then iterated on our controller to optimize the design.

Motorized Dynamic Splint

Jun 2021 - Aug 2021

A wearable device to aid in recovery from elbow trauma.

[🔗 Project Writeup](#)

- Used actuators and sensors to move joint through a customizable range of motion set by physical therapist.
- Lead the design of electronics as well as development of software to achieve desired behavior of system.
- Developed mechanical and electrical design skills such as CAD, 3D printing, linear/ digital circuit design, C programming and iterative prototyping.

Personal Interests

- Outside of work and classes, I enjoy spending my time outdoors. Whether I am running, biking, swimming, or skiing, being outside and soaking up the sun makes me happy.