

Sam Theil

Cincinnati | 513-362-0404 | Available to CO-OP: **Spring 2025**
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EDUCATION

Bachelor of Science, Mechanical Engineering
University of Cincinnati, Cincinnati, OH

Expected Graduation: May 2028
GPA: 3.74/4.00

TECHNICAL SKILLS

Programming: Python, C++, JavaScript, HTML, CSS, MicroPython, MATLAB, GitHub, VS Code, LabVIEW
Software: Siemens NX, Autodesk Inventor, Autodesk CFD, Fusion 360, Autodesk EAGLE, Excel, Minitab, Illustrator
Manufacturing: Stick/TIG/MIG welding, manual CNC machining, manual lathe, grinding and finishing, composite manufacturing, FDM and SLA additive manufacturing, laser cutting, CNC engraving, soldering

EXPERIENCE

CAD Automation Engineer 2021 - 2023
eRockets, Dayton, Ohio

- Developed an Autodesk Fusion 360 plugin that automatically designs fully parametric model rocket nose cones of different shapes and dimensions. Used plugin to complete design of 500+ products, reducing design time by 98%
- Optimized nose cone design and tolerance to account for material shrinkage in the 3D printing process. Oversaw 3D print farm operations with other employees

Contract Web Developer 2023 - Present
Cincinnati, Ohio

- Built web app using low-code tools that utilized OpenAI API (ChatGPT) to automate the writing of user requirements for software development (Epics, Features, and Stories in the Agile framework)
- Secured \$2.5 million in funding for my client following the successful launch of the web app

PROJECTS

Rocket Airbrakes, The American Rocketry Challenge 2023 - 2024

- Leveraged Autodesk Fusion 360 to design a rocket airbrake system that controlled the rocket's peak altitude by continuously calculating the rocket's current state and adjusting brakes during flight
- Utilized Autodesk CFD to simulate airbrake drag and optimize the system's size and shape
- Performed Finite Element Analysis (FEA) on high-load parts leading to a system weight reduction of over 50%
- Integrated a Kalman filter on key data to improve state estimation, and incorporated orientation data to more accurately predict altitude
- Implemented PID controller to build a real-time control system for airbrake deployment
- Created Python simulation and graphing that allowed for Software-In-Loop (SIL) testing and tuning of the system
- Effectiveness of airbrakes enabled my rocket team to win 9th in the world's largest rocketry competition

High Powered Level 2 Rocket May 2023 - August 2023

- Modeled, simulated, and fabricated a fiber-glass composite high-powered rocket standing over 6 ft tall and weighing 10lbs at launch. Achieved a max altitude of >6500 ft
- Designed a custom printed circuit board (PCB) in Autodesk EAGLE for a vital telemetry system. Both the PCB and rocket succeeded on the first launch

LEADERSHIP

Team captain and leader 2021 - 2024
American Rocketry Challenge, Cincinnati, Ohio

- Built over 30 mid-power model rockets, achieving 226 successful launches
- Implemented a streamlined SOP for team launch processes, cutting launch time in half
- Led team formation, recruiting, and fundraising efforts, while encouraging and challenging the team to meet commitments through Agile processes for the design and build phases
- Guided new members by teaching rocketry basics