

Theo Usher

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EDUCATION

Columbia University, *Bachelor of Science, Mechanical Engineering* New York, NY; Sep 2020 – May 2024
GPA 4.07/4.0, TBP Engineering Honor Society, Mechanical Engineering Certificate of Merit, Magna Cum Laude
Non-Standard Courses: Managing Tech Innovation, Robotics Studio, Human-Centered Design, Public Speaking

WORK EXPERIENCE

Airobotics Drones, *Design Engineering Intern* Tel Aviv, Israel; May 2023 – Jul 2023

- Designed, prototyped, and constructed ground stations for autonomous, adaptable industrial drones
- Collaborated on a team to analyze, test, and optimize a drone-catching UAV's net launcher
- Optimized the design of a drone ground station, reducing its assembly time from 2 weeks to 2 days

Terabase Energy, *Mechanical Engineering Intern* Davis, CA; May 2022 – Aug 2022

- Collaborated with team on an autonomous vehicle to transport and install solar panels in utility-scale projects
- Designed and assembled a mobile, easy access solar panel storage rack for field deployment of fragile panels

Columbia Bartending Agency, *Bartender* New York, NY; Dec 2022 – June 2024

LEADERSHIP & ENGINEERING CLUBS

Columbia Space Initiative, *Rockets Mission Lead* Sep 2020 – Jun 2024

- Led a 50-person team to research, design, and build a hybrid rocket to reach 30,000 ft with a scientific payload
- Organized meetings, goals, and project timelines, allowing for rapid testing of innovative designs
- Coordinated design and integration meetings, fostering cross-functional collaboration and creative ideas
- Cultivated and communicate with industry partners to raise over \$15,000 in sponsorships
- Designed, manufactured, and tested the rocket's parachute deployment mechanism and altimeter PCB
- Designed and manufactured the rocket electronics packaging and integrated into the rocket's structure
- Led Rockets' first successful flight and recovery, improved engine performance by 10x, and doubled team size

Engineers Without Borders – Columbia University Chapter, *Treasurer & Piping Lead* Sep 2020 – Jun 2023

- Lead team designing and planning implementation of 4 km of piping and water access points in rural Morocco
- Streamlined accounting system for the \$25,000 budget and recovered \$8,000 of unrecorded grant money

ENGINEERING DESIGN PROJECTS

Automated Robotic Linkage – Machine Design Sep 2023 – Dec 2023

- Worked on a team to design, build, and control a complex linkage mechanism to quickly press arcade buttons
- Created a detailed 3D model, programmed a control system, and manufactured on a mill, lathe, and 3D printer
- Designed a unique, cable-driven actuation system our professor hadn't seen, greatly reducing linkage inertia

AGI – Product Design Jan 2023 – May 2023

- Collaborated with a team to develop an innovative AI grader to reduce teacher workload
- Interviewed potential customers and stakeholders to identify pain points and improve user experience
- Utilized ChatGPT and other AI tools to help connect our ideas and solve design issues

Bipedal Walking Robot Jan 2022 – May 2022

- Designed, manufactured, and programmed a bipedal robot using Solidworks, 3D printing, and a Raspberry Pi
- Improved robot performance by designing legs based on the parallel axis theorem, requiring fewer motors
- Achieved the first and fastest walking robot in the class

SKILLS

Technical Skills: CAD (Solidworks), MATLAB, GD&T, Ansys, Excel, Python, C++, CAM, Circuit Design, Aerospace, FEA, Product Design, Troubleshooting, DFM, DFA, PCBA Design (Eagle), Rapid Prototyping, DMAIC, Systems
Non-Technical Skills: Public Speaking, Presentations, Collaboration, Feedback, Project Management, Word
Citizenship: Dual USA & Canada