Theo Usher

tsu2107@columbia.edu • LinkedIn • Portfolio

EDUCATION

Columbia University, *Bachelor of Science, Mechanical Engineering* New York, NY; Sep 2020 – May 2024
Cumulative GPA: 4.05/4.0, *Tau Beta Pi* Engineering Honor Society
Relevant Courses: Intro to Electrical Engineering, 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 of 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 – Present

LEADERSHIP & ENGINEERING CLUBS

Columbia Space Initiative, *Rockets Mission Lead* Sep 2020 – Present
- Lead a 50-person team to research, design, and build a hybrid rocket to reach 30,000 ft with scientific payload
- Organize meetings, goals, and project timelines, keeping Rockets 3 months ahead of previous years' design cycles
- Coordinate design and integration meetings, fostering cross-functional collaboration and creative ideas
- Cultivate 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
- Won 3rd place in our launch category and Judge's Choice Award at the Spaceport America Cup in 2023

Engineers Without Borders – Columbia University Chapter, *Treasurer & Piping Lead* Sep 2020 – Jun 2023
- Work on a team to research, design, and plan the construction of a water distribution system in rural Morocco
- Streamlined accounting system for the $25,000 budget and recovered $8,000 of unrecorded grant money
- Lead team designing and planning implementation of 4 km of piping and water access points

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 to greatly reduce linkage inertia and require no transmission

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: Computer Aided Design (Solidworks), MATLAB, GD&T, Ansys, Excel, Python, C++, Computer Aided Manufacturing, Circuit Design, Robotics, Finite Element Analysis, Product Design, Product Management
Non-Technical Skills: Public Speaking, Presentations, Collaboration, Feedback, Project Management, Word
Citizenship: Dual USA & Canada