

# Theo Usher

[tsu2107@columbia.edu](mailto:tsu2107@columbia.edu) • [LinkedIn](#) • [Portfolio](#)

## EDUCATION

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**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

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**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 – Present

## LEADERSHIP & ENGINEERING CLUBS

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**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 a 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 3<sup>rd</sup> 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

- Worked on a team to research, design, and plan 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

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**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

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**Technical Skills:** CAD (Solidworks), MATLAB, GD&T, Ansys, Excel, Python, C++, CAM, Circuit Design, Robotics, FEA, Product Design, Product Management, DFM, DFA, PCBA Design (Eagle), GD&T, Rapid Prototyping

**Non-Technical Skills:** Public Speaking, Presentations, Collaboration, Feedback, Project Management, Word

**Citizenship:** Dual USA & Canada