Theo Usher

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EDUCATION

Columbia University, *Bachelor of Science, Mechanical Engineering* 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

Boeing, *Space Electronics and Mechanical Product Design Engineer* August 2024 – Present
- Design, integrate, and support manufacturing of electronics systems and hardware
- Optimized layout and routing for PCBA with over 500 components and 20 layers
- Created a program to manage updates for bills of materials with over 1000 components

Airobotics Drones, *Design Engineering Intern* 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* May 2022 – Aug 2022
- Collaborated with team on an autonomous vehicle to transport and install solar panels in utility-scale projects
- Designed a panel installation mechanism that more than doubled installation range
- Built a panel stabilization system that replaced high-cost linear actuators with a cheap and durable mechanism

Columbia Bartending Agency, *Bartender* 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, tested, and integrated the rocket's electronics and recovery systems
- Led Rockets' first successful flight and recovery, improved engine performance by 10x, and doubled team size
- Built a talented team that later became the first US student-led group to launch a liquid-oxygen hybrid rocket

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
- Achieved the first and fastest walking robot in the class

SKILLS

Technical Skills: CAD (Solidworks, Creo, Fusion), PCBA Design (Xpedition, Eagle), MATLAB, Excel, Python, C++, FEA, GD&T, CAM, DFM, DFA, Product Design, Troubleshooting, Rapid Prototyping,
Non-Technical Skills: Project Management, Public Speaking, Presentations, Collaboration, Feedback, , Word