

# Jeremy Dunne

Cleveland, OH • (919) 561-9974 • [jeremydunne@gmail.com](mailto:jeremydunne@gmail.com) • [linkedin.com/in/jeremydunne/](https://www.linkedin.com/in/jeremydunne/) • [jeremydunne.com](http://jeremydunne.com)

---

## Education

**Case Western Reserve University**, *Cleveland, OH*

Aug '18 - Present

Class of '22 Working towards combined B.S. in Mechanical and Aerospace Engineering - GPA: 3.45 / 4.0

**Relevant Coursework:** Propulsion, Aerostructures, Aero/Gas Dynamics, Fluid Dynamics, Statics, Thermodynamics, Dynamics, Heat Transfer, Mechanical Manufacturing, Computers in Mechanical Engineering

---

## Technical Skills

**Design:** Solidworks (Certified Solidworks Associate), NX, GD&T, Altium, KiCad, Solidworks Flow Simulation, ANSYS

**Manufacturing:** CNC Machining, CAM, Manual Machining (Mill, Lathe, Welding), Water-jet Cutting, 3D Printing, Composites

**Other:** C++, C, Java, Javascript, Python, MATLAB, Arduino, Embedded Programming, LaTeX, Microsoft Office Suite, Excellent Communication Skills

---

## Work Experience

**Propulsion Engineering Co-op - Mojave, CA**

Sep '21 - Present

[Masten Space Systems](#)

- Designing and manufacturing a bipropellant engine test stand to support testing and characterization of rocket engines
- Modifying ground support equipment to allow for use of dual cryogenic propellants for testing
- Supporting engine testing and characterization operations as ground crew personnel
- Participating in early propulsion development work on a reusable VTVL vehicle with suborbital capabilities

**Propulsion Manufacturing Engineering Intern - Long Beach, CA**

May '21 - Aug'21

[Virgin Orbit](#)

- Developed work instructions to facilitate assembly of a first stage LOX/RP1 engine and powerpack
- Designed welding fixtures to support operators and decrease frequency of failed welds
- Developed process of checking tube assemblies against drawings without the need of fitment checks
- Implemented process plans to test and quantify regulator springs to reduce acceptance testing delays
- Identified parts and part families causing manufacturing and acceptance testing delays
- Designed and developed a novel approach to Directed Energy Deposition additive manufacturing
- Revised parts and drawings to simplify manufacturing and reflect meaningful tolerancing

**Manufacturing Engineering Intern - Cleveland, OH**

May '19 - Aug'20

[Jergens Inc.](#)

- Designed fixtures and operations for unattended machine loading of CNC machines
- Programmed and operated a CMM to support machine operators and identify issues with manufactured items
- Developed Probing and Machine code to support new parts and manufacturing methods
- Programmed CNC Lathes to facilitate special order parts using parametric variables
- Conducted capability studies to identify needed machine and operation improvements
- Designed and fabricated functional gauges using the principles of GD&T

## Work Experience Continued

### Student Fabrication Technician - *Cleveland, OH*

Nov '19 - Present

#### [Think\[Box\]](#)

- Instructing users in prototyping parts through manual and CNC milling and turning, grinding, bandsaws, water-jet cutting, and welding
  - Supervising users in prototyping parts and wood shop through CNC routers, table saws, bandsaws, lathe, and other tools
  - Designing and fabricating new tools and parts to increase safety and ease of use of machines
- 

## Projects and Research

### ESRA Team Lead

Aug '20 - Aug '21

#### [CWRU Rocket Team](#)

- Led a team of 15 undergraduate students in the Spaceport America Cup 2021 competition, placing 3rd in category in our first year competition
- Designed, constructed, and tested a series of scale test rockets to demonstrate recovery, payload deployment, and altitude adjustment system
- Designed, constructed, and tested a deployable payload capable of guiding itself to a landing location
- Designed, documented, and presented our final design to present to the virtual competition

### Air Brake Control System

Sep '18 - Present

- Leading a project to design, develop, and test a system for adjusting the final apogee of high-power rockets through the use of deployable air brakes
- Designed and programmed a flight computer capable of modeling, tracking, and deploying the air brakes to fine tune the final altitude
- Tested the system through a series of rockets, redesigning and fine tuning the system throughout. Final system to be used in the 2022 Spaceport America Cup rocket

### Roll Stabilized Rocket

Aug '21 - Present

- Designing a system to stabilize the roll axis on a high-power rocket through the use of compressed gas thrusters
- Designing the compressed gas and thruster assembly to allow easy installation and fail-safe operation
- Designing the electrical hardware to monitor, control, and record telemetry of the vehicle and stabilization system
- Designing the controls algorithms to stabilize the vehicle through a deadband stabilization approach
- Designing hardware-in-the-loop simulation software and hardware to validate the system before testing

### Composite Filament Winder

May '19 - Mar '2021

- Designed, modified, and programmed a fiberglass and carbon fiber filament winder to create variable-geometry parts including rocket nose cones, transitions, and tail cones. Increased winding speed by eight times
- Tested and modified the mechanics of a low-cost filament winder in to increase capability and decrease setup time
- Verified the strength and integrity of the winding system through the construction and testing of a transonic rocket