

## EDUCATION

### New Mexico State University

Bachelor of Science: Aerospace & Mechanical Engineering (Full Time)  
Expected Graduation: 2023 Spring  
Crimson Scholar | 3.9 GPA

## VOLUNTEERING

### 24 Program

2018 – 2019 (Full Time)

- Hosted professional **theatre** group from New York and performed shows at Michigan State University for local schools and communities
- **Mentored young teens** (ages 11–15) in social etiquette and discussions of morals practice.
- Performed various kitchen and housekeeping duties for programs of 100+ people

## SOFT SKILLS & CLUBS

### Leadership (Afflicted w/ NMSU)

- Design-Build-Fly (AIAA) | VP
- Student Council | President
- Badminton Club | VP
- E-Sport Varsity | VP

### Critical Thinking

- University of Waterloo  
Mathematic Contest | Gr. 11  
1<sup>st</sup> place.
- SAT Math | 790

### Public Speaking & Communication

- Theengineeringwei – Personal YouTube Channel  
330,000+ views
- **Tutoring STEM (college level)** related subjects through zoom & in person.
- Community Theatre (High School)
- Debate Club (Middle School)

## TECHNICAL SKILLS

- PYTHON
- MATLAB
- ARDUINO
- SOLIDWORKS
- Windchill
- CreoView
- LaTeX
- MS PPT
- MS WORD
- MS EXCEL
- MS TEAM
- JULES

## WORK EXPERIENCES

### Test Engineering Intern | Blue Origin

September 2022–December 2022

- Renovated the **BE-4 Engine test cell** and conducted **independent research** on technical equipment purchases, installations, and setups.
- Worked with a diverse team of technicians and engineers on the BE-4 **P&ID, Hydraulic, Electrical Instruments**, and **Leak Checkout**.
- Developed detailed **test procedures (Work Order of Execution)** and a **Flow Map (Intern Project)** of how to perform the BE-4 rocket engine final checkout process.
- Took **full ownership** of **developing** an improved procedure regarding the harnesses and the pressure panel of the BE-4 rocket engine checkout process.
- **Led redesign** efforts for engine controller **harness extensions** that connect to interference facility.

### Process Engineering Intern | Intel

May 2022–August 2022

- Assisted & shadowed process engineers and technicians with ground-up **installation of multimillion-dollar metallization machines** (Endura – Applied Material System).
- Daily **inspection** and **maintenance** of the machines after the installation.
- Grid study of the automation process of the Intel chips manufacturing process.

### Undergraduate Research Assistant | New Mexico State University

August 2021–May 2022

- Development of Reynolds-averaged Navier-Stokes (RANS) transition **models** using **Python** for **hypersonic boundary layer flows** guided by Direct Numerical Simulations (DNS).
- **Analyze** unsteady flow field for a circular cylinder and a supersonic boundary-layer flow with Tollmien-Schlichting waves with a **Convolutional Neural Network Autoencoder**.
- **Test and tuning the Neuron Network Autoencoder** to find the right parameters to estimate the velocity and temperature profiles for a range of **hypersonic flow** conditions.

## PUBLICATION

- Barraza, B., Wei, Z., & Gross, A. (2022). “**Reduced-order modeling of steady and unsteady flows with Deep Neural networks.**” AIAA AVIATION 2022 Forum.  
<https://doi.org/10.2514/6.2022-3978>

## PROJECTS

### Low Altitude Rocket | National Association Rocketry (NAR)

Spring 2021

- NAR level 1 & 2 **Certified**
- **Modifications:** Preparing rocket for higher successful parachute deployment to increase survivable peak altitude by **drilling** under the rocket head for pressure balance reason.
- **Installation** of tensile wires to increase **rigidity** of rocket body near motor.
- Successful solo build, design, launch, and retrieval of both level 1 & 2 NAR rockets.

### Project with a Google Scientist

Summer 2021

- Due to the nature of this project (potential being **patented**), can’t disclose details (my original idea with Google Research Scientist’s modification).
- Iterating design of item using **SolidWorks modeling**.
- Preparing to create a fully functional **prototype**.

References Available Upon Request