

# Jared Holland

Franklin, North Carolina 28734

## About me

A results-driven engineering professional with a strong foundation in Mechanical Engineering and a keen interest in the advancement of aerospace technology, seeking to leverage my years of hands-on industry experience and education to contribute to the NASA Langley Research Center.

## Areas of specialization

3D CAD Software • CFD Simulation • FEA Analysis • Python • MATLAB/Octave • 3D Printing Technology • Mechanical Drawings • CNC Machining

## Soft Skills

Teamwork Oriented • Strong Communicator • Leadership • Organized

## Interests

Blacksmithing, 3D printing, Robotics, CNC Machining, Hiking, Plants, Guitar

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## GS:11 QUALIFICATIONS

This is my application for the Equipment Facilities and Services Specialist at NASA Langley Research Center (Job Code: 805472500). I have 5 years of experience in various engineering industries. I have delivered on several projects, carefully analyzing safety, cost, and manufacturability. I have 8 years of experience in fabrication using multiple materials. Electrical design is where I got my start and my skills have grown with me into the present day.

During my employment at TekTone: Sound & Signal I provided technical support and documentation to more than 10 projects during my 4 years of continuous employment. Many of the test fixtures and apparatus that I designed required the usage of production drawings, specifications provided by myself or the engineering team, and test reports usually written in Microsoft Word or LATEX. One root cause analysis project, in particular, where I used my report writing skills extensively, helped to save TekTone several 1000s of dollars in producing corrective parts for one of their high-volume products. I provided equipment maintenance on all of the testers I designed at TekTone, but while I was in the manufacturing department I was trained in the operation and maintenance of all key equipment in the automation line.


During my undergraduate education, I further refined and used my engineering skills to great effect. This often was commended on all accounts. My achievements in class led me to be handpicked for the Cube-Sat capstone project offered during my senior year. I led the mechanical design and fabrication efforts on that team, resulting in meeting the goals of our sponsor Destination SPACE Inc. This experience added to my knowledge of aerospace engineering.

My skills and experience have been proven in my career. Based on my experiences I am qualified to perform the duties listed in the job description.

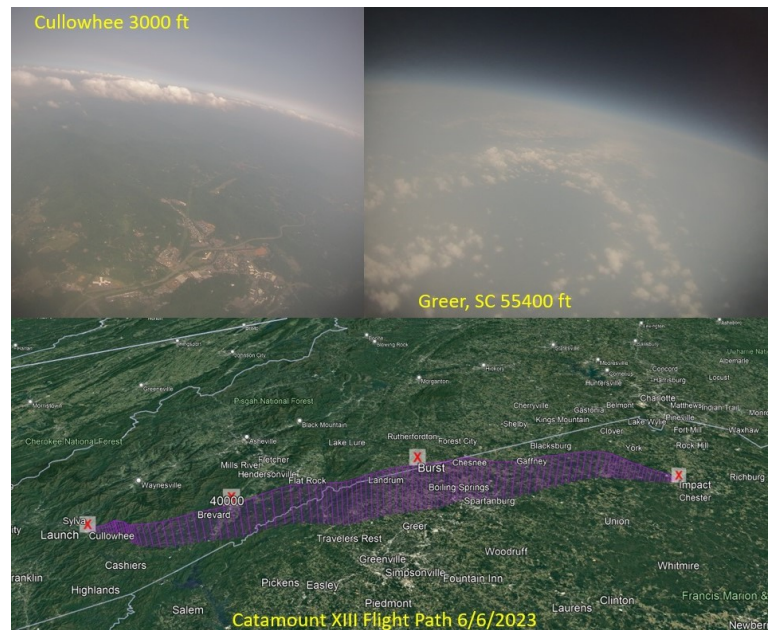
## VOLUNTEER WORK

June 2023

### Western Carolina University: Weather Balloon Launch

• Cullowhee, NC 

- Assisted in the setup of a weather balloon equipped with temperature sensors, Geiger counter, and camera.
- Was a part of the recovery team that chased the balloon from Western's campus to Greer, South Carolina.



# EMPLOYMENT HISTORY

2023–2024


## Leidos: Power Distribution

POWER DISTRIBUTION ENGINEER · Asheville, NC 

- Developed power pole layouts in collaboration with Duke Energy, demonstrating expertise in **engineering design principles** and **adherence to industry standards**.
- Managed bill of materials to ensure the **reliability** and **efficiency** of distribution circuits, contributing to the seamless operation of the North Carolina power grid.
- Utilized **Maximo** to facilitate effective communication and coordination of permitting efforts and vital design information, optimizing construction processes for field personnel and improving the long term **safety** to the environment.
- Performed field survey work to inspect and gather data on each power pole assigned to the Leidos Asheville office so that the engineering team had sufficient data to start their designs.
- Leveraged **ArcGIS** to generate preliminary designs, proactively identifying and addressing potential environmental, structural, and permitting challenges before initiating the formal design processes.

2022–2023

## TekTone: Sound & Signal

MECHANICAL ENGINEERING INTERN · Franklin, NC 

- Led the mechanical design for two anti-vandal nurse call stations, overseeing the entire life cycle from conceptualization to successful product launch. **Gantt Project** was utilized heavily for efficient project management during this assignment. It was indispensable in properly allocating team resources and ensuring the timely achievement of project milestones.
- Produced quality **mechanical drawings** for the 2 antivandal nurse call stations and for the various test fixtures I designed
- Spearheaded the usage of 3D printing technology for use in the **fabrication** of high-quality **test fixtures** that enhanced production processes and turnaround times. During the design phase collaboration with the production floor workers and machine shop personnel was instrumental in ensuring that **each test article** or **tool** was built to fit their design needs and to ensure manufacturability.
- Implemented 3D printing technology that aided in producing corrective parts for high-volume products resulting in savings; avoiding shipping issues and unnecessarily ordering injection molds.
- Standardized the use of the **UL200B safety standards** for 3D printing.
- Created **test procedures** for more than 3 test fixtures I designed.
- Conducted research projects using the **scientific method** that involved root cause analysis among other optimization studies. These projects used software tools such as **R Studio**, **Python**, and **MATLAB/Octave** to produce high-quality graphs and figures that were then organized in **L<sup>A</sup>T<sub>E</sub>X** for presentation to management and interested parties.

2019–2022

## TekTone: Sound & Signal

MANUFACTURING ENGINEERING INTERN · Franklin, NC 

- Worked with other technicians to run various parts of the automation line to ensure we met the production quota. This fostered a culture among the automated assembly line workers of **inclusiveness**, **excellence**, and **teamwork**. We viewed our fellow workers' success as our own success. Our technician lead never had to worry about our competence.
- Trained to **operate** and **maintain** the **Panasonic pick n place equipment**, **Automated Optical Inspection equipment**, and **SPEA 4080** high volume test machine.
- Performed a broad scope of duties. These duties included gathering design metrics, creating design concepts, producing mechanical **designs**, electrical **designs**, fabrication (**buildup**), optimization, and **modification** of various **experimental** test fixtures and tools.
- Developed Python script modules for KiCAD circuit board design software, enabling seamless communication between engineering and production teams. These modules generated usable files for the **Panasonic automation line** and the **SPEA 4080**, **improving design efficiency**, and **reducing errors in manufacturing**.
- Demonstrated initiative and dedication, progressing from an electronics assembly worker to a Manufacturing Engineering Intern within 2 months, showcasing adaptability and a strong work ethic.

2019–2023

## Bachelors In Mechanical Engineering

WESTERN CAROLINA UNIVERSITY · Cullowhee, NC 

### CubeSat Capstone Project

*fall and spring senior semesters*

- Hand-picked by the WCU rapid center staff for my demonstrated knowledge and competence in heat transfer analysis and structural design.
- Led a multidisciplinary team in developing the mechanical design for the CubeSat frame.
- Conducted extensive preliminary research in **CubeSat operational systems**. We took the necessary time to evaluate CubeSat flight system hardware devices such as **boosters, reaction wheels, magnetorquers, Inertial Measurement Units, and Startracker** amongst some of the **spacecraft systems** we reviewed. This contributed to successfully implementing hardware within our allocated time frame without wasting our budget or time.
- Utilized programming skills in VS Code to **support electrical engineering team members** with logic board programming and **conducted design audits of circuit boards** assessing **system performance, layout, operational limits, reliability, and manufacturability** using KiCAD circuit board design software.
- Preformed the design and **fabrication** of the mechanical frame in the **Western Carolina University machine shop**, ensuring compliance with project requirements and specifications provided by **ISO17770**.
- Assisted in maintaining project documentation that clearly outlined the lessons and successes found during the project. This allowed for better tracking of milestones and goal completion.
- Facilitated **communication** with sponsors and engineering mentors, providing regular updates on the firmware, mechanical design, and fabrication progress. This communication was pivotal in guiding project direction so that our team met sponsor objectives.

### Academic Achievements

- Dean's List recognition for outstanding academic performance.
- Graduated with a minor in math.

### Technical Skills Acquired

- Proficiency in **Finite Element Analysis (FEA)** for gantries and steel structures in both **CREO parametric** and **Ansys**.
- Advanced proficiency in 3D modeling and assembly using Creo Parametric and Autodesk Inventor.
- Foundational understanding of **Computational Fluid Dynamics (CFD)** analysis using **Ansys software**.
- Hands-on experience in **waterjet cutting** production processes, **inspection**, and maintenance.
- Conducted an **independent study with Tektone: Sound & Signal** to determine the thermal loads on their nurse call system hardware. This required extensive use of **MATLAB** and **FLIR** devices to determine if the electronics needed extra ventilation or cooling.
- Assisted in **repair, modification, and maintenance** of 3D printers within the 3D print lab.
- Utilized CNC Machining for milling **wood** and **plastic** parts.
- Learned Aluminum **TIG welding** for the CubeSat project.

2015–2019

## Associates in Science

SOUTHWESTERN COMMUNITY COLLEGE · Sylva, NC 

- Developed proficiency in **3D printer design and modification**, culminating in the construction of a customized 3D printer from scratch.
- Applied knowledge in hobby electronics and utilized **KiCAD** for electronics design projects.
- Acquired practical skills in **metalworking** and **blacksmithing**, including basic practices for **MIG** and **ARC** welding techniques.
- Gained proficiency in programming languages including **C++, C#, Python, Arduino, and G-code**, enabling customization of custom 3D printer firmware.
- Developed strong foundations in 3D CAD software such as **FreeCAD, Autodesk Inventor, and Blender**, utilizing these skills to design and produce 3D printable products that funded workshop upgrades and materials.

## SOFTWARE EXPERIENCE AND TECHNICAL SKILLS

Python	LaTeX	CREO Parametric	KiCAD
FreeCAD	CREO: FEA analysis	ANSYS	Fabrication
R Studio	Octave	MATLAB	C++
(FDM) 3D Printing	Maximo	Water Jet Cutting	Product Development
Mechanical Drawings	VS Code	3 Axis CNC Machining	Circuit Board Manufacturing

## CERTIFICATES

<b>June 2023</b>	6 Axis Robotic Arms: ASME
<b>Jan 2023-Feb 2023</b>	Water Jet Cutting: Western Carolina University
<b>June 2024</b>	OnShape: Detailed Drawings
<b>June 2024</b>	OnShape: Simulation

## REFERENCES

Tektone  Kim Hammaker (VP manufacturing):	828-371-4654
WCU  Wes Stone (Director of Engineering + Technology):	wstone@email.wcu.edu, 828-227-2181
WCU  Enrique Gomez (CubeSat Project Sponsor):	egomez@email.wcu.edu, 828-227-2718
WCU  Scott Rowe (Fluid Dynamics Professor):	srowe@email.wcu.edu, 314-601-4836