



# Quinn Morley

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## Summary

I am a planetary science innovator with a focus on next-decade technologies. I mix a pretty ridiculous sense of creativity with a knack for technical writing and a strong aerospace fabrication background. This unique combo helped me become a NIAC Fellow twice as an undergraduate (a first).

TitanAir NIAC Phase I (FY 23) -- <https://titanair.fyi/>

- Flying lake lander (“laker”) for the exploration of Titan
- Ingest condensation and complex organic solutions through leading edge wing skin
- Coalesce and route fluid stream to science instruments via capillary features
- Work with Student Design Teams to develop sampling methods for shoreline materials

Borebots NIAC Phase II (FY 24 / in development)

- This is a proposed two-year study to increase the TRL of key borebot technologies
- Work with Student Design Teams to develop and test their own borebot designs
- Includes low-WOB/low-heat-input drill development as suggested by the Decadal
- Examines potential Lunar PSR ISRU prospecting, and several other contexts

Borebots NIAC Phase I (FY 21) -- <https://borebots.fyi/>

- Invented drilling robots which use a track system to drive up and down the bore
- Showed that self-driving borebots are a feasible alternative to wireline systems
- Examined penetration into a Mars Special Region (subglacial lake; Mars SPLD)
- Extended our analysis to ultradeep ice drilling on Ocean Worlds

## Experience



### Principal Investigator

Planet Enterprises

2020 - Present (3 years)

Enabling wholly new missions that target key science questions on a daily basis. As founder of Planet Enterprises, I invent, develop, and mature novel robotic space technology and create new planetary science mission concepts. <https://planet.enterprises/>



### Bluestreak Mechanic

Boeing

2017 - 2020 (3 years)

- Designed and fabricated complex shop aid tooling on a daily basis
- SME for hydropress forming simulation and verification using ESI PAMSTAMP
- SME Instructor for Layout and Lofting, from June 2016
- Boeing/IAM Apprenticeship Instructor for Compound Angles, from April 2018
- Curriculum Developer / Instructor for Additive Manufacturing, from May 2019
- Personally lead a project that reduced emergent hydroformed part flow from 20 days to 8 days

Fabricated parts and assemblies to support critical production and airline spares requirements, often with aircraft standing by. This required development and fabrication of complex shop aid templates and tools, and included daily use of CATIA, advanced shop math, trigonometry, descriptive geometry (layout and lofting), geometric dimensioning and tolerancing (GD&T), and computer aided design (CAD).



## **Bluestreak Apprentice**

**Boeing**

2013 - 2017 (4 years)

- Became a SME instructor for Layout and Lofting while still an apprentice, after working to modernize the course prior to the first delivery in over 15 years
- Worked one on one with master aerospace fabricators for 4 years / 8,000 hours
- Fabricated parts and complex assemblies from drawings and CAD datasets
- Performed layout and complex hand fabrication of experimental and emergent parts
- Frequent use of CATIA and engineering drawings to develop layout templates
- Flat pattern development; development of complex shop aid tooling, including hydroblocks
- Demonstrated leadership qualities even as an apprentice, always assisting other team members in the development of their CATIA, CAD, lofting and print reading skills whenever possible
- Layout practices using 5 axis CMM, portable arm trackers, laser trackers, and surface table layout.
- Programming and machining of production parts and shop aids on CNC 3 and 5 axis milling machines
- Repair and rework of major components at a certified FAA repair station
- Plating processing: setup, striking, plating and inspection of plated parts
- Hand layup, tool prep, bagging and machining of composite components
- Attended Boeing Trade Related Supplemental Instruction (RSI) classes after work, focusing on: Mathematics, including trigonometry, shop problems and compound angles; metallurgy, properties of materials and heat treat; shop safety and machine shop practices; precision measuring, Geometric Dimensioning and Tolerancing (GD&T), and Composite Materials and Technology.



## **Team Leader - Titanium Ducts**

**Boeing**

2012 - 2013 (1 year)

Team Leader for Titanium Ducts during a period of high turnover and knowledge transfer. Trained new mechanics and helped the work cell achieve quality, productivity, and safety goals. Coordinated quality activities with QMS focals, inspectors, and managers on a daily basis. Designed and fabricated shop aid tooling as required.



## **Assembly Mechanic - Titanium Ducts**

**Boeing**

May 2008 - 2013 (5 years)

Assembled duct sections and assemblies in a production environment. Layout of certified tooling on MIT (Miscellaneous Indexing Tool) and Agile Tool (AT) precision tables. Prepared duct sections to be welded. Built parts per drawing and note requirements. Worked to process specifications and work instructions. Experience reading and interpreting engineering drawings utilizing orthographic projection, converting views, interpreting symbols, weld note, flag note and general note requirements. Experience with hand-held tools and power tools.

## Education



### Washington State University

Bachelor of Science - BS, Mechanical Engineering  
2020 - 2023



### Olympic College

Associate of Science - AS, Mechanical Engineering  
2015 - 2020



### Olympic College

Associate's degree, Welding Technology/Welder  
2008 - 2012

## Licenses & Certifications



Journeyman Bluestreak Mechanic - State of Washington

## Skills

Technical Writing • Proposal Writing • Generative AI • Project Management • Research and Development (R&D) • Additive Manufacturing • Fabrication • Computer-Aided Design (CAD) • Sheet Metal • Aerospace