

Jake Roller

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203-970-5259

Objective Dynamic avionics design or test engineering position within the space industry.

Work Experience **Functional Test Engineer** 05/2023 – Present

Astra, Alameda, CA

- Responsible for rapid design, build, and deployment of electrical test stands to support avionics and spacecraft engine production.
- Collaborate with stakeholders to set requirements, develop test plans, and create processes.
- Design and bring-up of PCBs for specialized test stand and support applications.
- Conduct acceptance and qualification testing on flight and flight-like hardware.

Embedded Systems Intern 05/2022 – 08/2022

Aurora Flight Sciences, Cambridge, MA

- Supported conceptual avionics development for Virgin Galactic mothership through interface definition, drawing creation & revision, library modeling, and electromechanical design.
- Tested and calibrated Lunar Gateway HALO pressure relief valve ground support equipment.

Processing Technology Intern 06/2021 – 08/2021

Saint-Gobain Research, Northborough, MA

- Developed novel manufacturing processes for high-precision ceramics and turbine blades.
- Designed and implemented a high-speed camera system to observe process phenomena.
- Characterized and improved ceramic slurry formulations using SEM, and rheology.

Education **Worcester Polytechnic Institute (WPI), Worcester, MA** 03/2023

- B.S. in Aerospace Engineering, Minor in Electrical Engineering, GPA: 3.97/4.00
- Senior Project (MQP): Design, Analysis, and Test of a High-Powered Model Rocket

Skills **Engineering Software:** SolidWorks, NX, Altium Designer, AutoCAD Electrical, Autodesk EAGLE, LTspice, CATIA, Fusion 360, RapidHarness, ESPRIT, Capital, Multisim

Manufacturing: CNC milling and turning, FDM/SLA 3D printing, EDM, Electronics fabrication

Programming: MATLAB, Python, Arduino (C), Verilog, Java, C++, HTML, CSS, Mathematica

Technical Documentation: Microsoft Office, Teamcenter, Git, LaTeX, Microsoft Visio

Project Experience **WPI High Power Rocketry Club** 08/2019 – 07/2023

- Led a team of 50 students as Payload Division lead to develop and test a cubesat quadcopter to deploy small weather stations for WPI's 2022-23 Spaceport America Cup launch vehicle.
- Led a team of 30 students to create a rocket-deployed folding-arm quadcopter for an autonomous search and rescue mission at the 2021-22 Spaceport America Cup.
- Led a team to design, document, and manufacture robotic self-righting and stabilization systems for WPI's 2020-21 USLI autonomous lander payload.
- CAD, manufacturing, and integration of payload systems for WPI's 2019-20 USLI rocket.

WPI Model Rocketry Club 08/2019 – 05/2023

- Led peers to design, manufacture, and fly high-power rockets for NAR L1 and L2 certifications.

Advanced Manufacturing Research 01/2021 – 06/2021

- Developed Python and MATLAB scripts for simulations of loose abrasive grinding processes.

Schlieren Imaging 05/2018 – 04/2020

- Applied properties of mirror-based Schlieren photography to visualize optical density and refractive index gradients through photo and video.