

Ryan Rivard

ryan.j.rivard@protonmail.com

LinkedIn: <https://www.linkedin.com/in/ryan-rivard/>

(978) 751-1360

Portfolio: <https://ryan-j-rivard.com>

Skills

Software: Solidworks (CSWA Cert.), Python, C++, Excel, Linux, MATLAB Simulink, COMSOL, ANSYS Fluent

Fabrication: GD&T, Machining (CNC & Manual), Laser/Waterjet, SLA/SLS/FDM Printing, PCB Design, Heat Welding

Work Experience

Formlabs, Somerville, MA

2024-2026

Systems Integration and Hardware Reliability Engineer

- Drove DFMEA and test planning of cost sensitive new product; balancing risk, personnel bandwidth, and test time
- Implemented backlight thermal feedback control loop in C++, pushed to live user fleet, addressing #2 field issue
- Owned LCD lifetime performance characterization, determining compliance of multimillion dollar NRE contracts
- Performed rapid prototyping of novel, translucent resin tank film tensioning system, enabling new product R&D
- Designed and built axis load cycling fixtures, measuring bearing recirculation vibration and positional hysteresis
- Identified prototype backlight design flaws by writing software to analyze power trends in lifetime test data

Tesla, Palo Alto, CA

January-June, 2023

Mechanical Design Engineer

- Owned and designed passive fusing wire harness for kilovolt application and photolithographic mass production
- Characterized thermal and electrical performance of powertrain components under high voltage arcing conditions
- Planned and executed abuse testing of cybertruck battery pack; selecting instrumentation, measurements, and SOP
- Informed simulation teams of modeling priority; balancing risk, personnel bandwidth, and design stability

Fikst, Woburn, MA

January-August, 2022

Mechanical Engineer

- Developed injection molded, custom flow sensor based on pressure differential across a controlled orifice plate
- Built in house SQL server for cloud based, automated data acquisition coupled with life testing fixtures
- Created live data visualization dashboards with interactive UI, enabling informed rapid iterative prototyping
- Fabricated heat welding process for dissimilar polymers using machined anvil press and substrate geometry
- Planned, conducted, and analyzed experiments for edge cases and transient effects on product performance

Formlabs, Somerville, MA

January-August, 2021

Manufacturing Engineer

- Transitioned product from NPI to production, supporting factory and site acceptance testing with CMs
- Drove assembly process changes to enable new material revenue streams in the order of \$100,000s annually
- Designed and machined assembly measurement jigs validated with gage R&R, enabling more precise part quality
- Performed root cause analysis of user issue reports to inform corrective actions at contract manufacturer

Club and Personal Projects

Metal Powder Aerosolizer, ME Capstone (*white paper available in portfolio*)

July-December, 2023

- Developed novel, fluidics based, continuous, powder feeder system for cold spray additive manufacturing
- Created parameterized, 3D and axis-symmetric CFD models of two-phase flow conditions to spec part dimensions
- Enabled the use of 0.5-10 μm particle diameter powders, unlocking ceramic spray research for Northeastern

AerospaceNU

September 2019-December 2023

Project Redshift Lead and Airframe Subgroup Lead

- Designed and manufactured supersonic data acquisition rocket for use in validating flow simulations
- Performed structural mechanics calculations on metallic and composite material features using FEA simulations
- Approved cryogenic rated fluid circuit designs for regeneratively cooled kerosene-LOX rocket engine
- Designed and machined a custom bomb calorimeter for use in thermal analysis and ignition testing

Education

Northeastern University, Boston, MA

December 2023

Bachelor of Science Cum Laude in Mechanical Engineering, Minor in Computer Science

GPA: 3.57

Honors: Dean's Scholarship Recipient, Career Dean's List, PEAK Grant Summit Research Award Recipient

Activities: AerospaceNU (Vice President, Redshift Lead, and Intro to Rocketry Project Mentor), Film Photography, Blacksmithing, Folk Banjo, Game Design, 1976 BMW Restoration, Motorcycle Camping, Cooking Something New

Awards and Achievements

- Eagle Scout (BSA)
- Awarded Best ME Capstone Project
- PEAK Grant Summit Research Award