

Eli Doggart

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Experience

Nimbus Power Systems

Mechanical Design and Manufacturing Engineer
Engineering Intern

May 2023–Present
May–August 2022

- Designed, optimized, fabricated, and scaled to prototype four fluid hydrogen fuel cell implementing performance, efficiency, and cost saving improvements (see projects for detail).
- Designed, built, wired, and plumbed multiple test apparatuses for small-scale and engine-scale fuel cells, including safety mechanisms for 1,000-volt wiring and flammable pressurized gases.
- Designed and built a facility-wide hydrogen safety system with emergency stops and sensors that trigger gas shutoffs, alarms, and facility exhaust fans.

Accelerated design LLC | *Design Engineering Intern*

January–March 2022

- Revised CAD drawings, created drawings, operated SLA 3D printers.

General Dynamics Electric Boat | *Engineering Intern*

June–August 2021

- Worked in the pumps department for the Columbia class submarine; reviewed supplier requests to deviate from design.

Mott Corporation | *R&D Co-op*

January–June 2021

- Ran testing equipment, improved lab procedures, ran studies involving metal DMLS printer improving its output.

East Coast Precision Manufacturing | *Machine operator*

December 2020–January 2021

- Operated various CNC lathes and mills to produce polymer parts.

Nomad Metallurgy | *Metallurgical Lab Assistant*

June 2016–2020

- Cut/mount/polish, microscopy, and hardness testing.

Niantic Bay Bicycles | *Bike Mechanic*

May 2016–August 2020

- Bike mechanic, instructor, administrative assistant, and salesperson.

Selected Projects

Fuel cell design and fabrication | Nimbus Power Systems

2023-2026

I designed, simulated, and optimized a 4 fluid hydrogen fuel cell for automotive and aerospace applications. Evenly distributed flow in two dimensions across the active area is extremely important for performance. Constrained by manufacturing limitations and legacy tooling, I reduced the maldistribution in reactants from over 40% to less than 2%. Properly loading flow fields in the active area of the hydrogen fuel cell leads to lower electrical resistance, but too much pressure can restrict fluid flow. I used flow and structural simulation to ensure acceptable levels of pressure and electrical resistance despite a reduction in landing area. After designing this fuel cell, I worked with component suppliers across the globe as well as scaled up in house procedures and facilities in order to produce an engine sized prototype.

Capstone Project | WPI

March–December 2022

Worked on team of four to design, build, and optimize an active suspension system for a longboard.

Camper Van Build

2025-Present

I designed and fabricated a camper build for a Ram ProMaster including an off grid electrical system, plumbing, innovative bed and floor design. The design is modular and easily adaptable due to use of extruded aluminum profiles.

Technical Skills

Computer: SOLIDWORKS CAD, Flow Simulation, and CAM, Fusion CAD and CAM, LabVIEW, LaTeX

Physical: GD&T, CNC and manual lathe and mill, 3D printing (FDM, SLA, DMLS), Basic MIG/TIG welding, wiring

Certifications: Six Sigma Black Belt, Trimech SOLIDWORKS Flow, Summit Toyotalift Forklift

Education

Worcester Polytechnic Institute (WPI), Worcester, MA

May 2023

Bachelor of Science in Mechanical Engineering, GPA 3.63