

ADAM ZELOOF

Mechanical Engineer

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EXPERIENCE

Mechanical Engineer

Boston Dynamics

July 2019 – August 2021 Waltham, MA

- Worked on multiple teams across the company, designing parts for Spot, Handle, Stretch, and unannounced projects
- Designed, analyzed, and tested complex robotic systems
- Worked with contract manufacturers to manage parts and system reliability in a production environment

Writer

Hackaday/SupplyFrame

September 2020– Ongoing Remote

- Writes articles for the popular tech/hacker news site hackaday.com
- Moderated presentation chats at Hackaday Supercon

Hardware Engineer

Isotope Engineering

June 2019 – Ongoing Somerville, MA

- Self-employed engineer
- Developed and brought to market several electronics projects

Manufacturing Engineer

SpaceX- Dragon 2 Mechanical Subassemblies

May 2018 – August 2018 Los Angeles, CA

- Designed and tested various manufacturing processes
- Wrote software to collect and process test results
- Conducted and oversaw flight hardware qualification tests

Teaching Assistant

Carnegie Mellon University (24-421: Internal Combustion Engines)

September 2017 – December 2018 Pittsburgh, PA

- Assisted students with labs, including engine disassembly, fuel research, and CFD combustion simulation
- Held office hours to help students with course material
- Wrote and graded assignments and lab reports

Designer, Welder, and Fabricator

Diversatech, Inc.

August 2012 – August, 2018 Pennington, NJ

- Designed vacuum chamber shutter system for a clean room environment
- Developed process for laser engraving titanium and steel in full color
- Engineered efficiency improvements to manufacturing processes
- Welded, formed metal parts, and operated CNC machines, lathes, mills, and other shop tools

EDUCATION

M.S. in Mechanical Engineering

Carnegie Mellon University

Sept 2017 – May 2019

B.S. in Mechanical Engineering

Carnegie Mellon University

Sept 2014 – May 2018

LEADERSHIP

President

CMU Robotics Club

2015 – 2018 Pittsburgh, PA

Eagle Scout

BSA Troop 194

2013 Flemington, NJ

Leadership Skills Instructor

National Youth Leadership Training

2010 – 2014 Columbia, NJ

SKILLS

Mechanical Drawing CAD FEA
CFD Welding (TIG & MIG)
Soldering Rapid Prototyping
Waterjet Operation Photography
Graphic Design Web Design
UNIX Server Management

SOFTWARE

Catia Autodesk Solidworks
PTC Creo NX Simulink KiCad
CorelDRAW Adobe Creative Cloud
Git Ansys

PROGRAMMING

MATLAB Python C/C++
CSS & HTML \LaTeX Arduino
Verilog

PROJECTS & RESEARCH

PiMod Zero

Isotope Engineering

📅 February 2020 – August 2021

📍 Somerville, MA

A compact RF video modulator for the Raspberry Pi Zero that allows it to be interfaced with vintage televisions

- Designed, prototyped, and brought to market
 - Worked with a marketing partner for sales and distribution
 - Continuing to offer support to customers using the product
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T-RHex

Carnegie Mellon University

📅 January 2019 – May 2019

📍 Pittsburgh, PA

A microspine-enhanced climbing hexapod robot inspired by the RHex platform

- Worked with a small team of engineers to design, prototype, and test the platform
 - Used the platform to research climbing gaits and hardware
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RotoMill

Carnegie Mellon University

📅 January 2018 – May 2018

📍 Pittsburgh, PA

A three-axis rotary CNC machine

- Worked with a small team of engineers to design and build the machine
 - Developed a system for generating rotary toolpaths
 - Won first place in CMU design showcase and Editors Choice in World Maker Faire 2018.
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Aerodynamic Tails Research

Carnegie Mellon University Robomechanics Lab

📅 January 2018 – May 2019

📍 Pittsburgh, PA

Research on the aerodynamic effect of cheetah tails on the animal's movements

- Researched airflow around different volumes: porous media, smooth surfaces, hairy surfaces
 - Conducted CFD and wind tunnel experiments to quantify the effects for use in robotics
 - Designed experimental tails to increase robot maneuverability
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Amateur Radio Station

Personal Project

📅 January 2017 – Ongoing

📍 Stockton, NJ

A 100-Watt Amateur Radio station

- Researched, planned, and set up the station
 - Built full lightning-protected grounding system
 - Built a variety of antennas, including a Quadrifilar Helicoidal for satellite communication
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Babbage Difference Engine Replica

Carnegie Mellon University

📅 September 2015 – December 2016

📍 Pittsburgh, PA

A working, scaled-down (tabletop), partial replica of the Babbage Difference Engine, a mechanical computer from the 1800s

- Designed and prototyped the machine
- Built from common COTS components and laser cut acrylic to increase accessibility
- Wrote use and assembly documentation for an educational environment

PUBLICATIONS & TALKS

“Thermodynamics for Electrical Engineers”

Hackaday Superconference

📅 November 2019

📍 Pasadena, CA

Conference talk that covered basic thermodynamic and heat transfer analysis applied to printed circuit boards (available on YouTube)

“Enhancing the Vertical Mobility of a Robot Hexapod Using Microspines”

Preprint, arXiv:1906.04811

📅 June 2019

📍 Pittsburgh, PA

Paper detailing the research and results of the T-RHex project

“Tail Aerodynamics in Cheetahs and Robots”

Robotics: Science and Systems Workshop on “Unusual Appendages”

📅 June 2018

📍 Pittsburgh, PA

Workshop session at RSS 2018

“HamHacks”

World Maker Faire

📅 September 2017

📍 Queens, NY

MakerFaire booth that presented unorthodox and interesting Ham Radio applications such as plasmas, satellite communications, aircraft tracking, and weird antennas

“The Babbage Difference Engine: An Elegant Calculator For A More Civilized Age”

Carnegie Mellon University Meeting of the Minds

📅 May 2016

📍 Pittsburgh, PA

Poster session on the Babbage Difference Engine replica