

Zach Kutschke

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Education

Massachusetts Institute of Technology

M.S. in Mechanical Engineering, GPA: 4.6

B.S. in Mechanical Engineering, GPA: 4.8.

- Exchange student at ETH Zürich, Switzerland in 2020.

Cambridge, MA

June 2023

February 2021

Professional Experience

John's Hopkins University Applied Physics Laboratory

Associate Professional Staff I

- Test and evaluation of missile defense systems.

Laurel, MD

August 2023 – Present

Mechanosynthesis Group (MIT)

Graduate Research Assistant

- Finalized and characterized a modular precision LPBF system to enable in house multilayer metal printing.
- Created a novel LPBF-inkjet system to enable printing functionally graded parts in newly engineered refractory alloys.

Cambridge, MA

September 2021 – June 2023

Pure Watercraft

Mechanical Engineering Intern

- Created a rig and performed log strike testing on outboard motors to ensure user safety.
- Developed test equipment for a variety of PCBs and other system components.
- Designed and constructed an end of line dynamometer to verify the functionality of completed outboards.

Seattle, WA

February 2021 – July 2021

Impact and Crashworthiness Lab (MIT)

Undergraduate Researcher

- Developed physics-informed neural networks to solve unsteady heat transfer problems and supplant finite element solvers in modelling thermal runaway of damaged lithium-ion batteries.

(Remote)

May 2020 – December 2020

Pure Watercraft

Mechatronics Intern

- Developed test equipment to validate the BMS, battery control boards, and throttle construction.
- Designed and implemented data acquisition unit to analyze gearbox pressures and inform decisions on its valving.

Seattle, WA

June 2020 – August 2020

BD Medical - Advanced Diabetes Care

Research and Development Intern

- Prototyped an automated testing equipment to improve manufacturing efficiency of latest insulin delivery device.
- Supported the development of a new leak rate test method for critical modules of new insulin delivery device.

Andover, MA

June 2019 - August 2019

Musashi Auto Parts - Michigan

Engineering Intern

- Designed and fabricated a computer-controlled tool cart to aid in machine installation.
- Determined the acceptable leak rate of gear assemblies and generated production specifications to reduce bad parts.
- Utilized GTAW, GMAW, plasma cutters, mills, and lathes to repair and improve production equipment.

Battle Creek, MI

June 2017 - August 2017 & June 2018 - August 2018

Leadership Experience

MIT Solar Electric Vehicle Team

Business Lead & Mechanical Engineer

- Designed, tested, and manufactured parts of the mechanical system (parking brake, suspension, wheel package).
- Spearheaded team sponsorship efforts leading to an acquisition of over \$90k to support team operations.

Cambridge, MA

September 2018 – December 2020

Skills & Interests

Skills: Solidworks, Arduino, MATLAB, Python, COMSOL, Machining & Welding,

Interests: Photography, Weight Lifting, Brazilian Jiu Jitsu, Real Estate, German.