Zach Kutschke

Portfolio: https://zkutschke.github.io/
Phone: (269)-245-7057
Email: kutschke@mit.edu

Education

Massachusetts Institute of Technology — **Cambridge, MA**
Candidate for M.S. in Mechanical Engineering — *Expected June 2023*
B.S. in Mechanical Engineering, GPA: 4.8/5. — *February 2021*
- Exchange student at ETH Zürich, Switzerland in 2020.

Professional Experience

Mechanosynthesis Group (MIT) — **Cambridge, MA**
Graduate Research Assistant — *September 2021 – Present*
- Finalizing and constructing a modular precision LPBF system to enable in house multilayer metal printing.
- Creating a novel LPBF-inkjet system to enable printing functionally graded parts in newly engineered refractory alloys.

Pure Watercraft — **Seattle, WA**
Mechanical Engineering Intern — *February 2021 – July 2021*
- 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 an end of line dynamometer to verify the functionality of completed outboards.

Impact and Crashworthiness Lab (MIT) — **(Remote)**
Undergraduate Researcher — *May 2020 – December 2020*
- 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.

Pure Watercraft — **Seattle, WA**
Mechatronics Intern — *June 2020 – August 2020*
- 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.

BD Medical - Advanced Diabetes Care — **Andover, MA**
Research and Development Intern — *June 2019 - August 2019*
- Designed and manufactured 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.

Musashi Auto Parts - Michigan — **Battle Creek, MI**
Engineering Intern — *June 2017 - August 2017 & June 2018 - August 2018*
- 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.

Leadership Experience

MIT Solar Electric Vehicle Team — **Cambridge, MA**
Business Lead & Mechanical Engineer — *September 2018 – December 2020*
- 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.

Skills & Interests

Skills: Solidworks, Arduino, MATLAB, Python, COMSOL, Machining & Welding,
Interests: Photography, Weight Lifting, Judo & Brazilian Jiu Jitsu, Community Service, German.