Alec Marshall

amarshall8@wisc.edu | (608) 504-2809 | alecmarshall.com | Madison, WI

EDUCATION

University of Wisconsin-Madison **December, 2025**
BS, Mechanical Engineering 4.0 GPA
- Dean's list for all semesters, Working towards a certificate in Engineering for Energy Sustainability

ENGINEERING EXPERIENCE

Badger Solar Racing **Madison, WI**
Mechatronics Team Lead *August 2021 - Present*
- Designed the battery, high voltage, and low voltage electronics enclosures for Solar Car 1 with a focus on safety, repairability, accessibility, and design for manufacturing. Currently designing Car 1.5 enclosures.
- Created solutions for waterproof vehicle harnessing on the entire car on a short deadline with limited resources.
- Facilitated seamless integration between electrical and mechanical subteams, showcasing a low level understanding of all car systems.
- Onboarded 4 new members to the mechatronics team by providing comprehensive training in Siemens NX and general training of design for manufacturing principles with a focus on industrial SLS printing.

WORK EXPERIENCE

Flugen, Inc **Madison, WI**
Student Lab Assistant *May 2019 – Present*
- Contract engineering to develop specific machines or parts for protocols and assay-specific purposes.
- Executed comprehensive low and high level equipment repairs on a wide variety of lab equipment ranging from centrifuges to autoclaves, encompassing board-level repair and detailed mechanical part replacements.
- Understanding of and hands-on experience with modern molecular biology techniques including viral transduction, flow cytometry, high output cloning, and RT-PCR.

University of Wisconsin-Madison **Madison, WI**
Student Teaching Assistant *September 2022 – Present*
- Lab instructor for ME 201, an introductory mechanical engineering lab class which focuses on basic engineering analysis, CAD, coding, controls programming and digital signal processing.
- Constantly working to create an inclusive and diverse environment as well as ensuring clear understanding among students.

SKILLS & INTERESTS

- **Skills:** SOLIDWORKS, Siemens NX, additive and subtractive DFM, stackup analysis, soldering, harnessing, electrical systems design, C++, embedded software development, Python, Matlab, EES.
- **Interests:** Photography, baking, biking, learning about languages and cultures, traveling, hiking, making music.

PERSONAL PROJECTS

Tormach ZA6 pen plotter module
- Designed and built an open-source, pressure sensitive, precise, and cheap drawing module for Tormach ZA6 robotic arms.

Custom 3D printer from repurposed lab sampling robot
- Heavily modified a Waters 2777 sampling robot to become a 3D printer with a very unique build volume

Lithium ion 181650 cell discharger and charger
- A tool to discharge or charge two independent banks of up to 24 lithium ion 18650 cells at once.

3000W electric bike
- Created a custom 2.8kWh battery pack to fit the frame of a normal bike and added a 3000W electric motor system.

7kWh battery pack
- Built a high capacity battery with internal heaters using 600 18650 Lithium Ion cells for a small EV project.