

# Alec Marshall

amarshall8@wisc.edu | (608) 504-2809 | alecmarshall.com | linkedin.com/in/alecmars

---

## EDUCATION

---

**University of Wisconsin-Madison** **December, 2027**

*MS, Electrical Engineering*

**University of Wisconsin-Madison** **December, 2025**

*BS, Mechanical Engineering*

4.0 GPA

- Recognized on the Dean's List for all semesters, pursuing a certificate in Engineering for Energy Sustainability.
- 2025 Grainger Power Engineering Undergraduate Award recipient.

## WORK EXPERIENCE

---

**Leidos** **Boston, MA/Remote**

*Energy Advisor - Intern*

*May 2025– Present*

- Developed custom software to quickly visualize and generate reports from utility metering data.
- Assisted team with advanced energy engineering tasks, reducing energy usage in industrial settings.
- Performed site visits to identify projects that would bring meaningful energy savings to industrial partners.

**University of Wisconsin-Madison, Engineering Department** **Madison, WI**

*Electrical and Mechanical Research Engineer*

*May 2024 – Present*

- Collaborated with Professor Patrick Flannery at WEMPEC to design and construct (~600W) electric machines for use in lab coursework, contributing to education for advanced research in energy systems.
- Produced a fully custom production-ready low cost heat flow meter in partnership with Professor Giri and Marianne Fairbanks from UW-Madison's SoHE department to analyze and enhance the thermal properties of hemp fiber-mycelium composites for innovative and sustainable insulation solutions.
- Engineered a budget-friendly 150W 3-phase resistor load bank for educational labs, utilizing natural convection cooling and laser-cut acrylic enclosures to achieve high performance and a professional appearance.
- Developed a tool to spatially resolve liquid film thickness around an obstacle using computer-driven laser interferometry.

**University of Wisconsin-Madison** **Madison, WI**

*Mechanical Engineering Instructor*

*September 2022 – Present*

- Directed multiple lab sections weekly, enhancing student's skills in engineering problem-solving and design through a hands-on team based design challenge while championing an inclusive and diverse learning environment.

## LEADERSHIP EXPERIENCE

---

**Badger Solar Racing** **Madison, WI**

*Mechatronics Team Lead*

*August 2021 - September 2024*

- Onboarded and mentored 4 new mechatronics team members, providing personal training in Siemens NX and advanced design for manufacturing principles with a focus on industrial SLS printing.
- Engineered a robust battery system, as well as high and low voltage electronics and enclosures for Solar Car 1 and 1.5, prioritizing safety, repairability, accessibility, and optimized manufacturability.

## SKILLS & INTERESTS

---

- **Skills:** Altium, Kicad, microsoldering, harnessing and wire routing, electrical design, SOLIDWORKS, Siemens NX, AutoCAD, Excel/Microsoft Office, LabVIEW, PLC Programming, C/C++, embedded software development, Python, Matlab, additive and subtractive DFM.

## PERSONAL PROJECTS - Please visit [alecmarshall.com](http://alecmarshall.com) for more projects and in-depth project details

---

- Constructed a fully custom Voltage Source Inverter (VSI) with dynamic carrier frequency and machine acceleration control, gaining expertise in the design and control of inverter systems.
- Developed a wire size calculator in Excel enabling precise selection of AWG values for high-efficiency applications.
- Partnered with a peer to create an open-source, pressure-sensitive drawing module for Tormach ZA6 robotic arms.