OWEN DIESENHAUS

Madison, WI 53703 | owendiesenhaus@gmail.com

EDUCATION

University of Wisconsin – Madison
Bachelor of Science, Mechanical Engineering | December 2026
Relevant Courses: *CS 580 Intelligent Robotics, ME 340 Dynamic Systems*
Certificates: Computer Science | GPA: 3.8/4.0 | Dean's Honor List

ENGINEERING EXPERIENCE

Amazon Robotics, Westborough, MA
Hardware Development Intern, June – September 2026
• Owned design of a machined robotic mechanism from concept to part order: revised the architecture after design review, applied DFM for cost and machinability, validated strength with FEA, and finalized actuator selection, sourcing, and BOM.
• Revised a prototype housing for assembly and serviceability around actuator cable routing, alongside a PCB redesign.
• Acted as go-to fabricator for software researchers across many concurrent requests, delivering quick-turn demo hardware: Vention test stands validated with force calculations, 3D-printed parts, and end-effector wire harnesses.

Sublime Systems, Somerville, MA
Engineer Crushing/Milling Pilot Co-op, July – December 2025
• Built, wired, programmed, and documented a rugged dust monitor from off-the-shelf sensors and aluminum extrusion for a dusty pilot plant; it caught repeated overexposure during daily material handling and became the company standard.
• Designed and coordinated fabrication of a $13,000 steel frame and chute linking three pieces of equipment in a pilot-scale ball mill system, applying DFM and working with a local welder and suppliers through installation.

REACH Lab, UW-Madison
Research Assistant, February – May 2024
• Developed Python tools for real-time feedback control of a motor-actuated system using an Arduino and IMU sensors; diagnosed and resolved root-cause gyroscope precision issues disrupting closed-loop control.

PROJECTS

Legs Team Lead, *Wisconsin Humanoid Robotics Club*
• Lead a 12-person team, 11 of them new members, designing a 6-DOF leg subsystem for a V1 humanoid robot; set and manage sprint deadlines toward a machined, assembled, moving prototype by end of semester.
• Replaced large, material-wasteful CNC parts and imprecise sheet metal with small machined blocks and plates, cutting structural weight ~12.5% and making parts cheaper to machine and swap; added dowel pins for repeatable alignment.
• Built a static load calculator to check actuator torque across leg poses; when an alternate collision-free ankle linkage proved weak and prone to slop, it confirmed a parallel linkage that cut peak actuator torque 30% in a quasi-static gait.
• Iterated on shoulder bracket and idler shaft designs, validating them with FEA under a 25 Nm peak static torque.

Soft Robotic Gripper for Delicate Crop Harvesting, *Interdisciplinary Experiential Design Projects*
• Awarded $1,250 by the Borgen Design Fund to develop a soft robotic end-effector based on compliant Fin-Ray geometry for the gentle manipulation of fresh-market apples.
• Designed a modular linear actuation assembly from 3D-printed TPU/PLA and off-the-shelf parts before test parameters were defined: 6 radial finger mounts and swappable fingers/backbones let finger count and geometry change without redesign.
• Built a test fixture with 10 force-sensitive resistors in an op-amp circuit to map finger contact-force distribution, plus a dummy-apple pick-force rig; designed test protocols to guide finger geometry iterations.

SKILLS

Mechatronics & Electronics: Actuators, Sensors, Arduino, DAQ, LabVIEW, Soldering, Wire Harnessing, Op-amp/FSR Circuits.
Programming: Python, C++, MATLAB, Git, Linux.
CAD & Analysis: SolidWorks (PDM), Inventor, Onshape, FEA, GD&T, DFM/DFA, 2D Drawings.
Prototyping & Fabrication: Machining (Mill, Lathe, CNC), Welding Design, 3D Printing, Rapid Prototyping, Vention.

PUBLICATIONS

Kosar M, Taimoory SM, **Diesenhaus O**, Trant JF. "Improvement of electrolytes for aluminum ion batteries: A molecular dynamics study." *J. Chem. Phys.* 159, 144503 (2023). Credited with conceptualization.

EXTRACURRICULARS

Wisconsin Robotics (University Rover Challenge), UW Club Lacrosse, Sigma Alpha Epsilon