

MIRANDA BALTAXE

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EDUCATION

University of Michigan, Ann Arbor | Summa Cum Laude, 3.89 GPA
BSE in Computer Engineering, Embedded Systems Concentration

SKILLS

Hardware: PCB Layout & Design (KiCad), Embedded Systems, Hardware Bring-Up & Debugging, Sensor Integration, Firmware Development, Microcontrollers (ESP32, STM32, Arduino)

Software: C/C++, Python, MATLAB, Embedded Firmware

Mechanical: CAD (SolidWorks, Fusion 360, OnShape), 3D Printing, Laser Cutting, Enclosure Design, Rapid Prototyping & Fabrication

Other: Spanish (Advanced), Project Management, Technical Communication

RELEVANT EXPERIENCE

Motion Metrics Ltd. (Carv) — *Hardware Engineer (Embedded & Electrical)* London, UK | June 2025 – Present

- Designed and laid out PCB motherboards and daughterboards in KiCad, integrating IMUs, microcontrollers, ADCs, and peripheral components for prototype sensor devices.
- Developed custom firmware and low-level drivers enabling smart skis to track boot pressure distribution and motion — closing the hardware-to-data pipeline for balance-metric research feeding Carv's mobile app.
- Built a test device and firmware for coulomb counting to characterise battery performance and deliver more accurate state-of-charge estimation in production hardware.
- Performed full hardware bring-up, debugging, and verification using oscilloscopes, JTAG tools, and custom test protocols, ensuring reliable operation across multiple prototype revisions.
- Investigated warranty-returned devices, documented root causes, and proposed hardware and firmware improvements to increase long-term product reliability.
- Travel regularly to the contract manufacturer in China to oversee production processes, conduct hands-on troubleshooting on the line, and ensure hardware quality and assembly consistency meet specification.

NewHaptics — *Engineering Intern* Ann Arbor, MI | June 2023 – Aug. 2024

- Prototyped a refreshable braille display with non-metal components for fMRI compatibility, integrating microcontrollers (ESP32) and custom actuator arrays; successfully deployed to Johns Hopkins researchers.
- Developed MATLAB/Python scripts for client research applications, enhancing hardware usability and adoption.
- Coordinated directly with clients to define requirements and delivered a packaged, production-ready device under tight deadlines.
- Incorporated blind user feedback into iterative design improvements; designed custom enclosures and precisely laser-cut fluidic chips for the actuation system, and documented all modifications for future development.

Arruda Lab — *Research Assistant* Ann Arbor, MI | May – Aug. 2023

- Designed and manufactured a modular imaging rig for ACL ligament research using SolidWorks and Form 3 SLA printing, iterating on prototypes through formal design reviews with the ME department chair.

ROAHM Lab — Robotics — *Research Assistant* Ann Arbor, MI | Aug. 2020 – Dec. 2022

- Researched hydraulically amplified self-healing electrostatic (HASEL) actuators for a soft robotic hand, gaining hands-on experience in novel actuation mechanisms and soft robotics integration.
- Designed actuators with systematically varying geometries and developed MATLAB analysis methods to characterise force output, deformation, and actuation performance across design parameters.
- Contributed findings to the team's understanding of actuator design trade-offs for use in compliant, human-safe robotic systems.

ADDITIONAL EXPERIENCE

Big Wheel Bikes — *Bicycle Mechanic* Arlington, VA | Jan. – June 2025

- Repaired hydraulic brakes, drivetrains, and electronic shifting systems on road, mountain, and e-bikes — applying systematic fault-finding and hands-on mechanical skills to real, customer-critical hardware.
- Assembled and tuned custom bike builds to spec, demonstrating comfort with precision mechanical work outside a lab setting.

General Motors — *Manufacturing Mechanical Engineering Intern* Romulus, MI | May – July 2021

- Supported troubleshooting and process improvement on the High Feature V6 engine block line.

LEADERSHIP

- Captain, University of Michigan Flywheel Ultimate (2019–2025): Managed operations for 50+ athletes and six coaches, including scheduling, training, recruiting, and executive board leadership.
- Regional Director, USA Ultimate – Great Lakes (2022–2023): Directed logistics, compliance, and competition management for DI/DIII sectional and regional tournaments.