MATTHEW HARKNESS
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EDUCATION

University of Michigan - College of Engineering Ann Arbor, MI
Bachelor of Science in Electrical Engineering, GPA: 3.89/4.00 Degree Expected April 2025
Honors and Awards: James B Angell Scholar and University Honors (all semesters), Honors Program
Relevant Coursework: Intro Signals and Systems, Intro to Electric Circuits, Multivariable and Vector Calculus, Intro to Differential Equations, Linear Algebra, Discrete Mathematics, System Design

EXPERIENCE

Guardian & SRG Global
Electrical Engineering Intern May 2023 - August 2023
- Created a testing device for an IoT automated window shade, which is now standard equipment used on all shades. Wrote code for a microcontroller and designed a PCB to collect data from multiple sensors.
- Helped program and build a prototype for a gate controller to limit the traffic of autonomous vehicles in a crowded factory, utilizing code to detect when a human is present and shut the gate for safety reasons

Intern Innovation Challenge Project Winner
- Created a system to recycle waste heat from glass plant furnaces, winning a national competition against over 70 other teams of interns across over 40 different companies
- Organized meetings with worldwide project leaders, interviewed vendors, assessed competing products. Made recommendations based on quantitative analysis. Proposed a plan including blueprint designs and engineering specifics.
- Presented to global Vice President of Guardian Industries and banded off the project to full time engineers. When it is implemented, it is estimated to save up to 7% of our yearly energy costs.

University of Michigan Math Lab
Lead Math Tutor January 2022 – April 2023
- Tutored all levels of math from pre-calculus to differential equations
- Supervised other tutors and assigned tutors to specific classes and students

University of Michigan Neurobionics Lab - opensourceleg.com September 2022 - January 2023
Research Assistant
- Programmed and installed microcontroller to control and collect data at multiple points in bionic leg
- Collaborated with 12+ member team to improve 'standard' bionic leg, now used by researchers worldwide

LEADERSHIP

University of Michigan Backpacking Club
Board Member (Trip Coordinator) August 2021-Present
- Lead overnight hiking trips in state/national parks e.g., the Great Smoky Mountains
- Organize club social events, such as day hikes, and present information on hiking to over 750 members

HONORS, SKILLS, AND INTERESTS

Other Honors: National Merit Scholar Finalist, Presidential Scholar Nominee
Programming languages: C++, Swift, Java, Python, MATLAB, JavaScript
Technologies/Tools: Arduino, Altium, Firebase, React.js, Git/GitHub, LTSpice