Madeline Deming

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Education

University of Michigan, Ann Arbor **Graduating December 2025**
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Data Science Engineering
GPA: 3.86/4.00
Awards: Dean's Honors List (Fall 2021, Winter 2022, Fall 2022, Winter 2023, Fall 2023)
Course Highlights: Data Structures & Algorithms, Discrete Math, Behavior of Materials, Electrical Circuits Systems & Applications, Introduction to Solid Mechanics, Design & Manufacturing I, Thermodynamics

Projects and Experience

Summer Undergraduate Research Engineering (SURE) Internship **May 2023 - December 2023**
Research Assistant at Biomedical Design and Manufacturing Lab

- Manufactured cutting tool for discectomy surgeries using additive manufacturing processes
- Investigated discectomy tool benefits and drawbacks, creating plan to improve tool-cutting efficiency
- Processed encoder data on articulated robot to determine its end effector position in C++
- Evaluated robotic arm overall accuracy by comparing produced path to known tool path in MATLAB

Michigan Health Engineered for All Lives (M-HEAL) **September 2021 - Present**
Neonatal Asphyxia Project Prototyping Subteam Member

- Designed a feedback loop to regulate a neonate's core body temperature at 33°C for a continuous 72-hour period for a hypothermia therapy device
- Conducted verification tests to assess efficiency of cooling rate of mattress, utilizing thermoelectric coolers
- Traveled to India to meet with clinical partners to test and refine device design, optimizing its effectiveness in treatment of neonatal asphyxia

Neonatal Asphyxia Project Project Lead **April 2023 - Present**

- Initiated team communication, planned weekly meetings, and set internal deadlines to follow
- Maintained mentorship connections with UM faculty, clinical, and industry mentors
- Implemented short and long term goal setting frameworks to increase team productivity and project outcomes

Space Race Robot Project **January 2023 - May 2023**
Design and Manufacturing Coursework

- Collaborated with team to develop a robotic machine player (RMP) to complete functional requirements
- Utilized SolidWorks for RMP design and employed mill & lathe practices for manufacturing
- Built linear actuator system extending arm over 20" while remaining in under 12" starting constraint
- Determined motor and gear ratio needed to push 12 lb block quickly across game floor

Skills & Activities

Technical: SolidWorks, Mill, Lathe, Waterjet, 3-D printing, MATLAB, C++, Java, Python, Microsoft Office
Communication: Technical reports, teamwork, interpersonal communication
Programming Tutor: Organize and mentor Python programming course for high schooler students through organization "End the Cycle"
Adopt a Pet Volunteer: Walk and socialize with dogs at hometown animal shelter while maintaining animal safety and environment cleanliness