

Emma Nigrelli

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Education

University of Michigan

Doctor of Philosophy (Ph.D.) - Mechanical Engineering

Ann Arbor, MI

Expected May 2028

University of Michigan

Bachelor of Science in Engineering - Mechanical Engineering

Ann Arbor, MI

Aug. 2020 - Apr. 2023

- **GPA:** 3.92/4.00 - *summa cum laude*
- **Awards/Honors:** James B. Angell Scholar (2023), Lloyd H. Donnell Scholarship (2022), Rouke-Ardisana Endowed Engineering Scholarship in Mechanical Engineering (2022), Tau Beta Pi Honor Society (2022), Dean's List (3x), University Honors (4x), Joseph M. Geisinger Scholarship (2020-2023)

Relevant Experience

ITW

Mechanical Engineering Intern

Glenview, IL

May 2023 - Aug. 2023

- Evaluated gage for use in quality assurance processes by conducting a Gage Repeatability and Reproducibility study. Wrote a standard operating procedure to reduce observed variation within the measuring system to an acceptable level.
- Configured and programmed a Dewesoft IOLITE data acquisition system to automate product testing and data collection.

Sienko Research Group - NSF M3X REU

Undergraduate Research Assistant

Ann Arbor, MI

Jan. 2023 - Apr. 2023

- Supported data collection and processing of inertial measurement unit (IMU) data from subjects performing balance exercises and eye tracking data from physical therapists evaluating the exercisers.

Stirling Research Group

Undergraduate Research Assistant

Ann Arbor, MI

Sept. 2021 - Dec. 2022

- Developed a Graphical User Interface (GUI) in MATLAB to present and visualize accelerometer and gyroscope data from inertial measurement units to assist in understanding and evaluating neurovestibular performance.
- Created a series of animations using MATLAB and OpenSense to visualize inertial measurement unit (IMU) data obtained during balance tests.
- Supported data collection for a study evaluating balance using wearable IMU sensors.

ITW

Mechanical Engineering Intern

Glenview, IL

May 2022 - Aug. 2022

- Developed, documented, and wrote a standard operating procedure for an Arduino-based fracture detection system for a materials testing setup.
- Performed a Design Failure Modes and Effects Analysis (DFMEA) of a product to understand the design failure modes posing the highest risk to product performance and recommend changes to mitigate risk.
- Performed concrete anchor pullout testing and analyzed pullout strength and dimensional data in R to identify anchor properties negatively affecting performance and suggested appropriate design changes.

University of Michigan Transportation Research Institute

Research Assistant

Ann Arbor, MI (Virtual)

Oct. 2020 - Aug. 2021

- Conducted a literature review covering two decades of experiments involving autonomous military vehicles and compiled this information into fifteen summary tables focused on identifying the overall trends, recommendations, and areas requiring further research.
- Researched measures related to off road driving to assist in the creation of a new standards and measures document for evaluating off-road and military vehicle driving performance.