

## EDUCATION

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**Northwestern University**

Evanston, IL | Sept 2020 - Mar 2025

- M.S. Mechanical Engineering (2023 - 2025) | GPA: 4.00/4.00
- B.S. Mechanical Engineering (2020 - 2024) | GPA: 3.93/4.00

## SKILLS

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- **Technical:** CAD (SolidWorks, Creo, CATIA) | Programming (Python, C/C++, MATLAB, Git, Linux, Docker, ROS2)
- **Fabrication:** Conversational & CNC Mill, MIG Welding, 3D Printing, Soldering, Waterjet, GD&T
- **Other:** ANSYS FEA, Control Algorithms, Microcontrollers, Vision Algorithms, Path Planning, Machine Learning

## EXPERIENCE

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**Oshkosh Corporation** | Autonomy Engineering Intern

Oshkosh, WI | Jun 2024 - Present

- Programmed a multi-threaded Python data collection pipeline to record and upload camera images triggered by vehicle CAN messages on a garbage truck to an AWS bucket, for training machine learning models
- Implemented remote programming capability by pulling saved Docker image from AWS cloud onto local machine
- Wrote systemd service file to run Docker container with program code on vehicle startup
- Created a ROS2 node for detection of powerlines and tree branches above garbage truck using data from iLidar-ToF sensor

**Honda of America Manufacturing, Inc.** | Manufacturing Engineering Co-op

Marysville, OH | Jun 2023 - Aug 2023

- Designed, fabricated, and installed a pneumatically actuated extending platform in a robot cell allowing for operators to safely cross a gap that was previously impassable without breaking safety code
- Modified safety PLC program to prevent collisions between the platform and any persons or equipment within the cell, after receiving approval from safety, production, and maintenance staff
- Installed proximity and vision sensors to allow operators to remotely track grommet feeding and sealer valve processes, and integrated sensor-triggered alarms into PLC program

**Maglev Aero** | Engineering Intern

Boston, MA | Jun 2022 - Sept 2022

- Designed a modular rotor reinforcement piece using SolidWorks FEA and topology optimization to maintain a magnetic air gap below 0.4mm
- Developed a method to verifying measurements of a previously installed torque sensor using a simple spring hook gauge
- Planned and executed test and calibration methods for measuring speed, torque, and lift of a magnetically propelled rotor

## PROJECTS

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**Robot Design Studio** | Capstone Project Team Member

Jan 2024 - Jun 2024

- Designed a 3 DOF (two actuated, one passive) haptic interface for a human index finger to teleoperate a robot finger
- Used two coaxial cable drive transmissions to achieve no backlash, high stiffness, and low reflected inertia for the user
- Successfully used full system to remotely perform high dexterity tasks like twisting a wing nut and opening a beaker by teleoperating robot finger and thumb using haptic interface

**Omnid Project** | Electrical & Mechanical Team Lead

Jan 2024 - Mar 2024

- Debugged random E-stopping of Northwestern's omnid human collaborative robots due to large voltage drops throughout power distribution topology in preparation for a demo at the 2024 MARS conference
- Designed and installed hard stops on robot workspace to improve safety and avoid software triggered E-stops
- Built new onboard circuit using relays to control connections between battery, robot, charger, and external power supply

**Self-Driving Cars with Duckietown** | ETH Zürich

Sept 2023 - Dec 2024

- Developed motion planning, state estimation, and object detection algorithms for an autonomous robot to traverse a miniature town, remaining within lane markings and avoiding obstacles
- Created a method for multiple robots to navigate two-way intersections by communicating intentions with LED's and using data from camera and motor encoders to turn accurately