Darren Cleeman

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EDUCATION

University of Michigan **Ann Arbor, MI**

Bachelor of Science in Engineering (Major: Robotics | Minor: Computer Science) *Graduation Date: May 2026*

GPA: 3.267

Relevant Coursework: Robotic Manipulation, Robotic SLAM, Robot Operating Systems, Robotic Kinematics & Dynamics

WORK EXPERIENCE

Gentex Corporation **Zeeland, MI**

Research & Development Intern *6/2025 - 7/2025*

- Automated epoxy application with an ABB IRB-1100: modeled hardware in RobotStudio, built a custom end-effector, and validated dynamic + plotted paths to replace manual glass bonding.
- Authored a dimension-driven script that instantly turns user-entered glass sizes into robot tool-paths for the air-pump syringe dispenser—pressurizing a syringe to lay epoxy—streamlining setup for new prototype geometries.
- Programmed plotted-point motion code and outfitted the ABB IRB-1100 with an automatic pipette, delivering hundreds of micron-accurate epoxy micro-drops—achieving superior precision over the tuning-heavy air-pump method.
- Devised an image-analysis workflow to compute gap heights below 50 μm during electro-chromic fluid tests, overcoming the laser sensor's limit and enabling ultra-thin glass experimentation.

General Atomics Aeronautical Systems **Poway, CA**

Software Engineering Intern *6/2024 - 8/2024*

- Designed and built several features for a plane to ground station communication simulation tool.
- Leveraged Python's Tkinter library to build and integrate the new features into the GUI.
- Updated a Bash script to safeguard files in designated directories from deletion during the build process of a containerized codebase, improving efficiency.
- Improved functionality and reliability by debugging and refactoring legacy code, ensuring previously malfunctioning simulation features operated seamlessly.

PROJECT EXPERIENCE

Autonomous Robotic Vehicles (ARV) Project Team **Ann Arbor, MI**

Navigation Sub-team Programmer *9/2024 – 5/2025*

- Co-developed a weighted cost-function algorithm that for each path-planning cycle, processes current scanned frame of the track assigns cost by distance, obstacle clearance, and heading alignment to pick the safest, most efficient goal.
- Joint-engineered a ROS 2 Python node that, on every cycle, rebuilds a occupancy frame for the current scanned piece of the track, applies the cost function, and publishes the next goal so the robot advances seamlessly to the finish line.
- Collaborated on a waypoint-prioritization routine that checks each new frame for competition-defined waypoints and overrides the cost-based goal when one is present, ensuring the robot stops at all mandatory checkpoints.

RESEARCH EXPERIENCE

HaptiX Laboratory, University of Michigan **Ann Arbor, MI**

Undergraduate Researcher *10/2023 – 5/2024*

- Executed detailed moment of inertia evaluations on drones using the bifilar pendulum method, gathering data to refine autonomous drone flight simulations.
- Improved experimental procedures for inertia measurements, enhancing data quality for UAV research.
- Conducted thrust testing for drone motors, initially attempting repair and recalibration of a specialized board through soldering techniques, then switched to a new thrust tester that required the use of Arduino code.

SKILLS

Coding Languages: C++, Python, C, RAPID, Bash Script, R, Julia, Assembly (LEGv8 & LC2K)
OS's: Linux, Microsoft, Unix
IDE's: VSCode, RStudio, Visual Studio, RobotStudio