



Objective

Looking to continue my career by applying experience from Ford, MRacing and personal projects. Seeking to further develop my practical knowledge with strong technical mentorship at an autonomy, controls, or AI focused internship opportunity during spring-summer 2024.

Experience



Ford Motor Company | ALLEN PARK, MI
ADAS L3 Self Driving Summer Intern

MAY 2023 – AUGUST 2023

- Developed a kinematics based model to flag longitudinal Duty of Care (safety envelope) violation events during L3 test drives – safety metric used to compare driving policies
- Automated testing of ECU interface on HIL bench and in-vehicle, worked collaboratively with team to debug at least 3 issues related to CAN message packing, transmitting, gatewaying and receiving – used canalyzer and MATLAB to detect and analyze bugs
- Automated data acquisition and post processing to compare CAN signals with RTK position, velocity on mule F150 and other vehicles with MATLAB / python scripts, and OxtS software suite
- Learned about how large companies manage project timelines – agile, scrum

Education

University of Michigan | ANN ARBOR, MI
B.S. Robotics Engineering

AUG 2022 – APRIL 2025

Autonomous Vehicles - Controls with Disturbances, Applied SLAM, Human-Robot Systems

Projects and Activities

(SEE PORTFOLIO)



(SEE YOUTUBE)



(SEE GITHUB)



Formula Electric Racing (MRacing) | Autonomous System

SEPT 2022 - PRESENT

- Leading the development of the first ever autonomous car at MRacing, responsible for e-brakes, power steering, safety electronics / radio, controls, onboard perception + reasoning
- Coordinated with other subteams to ensure consistent or improved levels of functionality, serviceability, mass, and speed, while meeting design requirements specified by rules
- Programmed and tuned a SLAM software stack with a ROS architecture, Python and C++
- Implemented Patchwork++ algorithm for online LiDAR ground segmentation and developed a custom nearest neighbors based cone clustering algorithm, custom LiDAR-camera fusion
- Trained a custom YOLO object model for traffic cone detection and perspective mapping
- Managed sponsorships from autonomy focused companies for hardware components
- Oversaw acquisition of over \$40,000 worth of sensor / computer hardware from sponsors

FIRST Robotics (FTC) | Team President

2018-2022

- Ranked top 40 internationally at Maryland Tech Invitational – led the team to success
- Programmed a triple dead-wheel odometry localizer in Java to perform manipulation tasks fully autonomously and optimized pose trajectories (x, \dot{x}, \ddot{x}), state machine based proprioception
- Iteratively Designed mechanisms in Fusion and Solidworks to manipulate small plastic objects efficiently (grippers, conveyors, linear slides, drivetrain, etc.)

Stewart Platform

2021

- Designed, built, programmed a 6-DOF parallel manipulator for a regional ISEF research project
- Developed kinematics and dynamics control model on microcontroller – embedded C
- Implemented IMU acceleration dampening on end effector – applications in offshore platforms

Other

2019-2021

- Designed and built a custom dual-nozzle 3D printer to print dissolvable support material
- Developed silicone tether-less pneumatic artificial muscles for a regional ISEF competition

Skills

Programming:

Java | Python | C++ | OpenCV | ROS | Julia | Git | MATLAB | Pytorch | R | Simulink

Software:

Solidworks | Siemens NX | Fusion 360 | OxtS | Blender | YOLO | Jetson OS | Canalyzer | Ubuntu

Communication:

CAN-HS | CAN-FD | I²C | SPI | UART | RTK GNSS (RTCM)

Fabrication:

Fiber laser | CO2 laser | Waterjet | GTAW | FDM | Wire harnessing

Other

Michigan Climbing Club

2022-PRESENT