



# Terry Tao



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terrytao19.github.io/portfolio 

## Objective

Looking to begin my career by applying experience from **MRacing**, **FIRST Robotics** and **personal projects**. Seeking to further develop my practical knowledge with **strong technical mentorship** at an **automation**, **controls**, or **systems** focused **internship** opportunity during **spring-summer 2023**.

## Education



**University of Michigan** | ANN ARBOR, MI

**B.S. Robotics Engineering**

AUG 2022 – APRIL 2025

- ROB 101 | Computational Linear Algebra
- ROB 102 | AI and Programming Robots
- MATH 216 | Differential Equations
- PHYS 240 | Physics E&M

**Harborfields High School** | HUNTINGTON, NY

**Advanced Regents Diploma**

2018-2022

- GPA: 4.0
- AP Scholar With Distinction
- SAT – 800 Math, 750 English

## Projects and Activities

(SEE PORTFOLIO)



(See YouTube)



**Autonomous Formula Electric Racing (MRacing)**

SEPT 2022 - PRESENT

- Developed an **Extended Kalman Filter SLAM** algorithm to **map** and **visualize** a pre-recorded lap
- Trained a custom **YOLOv7** object detection model for **cone detection**
- Implemented a **perspective-n-point** algorithm to **extract xy positions** of cone **landmarks**
- Programmed a track **boundary estimator** and track **mid-line regression** algorithm
- Integrated **regressed track radius** data and **vehicle velocity** to build an **overhead map** of the racetrack using a single **monocular** camera

**FIRST Robotics (FTC)**

2018-2022

- Ranked **top 40 internationally** at Maryland Tech Invitational (2022)
- **CAD lead, Co-programmer, Club President** (2022)
- **Iteratively Designed** mechanisms in CAD to manipulate small plastic objects efficiently (**grippers, conveyors, linear slides, drivetrain**, etc.)
- Programmed a triple **dead-wheel odometry localizer** to perform tasks **fully autonomously** and **optimized velocity trajectories** to achieve **high scoring** rates

**Stewart Platform**

2021

- Designed a **6-DOF parallel manipulator** for a regional ISEF research project
- Developed **kinematics** and **dynamics** control algorithm
- Implemented **IMU acceleration dampening** on end effector

**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++ | MATLAB | Simulink | Julia | Mathematica | OpenCV | Pytorch  
**Software:** Solidworks | Fusion 360 | Onshape | Simplify3D | Blender | Supervisely | Roboflow | MS Office  
**Spoken Languages:** Mandarin (Native)

## Leadership

Robotics Club President 2021-2022  
Senior Patrol Leader (Boy Scouts) 2020-2021

## Other Activities

Michigan Climbing Club 2022-PRESENT  
Boy Scouts of America 2016-2021  
Varsity Golf, all-county 2018-2020