

## Tom O'Donnell

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### Education

Purdue University, West Lafayette, IN

GPA 3.81

*Bachelor of Science in Computer Engineering,*

*May 2025*

*Concentration in Machine Learning and Software Engineering*

U of D Jesuit High School, Detroit, MI

GPA 3.89

*High School Diploma*

*May 2021*

### Leadership Experience

**Algorithm Team Lead and Engineer - Purdue Robomaster Club, West Lafayette, Indiana**

*Feb. 2022 - present*

- Managing a team of ~40 software engineers, including distributing tasks and monitoring performance
- Innovating computer vision, neural networks, and auto-aiming systems for an international robotics competition
- Earned 4th place in the national RMNA competition

**Mock Trial Team Captain and Lead Attorney, Detroit, Michigan**

*Dec. 2018 - May 2021*

- Progressed from alternate to team captain and lead attorney
- Earned 4th place in the state competition

**EPICS (Engineering Projects in Community Service), West Lafayette, Indiana**

*Aug. 2021 - May 2022*

- Engineering a display for a donated GE-90 Engine Fan Blade (2022)
- Using RFID technology to monitor bike traffic on campus and encourage green methods of transportation (2021)
- Volunteered for role of Communications lead for two years

### Technical Projects

**Rubik's Cube Solving Robot, personal project**

- Designed circuitry and 3D printed a robot to speedsolve Rubik's Cubes in under 2 seconds
- Published a write-up featured by the official Arduino website and Facebook, along with numerous DIY websites
- Utilizes an arduino to control six NEMA 17 stepper motors via a DRV8825 motor driver
- 66% faster than the human world record, 96% faster than the first prototype built in May 2022

**PurdueRM Neural Network Model, Purdue Robomasters Club**

- Improved long-range object detection of our neural network by 40%
- Quadrupled dataset diversity by implementing an automatic data augmentation script

**Depth Estimation Algorithm, Purdue Robomasters Club**

- Developed a distance estimation algorithm used for calculating projectile trajectory for competition robots
- 60% improvement in accuracy compared to prior iterations

**CubeBot- A Rubik's Cube Speedsolving Program, personal project**

- Wrote a Rubik's Cube solver algorithm capable of calculating solutions in under 1 millisecond
- Improved average solve time 3000x over the course of 2 years (from 3 seconds to 1 millisecond)

**Robomaster Club Wiki, Purdue Robomasters Club**

- Authored a team wiki to document ideas and decrease learning curve for new members

### Employment

**Lifeguarding, Country Club of Detroit, Grosse Pointe, MI**

*May. 2022 - August. 2022*

- Lifeguarded and provided general upkeep and cleaning for a private country club pool
- Lifeguard and CPR certified by the American Red Cross

**Busboy, Grosse Pointe Yacht Club, Grosse Pointe, MI**

*May 2020 - August 2021*

- Fulfilled orders and ensured customer satisfaction at a private boating club
- Maintained strict food protocols and health procedures during Covid-19

### Awards

EPICS Leadership Award

May 2022

Dean's List

December 2021, May 2022

Semester Honors

December 2021, May 2022