

# Ty Frederick

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## Education

### Purdue University

*School of Aeronautical and Astronautical Engineering*

- Bachelor of Science in Aeronautical and Astronautical Engineering
- Dean's List & Semesters Honors

West Lafayette, IN

Aug 2024 – May 2028

GPA: 3.54/4.00

## Engineering Projects

### Path Finding Software

West Lafayette, IN / November 2024 - December 2024

- Developed a Python-based maze game, allowing both user and program-driven completion.
- Implemented advanced looping and logical structures to generate and navigate the maze efficiently.
- Using a binary tree the program can navigate through over **100 obstacles** with a 100% success rate.

### Biomed Drone

West Lafayette, IN / August 2024 – May 2025

- Improved a drone system capable of delivering NARCAN to overdose patients ahead of ambulance arrival.
- Designed several drone casings focused on minimizing lost time due to operational confusion and flight capability and maximizing space for necessary hardware.
- Doubled the maximum speed to **70 mph** by optimizing propulsion and weight reduction.

## Work Experience

### Brent Johnson Homes LLC.

New Ulm, MN

*Carpenter*

May 2023 – August 2023; May 2024 – August 2024

- Utilized raw materials and design specifications to meet customer requirements and expectations.
- Engaged in problem-solving to complete home renovation projects decks in an economic & time efficient manner.

### Minnesota Valley Testing Laboratories

New Ulm, MN

*Lab Intern*

May 2025 – July 2025

- Performed 1,000+ daily standardized soil analysis procedures in a laboratory setting, ensuring accurate, repeatable results used in agricultural and environmental decision-making.
- Prepared and processed **6,000+ soil samples** according to strict protocols, developing a strong foundation in quality assurance and adherence to industry standards.

## Campus Involvement

### Phi Kappa Tau

West Lafayette, IN

*Vice President of Risk Management*

April 2025 – Present

- Led the development and enforcement of risk management protocols, ensuring 100% compliance with university and national fraternity regulations across all chapter events for an organization with **over 75 members**.
- Acted as primary liaison between 45 fraternity and campus administration, maintaining clear and effective communication on safety, conduct, and policy adherence.
- Proactively identified potential risks during event planning and implemented preventive strategies, reducing incident rates and improving chapter safety record

*Grand Prix Team Engineer*

- Collaborated with a team to design and build a competitive racing cart with the ability to agilely carry one racer around a tight track for **100 laps**.
- Complied with all racing standards such as size, weight, and safety restrictions while striving for continuous improvement with the goal of achieving a top 10 finish in competitive races.

## Skills

- CAD: SolidWorks, Fusion, and NX
- Programming Languages: C, MATLAB, Python, and ROS2
- Other: Aircraft & Rocket Design, Aero Mechanics, and Propulsion
- Interests: Weightlifting, Wrestling, Scuba Diving, Hiking, and Travel