

# Zachary Friedman-Hill

College Park, MD 20740 • zacfmhill@gmail.com • (240)-994-5250 • US Citizen

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## Education

### **UNIVERSITY OF MARYLAND**

B.S/M.S, Mechanical Engineering, 3.9 GPA

Minor: Robotics and Autonomous Systems, & Computer Science

Gemstone Honors Program, *Multidisciplinary four-year research program*

College Park, MD

Expected Spring 2026

## Technical Experience

### **Maryland Robotics Center Research Intern**

June 2021 - Jan. 2022

*Swarm Robotics. Mentor: Dr. Michael Otte,*

May 2023 - Present

- Development of a novel multi-robot agent swarm system using physical hardware testbed
- Presenting formal research reports to MRC faculty and research conferences

### **UMD Over-Terrain Vehicle, Construction & Innovative Design Finalist**

Aug. 2022 - Dec. 2022

- Collaboratively designed and built an autonomous vehicle to extinguish flames in the environment

### **Terrapin Works Design & Manufacturing Lab**

*Design Engineer & Subtractive Manufacturing Technician*

Dec. 2022 - Dec. 2023

*Senior Technical Design Engineer*

Nov. 2023- May 2024

*Research & Prototyping Lab Machine Specialist*

May 2024 - Present

- Working with external customers to develop ideas into physical prototypes and concept models.
- Assisting and training students and staff in design ideation and parts manufacturing.
- Developing characterizations and process documentation of Injection Molder
- Developing process for granulating, drying, and re-using 3D printed scraps in custom designed molds.

## **Current Sets**

*Architectural Design Coordinator*

Dec. 2023 - Present

- Coordinating and reviewing architecture drawings across several disciplines, ensuring smooth collaboration, and adherence to budget, regulations, and aesthetics. Performing Quality Control analysis and communicating revisions and inconsistencies to team members, consultants, and stakeholders.

## **Polygone Systems**

*Electrical Engineering & Robotics Intern*

May 2024 - Jan. 2025

- Designing a novel autonomous boat for microplastic collection & cleaning in unknown environments
- Developing Autonomous path planning algorithm for exploration, obstacle avoidance, and data collection
- Designing modular watertight expandable pontoons with electrical suites to allow customizability
- Communicating progress updates and design intentions to investors for grants and quarterly reports

## Activities & Affiliations

**Leatherbacks Combat Robotics Team, Vice President and Treasurer**

2022 - Present

- Review member designs for manufacturability and effectiveness.
- Design, build, and iterate combat robot designs to optimize strength and durability.

**Accessible Prosthetics Initiative, Member**

2022 - Present

- Research and prototype innovative and cheap prosthetic designs

## Skills

**Manufacturing:** CAD, CAM, 3D Printing, CNC milling, Lathe, Waterjet, Laser cutting

**Software:** Onshape, Fusion360, Solidworks, Inventor, Gitlab, Notion

**Programming:** C++, Python, Java, Kotlin, MATLAB, R, JS