

Noah Zipin

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Engineering Portfolio: <https://github.com/nzipin/Engineering-Portfolio>

EDUCATION

University of Maryland, College Park, MD

Expected May 2023

B.S. Mechanical Engineering

GPA: 3.90

- **Clark Scholars Program** – Selected as one of ten students; combines engineering, business, and leadership
- **College Park Scholars, Science & Global Change** – merit-based program on impact of climate change

Coursework: Materials Science, Dynamics, Statics, Mechanics of Materials, Engineering Design, Diff. Equations

SKILLS

Engineering: CAD [SolidWorks, Inventor, AutoCAD] (300 hrs), FEA, 3D Printing (~200 prints), GD&T

Software: C++, Java, Python, Arduino, Excel, MATLAB, Simulink, Abaqus (exposure), Photoshop, After Effects

WORK & PROJECT EXPERIENCE

Bioinspired Advanced Manufacturing Lab – Student Researcher

Oct 2019 – March 2020

- Worked on a team of three undergraduate students under direction of PhD candidate to make 3D printed multi-material flexible actuators with variable stiffness achieved by developing new layer jamming structures
- Utilized SolidWorks (~100 hrs) to create mechanisms for multi-material additive manufacturing on Connex3 poly jet printer to integrate rigid and flexible materials in actuators, and simulated using FEA
- Designed and tested an agitation mechanism for the soft actuator to prevent jamming layers from sticking together as support material from 3D printing is dissolved with sodium hydroxide solution

Independent Project: Self-Balancing Robot

May 2020 – Aug 2020

- Designed, manufactured, and controlled systems (mechanical, electrical, software) to make a robot that balances on two wheels, using an inertial measurement unit and hall effect sensors to read system data
- Employed Fusion 360, MATLAB, Simulink (~70 hrs) to model and simulate the self-balancing robot, which mimics the inverted pendulum on a cart dynamic system. Documented and presented project on [YouTube](#)
- Coded control systems for the robot in C++; sets motor velocity based on robot angle using PID controller
- Manufactured robot with 15 custom 3D printed components, aluminum extrusion, and polycarbonate sheet

Ridgely Robotics & Technology Summer Camp – Head Camp Counselor

Summer 2020

- Transformed traditional summer camp into an online environment in the era of COVID-19 by developing new curriculums that engaged over 100 middle-school aged students to supplement online education
- Taught ~200 hrs of novel courses in Intro to Robotics (VEX IQ Platform), Introduction to 3D Modeling (TinkerCAD, Autodesk Inventor), Flight & Space (model rockets) and Video Editing (Adobe Premiere Pro)
- Led the creation of a new and interactive [Facebook Page](#) so parents can easily access all information online

UMD Over Sand Vehicle Project – Mechanical Team Lead

Feb 2020 – May 2020

- Collaborated in a group of 8 students to design, build, and test and autonomous over sand vehicle
- Created full CAD model, technical drawings, and .dxf/.stl files in SolidWorks (~50 hrs) for manufacturing on laser cutter and FDM 3D printer
- Ensured that the design was under the \$350 budget and adhered to the size and weight specifications

VOLUNTEER EXPERIENCE

Cromwell Valley Elementary Robotics Team – Founder and Coach

Oct 2017 – Mar 2019

- Founded robotics program at local elementary school by presenting plans to Baltimore County Public School Board members and Recruiting students to educate the local community and inspire future engineers
- Coached two teams twice per week and prepared parents and teachers for competition events

ACTIVITIES

- Maryland Discourse – community of UMD students for productive dialogue about complex issues to share ideas and develop new perspectives
- RC Flying Terps – club for students to fly racing quadcopters in a safe and controlled environment
- Robotics at Maryland – team that works on autonomous underwater vehicles for RoboSub competition