Noah Zipin

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EDUCATION

University of Maryland, College Park, MD Expected May 2023
B.S. Mechanical Engineering **GPA: 3.91**

- **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

SKILLS

Technical: Rapid Prototyping, Mechatronic Systems, Additive Manufacturing (SLS, SLA, FDM), 3D DIC
Software: CAD (SolidWorks, Inventor, AutoCAD), FEA (ANSYS, Abaqus), nTopology, Materialise Magics
Programming: C++, Arduino C, Java, Python, MATLAB, Simulink, Excel, Processing

WORK EXPERIENCE

U.S. FDA – *ORISE Fellow in AM Medical Devices Core Facility* *May 2021 – Aug 2021*

- Conducted an independent project that investigates the influence of unit cell orientation on additively manufactured nylon lattice structures, and drafted research manuscript that is under peer review
- Created 240 lattice samples, manufactured on an EOS P396 SLS printer, tested all samples in load frame
- Analyzed von-mises strain profiles of all samples during testing using 3-dimensional digital image correlation
- Compared experimental loading response with finite element model using ANSYS Workbench R19

Tubaldi Lab – *Undergraduate Researcher* *March 2021 – Present*

- Investigated how to control the deflection and force output of soft robotics actuators by using rigid fibers
- Manufactured custom soft robotics actuators by 3D printing rigid fibers suspended in an elastomer
- Compared experimental pressure-volume relation to a simulated finite element model in Abaqus to validate that the deflection and force output of a soft robotics actuator can be "pre-programmed" with rigid fibers

Postlytics – *Part-time Intern* *Jan 2021 – Feb 2022*

- Led the hardware sub-team to develop the mechatronic components of a wearable medical device
- Collaborated on an international team of 17 undergraduate and graduate students to develop a wearable medical device that monitors vital signs to help with hospital overcrowding because of COVID-19
- Integrated many IC modules in Autodesk EAGLE that can monitor heart rate, body temperature, and more

Ridgely Robotics & Technology Summer Camp – *Head Camp Counselor* *June 2020 – Aug 2020*

- Transformed traditional summer camp into an online environment in the era of COVID-19 by developing new curriculums that engaged over 50 middle-school aged students to supplement online education
- Taught ~100 hrs of novel courses in Intro to Robotics (VEX IQ Platform), Intro to 3D Modeling and more

PROJECT EXPERIENCE (visit my portfolio to view more)

"Pong" Robot *Nov 2021 - Dec 2021*

- Utilized mechatronic components, 3D printing, and controls to develop a robot that plays Atari's "Pong"
- Created a computer-vision system with PixyCam to track ball and paddle for PID control system, YouTube

Body Driven Prosthetic Finger *Jan 2021 – Feb 2021*

- Designed and manufactured custom 3D printed body driven prosthetic finger in SolidWorks that restores finger motion and function of partial finger amputees and tested on real patient. Presented on YouTube
- Reduced the cost from $5,000+ for similar products on the market to less than $10 by utilizing 3D printing

Self-Balancing Robot *May 2020 – Aug 2020*

- Developed a robot that balances on two wheels with custom mechanical, electrical, and control systems
- Manufactured robot with 15 custom 3D printed components, aluminum extrusion, and polycarbonate sheet
- Assembled all electronics and coded in C++ with PID control algorithm. Presented project on YouTube

VEX Robotics Competition *May 2016 – Aug 2019*

- Team Founder and Mechanical Lead of an internationally recognized VEX competition robotics program
- Won over 25 champion-titles at state/national/international championships and increased team membership five-fold