Nathan Wolf-Sonkin

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EDUCATION

The Cooper Union for the Advancement of Science and Art — Expected Graduation Spring 2025
Master of Engineering, **Mechanical Engineering** — GPA: 4.0/4.0

New York Institute of Technology — Graduated Spring 2023
Bachelor of Science, **Mechanical Engineering** — GPA: 3.8/4.0
Minor, **Mathematics**

SKILLS

Technical: **MATLAB/Simulink, Solidworks, CATIA, Autodesk Inventor, Ansys, Python**
Courses: **Bio-Inspired Robotics, Autonomous Mobile Robotics, Modern Control Theory, Industrial Robotics**

WORK EXPERIENCE

Core SWX, LLC. | Plainview, NY — March 2022 - August 2023
Design Engineer

- Created battery casing and charging station designs for high-end camera equipment
- Utilized Solidworks to design for injection molding and sheet metal fabrication
- Created prototypes focusing on ergonomic design using SLA and FFF 3D printers
- Resulted in the launch of over twelve new products including the Apex, Renegade, GT8, and Cube

Cox & Company, Inc. | Plainview, NY — Summer 2018, 2019, 2021
Mechanical Engineering Intern

- Undertook development of a resistive wire laying device to streamline the manufacturing of aerospace deicing systems
- Created an end effector to be retrofitted onto a 3D gantry to automatically adhere resistive wire to a fiberglass mesh
- The end effector was designed in CATIA, prototyped with SLA printing, and manufactured through CNC machining

FIRST Robotics Competition Team 7400 | Melville, NY — June 2019 - March 2020
Mechanical Design Mentor

- Guided students in the mechanical design process for projectile intake and launching mechanisms
- Taught students about fundamental design principles as well as the proper usage of workshop tools

PROJECTS

Robotic Clubfoot Brace – Thesis — Fall 2023 - Present

- Developing a soft robotic brace to resolve relapse problems for children with clubfoot
- The brace utilizes mechanical jamming to soften or rigidize the structure when required

Autonomous Mobile Robot – MATLAB, C++

- Designed a robot to autonomously locate, identify, and launch projectiles at infrared targets
- Generated an interactive simulation to assess behaviorally guided movement patterns
- Developed a rudimentary SLAM algorithm to enhance the robot's spacial awareness

Robotic Arm Simulation – MATLAB

- Developed a simulation of a three link robotic arm for testing feedforward and optimal control algorithms
- The simulation includes encoders on each joint and initially perturbs the arm to test disturbance rejection
- Effectively generates and tracks a smooth, point-to-point, joint space trajectory with less than 1% tracking error

ADDITIONAL

Awards

- New York Institute of Technology Dean's List - All Semesters
- Boy Scouts of America Eagle Scout – August 2019
- FIRST Robotics Competition World Championship Qualifier – 2018, 2019

Interests – Robotics • Rock Climbing • Chess • Video Games