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: **Solidworks, ROS2, C++, Gazebo, MoveIt, Docker, Python, MATLAB/Simulink, Ansys (FEA)**
Courses: **Bio-Inspired Robotics, Autonomous Mobile Robotics, Modern Control Theory, Finite Element Analysis**

WORK EXPERIENCE

JLG Industries | Hagerstown, MD May 2024 - August 2024
Robotics and Automation Intern
- Undertook development of robotic arm path planning algorithms for automation of dangerous jobs
- Utilized Python and C++ to develop automatic tool exchange algorithms for the Sapien 6M robotic arm
- Created a physical simulation of Sapien 6M robotic arm using ROS2 and Gazebo for algorithm testing

Core SWX | Plainview, NY March 2022 - January 2024
Design Engineer
- Designed battery casing and charging stations for high-end camera equipment
- Utilized Solidworks to design for injection molding, sheet metal fabrication, and metal pipe fabrication
- Created ergonomic latching mechanisms which efficiently fit into the required positions

Cox & Company | Plainview, NY Summer 2018, 2019, 2021
Automation Engineering Intern

- Conducted 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

FIRST Robotics Competition Team 7400 | Melville, NY June 2019 - March 2020
Robotics Engineering Mentor
- Guided students in the design process for projectile intake and launching mechanisms

PROJECTS (Available at nathan.wolfsonkin.com)

Robotic Dog Energy Analysis – Thesis
- Researching robotic quadrupeds to determine optimal gait cycles for balancing speed and energy usage

Thermal FEA Cooking Analysis – Ansys, Solidworks, Hypermesh
- Conducted a dynamic thermal analysis on a turducken to determine optimal cooking time
- Confirmed validity of the model by comparing it to thermal circuit theory

Autonomous Mobile Robot – ROS2, Python, C++
- Capable of navigating and mapping its surroundings using a combination of odometry and IR sensors
- Implemented a particle filter to localize the robot position after map generation

Robotic Arm Simulation – MATLAB
- Developed a simulation of a three link robotic arm for testing feedforward and optimal control algorithms
- Effectively generates and tracks a smooth, point-to-point trajectory with less than 1% tracking error

ADDITIONAL

Awards
- Boy Scouts of America Eagle Scout – August 2019
- FIRST Robotics Competition World Championship Qualifier – 2018, 2019

Interests – Robotics • Rock Climbing • Chess • Video Games • Cycling