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: **ROS2, C++, Gazebo, MoveIt, Docker, Python, MATLAB/Simulink, Ansys (FEA), Solidworks**
Courses: **Bio-Inspired Robotics, Mobile Robotics, Modern Control, Adaptive Algorithms, Underactuated Robotics**

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
- Integrated the simulation-based control architecture with the physical robotic system

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

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/RESEARCH (Available at nathan.wolfsonkin.com)

Quadrupedal Energetics Analysis – Thesis

- Conducting research on how cost of transport varies with different mechanical configurations of quadrupeds
- Utilizing ROS2 and Gazebo for simulation and data acquisition

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

Drone Landing on Moving Platform – ROS2, Python, C++

- Quadcopter capable of autonomously tracking and landing on a mobile robotic platform
- Tracking of the platform and drone were accomplished using Vicon tracking equipment

Optimal Control of a Robotic Manipulator – 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

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