Jonathan Distler
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Education

Bachelor's Degree in Science, Cornell University; Ithaca, New York
Expected Graduation: May 2027
Major: Mechanical Engineering
Minor: Physics
GPA: 3.76
Selected Coursework: Electricity and Magnetism Honors, Lasers and Photonics, Special Relativity

Experience

Soft Robotics Lab (SRL) Project Intern May 2025-Present

Swiss Federal Institute of Technology Zurich (ETH Zurich); Zurich, Switzerland
-Collaborating within a multidisciplinary team, as a part of Dr. Robert Katzschman's lab, to develop a novel actuation mechanism for a soft robotic fish tail utilizing a Scotch yoke assembly.
-Conducted research on fish locomotion patterns to inform the design and prototyping of soft robotic tails with variable radii of curvature.
-Designed and implemented a motor and IMU control class to dynamically track fish orientation using Euler angles, integrating a Dynamixel motor and Adafruit IMU with sensor fusion and data wrapping techniques.
-Integrated computer vision along with remote filming to measure the radius of curvature of the robotic fish's tail, then compared it with real-time thrust and motor data to determine convergence towards an ideal tail design.

Cornell Hyperloop Project Team Member September 2024-Present
Cornell University Hyperloop Project Team; Ithaca, New York
-Contributed to the structures subteam in designing a magnetic levitation system for high-speed hyperloop propulsion.
-Modeled heat transfer from battery packs to the hyperloop train, calculating the heat exchange rate for a 240W battery system.
-Analyzed impulses from braking and track deviations on the battery pack system to assess enclosure effectiveness.
-Designed a cost-effective ($200) battery pack enclosure that securely protects over $2,000 worth of electronic components while ensuring accessibility.

Biomechanical Engineering Project Intern *June 2024-August 2024*
Virginia Tech Department of Mechanical Engineering; Blacksburg, Virginia
-Developed an H-Bot control system using MATLAB and serial communication to synchronize ultrasound imaging of octopus movements for enhanced surface scan accuracy.
-Engineered a soft robotic muscle prototype with controlled expansion and contraction, utilizing material property analysis as part of a research team.

Magpie Aerospace Engineering Project Intern *January 2024-Present*
Cornell University Aerospace Adversary Lab; Ithaca, New York
-Collaborated on interdisciplinary aerospace and cybersecurity projects funded by the U.S. Department of Defense.
-Utilized SITL, ROS 2, Gazebo, C++, and Python to develop and test obstacle avoidance strategies for an autonomous 6-degree-of-freedom drone.
-Developed an indoor GPS coupled with a Python script to serially communicate with a group-developed drone and allow for accurate indoor remote control with a mapping accuracy of up to 2 cm (JonathanDistler/MarvelmindModularization).
-Co-authored a systems paper on autonomous drone navigation, submitted for journal publication.

Human-Drone Interaction Research Intern *December 2023- June 2024*
Virginia Tech Department of Mechanical Engineering; Blacksburg, Virginia

-Designed a conceptual framework for a mass drone delivery system to address food insecurity in rural communities, incorporating SNAP (Supplemental Nutrition Assistance Program) guidelines to optimize nutrition benefits.
-Co-authored a research paper accepted and presented at the IEEE Region 8 MIPRO Conference (Exploring the Utilization of Drone Technology to Promote Food Security).

Stormwater Maintenance Assistant Manager *August 2019-August 2024*
Storm Water Solutions; Blacksburg, Virginia
-Applied civil and environmental engineering techniques to maintain bioretention ponds and mitigate local flooding as part of the Blacksburg Town Council's Stormwater Initiative.
-Enhanced existing bioretention ponds, ensuring compliance with all town-sanctioned inspections.