Jonathan Distler

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Personal Statement

My name is Jonathan Distler, and I am currently a Junior at Cornell University. My career interests revolve around robotics—especially soft robotics—and robotic modeling, simulation, cybersecurity, and public policy. I have experience in robotics, autonomy, and computer science applications, with skills in a plethora of computer science languages, platforms, and libraries. I am particularly interested in bridging the gap between real-world applications, computer science, and mechanical hardware, with the goal of advancing secure, adaptive robotic systems that positively impact society.

Education

Cornell University – Ithaca, NY ..... May 2027 (Expected)
Bachelor of Science in Mechanical Engineering | GPA: 3.76
Relevant Coursework: Electricity and Magnetism (Honors), Lasers and Photonics, Special Relativity

Awards

- Woods Excellence Award
- Tatum Family Student Career Award
- Engineering International Summer Research Grant Awardee
- Switch the Pitch Hackathon: AI Technical Solution Award Winner

Extracurriculars

- Cornell Brazilian Jiu Jitsu Club
- Virginia Science Olympiad Division C Test Writer (Materials Science)
- Cornell Language Expansion Corner

Experience

Soft Robotics Lab (SRL) Project Intern
Swiss Federal Institute of Technology Zurich (ETH Zurich) – Zurich, Switzerland ..... May 2025 – Aug 2025
- Collaborated in Dr. Robert Katzschman's lab to develop a novel actuation mechanism for a soft robotic fish tail utilizing a Scotch yoke assembly.
- Designed and implemented a motor and IMU control class to track fish orientation using Euler angles, integrating a Dynamixel motor and Adafruit IMU with sensor fusion and data wrapping techniques.
- Implemented computer vision with remote filming to measure tail curvature, comparing results with thrust and motor data to optimize tail design.
- Developed a one-to-one MuJoCo simulation with Nelder-Mead optimization, validating results within 10% of experimental measurements.

Magpie Aerospace Engineering Project Intern
Cornell University Aerospace Adversary Lab – Ithaca, NY ..... Jan 2024 – Present
- Collaborated on interdisciplinary aerospace and cybersecurity projects funded by the U.S. Department of Defense.
- Utilized Linux, 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 with a Python serial communication system to enable accurate indoor drone control with mapping precision up to 2 cm.

• Co-authored a systems paper on autonomous drone navigation, submitted for journal publication (*The MAGPIE: Satellite Autonomy for Uncooperative Environments*).

Cornell Hyperloop Project Team Member
Cornell University Hyperloop Project Team – Ithaca, NY ..... Sept 2024 – Present
• 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.
• Machined aluminum and steel components to enhance structural integrity, informed by Ansys FEA stress-strain analysis.
• Designed a cost-effective ($200) 3D-printed and laser-cut battery pack enclosure using SolidWorks, protecting $2,000+ in electronics while ensuring accessibility and stability.

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

Stormwater Maintenance Personal Assistant
Storm Water Solutions – Blacksburg, VA .....Aug 2019 – Aug 2024
• 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 to ensure full compliance with all town-sanctioned inspections, achieving a 100% compliance rate.

Human-Drone Interaction Research Intern
Virginia Tech Department of Mechanical Engineering - Blacksburg, VA.....Dec 2023 – Jun 2024
• 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*).

Computer Science Genome Data Analysis Intern
Virginia Tech Department of Computer Science - Blacksburg, VA.....May 2022 – Sep 2022
•Created an interactive Python notebook using JSON and API strategies to showcase trends among the 500 fastest benchmarked computers.
• Derived data and trends from pulled data sets, and successfully presented findings to the Virginia Tech Computer Science Genome Project Faculty (CS Genome Project).

Skills

CAD: Solidworks, Fusion 360, AutoCAD 25
General Software: C++, Python, Matlab, Markdown, Java, Javascript, Linux
Data Analysis: Python for Data Analysis, Numpy, Pandas, Data Retrieval, JSON, API
Simulation Systems: ROS (Robot Operating System), MuJoCo, IsaacLab
Computer Vision and AI: CV2, TensorFlow, PyTorch
Interpersonal: Teamwork, Constructive Feedback, Academic Writing, Engaging Presentation Sills
Process: 3D-Printing, Laser Cutting, Machining