ZACHARY CHARLICK

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EDUCATION

University of Michigan *Starting 08/2025*
Ph.D. Pre-Candidate in Robotics, Advisor: Dr. Dmitry Berenson
Incoming PhD student with a planned focus on learning-based control, mobile manipulation, and robot dynamics.

Duke University *08/2021 - 05/2025*
B.S.E. Electrical and Computer Engineering, B.S. in Computer Science - Magna Cum Laude, Highest Distinction
Recipient of the Marie Foote Reel Undergraduate Research Award, recognizing the most outstanding Graduation with Departmental Distinction (GWDD) project and presentation in the Department of Electrical and Computer Engineering.

PUBLICATION

International Conference on Robotics and Automation 2025. ** These authors contributed equally to this work*
Ringel, R.P.*, Charlick, Z.S.*, Liu, J.*, Xia, B., Chen, B. (2024). *Text2Robot: Evolutionary Robot Design from Text Descriptions*. arXiv preprint, arXiv:2406.19963.

EXPERIENCE

Graduate Researcher (Incoming), Autonomous Robotic Manipulation Lab (ARM) *Starting 08/2025*
University of Michigan - Advisor: Dr. Dmitry Berenson
- Will conduct research on learning-based control, mobile manipulation, and robot dynamics.
- Expected to develop novel approaches for robot generalization in unstructured environments, integrating multimodal perception and real-world reinforcement learning.
- Aiming to advance autonomous robot capabilities for human-centric tasks and complex manipulation.

Undergraduate Researcher, General Robotics Lab (GRL) *08/2023 - 05/2025*
Duke University - Advisor: Dr. Boyuan Chen
- Conducted robotics research as a Pratt Research Fellow, specializing in generative design for automated robot creation.
- Developed the Text2Robot pipeline, transforming text prompts into functional robots through generative mesh models, geometric processing, and evolutionary optimization.
- Published first-author work at ICRA 2025, demonstrating novel methods for co-optimizing robot morphologies and control policies from text descriptions.
- Built and tested physical prototypes, integrating advanced manufacturing methods and custom control algorithms.

Summer Research Intern *05/2023 - 08/2023*
Dr. Leslie Collins (Mentor), Research Experiences for Undergraduates, Duke University Applied Machine Learning Lab
- Harnessed machine learning to generate "phoneme cluster" masks, enhancing speech clarity for cochlear implant users.

Teaching Assistant *08/2022 - 05/2025*
Duke University - Electrical & Computer Engineering Department, Mechanical Engineering Department
- Facilitates weekly labs and office hours with a focus on robotics, programming, and circuit design. Courses TA'd include ECE110 (Introduction to Electrical Engineering), ECE250 (Computer Architecture), and ECE590 (Robot Studio). Recognized with two year-long teaching awards for exceptional mentorship and student engagement.

Software Engineering Intern *05/2022 - 08/2022*
Patriot Software, Payroll Software in Canton, OH
- Designed a PostgreSQL database and developed C# API endpoints to optimize a tax calculation workflow, ensuring seamless user experience across different states. Executed comprehensive unit and integration testing to ensure and maintain quality standards.

LEADERSHIP

President, The Pitchforks of Duke University *08/2021 - 05/2025*
Duke University's oldest, award-winning all-male a cappella group.
- Led The Pitchforks in domestic and international performances, including a private concert for the Governor of Puerto Rico at the Congressional Hispanic Caucus and at the U.S. Embassy in Lima, Peru, celebrating 100 years of diplomatic relations.

Vice President, Line Monitors of Duke Men's Basketball *08/2022 - 05/2025*
- Managed ticketing and cultivated student engagement for Duke Men's Basketball. Served as the student liaison with Duke Athletics for game time logistics and emergencies.

HONORS AND ACHIEVEMENTS

Marie Foote Reel Undergraduate Research Award (2025), Pratt Research Fellowship *(2023-2025)*, Innovation Award - ALIFE Virtual Creatures Competition *(2024)*, 1st Place Winner - ECE Independent Study Poster Session, Duke University *(2024)*, Tau Beta Pi Honor Society (2023), Outstanding Undergraduate Teaching Assistant Award, Duke University *(2023 & 2024)*

TECHNICAL SKILLS

ROS 2, Gazebo, Isaac Gym, MoveIt, PyBullet, Python, C++, MATLAB, PyTorch, Reinforcement Learning, Evolutionary Algorithms, Fusion 360, 3D Printing, Arduino, Raspberry Pi, Git, Linux, API Design, Adobe Premiere, Adobe Photoshop