# Roy Xing

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## Education

**Dartmouth College** — Hanover, NH
***Ph.D. Student*** *Computer Science | GPA: Pass (on Pass/Fail System)* — *Sept. 2025 – Present*

**New York University** — New York, NY
***Ph.D. Student*** *Electrical Engineering | GPA: 4.0 (Transferred Out)* — *Sept. 2024 – June 2025*

**Boston University** — Boston, MA
***B.S.*** *Electrical Engineering | GPA: 3.80 | Magna Cum Laude* — *Sept. 2021 – Jan. 2024*

## Research and Industry Experience

**A2R Lab: Dartmouth College** — Hanover, NH
*Research Assistant | PI: Dr. Brian Plancher* — *Sept. 2025 – Present*

- Researching methods in combining and leveraging the strengths of MPC and RL in a unified framework and or layered control architecture.

**A2R Lab: Barnard College, Columbia University** — New York, NY
*Research Assistant | PI: Dr. Brian Plancher* — *June 2025 – Sept. 2025*

- Implemented QP constrained iLQR for robot arm control.
- Research in combining trajectory optimization and actor-critic RL methods.

**BU Robotics Lab** — Boston, MA
*Research Assistant | PI: Dr. John Baillieul, Dr. Roberto Tron* — *Sept. 2021 – Aug. 2024*

- Developed imitation learning RL framework for LQR controllers.
- Conducted optical flow-based navigation experiments on AMRs, culminating in figures in paper publication, "Visual Navigation Using Sparse Optical Flow and Time-to-Transit" (2021).
- Implemented research in sample-based path planning with bearing-only measurements.

**MassRobotics** — Boston, MA
*Robotics Assistant Lab Manager and Developer* — *Oct. 2019 – Aug. 2021*

- Developed pick-and-place demos for the Toyota HSR and various collaborative robots.
- Designed custom grippers and supported startups in hardware/software integration and HRI experiments.
- Managed the robotics lab's various equipment from industrial robot arms, 3D printers, and numerous 3D sensors.

**Thinking Robots Inc.** — Boston, MA
*Robotics Intern* — *Jan. 2021 – Aug. 2021*

- CAD design and electronics prototyping for UV-sanitizing AMR system. Worked on vector control for motors and cascaded PID control for tethering system.
- CAD design for extending Temi robot platform with modular hardware for social robotics.

**Dynamic Robotics Lab** — Corvallis, OR
*Research Assistant | PI: Dr. Jonathan Hurst* — *Sept. 2018 – Aug. 2019*

- Wrote MATLAB simulations for foot impact dynamics that minimize transient forces during heel strike, culiminating in figures and results for journal publication, "Mitigating Peak Impact Forces by Customizing the Passive Foot Dynamics of Legged Robots" (2020), and paper publication, "Eliminating Peak Impact Forces by Customizing the Passive Foot Dynamics of Legged Robots" (2019).
- Helped implement MPC in MATLAB meant for control of a linear inverted pendulum reduced order model for walking.

**Booz Allen Hamilton (Air Force Division)** — Boston, MA
*Systems Operations Intern* — *June 2018 – Sept. 2018*

- Built scheduling system for consulting operations in Python.

**Aptima Inc. Human-Centered Engineering** — Woburn, MA
*Computer Vision and Robotics Intern* — *June 2016 – Sept. 2016*

- Developed OpenCV-based object detection for aerial footage and brain-control interface based robotic control systems in C++.

## Publications & Awards

CoRL: R. Xing, S. Ree, B. Plancher. "MPC-Injection: Biasing Off-Policy Locomotion RL Toward Controller-Induced Behavior Basins" (2026)
Preprint: M. Bahreinian, M. Mitjans, R. Xing, and R. Tron. "Sample-Based Output-Feedback Navigation Bearing Measurements." (2022)

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Lumos Robotics Project Edge Program - Accepted Applicant and Won NIX Humanoid Robot for the A2R Lab (2026)
NSF GRFP: National Science Foundation Graduate Research Fellowship (2025)
Boston University Dean's List (2021-2024)
Oregon State University Dean's List (2018-2019)
Oregon State University Presidential Scholarship (2018)
AFCEA (Armed Forces Communications and Electronics Association) Fellowship Award (2018)
Letter of Commendation by Commonwealth of MA Speaker of the House for Achievement in STEM
Official Citation by MA State Senate for STEM excellence for winning the RWDC State Championship and National Challenge Merit Award

## Technical Skills

**Programming:** C++, Python, MATLAB, LaTeX, ROS, PyTorch, OpenCV, Git, Linux
**Hardware:** EagleCAD, SolidWorks, OnShape, 3D Printing, Microcontrollers
**Robotics:** Reinforcement Learning, Model Predictive Control, Trajectory Optimization, MuJoCo, Gazebo

## Selected Projects

**ODRI Bipedal Robot** 2023 – 2024

*Personal Project*

- Recreated the ODRI open-source bipedal robot.

**Wheeled Biped** 2022

*Personal Project*

- Built a hybrid leg-wheeled robot with Teensy microcontroller and Raspberry Pi control stack.
- Implemented cascaded PID and LQR for leg and balance control.

## Outreach & Volunteering

RoboBoston: STEM Day. Career Fair, Robot Block Party Volunteer (2022 - Present)
Robotics Summit & Expo Volunteer (2018 - Present)
IEEE International Symposium on Multi-Robot & Multi-Agent Systems 2023 Volunteer
MassRobotics Jumpstart Fellowship Program (2021 - 2022) Teacher & Volunteer

## Academic Service

IEEE RAS TC on Optimization for Robotics Student Chair (2026-2027)
Reviewer for ICRA, IROS, CoRL, RA-L, Humanoids