Roy Xing
Roboticist

781-960-3202 | roy@massrobotics.org | github.com/RX-00 | https://rx-00.github.io/ | linkedin.com/in/roy-xing

SKILLS

Programming	C++, C, Python, MATLAB, valgrind, gdb, emacs, Linux, git
Electronics | CAD	Micro Controllers, EagleCAD, LiDAR, SolidWorks, OnShape, Soldering
Robotics	ROS, OpenCV, Control Theory [MPC LQR PID], SLAM, Inverse Kinematics (IK), Drake, Reduced Order Models [SLIP, ASLIP, etc.]

EXPERIENCE

Present – Jan 2021 | Thinking Robots | Roboticist
- Worked on manufacturing and developing novel open source tethered mobile robotics base for UV solutions during the COVID-19 pandemic.
- Created extension for social robotics' chassis, enabling future add-ons and support modules.

OnShape | AMR's | C++ | OnShape CAD | 3D printing | Robot Assembly

Present – Oct 2019 | MassRobotics | Robotics Assistant Lab Manager and Robotics Technician
- Programmed AMRs for live demos and simulations.
- Setup, programmed, and maintained various robot arms.
- Managed, built, and designed 3D printers, and robot grippers.
- Wrote libraries for actuators, end-effectors, and sensors for low level processes and ROS compatibility.
  - **Robotics Contractor for Cleo :** Wrote ROS framework for IR thermal cameras (for 3D mapping).

Toyota HSR | UR Arms | ROS | grippers | LiDAR | 3D Printers | IR cameras | SLAM | Embedded Systems

Sept 2018 – Aug 2019 | Dynamic Robotics Laboratory (PI : Dr. Jonathan W. Hurst) | Research Assistant
- Conducted research on the physical principles of legged locomotion through dynamic analysis and biomechanics research. Worked with and aided in maintaining a CassieV2 from Agility Robotics (lab spin-off).
- Implemented MPC (Model Predictive Control) in MATLAB and Python meant for walking LIP (linear inverted pendulum) as seen in the MIT Cheetah 2 for autonomous mobility.
- Aided in outdoor experiments of the Cassie robot's reinforcement learning walking controllers.

Cassie Robot | Control Theory | MPC | EGB | Bipedal Reduced Order Models | SLIP | LIP | MATLAB | Python

Sept 2018 – June 2018 | Booz Allen Hamilton (Defense Consulting Firm) | Air Force Division Systems Operations Intern
- Wrote code on projects such as organizational operation programs and performed code reviews of various languages (Python, C++, C, VBA) for a broad range of contracts and subsystems.

Python | C++ | C | VBA

Sept 2016 – June 2016 | Aptima (Military Defense Contractor) | Computer Vision and Robotics Intern
- Wrote programs for solving advanced computer vision problems based on aerial drone video datasets with OpenCV in C++.
- Created ROS (Robot Operating System) projects for brain controlled robotics in Python.

C++ | OpenCV | ROS | Python | drones | Kinova Arm

EDUCATION

2018 Oregon State University [Honors College] [GPA : 3.97/4.00] [BS : Electrical and Computer Engineering with a focus in Robotics (Minor in CS and Maths)]

2021 Northeastern University [BS : Electrical and Computer Engineering]

2021 Boston University [GPA : 4.00/4.00] [BS : Electrical Engineering]

HONORS AWARDS PUBLICATIONS

>Paper acknowledgements, "Eliminating Peak Impact Forces by Customizing the Passive Foot Dynamics of Legged Robots"
>Journal acknowledgements, "Mitigating Peak Impact Forces by Customizing the Passive Foot Dynamics of Legged Robots"
>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

Projects

Wheeled Biped : Biped robot on wheels like Boston Dynamics' Handle C++ C Python Control Theory LQR Cascaded PID IK

Mini Quadruped : Created and programmed a mini dynamic quadruped C++ Python Control Theory MATLAB 3D printing

Furuta Pendulum : Furuta Pendulum w/ Moteus Controller, simulated and controlled with Drake C++ Python Control Theory OnShape Drake BLDC

Fetch | Turtlebot3 : AMRs I made to navigate and fetch user designated objects Turtlebot3 CAD OpenCV ROS SLAM