

ROY XING

Robotician

github.com/RX-00 [781-960-3202](tel:781-960-3202) [@ roy@massrobotics.org](mailto:roy@massrobotics.org) [in linkedin.com/in/roy-x-b91901134](https://www.linkedin.com/in/roy-x-b91901134)

SKILLS

Programming C++, C, Python, MATLAB, Arduino, valgrind, gdb, emacs, Linux, git
Electronics | CAD Embedded Systems, EagleCAD, LiDAR, FreeCAD, TinkerCAD, Soldering
Robotics ROS, OpenCV, Control Theory [MPC LQR Cascaded PID], Nonlinear Dynamics, SLAM, Linear Algebra, Inverse Kinematics (IK), Reduced Order Locomotion Models [LIP, SLIP, ASLIP, etc.]

EXPERIENCE

- Present**
Oct 2019 **MassRobotics | Robotics Assistant Lab Manager and Robotics Technician**
- > Programmed numerous AMRs (Autonomous Mobile Robot) for live demos and simulations.
 - > Setup, programmed, and maintained various robot arms.
 - > Managed, built, and designed 3D printers, robot grippers, and quadrupedal robots.
 - > 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), worked with flight controllers and software for ModalAI VOXL for use on an innovative single duct drone.
- [Toyota HSR](#) [UR5](#) [UR10](#) [Mitsubishi Arms](#) [quadrupeds](#) [ROS](#) [grippers](#) [LiDAR](#) [Intel RealSense](#)
[Carbon Fiber 3D Printers](#) [IR thermal cameras](#) [SLAM](#) [ModalAI VOXL \(embedded systems\)](#) [drones](#)
- 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 bio-mechanics research. Worked with and aided in maintaining a CassieV2 from Agility Robotics (lab spin-off).
 - > Programmed simulations on reduced order models of theories of legged locomotion, such as the SLIP model and implemented controllers in MATLAB.
 - > 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 (Military Defense Contractor and Consulting Group) | 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.
 - > Worked on projects under the Air Force Division team.
- [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](#)

SCHOOL

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)]

HONORS AWARDS PUBLICATIONS

- > 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 In recognition of winning the RWDC State Championship and National Challenge Merit Award
- > Official Citation by Commonwealth of MA State Senate for excellence in STEM In recognition of winning the RWDC State Championship and National Challenge Merit Award
- > 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"

PROJETS

WHEELED BIPED : Biped robot on wheels like Boston Dynamics' Handle [C++](#) [C](#) [Python](#) [Control Theory](#) [LQR](#) [Cascaded PID](#) [IK](#)
DIGIT HUMANOID : Implementation of cutting-edge research on Agility Robotics' Digit robot in sim. [Digit](#) [Control Theory](#) [MATLAB](#)
FETCH | TURTLEBOT3 : AMRs I made to navigate and fetch user designated objects [Turtlebot3](#) [CAD](#) [OpenCV](#) [ROS](#) [SLAM](#)