Max Merlin

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BIO

As a PhD candidate in computer science coming from robotics engineering, I have a strong focus on the application of task planning, abstraction, and reinforcement learning. My research involves solving real-world robotics tasks through the effective use of abstractions. I have a passion for teamwork and thrive in environments that foster open discussion and collaboration.

EDUCATION

BROWN UNIVERSITY
Current PhD Candidate
Aug 2020 - Present | Providence, RI

WPI
Worcester Polytechnic Institute
MS in Robotics Engineering
May 2018 | Worcester, MA
Cum. GPA: 3.5
BS in Robotics Engineering
May 2016 | Worcester, MA
Cum. GPA: 3.24

RELEVANT COURSES

Reintegrating AI
Practical Introduction to Advanced 3d
        Robot Perception
Learning and Seq Decision Making
Lang Processing in Humans and Machines
Artificial Intelligence
Motion Planning
Parallel and Walking Mechanisms
Smart Materials
Systems Engineering
Computer Vision
Industrial Robotics
Robot Navigation
Robot Manipulation
Robot Sensing
Robot Actuation

SKILLS

Python • Java • Solidworks • Matlab
ROS • Git • Linux • LaTeX
Solidworks Certified Associate
    in Mechanical Design

RESEARCH

LOCALLY OBSERVABLE MARKOV DECISION PROCESSES
ICRA 2020 workshop publication
Max Merlin, Neev Parikh, Eric Rosen, George Konidaris
- I created and developed new form of Partially Observable MDP specifically geared towards reducing computational overhead for effective robotic task planning.
- Full conference paper with Spot robot demo in submission

INFORMATION SEEKING MACRO-ACTIONS FOR POMDPS
2022 Class Project - Publication in Preparation
Max Merlin, Thomas Ottaway, Vadim Kudlay, George Konidaris
- I created and developed a novel framework for information seeking skills to reduce observational uncertainty in a POMDP setting. Successfully implemented on a Spot robot for basic object find/retrieval task.

SYMBOLIC REPRESENTATION OF PARAMETERIZED ACTIONS FOR HIGH-LEVEL TASK PLANNING 2020
Heramb Nemlekar*, Max Merlin*, Zhaoyuan Ma, Zhi Li
*Co-Author
- Implemented an algorithm which allows robots to learn a high level symbolic representation of its actions and generate an action plan to perform a given task. Extended previous work by spatially partitioning symbols using parameterized motion skills.

WORK EXPERIENCES

BROWN UNIVERSITY | Research Assistant
Feb 2019 – Aug 2020 | Providence, RI
- Worked with George Konidaris prior to becoming a PhD student, developed my research focus exploring connections between reinforcement learning and classical planning and how to integrate other robotics subfields.

SAINT-GOBAIN | Robotics Engineering Intern
June – Sept 2017 | Northboro, MA
- Worked on developing automation of processes for business units and experimenting with new robotic technologies.

ACT ROBOTICS | CAD/Engineering Intern
June-August 2015, May-June 2016 | Bristol, CT
- Designed and improved parts for custom robotic toolheads with an emphasis on managing manufacturing costs and practicality.

RELEVANT ROBOTICS PROJECTS

Turtlebot Exploration   Robot Navigation
- Project for Robot Navigation class. Using Linux, developed path planning and searching algorithms for a robot, incorporating a variety of sensors, to allow the robot to autonomously map out an unknown area.

Robotic Smart Hand   Major Qualifying Project
- Designed improvements for prosthetic robotic hand, using a camera to sense what the hand was reaching for. Focus on precision and control through use of sensors.