Max Merlin

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Summary

As a PhD candidate in computer science coming from robotics engineering, my research focuses 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

2020 - Present	PhD (Computer Science) at **Brown University**
2020 - 2023	Master's Degree (Computer Science) at **Brown University**
2016 - 2018	Masters's Degree (Robotics Engineering) at **Worcester Polytechnic Institute**
2012 - 2016	Bachelor's Degree (Robotics Engineering) at **Worcester Polytechnic Institute**

Publications

Conference Papers

Least Commitment Planning for the Object Scouting Problem
Max Merlin, Ziyi Yang, George Konidaris, David Paulius
`2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)`

Robot Task Planning under Local Observability
Max Merlin, Shane Parr, Sergio Orozco, Vedant Gupta, Eric Rosen, George Konidaris
`2024 IEEE International Conference on Robotics and Automation (ICRA)`

Synthesizing Navigation Abstractions for Planning with Portable Manipulation Skills
Eric Rosen, Steven James, Sergio Orozco, Vedant Gupta, *Max Merlin*, Stefanie Tellex, George Konidaris
`2023 Conference on Robot Learning (CoRL)`

Workshop Papers

Least Commitment Planning for the Object Scouting Problem-Preliminary Results
Max Merlin, David Paulius, George Konidaris
`2024 2nd CoRL Workshop on Learning Effective Abstractions for Planning (LEAP)`

Locally Observable Markov Decision Processes
Max Merlin, Neev Parikh, Eric Rosen, George Konidaris
`ICRA 2020 Workshop on Perception, Action, Learning`

Preprints

Information Seeking Macro Actions
Max Merlin, George Konidaris, David Paulius
`2025 In Preparation`

Effective Task Planning with Missing Objects using Learning-Informed Object Search
Raihan Arnob, *Max Merlin*, Abhishek Paudel, Benned Heedegard, George Konidaris, Gregory J Stein
`2025 In Preparation`

Symbolic Representation of Parameterized Actions for High-Level Task Planning
Heramb Nemlekar*, *Max Merlin**, Zhaoyuan Ma, Zhi Li
`2020 ARXIV`

Frankenhand: An Intelligent Prosthetic
Kathleen Mary Sullivan*, *Max Merlin**
`2016 Senior Year Capstone`

*Equal Contribution

Work Experience

Brown University — Robotics Lab Safety Officer Sept 2024 - Present

During PhD, helped manage the shared lab space by providing training for users new to a given robotic systems, and ensuring that robot experiments were performed safely and responsibly.

Robotics and AI (RAI) Institute — Research Scientist Internship Sept 2023 - May 2024

As part of the "Watch Understand Do" team led by Jenny Barry, developed tools to extract abstract representations of object interactions from human demonstration video clips.

Brown University — Research Assistant Feb 2019 – Aug 2020

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, working with Prof George Konidaris.

Saint-Gobain — Robotics Engineering Intern June – Sept 2017

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

Designed and improved parts for custom robotic toolheads with an emphasis on managing manufacturing costs and practicality.

Skills

Skills	Python, Java, Solidworks, Matlab, ROS, Git, LaTeX
Topics of Expertise	Reinforcement Learning, Computer Vision (Object Detection, Segmentation, Optical Flow), SLAM, Classical Planning, PDDL
Robots	Boston Dynamics Spot, Universal Robots UR5, PR2, Baxter, Turtlebot, Frankenhand
Certificates	Solidworks Certified Associate in Mechanical Design