MAX B. RUDOLPH

mrudolph@cs.utexas.edu ◇ http://maxrudolph1.github.io/

EDUCATION

University of Texas at Austin   August 2022 - Present
Ph.D. in Computer Science
Research interests: RL, Representation Learning for Decision Making, Large-scale Robot Learning
Advised by *Amy Zhang*

Georgia Institute of Technology,   August 2016 - December 2021
B.S. (Summa Cum Laude) in Electrical Engineering, Minor in Robotics
M.S. in Electrical and Computer Engineering
Advised by *Harish Ravichandar* and *Sonia Chernova*

INDUSTRY EXPERIENCE

Amazon, New York, NY   May 2024 – Present
Applied Scientist Intern. Working on exploration for reinforcement learning in offline-to-online settings applied to optimizing supply chain processes.

AdQuire, New York, NY   August 2023 – May 2024
Machine Learning Consultant. Modernized advertisement selection pipeline with the introduction of state-of-the-art online learning and optimization algorithms.

Jet Propulsion Laboratory, Pasadena, CA   Summer 2019, Summer 2020
Autonomous Systems Intern. Built and verified control systems for the Psyche 16 Spacecraft (launched).
Mars2020 Testbed Intern. Validated and verified flight software for Mars2020 Rover (landed on Mars).

National Security Agency, Forte Meade, MD   May 2018 – August 2018
Intern in Science and Tech. Held Top Secret Security Clearance with SCI/TK.

SELECTED PUBLICATIONS

Learning Action-based Representations Using Invariance
***Max Rudolph**, *Caleb Chuck*, Kevin Black*, Misha Lvovsky, Scott Niekum, Amy Zhang*
Reinforcement Learning Conference (RLC), 2024

RL Zero: Zero-Shot Language to Behaviors without any Supervision
Harshit Sikchi*, Siddhant Agarwal*, Pranaya Jajoo*, Samyak Parajuli*, Caleb Chuck*, ***Max Rudolph**,
Peter Stone, Amy Zhang, Scott Niekum
In submission, 2024

Robot Air Hockey: A Manipulation Testbed for Robot Learning with Reinforcement Learning
Caleb Chuck*, Carl Qi*, Michael J Munje*, Shuozhe Li*, ***Max Rudolph**, *Chang Shi*, Siddhant Agarwal*,
Harshit Sikchi*, Abhinav Peri, Sarthak Dayal, Evan Kuo, Kavan Mehta, Anthony Wang, Peter Stone, Amy
Zhang, Scott Niekum*
In submission, 2024

Generalization of Heterogeneous Multi-Robot Policies via Awareness and Communication of Capabilities
***Max Rudolph**, *Pierce Howell*, Reza Torbati, Kevin Fu, Harish Ravichandar*
Conference on Robot Learning (CoRL), 2023

Rethinking Sim2Real: Lower Fidelity Simulation Leads to Higher Sim2Real Transfer in Navigation
*Joanne Truong, **Max Rudolph**, Naoki Yokoyama, Sonia Chernova, Dhruv Batra, Akshara Rai*
Conference on Robot Learning (CoRL), 2022

Desperate Times Call for Desperate Measures: Towards Risk-Adaptive Task Allocation
***Max Rudolph**, Sonia Chernova, Harish Ravichandar*
IEEE International Conference on Intelligent Robots and Systems (IROS), 2021

Heterogeneous Multi-agent Coverage Control for Range Limited Robots
***Max Rudolph**, Sean Wilson, Magnus Egerstedt*
IEEE International Conference on Robotics and Automation (ICRA), 2021

RESEARCH EXPERIENCE

Machine Intelligence through Decision Making and Interaction (MIDI) Lab   2022 - Present
UT Austin *Advisor: Prof. Amy Zhang*
Working on generalizable methods for training reinforcement learning agents.

Robot Autonomy and Interactive Learning (RAIL) Lab   2020 - 2022
Georgia Tech *Advisors: Profs. Harish Ravichandar and Sonia Chernova*
Researched structured multi-agent learning algorithms for heterogeneous multi-agent teams and studied inefficiencies in sim2real methods.

Robotics and Intelligent Systems Lab   2018 - 2020
Georgia Tech *Advisor: Prof. Magnus Egerstedt*
Designed novel algorithms for performing coverage control using a heterogeneous multi-robot team.

Georgia Tech Systems Research Lab   2017 - 2018
Georgia Tech *Advisor: Prof. Fumin Zhang*

AWARDS AND HONORS

Qualcomm Innovation Finalist, *Qualcomm*	2024
NSF NRT Ethical AI Fellowship, *UT Austin*	2022-2024
Dean's Prestigous Graduate Fellowship, *UT Austin*	2023
Best Poster, *Texas Robotics Symposium*	2022
Georgia Tech Stand-up Comedy Contest Winner, *Georgia Tech Comedy Show*	2018
Idea2Prototype Award, *Georgia Tech, Create-X*	2018
Summer Undergraduate Research Fellowship *Jet Propulsion Labrotory, Caltech*	2019,2020
Faculty Honors *Georgia Tech*	2016-2020
Dean's List *Georgia Tech*	2016-2020

LEADERSHIP AND SERVICE

Workshop Organizing: Organized the *Addressing Ethical AI with Diverse Teams and Perspectives* workshop at Trustworthy Autonomous Systems 2024
Reviewing: ICLR (2024, 2025), ICML (2023, 2024), NeuRIPS (2023), AAAI (2025), IROS (2023, 2024), ICRA (2022, 2023, 2024)
Mentorship: Directed Research Program (UT Austin), Freshman Research Initiative (UT Austin)
Volunteer: FIRST Robotics Competition Judge (2022, 2023, 2024)

Undergrad
IEEE Robotics Club, Controls Team Lead   2017-2020

The Makery @ Georgia Tech, President   2018-2019
Yellow Jacket Fencing Club, Captain   2018, 2021
Yellow Jacket Space Program, Software Lead   2019

TEACHING EXPERIENCE

ECE 394: Data Science UT Austin   2024
ECE 3084: Signals and Systems Georgia Tech   2020-2021
PHYS 2211: Intro to Physics Georgia Tech   2017-2020

SKILLS

Languages: Python, Matlab, C++ , Java

Software: PyTorch, NumPy, ROS, Tensorflow, git, LaTeX, Microsoft Office, Robotarium, AutoDesk Inventor, OnShape

RELEVANT COURSEWORK

Statistical ML	Mathematical Foundations of ML	Applications of DSP
Linear Systems and Control	Networked Control	Deep Learning
Digital Image Processing	Machine Learning	Modern System Theory
Signals and Systems	Dynamics of Rigid Bodies	Advanced DSP