MAX B. RUDOLPH

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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 – February 2025
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
Science and Technology Intern. Held Top Secret Security Clearance with SCI/TK.

SELECTED PUBLICATIONS

Exploration for the Efficient Deployment of Reinforcement Learning Agents
Max Rudolph*, *Siddhant Agarwal**, *Omer Gottesman, Amy Zhang, Akhil Bagaria, Sohrab Andaz, Udaya Ghai, Carson Eisenach*
RLC 2025 Workshop RL for Real Systems, **Panelist**

Reevaluating Policy Gradient Methods for Imperfect-Information Games
Max Rudolph*, *Nathan Lichtlé**, *Sobhan Mohammadpour**, *Alexandre Bayen, J. Zico Kolter, Amy Zhang, Gabriele Farina, Eugene Vinitsky, Samuel Sokota*
RLC 2025 Workshop CoCoMARL, **Oral**

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*
ICLR 2025 Robot Learning Workshop: Towards Robots with Human-Level Abilities, **Best Presentation**

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*
ArXiv, 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

LEADERSHIP AND SERVICE

Workshop Organizing: Organized the *Addressing Ethical AI with Diverse Teams and Perspectives* workshop at Trustworthy Autonomous Systems 2024
Reviewing: ICLR, ICML, NeurIPS, AAAI, IROS, ICRA, CoRL
Mentorship: Directed Research Program (UT Austin), Freshman Research Initiative (UT Austin)
Volunteer: Graduate Representation Association for Computer Science (Special Events 2022-2023, President 2024-), 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

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* 2023-2024
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

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