Thomas Wei

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Education & Skills

Carnegie Mellon University Fall 2021 – Summer 2023
M.S. in Robotics | Biorobotics Lab | Advised by Professor Howie Choset
Cumulative GPA: 4.00/4.33

The University of Texas at Austin Fall 2017 – Spring 2021
B.S. in Electrical and Computer Engineering | B.S. in Mathematics
Cumulative GPA: 3.94/4.00

Graduate-Level Coursework: Probability and Stochastic Processes, Machine Learning, Convex Optimization, Computer Vision, Visual Learning and Recognition (In Progress), Advanced Machine Learning (In Progress)
Misc. Coursework: Topology I, Japanese Popular Culture, Quantum Mechanics I, Jazz Appreciation, Real Analysis I

Skills: Python, PyTorch, NumPy, Docker, bash, OpenAI Gym, NVIDIA Isaac Gym, scikit-learn, pandas, C, Javascript, ROS

Current Projects

Model-Based Reinforcement Learning Research Fall 2021 – Present
- Utilizing concepts from control theory to help address open problems in model-based reinforcement learning
- Implemented goal conditioned variant of the SOTA offline RL algorithm Iterative Q-Learning to use as a subroutine
- Applied variational inference in variational autoencoder implementation and more complex probabilistic graphical models
- Designing and executing experiments in MuJoCo/OpenAI Gym/d4rl continuous control tasks within Docker containers

Stair Climbing Robotics, Design Space Simulation Search Spring 2022 – Present
- Utilizing NVIDIA Isaac Gym for rapid on-policy reinforcement learning of stair-climbing policies on varied robot designs
- Measuring effects of different robot parameters and topologies on stair-climbing ability in order to inform robot design

Work Experience

Professor Andrea Thomaz's Socially Intelligent Machines Lab – Research Assistant Spring 2019 – Spring 2021
- Designed Deep Policy Shaping, an extension of the interactive RL algorithm Policy Shaping to continuous state spaces
- Derived modified loss function from a latent variable model of label flip noise for training of feedback neural network
- Implemented Deep Policy Shaping using PyTorch with modified loss function and ensembling with shared base

Professor Milos Gligoric's Research Group – Research Assistant Summer 2018 – Spring 2019
- Built novel interactive time-travel regression debugger for Java with video-like GUI using Java and C
- Delivered presentation and demonstration at International Conference of Software Engineering 2019 in Montreal

UT ECE Algorithms (EE 360C) Teaching Assistant – Teaching Assistant Spring 2019
- Creating and grading written homework assignments, quizzes, and exams to support Professor Christine Julien
- Designing and evaluating programming assignments in Java that allow students to implement algorithms in code

Conference Publications, Workshops, & Abstracts

Extending Policy Shaping to Continuous State Spaces (Student Abstract) – First Author
35th AAAI Conference on Artificial Intelligence 2021

TASC: Teammate Algorithm for Shared Cooperation – Third Author
IEEE/RSJ International Conference on Intelligent Robots and Systems 2020

Vedebug: Regression Debugging Tool for Java – Second Author, Equal Contribution
International Conference of Software Engineering 2019, Tool Demonstrations Track

Extracurricular Activities

Pittsburgh Westinghouse High School APCSP, Microsoft TEALS – Volunteer TA Fall 2021 – Present
CMU Men's Club Volleyball Team – OH, S, M Fall 2021 – Present
UT Men's Club Volleyball Team – DS, OH Fall 2018