Zhiyuan "Paul" Zhou

PERSONAL INFORMATION

Email	zhouzy@brown.edu
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Scholar	Zhiyuan Zhou

EDUCATION

Brown University 2019-Expected 2023
Sc.B in Applied Mathematics and Computer Science

- GPA: 4.0 / 4.0
- Selected CS Coursework: Collaborative Robotics, Deep Learning, Machine Learning, Computer Vision, Multiprocessor Synchronization
- Selected Math Coursework: Recent Applications of Computational Probability and Statistics, Pattern Theory, Statistics in Quantum Mechanics, Applied PDE/ODE

PUBLICATIONS

Characterizing the Action Generalization Gap in Deep Q-Learning 2022
Z. Zhou, C. Allen, K. Asadi, G. Konidaris
5th Multidisciplinary Conference on Reinforcement Learning and Decision Making

Designing Rewards for Fast Learning 2022
H. Sowerby, **Z. Zhou**, M. Littman
5th Multidisciplinary Conference on Reinforcement Learning and Decision Making

Improving Post-Processing on Video Object Recognition Using Initial Measurement Unit 2022
Z. Zhou, S. Boyum, M. Paradiso
Brown Undergraduate Research Journal, Spring 2022 Edition

ACADEMIC EXPERIENCE

RLAB, Brown University 2021-Present
Undergraduate Research Assistant

- Worked with professor Michael Littman; first author conference paper in submission.
- Researched various topics in theoretical Reinforcement Learning, particularly focusing on the reward design problem and discounting in Markov Decision Processes.

Intelligent Robots Lab, Brown University 2020-Present
Undergraduate Research Assistant

- Worked with professor George Konidaris and various Ph.D. students under Brown's BigAI initiative.

- Researched various topics in Reinforcement Learning (RL): generalization and transfer RL; Hierarchical RL and Skill Chaining; distributed RL; action generalization.

Humans to Robots Lab, Brown University 2020
Undergraduate Research Assistant

- Worked with professor Stafanie Tellex during her graduate course.
- Researched instructing robot navigation using a combination of Natural Language and human gestures.

Paradiso Lab, Brown University 2020
Undergraduate Research Assistant

- Worked with professor Michael Paradiso in the Department of Neuroscience funded by the Brown Undergraduate Teaching and Research Award (UTRA)
- Helped build a visual prosthetic device and researched Computer Vision topics in object detection and recognition.

INDUSTRY EXPERIENCE

Zencastr, Inc. July 2021 - Aug 2021
Machine Learning Engineer Intern

- Sped up automatic speech recognition 5x using WeNet architecture in C++ together with Speech Activity Detection with kaldi; model is pushed to production
- Created a search system of audio files using Keyword Spotting with language and acoustic models from Kaldi and vosk-api, and sped up the process 2x using multithreaded offline-decoding

Zencastr, Inc. Dec 2020 - Jan 2021
Machine Learning Engineer Intern

- built a CNN in Keras that classifies audio files into speech, music, laughter, or noise with 93% accuracy; trained using audio data crawled from YouTube using youtube-dl and augmented by adding noise, changing pitch, and stretching time
- aligned audio-to-text transcriptions from DeepSpeech and Webspeech API using dynamic time warping and grapheme confusion

TEACHING

Head Teaching Assistant Spring 2022
CS1420 Machine Learning, Brown CS

- Managed a team of 20 teaching assistants and organized the course logistics for 200 students.
- Built auto-grading pipeline for 12 coding assignments on Gradescope that enabled students to see code correctness shortly after handin.
- Answered questions through weekly TA hours and online discussion board.

HONORS AND AWARDS

Brown Undergraduate Teaching & Research Award	2021
Hack @ Brown Most Contrarian Hack & Wolfram Award	2021
Brown Undergraduate Teaching & Research Award	2019
227th (top 5%) in Putnam, top 3 at Brown	2019
2nd Place in Hartshorn-Hypatia Math Contest	2019
Yongren Full Fellowship at PROMYS	2018
Provincial Top 1% in Chinese Physics Olympiad	2018
Regional Top 10 & International Top 100 in Physics Bowl	2018
Top 5% in AMC12	2018
Finalist in High School Mathematical Contest in Modeling	2017

INVITED TALKS

Designing Rewards for Fast Learning
The 5th Conference on Reinforcement Learning and Decision Making June 2022

Pareto Optimal Reward Functions
Robotics Lab, Brown CS July 2022