Zhiyuan "Paul" Zhou

PERSONAL INFORMATION

Email	✉	zhiyuan_zhou@berkeley.edu
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Github	⍥	zhouzypaul
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Google Scholar	📖	Zhiyuan Zhou

EDUCATION

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

- GPA: 4.0 / 4.0; magna cum laude; CS Honors; Sigma Xi.
- Selected CS Coursework: Advanced Deep Learning, Machine Learning, Computer Vision, Collaborative Robotics, Multiprocessor Synchronization, Computer Systems.
- Selected Math Coursework: Computational Probability and Statistics, Pattern Theory, Statistics in Quantum Mechanics, Applied PDE & ODE, Honors Linear Algebra & Calculus.

UC Berkeley 2023 − Expected 2029
Ph.D. in Computer Science

- College of Engineering Fellowship

PUBLICATIONS

Specifying Behavior Preference with Tiered Reward Functions 📄 2023
Zhiyuan Zhou, Henry Sowerby, Michael L Littman
ICML workshop (The Many Facets of Preference-based Learning) 2023

Characterizing the Action-Generalization Gap in Deep Q-Learning 📄 2022
Zhiyuan Zhou, Cameron Allen, Kavosh Asadi, George Konidaris
Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)

Designing Rewards for Fast Learning 📄 2022
Henry Sowerby, **Zhiyuan Zhou**, Michael L Littman
Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM)
[Selected for **oral**]

Improving Post-Processing on Video Object Recognition Using Inertial Measurement Unit 📄 2022
Zhiyuan Zhou, Spencer Boyum, Michael Paradiso
Brown Undergraduate Research Journal, Spring 2022 Edition

ACADEMIC EXPERIENCE

Intelligent Robot Lab, Brown University
Undergraduate Research Assistant
2020-2023

- Worked with professor George Konidaris and various Ph.D. students; one first-author paper accepted at RLDM and contributed to multiple ongoing papers.

- Researched various topics in deep Reinforcement Learning (RL): generalization and lifelong learning; hierarchical RL through skill chaining; distributed hierarchical RL; action generalization in Deep RL.

RLAB, Brown University
Undergraduate Research Assistant
2021-2023

- Worked with professor Michael Littman; one paper accepted at RLDM with oral and one at ICML workshop.

- Researched various topics in reinforcement learning, and focused on the reward design for fast learning and behavior specification problem with formal guarantees.

Paradiso Lab, Brown University
Undergraduate Research Assistant
2020

- Worked with professor Michael Paradiso funded by the Brown Undergraduate Teaching and Research Award (UTRA); one first-author paper published in school research journal.

- Helped build a visual prosthetic device and researched topics in video object recognition.

Department of Applied Math, Brown University
APMA Peer Advisor
2022 - Present

- Advised underclassmen on course selection and career planning and built meaningful advising relationships.

INDUSTRY EXPERIENCE

Zencastr, Inc.
Natural Language Processing Engineer Intern
July 2021 - Aug 2021

- Engineered and deployed a web app with websockets and FastAPI that allows users to edit (faulty) audio-to-text automatic transcriptions and provides a faster editing experience by intelligently recommending potentially incorrect segments: the recommendations are made by finding similar occurrences of user-made edits throughout the audio file with Keyword Spotting using language and acoustic models from Kaldi and Vosk-api.

- Sped up Keyword Spotting $2\times$ using multithreaded offline-decoding in Python and Shell; sped up automatic speech recognition $5\times$ using WeNet architecture (written in C++) and Speech Activity Detection models from Kaldi; model is pushed to production.

- Implemented a thread-safe MongoDB store with *asyncio* and *motor* to store user-made edits in the backend.

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

- 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 similarity.
- Built a Python library of machine learning utility scripts hosted privately on GitHub with Continuous Integration

TEACHING

Head Teaching Assistant   Spring 2022
CS1420 Machine Learning, Brown CS
- Managed a team of 20 teaching assistants and organized course logistics for 200 students.
- Built auto-grading pipelines 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 platform Edstem.

HONORS AND AWARDS

Berkeley College of Engineering Fellowship	2023
Sigma Xi Scientific Honors Society	2023
Brown University magna cum laude	2023
Brown CS Honors	2023
Brown CS Senior Prize	2023
UCSD ECE Fellowship (declined)	2023
Hack @ Brown Nelson Center for Entrepreneurship Award	2023
3rd place in SELEF literary competition, STEM category	2022
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 Math Competition, 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

Pareto Optimal Reward Functions
Robotics Lab, Brown CS   July 2022