

ZHIYUAN "PAUL" ZHOU

researcher & developer

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🌐 zhouzypaul

in <https://www.linkedin.com/in/zhiyuan-paul-zhou/>

🔗 <https://zhouzypaul.github.io>

EDUCATION

Brown University

2019 – 2023

Sc.B. in Applied Mathematics and Computer Science

GPA: 4.0/4.0, magnum cum laude, CS Honors

Courses: Advanced Deep Learning (grad level) · Machine Learning · Collaborative Robotics (grad level)

Software Engineering · Intro to Computer Systems · Statistical Inference · Honors Linear Algebra & Calculus

Awards: National top 5% (227th) in Putnam (top 2 at Brown) · Brown UTRA research scholarship · Finalist in HiMCM top 1% in CPhO · Physics Bowl international top 100 · Top 5% in AMC12 · PROMYS Yongren Scholarship

University of California, Berkeley

2023 – Expected 2029

Ph.D. in Computer Science

GPA: N/A

Awards: College of Engineering Scholarship


CS RESEARCH

Research Assistant  Code  Code  Code

📅 Dec 2020 - Aug 2023

Brown University

📍 Providence, RI

- Published two papers at RLDM and one workshop paper at ICML 2023, advised by Prof. George Konidaris and Michael Littman. (Please refer to my CV  for a full publication list.)
- Studied **transfer learning** in RL using the attention mechanism, and successfully transferred knowledge from one task to another.
- Proposed an algorithm for generating **reward functions** using linear programs for fast learning; devised a tiered reward structure that expresses preferable behavior in RL and induced fast learning.

WORK EXPERIENCE

Head Teaching Assistant

📅 Jan 2022 - May 2022

Machine Learning @ Brown University

📍 Providence, RI

- Built auto-grading pipeline for 12 coding assignments on Gradescope and enabled students to see code correctness shortly after handing in.
- Organized the course logistics and handled communication between the professor, 20 teaching assistants, and 180 students.

Machine Learning Engineer Intern

📅 Dec 2020 - Jan 2021 & July 2021 - Aug 2021

Zencastr, Inc.

📍 online

- Engineered and **deployed** a web app with **websockets** and **FastAPI** that allows users to edit (faulty) automatic audio-to-text transcriptions for uploaded audios, and provides a faster editing experience by intelligently recommending potentially incorrect segments; implemented a thread-safe **MongoDB** store with **asyncio** and **motor** to store user-made edits in the backend.
 - Automatically applies user-made edits to similar occurrences throughout the audio file using **Keyword Spotting** with language and acoustic models from **Kaldi** and **vosk-api**, and sped up the process 2x using **multithreaded offline-decoding** in **Python** and **Shell**.
 - Sped up automatic speech recognition 5x using **WeNet** architecture in **C++** together with **Speech Activity Detection** with **kaldi**; model is pushed to production.
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- Engineered 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 WeSpeech API using **dynamic time warping** and grapheme confusion.

MACHINE LEARNING PROJECTS

Split-it | Hack@Brown Nelson Entrepreneurship Prize Winner

📅 Jan 2023

- A webapp in **React** that splits the bill for a group by parsing items from a picture of the receipt and letting group members choose what to pay for; the backend interfaces with the React app with **Flask**.
- Built a **Python** backend that parses the receipt picture with **Optical Character Recognition** and **ChatGPT** to achieve SOTA performance

Deep Manager | Brown Deep Learning Course Final Project

📅 Dec 2020

- A **Deep Reinforcement Learning** agent that manages a portfolio in the stock market and can make profits.
- Trained the agent in **TensorFlow** using advantage REINFORCE algorithm and historical financial data from yahoo finance.

SKILLS

- **Programming Languages:** Python · C · JavaScript · Java · Shell · HTML/CSS · MATLAB · Scala · ReasonML · Assembly x86-64 · C#
- **Frameworks & Tools:** PyTorch · TensorFlow · Keras · React · SQL · Docker · MongoDB