Alan Zhou

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Education

University of California, Berkeley — Berkeley, CA
B.A. Computer Science and Cognitive Science — December 2021
GPA: 3.605

Relevant Coursework: Deep Learning (CS182), Machine Learning (CS189), Artificial Intelligence (CS188), Linguistics (LING 100), Cognitive Neuroscience (COGSCI C127), Computational Models of Cognition (COGSCI 131)

Publications

Preprints and Under Review

- (2022) Beguš, G., **Zhou, A.**, & Zhao, T. C. Encoding of speech in convolutional layers and the brain stem based on language experience. bioRxiv
- (2021) Beguš, G., & **Zhou, A.** Interpreting intermediate convolutional layers of CNNs trained on raw speech. Under Review. arXiv

Peer-reviewed Journals and Conferences

- (Accepted) Beguš, G., & **Zhou, A.** Interpreting intermediate convolutional layers in unsupervised acoustic word classification. Accepted to **ICASSP 2022**. arXiv

Research Experience

Berkeley Speech and Computation Lab — Berkeley, CA
Undergraduate Research Assistant | PI: Gašper Beguš — November 2020 to Present

- Probed intermediate representations of speech in generative adversarial networks
- Compared intermediate representations in GANs with the auditory brainstem response via latent vector recovery of recorded stimuli
- Iterated on and tested a InfoGAN-based architecture for unsupervised classification

Berkeley Division of Data Science — Berkeley, CA
Research Apprentice | Mentor: Taka'aki Taira — January 2019 to January 2020

- Recovered underlying stress fields from earthquake data using weighted least squares
- Created scripts to calculate and visualize information about the faulting regime, stress orientation, and confidence level of stress fields across Northern California

Teaching Experience

CS61B — Berkeley, CA
Academic Intern — January 2019 to May 2019

- Helped students with questions about Java, data structures, and algorithms during office hours and lab sections

Guest Lectures:

"Intro to Savio and Slurm." Guest lecture given for the class LING290E: Deep Learning and Phonology taught by Gašper Beguš, October 2021.

Projects

F-ZERO Reinforcement Learning Agent
A reinforcement learning agent trained to play the SNES racing game F-ZERO (GitHub)

- Utilized socket programming to allow an emulator with Lua scripting capabilities to interface with Python and PyTorch
- Used deep Q-learning to create an agent capable of racing in a 3D environment given only screen input

Markov Bot
A Discord bot that creates Markov chains out of user messages in order to simulate text.
(GitHub)

- Implemented a general-order Markov chain using Java and SQL
- Developed a means to construct Markov chains for individual users, and to generate novel sentences using constructed chains

Skills

Programming Languages:	Python, Java, C, MATLAB, R, Lua, SQL
Tools/Technologies:	PyTorch, Tensorflow, Keras, Slurm, matplotlib Jupyter, Git, Gradle/Maven
Languages:	English (fluent), Mandarin (conversational)