

# ALAN ZHOU

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## EDUCATION

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**University of California, Berkeley**  
B.A. Computer Science | B.A. Cognitive Science  
GPA: 3.59

Berkeley, CA  
Expected December 2021

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

## RESEARCH EXPERIENCE

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**Berkeley Speech and Computation Lab**  
*Undergraduate Research Assistant | PI: Gašper Beguš*

Berkeley, CA  
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**  
*Research Apprentice | Mentor: Taka'aki Taira*

Berkeley, CA  
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

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**CS61B**  
*Academic Intern*

Berkeley, CA  
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.

## PUBLICATIONS

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### Under Review and Submitted


Beguš, G., & **Zhou, A.** (2021). Interpreting intermediate convolutional layers in unsupervised acoustic word classification. Submitted. [arXiv, 2110.02375](#). 

Beguš, G., & **Zhou, A.** (2021). Interpreting intermediate convolutional layers of CNNs trained on raw speech. Under Review. [arXiv, 2104.09489](#). 

## PROJECTS


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### 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

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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)