

# ALAN ZHOU

azhou23@jhu.edu | [atzhou8.github.io](https://github.com/atzhou8) | Baltimore, MD

## EDUCATION

### Johns Hopkins University

*PhD in Cognitive Science*

Baltimore, MD

*Aug. 2022 - Present*

### University of California, Berkeley


*B.A. in Computer Science and Cognitive Science*

Berkeley, CA

*Aug. 2017 - Dec. 2021*






## PUBLICATIONS

### Submitted

- (Submitted) Gašper Beguš, Thomas Lu, **Alan Zhou**, Peter Wu, and Gopala K. Anumanchipalli. Ciwagan: Articulatory information exchange. [arXiv](#) 

### Peer-reviewed Journals and Conferences

*\* denotes equal contribution*

- (2023) Gašper Beguš\*, **Alan Zhou\***, Peter Wu, and Gopala K Anumanchipalli. Articulation gan: Unsupervised modeling of articulatory learning. In *ICASSP 2023 IEEE International Conference on Acoustics, Speech and Signal Processing*. [PDF](#) 
- (2023) Gašper Beguš, **Alan Zhou**, and Christina Zhao. Encoding of speech in convolutional layers and the brain stem based on language experience. *Scientific Reports*. [PDF](#) 
- (2022) Gašper Beguš and **Alan Zhou**. Interpreting intermediate convolutional layers of generative cnns trained on waveforms. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 30. [PDF](#) 
- (2022) Gasper Begus and **Alan Zhou**. Modeling speech recognition and synthesis simultaneously: Encoding and decoding lexical and sublexical semantic information into speech with no direct access to speech data. In *Proc. Interspeech 2022*. [PDF](#) 
- (2022) Gašper Beguš and **Alan Zhou**. Interpreting intermediate convolutional layers in unsupervised acoustic word classification. In *ICASSP 2022 IEEE International Conference on Acoustics, Speech and Signal Processing*. [PDF](#) 

## TEACHING

### At Johns Hopkins

- **Bayesian Inference**, *Teaching Assistant* Fall 2023
- **Neuroscience: Cognitive**, *Teaching Assistant* Spring 2022

### At UC Berkeley

- **Deep Learning and Phonology**, *Guest Lecturer* Fall 2021  
(*Gave a guest lecture about high-performance computing to linguistics graduate students*)
- **Data Structures**, *Academic Intern* Spring 2018  
(*Helped students in lab sections and office hours*)

## EXPERIENCE

### Berkeley Speech and Computation Lab

*Undergraduate Research Assistant | PI: Gašper Beguš*

Berkeley, CA

November 2020 to December 2021

- 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

### 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

## PROJECTS

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### **F-ZERO Reinforcement Learning**

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 [↗](#))

- 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
Natural Languages:	English (fluent), Mandarin (conversational)