Alan Zhou

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Education

Johns Hopkins University — Baltimore, MD
PhD in Cognitive Science — *Aug. 2022 - Present*

University of California, Berkeley — Berkeley, CA
B.A. in Computer Science and Cognitive Science — *Aug. 2017 - Dec. 2021*

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. Submitted. bioRxiv
- (2021) Beguš, G., & **Zhou, A.**. Interpreting intermediate convolutional layers of CNNs trained on raw speech. Under Review. arXiv

Peer-reviewed Conferences

- (Accepted) Beguš, G., & **Zhou, A.**. Modeling speech recognition and synthesis simultaneously: Encoding and decoding lexical and sublexical semantic information into speech with no direct access to speech data. Accepted to **Interspeech 2022**. arXiv
- Beguš, G., & **Zhou, A.**. Interpreting intermediate convolutional layers in unsupervised acoustic word classification. **ICASSP 2022**. arXiv

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

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

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)

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