JOSELYN RODRIGUEZ

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Skills Summary

Concepts: Machine learning (including deep learning), phonetics, second language acquisition
Programming/scripting: Python, Matlab, R, Git, Bash, Javascript, Java
Frameworks/libraries/etc: PyTorch, Kaldi, Lab.js, PsychoPy/Js, AWS API, slurm
Languages: English (native), Korean (int.), Mandarin (int.), Spanish (heritage)

Education

University of Maryland

PhD, Neuroscience and Cognitive Science, 2021-2026 (expected)

- *Selected coursework:* Intro to Machine Learning, Algorithms in Machine Learning: Guarantees and Analyses (audit), Computational Psycholinguistics, Computational Neuroscience, Cognitive Neuroscience
- *First year research project:* Computational Modeling of Second Language Speech Acquisition

University of Utah

BA, Linguistics, minor in Korean Studies, 2014-2018

CGPA: 3.8, MGPA: 4.0

- *Selected coursework:* object-oriented programming, intro to algorithms and data structures, computational linguistics, computational language modeling, phonetics and phonology

Experience

University of Maryland

Research student | 2020-present

- Developing cognitive models of second language acquisition
- Exploring the structure of representations learned by large speech models (wav2vec, CPC, HuBERT) during pre-training and fine-tuning
- Conducting human experiments to understand how learners acquire sound systems in a novel language

Rutgers University

Lab Assistant| 2019-2020

- Maintained required certification (IRB) for human subjects research
- Designed and ran studies using Lab.js and Mechanical Turk

Projects

Adaptation and generalization of bilingual speech representations 2023-present

- Committee: Drs. Naomi Feldman, Bill Idsardi, Kira Gor, Jonathan Simon
- Addresses the flexibility in monolingual and bilingual speech representations in humans and machines
- Utilizes both human experimentation (behavioral discrimination tasks) and adaptation tasks in large speech models (wav2vec 2.0, CPC, HuBERT, and CAE-RNN)

Computational Modeling of Second Language Speech Acquisition 2021- present

- Advisors: Drs. Naomi Feldman, Bill Idsardi, Kira Gor
- Explores a novel quantitative model of second language speech acquisition using real speech input
- Utilizes an Dirichlet Gaussian Mixture Model paired with an adaptation mechanism (I-vectors) as a model of second language learning directly on speech features (MFCCs)

Publications

Barrios, S. L., Rodriguez, J. M., & Barriuso, T. A. (2023). The acquisition of L2 allophonic variants: The role of phonological distribution and lexical cues. Second Language Research. https://doi.org/10.1177/02676583221099237