EILEEN BLUM (she/her)

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About

Graduating Linguistics PhD with 5+ years experience applying data labeling and analysis techniques to evaluate natural language sound patterns as well as classify and generate text data.

Education

PhD, Linguistics

Rutgers, The State University of New Jersey - New Brunswick | Sept 2015-Oct 2021

GPA: 3.83

Bachelor of Arts, Linguistics

University of California Santa Cruz | 2012-2014

GPA: 3.86

Intersegmental General Education Transfer Curriculum

Diablo Valley College | 2010-2012

Work Experience

Linguistics Fellow & Teaching Assistant

Rutgers University | New Brunswick, NJ | September 2015-June 2021

Research: Phonology, Formal Language Theory, Computational complexity, Acoustic experimentation

- Execute two major research projects over six years: design, structure, analysis, and maintained schedule from inception to completion
    - Collect and analyze data from multiple languages to explain how abstract representations affect the computational complexity of natural language sound patterns
    - Record 20 native speakers, annotate and analyze acoustic data to determine word stress pattern in Munster Irish
- Collaborate with experts in four disciplines: computer science, math, linguistics, and cognitive psychology
- Strong proficiency with IPA and excellent understanding of other phonological representations
- Teach two introduction to linguistics courses (covering phonetics, phonology, morphology, syntax, and semantics) with 30 students each
- Implement parallel curriculum for recitation section of 15-20 students that reinforces lecture content
- Organize and host first *PhD to Industry* informational event with five panelists and up to 50 attendees
- Orchestrate summer mini-course with five lessons on methods of artificial learning
- Coordinate colloquium series for two years

Projects

Rutgers University |PhD Dissertation | October, 2021 (in progress)

- Apply formal language theory to evaluate patterns in linguistic data
- Assess computational complexity of vowel harmony patterns in six languages using propositional logic to evaluate these patterns over two different representations, Develop new theory of autosegmental locality
- Orchestrate data collection, Execute data analysis, Formalize concepts that inform theory development

Erdös Institute Natural Language Processing Bootcamp | February-March, 2021

- Built a Wasserstein Generative Adversarial Network (WGAN) to generate metal song lyrics in lines of 8 words, Compared with Soft-GAN lyric generator, Demonstrated that models need different input to improve naturalness of generated lines
- Trained on Kaggle dataset, Engineered using Python packages and methods: NLTK, Keras, Tensorflow, Numpy, Pandas, Calculated BLEU scores to determine naturalness of generated lyrics
    - Earned scores of: WGAN 0, Soft-GAN averaged 0.06 for n-grams of length 1-4

Erdös Institute Data Science Bootcamp | May, 2020

- Created a classifier in Python titled *Metal or Not?* to distinguish song lyrics by genre, achieving 81% classification accuracy
- Analyzed two Kaggle data sets using Python packages and methods: GenSim, NLTK, Word2Vec, PCA, K-cluster, DecisionTreeClassifier, Numpy, Pandas

Rutgers University | First Qualifying Paper | March, 2018

- Designed and implemented a production experiment to test acoustic correlates of word stress in Munster Irish titled *Allophony-driven stress in Munster Irish*
- Recorded 20 native speakers throughout New York City and South Ireland
- Transcribed and analyzed acoustic data of 207 words for each participant using Praat, t-tests, and linear mixed effects models in R

Skills

Languages: French (intermediate), Irish Gaelic (Beginner)

Technical: IPA, Praat, Audacity, Python, R, html

References

Email is the most reliable way to contact both.

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