Eileen Blum

eileen.blum@rutgers.edu
(510)407-2646
https://www.eileenrblum.com/

Rutgers University
Department of Linguistics
18 Seminary Place
New Brunswick, NJ 08901

Research Interests

Phonological evidence, Computational phonology, vowel harmony

Education

Doctor of Philosophy, Rutgers University, January 2023
Linguistics

Bachelor of Arts, University of California Santa Cruz, June 2014
Linguistics
magna cum laude, Phi Beta Kappa

Projects

Blum, Eileen (Jan 2023); The effects of non-linear data structures on the computation of vowel harmony; Dissertation, Rutgers University

- Develops new theory of autosegmental locality that applies Formal Language Theory to natural language data
- Analyzes computational complexity of vowel harmony patterns in both well studied and understudied languages
- Compares string-based analyses to autosegmental representations to illustrate how representations affect computational complexity
- Evaluates only surface representations to determine nature of output forms as evidence for learning input-output mappings

Blum, Eileen and Roberto Hernández Palomares **(2020);** Metal or Not?; final project, Erdös Institute Data Science Bootcamp

- Created a classifier in Python to distinguish song lyrics by genre
- Collected data from two Kaggle datasets: scraped lyrics of all genres from www.azlyrics.com and metal lyrics from www.darklyrics.com
- Data pre-processing used GenSim and NLTK packages

- Analysis used the Word2Vec neural network to embed individual words into 150-dimensional points in space, then K-cluster after PCA according to semantic similarity
- Trained a genre classification model using the DecisionTreeClassifier from sklearn and the Word2Vec vectors
- Achieved 81% accuracy

Blum, Eileen (2018); On the locality of vowel harmony over multi-tiered autosegmental representations; QP2, Rutgers University

- Applied Formal Language Theory to natural language data
- Analyzed computational complexity of vowel harmony patterns over multi-tiered autosegmental representations
- Evaluated vowel harmony patterns in multiple languages and predicted possible cross-linguistic variation

Blum, Eileen (2018); Allophony-driven stress in Munster Irish; QP1, Rutgers University

- Designed and implemented production experiment to test acoustic correlates of stress and determine the acoustic status of the syllable [ax]
  - single participant, but collected additional data through later fieldwork
- Split mp4 files in Audacity, Segmented and analyzed each word in Praat
- Organized numerical data by hand using Excel
- Statistical analysis used t-tests in Excel and linear mixed effects models in R
- Developed theoretical analysis to explain acoustic findings

Conference Talks

Blum, Eileen. *Locality in vowel harmony.* Southern California Annual Meeting on Phonology, CSU Long Beach, April 27, 2019

Blum, Eileen. *Vowel harmony is local over multi-tiered ARs.* NorthEast Computational Phonology, MIT, November 4, 2018

Nick Danis, **Eileen Blum**, Luca Iacoponi, Hazel Mitchley, & Adam Jardine. *A computational method for evaluating theories of phonological representation.* Chicago Linguistic Society, University of Chicago, May 25-27, 2017

Blum, Eileen. *The acoustics of stressed velar fricatives in Munster Irish.* RULing, Rutgers University, May 5, 2017

Blum, Eileen. *Stress in Munster Irish.* RULing, Rutgers University, April 2, 2016

Other Talks

Blum, Eileen. *Stress in Munster Irish*. Cognitive Science Graduate Student Talk Series, Rutgers University Center for Cognitive Science (RUCCS), February 10, 2017

Blum, Eileen. *Stress in Munster Irish*. PhonX Reading Group, Rutgers University, January 27, 2017

Conference Posters

Blum, Eileen. *Allophony-driven stress in Munster Irish*. Phonology of the North East (PhoNE), Massachusetts Institute of Technology, March 31, 2018

Teaching Experience

TA Associate, Writing Program, Fall 2019-Spring 2021

TA, Intro to Linguistic Theory, Fall 2017-Spring 2018

Funding

2018 TA/GA Professional Development Fund Award

$950 to be used for activities associated with academic progress toward completion of the degree

2017 Pre-Dissertation Award

$2,000 for data collection, travel to Ireland

2016 Special Study Award

$2,000 for travel to Ireland to take language courses

Service

2021 PhD to Industry job workshop organizer

Host: Rutgers University, Department of Linguistics

Invited panelists are alumni of: Rutgers University, Stonybrook University, University of Delaware, University of California San Diego

2020 MathLing reading group summer session organizer

Rutgers University, Department of Linguistics

2018 Senior job search student committee

Rutgers University, Department of Linguistics

2017-2018 Colloquium organizer

Rutgers University, Department of Linguistics

2016-2017 Colloquium organizer

Rutgers University, Department of Linguistics

2015-2016 Linguistics Graduate Student Association secretary

Rutgers University, Department of Linguistics

Memberships

Phi Beta Kappa
Linguistics Society of America