Meghavarshini Krishnaswamy

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Resume

Education

PhD	**Linguistics**, *University of Arizona*, Tucson Arizona, USA, 2019–2025
MS	**Human Language Technology**, *University of Arizona*, Tucson, Arizona, USA, 2019–2021
MA	**Linguistics**, *The English and Foreign Languages University*, Hyderabad, India, 2013–2015
BA (Hons.)	**Lady Shri Ram College, University of Delhi**, *New Delhi, India*, 2010–2013

Professional Research Experience

Postdoc — **Center for Educational Data Science and Innovation)**, *University of Maryland, College Park*, Fall 2025–Present

- I provide language science expertise for building AI-powered tools for studying teaching quality and student outcomes.
- I work on building multimodal emotion detection models for K-12 settings.
- I contribute to ongoing research on automatic speech recognition (ASR) of children's speech.

Academic Research Experience

GRA — **Data Science Institute (educator and consultancy)**, *University of Arizona*, Fall 2023–Present

- Designed and lead technical workshops on natural language processing (NLP) and speech recognition [⚙], and AI tools for research.
- Contributed linguistic expertise and data processing pipelines for a quantum NLP language model for low-resource languages.

GRA — **DARPA ASIST-ToMCAT Project (NLP)**, *Summer 2020-Fall 2022*

- Designed and enhanced existing unsupervised neural network models for detecting speech synchrony/entrainment [⚙] using pytorch, and scikit-learn.
- Created data collection pipelines and conducted qualitative assessments for speech data.
- Managed human subject data collection and annotation tasks.
- Contributed to publications (Pyarelal, Culnan, et al. 2025; Soares et al. 2024; Pyarelal, Duong, et al. 2023), documentation, subject surveys, presentations, and project manuals.

GRA — **Douglass Phonetics Lab (applied linguistics)**, *University of Arizona*, Spring 2020–Fall 2020

- Coordinated the lab's ongoing phonetics experiments, and speech and linguistic response data collection.
- Conducted statistical analysis and data exploration in R. Published (Krishnaswamy and Warner 2023)
- Initiated the migration of the lab's experiments to remote platforms (like Finding Five) in 2020 and set up the experiment builders.
- Provided research support to undergraduate students.

RA — **SPLANG Phonetics Lab (phonetics and psycholinguistics)**, *The English and Foreign Languages University, Hyderabad*

- Designed and conducted acoustic phonetics studies for languages such as Bengali, Mongolian, Malayalam and Hindi (GP et al. 2023; Dutta et al. 2019).
- Interfaced with language consultants to create relevant and accurate stimuli for speech perceptions studies.
- Provided trainings for experimental modalities such as ultrasound, eye-tracking, and speech perception and production.
- Managed administrative tasks such as lab equipment setup, purchase requests, and reimbursements.

Professional Research Experience

Fall, 2024   **Artistic Expression of Original Research**, *In-person*, Selected for a science communication workshop and mixed-media presentation series for communicating my doctoral research to the general public.

Spring, 2023   **Fellow, Data Science Institute**, *University of Arizona Health Sciences*, Awarded this 14-week fellowship and training for data management, reproducibility, and accessibility in academic research.

Publications

Pyarelal, Adarsh, John M Culnan, Ayesha Qamar, et al. (2025). MultiCAT: Multimodal Communication Annotations for Teams. In: *Findings of the Association for Computational Linguistics: NAACL*. Ed. by Luis Chiruzzo, Alan Ritter, and Lu Wang. Albuquerque, New Mexico: Association for Computational Linguistics, pp. 1077–1111.

Soares, Paulo, Adarsh Pyarelal, Meghavarshini Krishnaswamy, et al. (2024). Probabilistic Modeling of Interpersonal Coordination Processes. In: *Forty-first International Conference on Machine Learning*.

Pyarelal, Adarsh, Eric Duong, Caleb Jones Shibu, et al. (2023). The ToMCAT Dataset. In: *Thirty-seventh Conference on Neural Information Processing Systems Datasets and Benchmarks Track*.

Krishnaswamy, Meghavarshini and Natasha Warner (2023). Perception of Malayalam three-way stop contrast among American English speakers. In: *Proceedings of the 20th International Congress of Phonetic Sciences*, pp. 401–405.

GP, Seema, Meghavarshini Krishnaswamy, Ramesh Mishra, et al. (2023). Mismatched coarticulatory information hinders lexical access of coronal stops in Malayalam. In: *Proceedings of the 20th International Congress of Phonetic Sciences*, pp. 371–375.

Dutta, Indranil, Charles Redmon, Meghavarshini Krishnaswamy, et al. (2019). Articulatory complexity and lexical contrast density in models of coronal coarticulation in Malayalam. In: *Proceedings of the 19th International Congress of Phonetic Sciences*.

Culnan, John, Seongjin Park, Meghavarshini Krishnaswamy, et al. (2021). Me, myself, and ire: Effects of automatic transcription quality on emotion, sarcasm, and personality detection. In: *Proceedings of the Eleventh Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis*, pp. 250–256.

Krishnaswamy, Meghavarshini, Indranil Dutta, and Ushasi Banerjee (2018). Active cavity expansion through lingual adjustments to place of constriction in voiced geminates. In: *Proceedings of Meetings on Acoustics*. Vol. 33. 1. Acoustical Society of America, p. 060002.

Skills

Programming

Python	pytorch, scikit-learn, matplotlib, pandas, numpy, jupyter, pyKaldi, spaCy, re
R	ggplot2, lme4, dplyr, gss, grepl
CLI tools	imagemagik, kaldi, ffmpeg, bash, grep, perl, ssh

Technology

Acoustics	Praat (and Praat scripting), Kaldi, OpenSMILE, Audacity, whisperAI, pyaudio
Editing	MS Office, GSuits, Markdown, knitR, and LaTeX

Languages

- English (Indian), Proficient, Native
- Tamil, Proficient, Native
- German, Basic
- Hindi, Proficient, Native
- Sanskrit, Basic, School diploma