

# Hamid Mojarad

PhD Candidate

Department of English Language and Linguistics  
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## Education

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### Heinrich-Heine-Universität Düsseldorf, Germany

2024 – present

- **PhD Candidate** in English Language & Linguistics
- **Primary Supervisor:** Prof. Dr. Kevin Tang
- **Secondary Supervisor:** Prof. Dr. Laura Kallmeyer
- **Dissertation:** Disentangling and Mitigating Phonological and Morpho-Syntactic Biases in Automatic Speech Recognition - The Case of African American English

### Payame Noor University - Tehran Jonoob, Iran

2011 – 2013

- **Master of Arts** in Teaching English as a Foreign Language (TEFL)
- **GPA:** 17.89/20
- **Thesis:** Computer-based Assessment Vs. Paper/Pencil-based Assessment: An Investigation into the Performance and Attitude of Iranian EFL Learners' Reading Comprehension
- **Thesis Grade:** 19.5/20
- **Supervisor:** Prof. Dr. Fatemeh Hemmati

### Payame Noor University - Saveh, Iran

2006 – 2010

- **Bachelor of Arts** in English Language Translation
- **GPA:** 17.36/20

### Salahaddin University - Erbil, Iraq

2000 – 2004

- **Bachelor of Science** in Software Engineering
- **GPA:** 71.27/100
- **Engineering Project:** Email Server Application using Core Java Programming Language
- **Project grade:** 80/100

## Research Interests

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- Automatic Speech Recognition & Speech Technology
- Bias Detection, Mitigation, and Error Analysis in Speech Systems
- Sociophonetics, and Phonological Feature Modeling
- Interpretability of Transformer-based Speech Models for Minority Dialects

## Honors & Awards

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### 4-Year Research Scholarship, Germany

*2024 – present*

- **Provider:** Deutscher Akademischer Austauschdienst (DAAD)
- Awarded a 4-year DAAD Research Scholarship to pursue a PhD at Heinrich Heine University, Düsseldorf.

### PhD-Exceptional Talent Award, Iran

*August, 2014*

- **Provider:** Payame Noor University, Iran
- Qualified for PhD admission interviews without the national entrance exam as a top M.A. student at Payame Noor University.

### MA-Exceptional Talent Award, Iran

*August, 2011*

- **Provider:** Payame Noor University, Iran
- Granted direct admission to the M.A. program at Payame Noor University, Tehran Jonoob, Iran, without the national entrance exam, as a top bachelor's student.

### University Top Students, Iraq

*June, 2004*

- **Provider:** Salahaddin University - Erbil, Iraq
- Ranked among the top 3 students in Software Engineering at Salahaddin University.

## Lab Affiliations

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### Speech, Lexicon, And Modeling (SLAM) Lab

*2024 – present*

- **Heinrich-Heine-Universität Düsseldorf, Germany**
- Member; research on speech perception, phonetics, and computational modeling.

### Machine Learning for Endangered Language Documentation Lab

*2024 - present*

- **University of Florida, USA**
- Collaborator; projects on natural language technology for low-resource and endangered languages.

## Publications

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### Proceeding Articles

- Hamid Mojarad and Kevin Tang (2025a). “Automatic Speech Recognition of African American English: Lexical and Contextual Effects”. In: *Proc. Interspeech 2025*. ISCA, pp. 3883–3887. DOI: 10.21437/Interspeech.2025-1511
- Sahar ChatrZarin, Fatemeh Hemmati, and Hamid Mojarad (2016). “Comparison of Iranian students’ writing in Persian and English from the perspective of adaptive transfer”. In: *Third National Conference on Persian Linguistics and Language Teaching: The Perspective of Language Research in the 21st Century*. Paper in Persian. Mashhad, Iran

## Journal Articles

- Fatemeh Hemmati and Hamid Mojarad (2016a). “E-learning and Distance Education: A Study of Iranian Teaching English as a Foreign Language Masters Students”. In: *Malaysian Journal of Distance Education* 18.1. Research assistant, pp. 53–70
- Fatemeh Hemmati and Hamid Mojarad (2016b). “Face to Face versus E-learning: An Investigation into the Performance of TEFL Master’s Students of Payame Noor University”. In: *Quarterly Journal of Research in School and Virtual Learning* 3.11. Research assistant, pp. 49–58
- Hamid Mojarad, Fatemeh Hemmati, et al. (2014). “Computer-based Assessment Vs. Paper/Pencil-based Assessment: An Investigation into the Performance and Attitude of Iranian EFL Learners’ Reading Comprehension”. In: *International Journal of Language Learning and Applied Linguistics World* 4, pp. 418–428

## Poster Presentations

- Hamid Mojarad and Kevin Tang (Mar. March, 2025). “Sociolinguistic ASR errors in African American English: Lexical and Contextual effects”. *47th Annual Conference of the German Linguistic Society, Special Interest Group on Computational Linguistics (DGfS-CL)*, Johannes Gutenberg University Mainz, Germany.
- Hamid Mojarad and Kevin Tang (Aug. 2025b). “Sociolinguistic Automatic Speech Recognition Errors in African American English: Lexical and Contextual Effects”. Poster presented at HeiCAD Retreat 2025, Heinrich Heine University Düsseldorf, Germany. Available online. URL: [https://www.heicad.hhu.de/fileadmin/redaktion/HeiCad/heicad\\_pdf/Poster\\_Retreat\\_2025/Hamid-Poster.pdf](https://www.heicad.hhu.de/fileadmin/redaktion/HeiCad/heicad_pdf/Poster_Retreat_2025/Hamid-Poster.pdf)

## Invited Talks

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### University of Florida, USA - Online

17-June-2025

- Transcription Issues and Downstream Effects; A presentation for the the Oral History Corpus staff at University of Florida

### Heinrich-Heine-Universität Düsseldorf, Germany

22-May-2025

- Bias in Automatic Speech Recognition (ASR) - The Case of African American English (AAE); A Presentation for the Ethics, Bias and Natural Language Processing Course led by Prof. Dr. Kevin Tang

## Selected Projects

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### Forced Alignment Evaluation and Refinement

2024–2025

- Conducted an in-depth comparative analysis of Montreal Forced Aligner (MFA) and Aeneas outputs, focusing on boundary mismatches. Utilized MFA results to enhance Aeneas performance for utterance-level and speaker-specific alignment in sociolinguistic corpora.

### ASR Error Analysis on AAE Phonological Features

2024–present

- Extracted and analyzed Consonant Cluster Reduction (CCR) and ING-reduction variations from AAE speech using MFA alignment. Performed lexical neighborhood error analysis and integrated language models to assess how contextual predictability influences ASR errors.

## Transformer Embedding Probing and Clustering

*Ongoing*

- Investigating layer-wise representation quality of CCR & ING features in wav2vec 2.0 acoustic embeddings through probing tasks. Employing clustering techniques on wav2vec 2.0 embeddings to validate MFA alignment accuracy on CCR and ING lexical subsets.

## Morphosyntactic Feature Detection with BERT Fine-Tuning

*Ongoing*

- Fine-tuning BERT on AAE-labeled data to detect null copula constructions and other morphosyntactic phenomena. Exploring interactions between phonological and morphosyntactic features to understand compounded bias effects in ASR outputs.

## Technical Skills

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### Machine Learning & NLP

- ASR systems: wav2vec 2.0, Whisper, Kaldi
- NLP frameworks: Hugging Face Transformers, FairSeq, NLTK
- Speech alignment: Montreal Forced Aligner, Aeneas
- Dialect analysis: FAVE, DARLA, ELAN
- Model evaluation: WER, PER, bias metrics

### Programming Languages

- Python (PyTorch, NumPy, pandas, Hugging Face)
- R (tidyverse, phonR, emuR)
- Java (Spring Boot), C++ (STL), JavaScript (React)
- Bash scripting, SQL

### Tools & Platforms

- Phonetics: Praat, ELAN, LaBB-CAT
- Development: VS Code, Eclipse, Jupyter
- Version Control: GitHub, OSF
- Cloud: AWS, Google Colab
- Other: Overleaf, Docker, Linux

## Languages

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- **English:** Full professional proficiency
- **German:** Limited working proficiency (B1 Level)
- **Arabic:** Limited working proficiency
- **Kurdish:** Limited working proficiency
- **Persian:** Mother tongue language

## Certificates

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- **CELTA:** Certificate in Teaching English to Speakers of Other Languages; Iran Oxford Language Institute, Tehran, Iran, August, 2016