

# Akhilesh Kakolu Ramarao

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## RESEARCH AREAS

Computational Linguistics, Computational Morphology, Language Revitalization

## EMPLOYMENT

2021– **Heinrich-Heine-Universität Düsseldorf**

Wissenschaftlicher Mitarbeiter, Department of English Language and Linguistics

- Teaching Computational Linguistics courses for Bachelor and Masters of Arts students
- Setup phonetics laboratory
- Maintainer of Slamlab server, hosting multiple services

2019–20 **Civicalab**

Natural Language Processing (NLP) Researcher

- Worked on building Language Platform for Assamese language that includes - Optical Character Recognition for Assamese, Machine Translation system for English and Assamese, Assamese keyboard, and creation of parallel corpora for English and Assamese

2017–19 **Skit.ai**

Software Engineer

- Involved in designing and developing end-to-end speech and natural language processing A.I. systems for automating customer care systems

2017 **Ramco Systems**

Software Engineer

- Prime developer in designing and developing a chatbot for Human Resource (HR) system

## EDUCATION

Ph.D (ongoing)

General Linguistics, Heinrich-Heine-Universität Düsseldorf, Germany  
Advisors: Prof. Dr. Kevin Tang and Dr. Dinah Baer-Henney

- M.A. General Linguistics, Heinrich-Heine-Universität Düsseldorf, Germany, 2022-2024  
Grade: 1.1/5 (1 being the best)  
Thesis Title: Modeling irregular morphological patterns in Spanish verbs using transformers  
Advisors: Dr. Dinah Baer-Henney and Prof. Dr. Kevin Tang
- B.Engg. Automobile Engineering, Dayanand Sagar College of Engineering, India, 2012-2016  
Grade: 2.4/5 (1 being the best)

## PUBLICATIONS

### Conference Proceedings

- submitted **Kakolu Ramarao, A.**, Tang K. & Baer-Henney D. Evaluating the cognitive reality of Spanish irregular morphomic patterns: Humans vs. Transformers. Preprint:  
<https://doi.org/10.48550/arXiv.2507.21556>
- 2025 **Kakolu Ramarao, A.**, Tang K. & Baer-Henney D. Frequency matters: Modeling irregular morphological patterns in Spanish with Transformers. In *Findings of the Association for Computational Linguistics: ACL 2025*, pages 4474–4489, Vienna, Austria. Association for Computational Linguistics. <https://doi.org/10.18653/v1/2025.findings-acl.230>
- accepted Merchant R., **Kakolu Ramarao, A.** & Tang K. Connecting the Persian-speaking world through transliteration. *3rd North American Conference on Iranian Linguistics*. Preprint:  
<https://arxiv.org/pdf/2502.20047>
- 2024 **Kakolu Ramarao, A.**, Petersen, W., Stein, A., Stein, E., & Xia, H. (2024). KlarTextCoders at StaGE: Automatic Statement Annotations for German Easy Language. In *Proceedings of GermEval 2024 Shared Task on Statement Segmentation in German Easy Language (StaGE)* (pp. 15–27), Vienna, Austria. Association for Computational Linguistics.
- 2023 Jeong, C., Schmitz, D., **Kakolu Ramarao, A.**, Stein, A., & Tang, K. (2023). Linear discriminative learning: a competitive non-neural baseline for morphological inflection. In *Proceedings of the 20th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology* (pp. 138-150). Association for Computational Linguistics.  
<https://doi.org/10.18653/v1/2023.sigmorphon-1.16>
- 2022 **Kakolu Ramarao, A.**, Zinova, Y., Tang, K., & van de Vijver, R. (2022). HeiMorph at SIGMORPHON 2022 shared task on morphological acquisition trajectories. In *Proceedings of the 19th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology* (pp. 236-239). Association for Computational Linguistics.  
<https://doi.org/10.18653/v1/2022.sigmorphon-1.24>

### Journal Articles

- 2024 Muschalik, J., Schmitz, D., **Kakolu Ramarao, A.** *et al.* Typing /s/—morphology between the keys? *Reading and Writing* (2024). <https://doi.org/10.1007/s11145-024-10586-9>

## TALKS

### Peer-reviewed Talks

- 2024 “Community-driven Language Revitalization: Translating Children’s Literature in K’man Mishmi” at the International Conference on Language, Ecology and Culture 2024, NEILAC, Guwahati, India. Co-authors: Sakelu Chikro and Dr. Pamir Gogoi. [Slides](#)

- 2024 “KlarTextCoders at StaGE: Automatic Statement Annotations for German Easy Language” at the Konferenz zur Verarbeitung natürlicher Sprache (KONVENS) 2024, University of Vienna, Austria. Co-authors: Wiebke Petersen, Anna Sophia Stein, Emma Stein, and Hanxin Xia.
- 2024 “A computational approach to understanding the cognitive reality of morphomic patterns: the case of L-shaped morphemes in Spanish” at the Annual Meeting of Linguistics Association of Great Britain and Northern Ireland 2024, Newcastle University, United Kingdom. Co-authors: Kevin Tang and Dinah Baer-Henney. [Slides](#)
- 2024 “Acoustic Analysis of Vowels in Idu Mishmi” at the 27th Himalayan Languages Symposium, IIT Guwahati, India. Co-author: Pamir Gogoi.
- 2023 “From Zero to Terminal Hero” at the 32nd Tagung der Computerlinguistik-Studierenden (TaCoS), Heinrich Heine University, Düsseldorf, Germany. [Slides](#)
- 2023 “Can Neural Networks learn human-like behavior when inflecting verbs? The case of Spanish” at the Five-Minute Linguist competition, Linguistic Society of America 97th Annual Meeting, Denver, Colorado, United States of America.
- 2023 “Modeling irregular morphological patterns using Transformers” at the HeiCAD Lightning Talks, Heinrich Heine University, Düsseldorf, Germany.

#### Invited Talks

- 2025 “Python for Linguists” at Christ University, Bengaluru, India. [Notebook](#)
- 2025 “AI in Our Lives: The Ethics of AI Assistants” at the Tag der Forschung 2025, Heinrich Heine University, Düsseldorf, Germany. [Slides](#)
- 2021 “Language Revitalization: A case of Idu Mishmi” at Microsoft Research India.
- 2021 “Language Revitalization” at Navana Tech.

## POSTER PRESENTATIONS

#### Peer-reviewed Presentations

- 2024 **Kakolu Ramarao, A.,** & Stein, A. S. AnglistikVoices: an L2 English speech dataset for educational and technological advancement in speech technology. LabPhon 19, Hangyang University, Seoul, South Korea. [Poster](#)
- 2023 Muschalik, J., Schmitz, D., **Kakolu Ramarao, A.,** & Baer-Henney, D. Acoustic duration and typing timing - same, same... but different? Phonetics and Phonology in Europe 2023, Nijmegen, Netherlands.
- 2023 Tang, K., **Kakolu Ramarao, A.,** & Baer-Henney, D. Modeling irregular morphological patterns with recurrent neural network: the case of the L-shaped morpheme. In 13th Mediterranean Morphology Meeting, University of the Aegean, Greece.

#### Non-peer-reviewed Presentations

- 2024 **Kakolu Ramarao, A.,** Tang K. & Baer-Henney D. Frequency matters: Modeling irregular morphological patterns in Spanish with Transformers. In 63rd Association for Computational Linguistics, Vienna, Austria. [Poster](#)

## TEACHING

### Heinrich-Heine-Universität Düsseldorf

Winter 2025	Synthesizing speech
Summer 2025	Academic Writing
Summer 2025	Applied Phonology: Evaluating Voice Assistants (co-teaching: Erdin Mujezinović)
Winter 2024	LLMs in Linguistic Research
Summer 2024	Learning Inflection
Winter 2023	Accent unplugged: Evaluating Voice assistants
Summer 2023	Synthesizing speech
Winter 2022	Language technology for Linguists with Internet of Things (IoT)
Winter 2022	LaTeX for Linguists
Summer 2022	Towards a career in language technology: linguistic annotation
Winter 2021	Basic Skills in Digital Humanities

## SKILLS

**Recent programming experience:** Python, Bash, LaTeX, Scheme, Julia

**Past programming experience:** Haskell, Dart, JavaScript (AngularJS)

**Frameworks:** PyTorch, Flutter, Django

**Databases:** MySQL, PostgreSQL

**Platforms:** Arch linux, Ubuntu, MacOS

**Cloud:** AWS, GCP, High-performance computing (HPC)

**Other technologies:** Git, Docker, Neovim, Hugo, Jekyll, CI/CD

## GRANTS AND AWARDS

2022	Hardware Grant. 20 × NVIDIA® Jetson™ Nano Developer Kits. NVIDIA Academic Hardware Grant, “FOSStering Digital Humanities through Accent Diversity & Conversational Devices”. Co-applicant: Kevin Tang
2022	Education Grant. €9,424. e-Learning support fund, Heinrich-Heine University Düsseldorf. “Interactive web-based review units for phonetics and phonology”. Co-applicant: Christopher Geissler and Kevin Tang
2022	<b>First prize</b> at the HHU Legal Hackathon, Heinrich-Heine-Universität. Team: Akhilesh Kakolu Ramarao, Phaedon Paschalis and Diana Schill
2022	<b>First prize</b> at the HeiCAD Lightning Talks, Heinrich-Heine-Universität

## FIELDWORK

2020- **Idu Mishmi community**

Roing, Arunachal Pradesh, India

- Built the first ever E-Dictionary for Idu Mishmi and English in the form of an offline mobile dictionary application
- Press coverage: <https://arunachaltimes.in/index.php/2020/12/14/imcls-launches-mishmi-idu-dictionary-app/>

## CONSULTING

2020-2021 XRI Institute  
2020-2021 Vrook

## VOLUNTEERING

2021- **Idu Mishmi Cultural and Literary Society (IMCLS)**  
Chief Coordinator  
2021- **Lohit Youth Library Network**  
Volunteer

## WORKSHOP ORGANIZATION

2024 Language learning workshop in K'man Mishmi, Bamboosa Library, Tezu, Arunachal Pradesh, India. Co-organizers: Sakelu Chikro and Dr. Pamir Gogoi  
2023 Translation Workshop: English to K'man Mishmi, Bamboosa Library, Tezu, Arunachal Pradesh, India  
2022 LibreSlam - Free and Open Source (FOSS) for everybody workshop at Heinrich-Heine-Universität Düsseldorf

## DEMOS

2024 "Students as Researchers" at the Nacht der Wissenschaft, Shadowplatz, Düsseldorf, Germany  
2022 "Role of linguistics in AI for social good" at the Nacht der Wissenschaft, Shadowplatz, Düsseldorf, Germany

## LANGUAGES

English *Fluent*  
Kannada *Fluent*  
Hindi *Advanced*  
German *Beginner (A1 level)*