

# Akhilesh Kakolu Ramarao

✉ kakolura@hhu.de • 🌐 akkikek.xyz

## Experience

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### Employment

- **Heinrich-Heine-Universität Düsseldorf** **Germany**  
*Wissenschaftlicher Mitarbeiter, Department of English Language and Linguistics* *2021-Present*
  - Working on Computational Morphology. Supervised by Prof. Dr. Kevin Tang and mentored by Dr. Dinah Baer-Henney.
  - Teaching Computational Linguistics courses for Bachelor of Arts students.
  - IT administration for [SlamLab](#).
- **CivicDataLab** **Remote**  
*NLP Researcher* *2019 - 2020*
  - Played an integral role in developing and maintaining partnerships with various Non-Governmental Organizations and Governments.
  - Worked on building Language Platform for Assamese language that includes - Optical Character Recognition (for Assamese), Machine Translation system for English and Assamese, Assamese keyboard, Rich text editor and creation of Parallel Corpora for English and Assamese.
  - Case studies:
    - Analysing language complexity of Union Budget Speeches.
    - Topic modeling on Union Budget suggestions to understand citizens' input for the Union Budget 2020.
  - Built Crowd-sourced Translation platform to aid the process of disseminating credible COVID-19 related information in local languages.
  - Involved in building Text Annotation platform to perform Sequence Labeling. It was being used to annotate entities and relations in Indian Court judgements.
- **Vernacular.ai** **India**  
*NLP Engineer, Bengaluru* *2017 - 2019*
  - Early stage of the company presented me with an opportunity to build many technical components involved in both Voice Assistants and Multi-lingual Chatbots from the ground up.
  - Involved in designing and developing end-to-end speech and natural language processing A.I. systems for automating Customer Care Systems for Hotel industry.
  - Adopted various strategies to enrich customer experience such as: conversation design framework, dialog management system, predicting user responses and so on.
- **Ramco Systems** **India**  
*Software Engineer, Bengaluru/Chennai* *2017*
  - Prime developer in Designing and Developing a Chatbot for Human Resource (HR) system.
  - Responsible for all the Bug fixes, Documentation and feature implementation of the Machine

Learning components.

- Crafted users' conversations and implemented them using Finite State Machines.
- Mentions: Top 20 apps on Microsoft teams.

## Language Revitalization

### Idu Mishmi Cultural and Literary Society (IMCLS)

India

Chief Coordinator, Arunachal Pradesh

2020

- o Played an instrumental role in initiating the Language Revitalization Movement by managing Partnerships and Technology as a Chief Coordinator of IMCLS, the apex body of Idu Mishmi Tribe in Arunachal Pradesh, India.
- o Built the first ever E-Dictionary for Idu Mishmi and English in the form of a Mobile Dictionary application.
- o Coverage:
  - Launch of the E-dictionary.
  - Promotion from the Chief Minister of Arunachal Pradesh.

## Consulting

### XRI Institute

Remote

o Consultant, United States of America

2021

- Developed tools that serve the development of Human Language Technology (HLT) for low-resource languages.

### Vrook

India

o Tech Consultant

2020 - 2021

- Involved in planning and implementing strategies for Online pedagogy.
- Developing technology plan and providing continuous support in building learner-centric online learning platform.

## Internships

### Sense Infinity Technologies

India

o Full Stack Developer Intern

2016

- Designed and Developed a Cross-Platform Food Delivery Application written with AngularJS (Ionic Framework and Cordova).
- Involved in building backend for a Restaurant Booking Application using PHP (Laravel).

### Maruti Suzuki

India

o Industry Trainee

2014

- Worked with Floor supervisors and Mechanics as an Industry trainee.

## Volunteering

### Lohit Youth Library Network

India

o Volunteer, Arunachal Pradesh

2020 - Present

Founded by Padmashree Sathyanarayanan Mundayoor, Lohit Youth Library Network is a unique youth initiative in Arunachal Pradesh in North-eastern Himalayan India, reaching out to readers across a span of 300 kms in the remote Lohit and Dibang Valley regions, offering free reading learning opportunities.

- Panchajanya Foundation**  
*Core Committee Member, Bengaluru*

**India**  
**2012-2020**
- Our work is aimed at enriching and enhancing the capabilities of individuals to achieve well-being and harmony with respect to 'Akshara' – Knowledge, 'Arogya' – Health and 'Adhyatma' – Spiritual and moral values.

## Freelancing

- Designed and Developed a search tool for Online (Business) Listings using Python and Elasticsearch in 2017.
- Reviewed code and designed a few technical components for a Stealth Startup in 2017.

## Education

### Academic Qualifications

- Dayanand Sagar College of Engineering**  
*Undergraduate, Bachelor of Automobile Engineering*

**Bengaluru, India**  
**2012 - 2016**

## Teaching

- Synthesizing speech** [\[Link\]](#) Summer, 2023
- Language technology for Linguists with Internet of Things (IoT)** [\[Link\]](#) Winter, 2022
- LaTeX for Linguists** [\[Link\]](#) Winter, 2022
- Towards a career in language technology: linguistic annotation** [\[Link\]](#) Summer, 2022
- Basic Skills in Digital Humanities** [\[Link\]](#) Winter, 2021

## Skills and Projects

### Technical Skills

- Recent experience:** Python, Bash,  $\text{\LaTeX}$ , Scheme
- Past experience:** Haskell, Dart, JavaScript (AngularJS), **Frameworks:** Keras, Tensorflow, Flutter
- Platforms:** Arch linux, Ubuntu

### Personal Projects

- My personal technical projects and open source contributions can be found [here](#).
- My non-technical project in Material Science was to **Analyse Corrosion and Wear behaviour of developed Fly-ash based Thermal Spray coating**.

### Proposals Submitted

- Dialect-sensitive Text-To-Speech (TTS) systems with prosody transfer for under-resourced Indian languages: the case of Assamese and Mizo.** The team comprised of Drs. Kevin Tang, Caroline Wiltshire, Ratree Wayland, Pamir Gogoi (ABD) of the UF Speech, Lexicon and Modeling Lab, and Akhilesh Kakolu Ramarao.

- **Building Nyishi E-Dictionary and Speech Datasets.** Team: Akhilesh Kakolu Ramarao and Rutwik Phatak.
- Several proposals with Civicdatalab to various Governments and NGOs.

## Other Collaborations.....

- **Language Complexity with Complex Networks using Algebraic Topological measures.** Team: Akhilesh Kakolu Ramarao and Nikhil Kanta, IIT Madras.
- Organiser and a teaching member of the LY-CS101 Course. The course was primarily aimed at the beginner level Computer Science students in collaboration with National College, Bangalore, India and Merge Intern.

## Grants/Awards

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

## Publications

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- Akhilesh Kakolu Ramarao, Yulia Zinova, Kevin Tang & Ruben van de Vijver. 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, 236–239. Seattle, Washington: Association for Computational Linguistics. <https://aclanthology.org/2022.sigmorphon-1.24>

## Presentations

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### Talks.....

- **Akhilesh Kakolu Ramarao**, Kevin Tang & Dinah Baer-Henney. January, 2023. Can Neural Networks learn human-like behavior when inflecting verbs? the case of Spanish. Shortlisted presentation at the Five-Minute linguist competition, *Linguistic Society of America 97th Annual Meeting 2023*, Denver, CO, USA.
- **'Modeling irregular morphological patterns using Transformers'** at HeiCAD Lightning Talks 2022.
- **'Language Revitalization: A case for Idu Mishmi'** at Microsoft Research India, 2021.
- **'Language Revitalization: A case for Idu Mishmi'** at Navana Tech, 2021.

### Poster presentations.....

- (June 2023) Muschalik, J., Schmitz, D., **Kakolu Ramarao, A.** & D. Baer-Henney. Acoustic duration and typing timing – same, same... but different? Presentation at Phonetics and

Phonology in Europe 2023, Nijmegen, Netherlands.

- Kevin Tang, Akhilesh Kakolu Ramarao & Dinah Baer-Henney. May, 2022. Modeling irregular morphological patterns with recurrent neural network: the case of the L-shaped morpheme. *13th Mediterranean Morphology Meeting*, University of the Aegean, Greece.
- Akhilesh Kakolu Ramarao. 2020. Analysis of POCSO cases in Uttar Pradesh. Agami.

References available upon request.