VSDS Mahesh Akavarapu

⚲ Dept. of CSE, IITK, Kanpur, U.P., India   ✉ maheshak@cse.iitk.ac.in   🔗 mahesh-ak.github.io

in mahesh-akavarapu   🐙 mahesh-ak

Research Interests

Computational Linguistics / Natural Language Processing, Historical Linguistics

As part of my PhD thesis, I worked on Axial Transformers and Graph-Attention-based architectures over the central problems in historical linguistics incorporating insights from Evolutionary Biology. Additionally, I worked on Phylogenetic testing of language families.

Education

PhD   **Indian Institute of Technology Kanpur**, Computer Science   July 2019 to present
- GPA: 3.84/4.00 (9.6/10.0)
- Advisor: Prof. Arnab Bhattacharya

BT   **Indian Institute of Technology Kanpur**, Computer Science, Physics   July 2014 to May 2019
(Second Major)
- GPA: 3.72/4.00 (9.3/10.0)

Awards / Honors

Prime Minister's Research Fellowship (2019-24): Grant of INR 200,000 per year (approx. USD 12,000 in total) from Ministry of Education, Government of India

Academic Excellence Award from IIT Kanpur (2015-16): Awarded to Top 10% students of the batch

Experience

Indian Institute of Technology Kanpur, Research Fellow   Kanpur, India
- Under Prime Minister's Research Fellowship   Aug. 2019 to July 2024
                                                                           4 years 11 months

Indian Institute of Technology Kanpur, Student Researcher, Intern   Kanpur, India
- High Performance Computing in CUDA (Guide: Prof. Mahendra K.   May 2018 to July 2018
  Verma)   2 months

Publications

A Likelihood Ratio Test of Genetic Relationship among Languages   June 2024

V.S.D.S.Mahesh Akavarapu, Arnab Bhattacharya

Accepted to *NAACL 2024* (main), Mexico City, Mexico

Automated Cognate Detection as a Supervised Link Prediction Task   Mar. 2024
with Cognate Transformer

V.S.D.S.Mahesh Akavarapu, Arnab Bhattacharya

Proc. of *EACL 2024*, St. Julian's, Malta

Cognate Transformer for Automated Phonological Reconstruction and Cognate Reflex Prediction   Dec. 2023

V.S.D.S.Mahesh Akavarapu, Arnab Bhattacharya

Proc. of *EMNLP 2023*, Singapore

Creation of a Digital Rig Vedic Index (Anukramani) for Computational Linguistic Tasks   Jan. 2023

V.S.D.S.Mahesh Akavarapu, Arnab Bhattacharya

Proc. of *World Sanskrit Conference 2023*, Canberra, Australia

Invited Talks

- Evolutionary Biology-Inspired Language Models in Historical Linguistics, University of Tübingen (Online), Apr. 2024
- Tutorial on LLMs: Finetuning and Prompting, with Arnab Bhattacharya and Shubham K. Nigam, NIT Warangal (Online), Mar. 2024
- Tutorial on Legal Named Entity Recognition, with Shubham K. Nigam, NIT Trichy (Online), Dec. 2022

Teaching Assitance

- (CS 689) *Computational Linguistics for Indian Languages*, Instructor: Prof. Arnab Bhattacharya (Spring 2024, Fall 2022)
- (CS 63) *Theory of Computation*, Instructor: Dr. Raghunath Tewari (Fall 2023, Fall 2022)
- (CS 315) *Principles of Database Systems*, Instructor: Prof. Arnab Bhattacharya (Spring 2023, Spring 2021)
- (CS 657) *Information Retrieval*, Instructor: Prof. Arnab Bhattacharya (Spring 2022)
- (CS 771) *Introduction to Machine Learning*, Instructor: Dr. Nisheeth Srivastava (Fall 2021)
- (CS 685) *Data Mining*, Instructor: Prof. Arnab Bhattacharya (Fall 2020)
- (ESC 101) *Fundamentals of Computing*, Instructor: Dr. Nisheeth Srivastava (Spring 2020), Dr. Piyush Rai (Fall 2019)

Technologies

Languages: Python, C/C++, HTML, Shell Scripting etc.

Libraries: PyTorch, TensorFlow, HuggingFace, Pandas etc.