

VSDS Mahesh Akavarapu

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Research Interests

Computational Linguistics / Natural Language Processing, Historical Linguistics

As part of my PhD thesis, I worked on Transformer 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

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| PhD | Indian Institute of Technology Kanpur , Computer Science | July 2019 to present |
| | <ul style="list-style-type: none"> GPA: 3.84/4.00 (9.6/10.0) Advisor: Prof. Arnab Bhattacharya | |
| BTech | Indian Institute of Technology Kanpur , Computer Science, Physics (Second Major) | July 2014 to May 2019 |
| | <ul style="list-style-type: none"> 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

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| Indian Institute of Technology Kanpur , Research Fellow | Kanpur, India |
| <ul style="list-style-type: none"> 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 |
| <ul style="list-style-type: none"> High Performance Computing in CUDA (Guide: Prof. Mahendra K. Verma) | May 2018 to July 2018 2 months |

Publications

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| 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 with Cognate Transformer | Mar. 2024 |
| 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

Technologies

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

Libraries: PyTorch, TensorFlow, HuggingFace, Pandas etc.