Abhinav S Menon

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2020–2025 **B.Tech. in Computer Science and M.S. by Research in Computational Linguistics,**
International Institute of Information Technology, Hyderabad GPA: 9.21/10
DEAN'S LIST ('21 Monsoon, '22 Spring, '23 Spring); MERIT LIST ('20 Monsoon, '21 Spring)
RELEVANT COURSEWORK: Machine, Data and Learning; Introduction to NLP; Advanced NLP; Discrete Structures; Linear Algebra; Probability and Statistics; Algorithm Analysis and Design; Information-Theoretic Methods in Computer Science; Operating Systems and Networks.

2024 **Visiting Researcher,** *University of Cambridge*

2023 **Visiting Student,** *University of Edinburgh*

Selected Research Work

2024 **SAEs in Formal Languages**, *University of Cambridge* : Dr. David Krueger, Dr. Ekdeep Singh Lubana *[in progress]*. Investigating properties of sparse autoencoders, particularly causality, through formal languages. *Submitted at **MINT '24**.*

2023 **Barvinok's Algorithm**, *University of Edinburgh* : Dr. Tobias Grosser, Arjun Pitchanathan *[in progress]*. Implemented Barvinok's algorithm for counting integer points in arbitrary polyhedra in MLIR. https://github.com/Abhinav271828/mlir-barvinok

2022 **Mutable Grammars**, *University of Edinburgh* : Dr. Tobias Grosser, Dr. Andrés Goens, Siddharth Bhat. Developing a formalism for mutable grammars, which included creating a parser for ANSI C.

2022 **Superposition in RNNs**, *IIIT Hyderabad* : Dr. Manish Shrivastava. Studying data compression in toy RNNs with hidden states smaller than input sizes. https://github.com/Abhinav271828/superposition-S23

2022 **Neural Factual Inconsistency Classification**, *IIIT Hyderabad* : Dr. Manish Gupta. Developing neural models to classify factual inconsistencies between pairs of sentences. *Accepted at **ECML PKDD '23**.* PREPRINT: https://arxiv.org/abs/2306.08872

Work Experience

Teaching Assistant : *Discrete Structures* (Dr. Ashok Kumar Das, Dr. Venkatesh Choppella)
Evaluated assignments and exams for over 200 students in topics including abstract algebra, basic cryptography, and formal logic.

Teaching Assistant : *Introduction to NLP* (Dr. Manish Shrivastava)
Evaluated assignments, exams and a project for over 150 students in natural language processing, including statistical and neural methods.

Selected Projects

Dependency Parsing across Languages, https://github.com/sentient-bread/Dependency
Implementing a graph-based dependency parser and analyse its performance on English, Hindi and Sanskrit, along with ablation studies on the subtask of POS tagging.

Algorithms in Haskell, https://github.com/Abhinav271828/hask-algos
Implemented over twenty algorithms, benchmarked them, and analysed the results with respect to the language, the algorithm, and the implementation.

last updated: September 26, 2024