MASABATTULA TEJA NIKHIL

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ABOUT ME

I am a highly motivated self-taught learner with a strong drive for interdisciplinary research, particularly at the intersection of networking, hardware optimizations, and LLM optimizations. My goal is to make technology more efficient and accessible, enabling every student to develop projects without computational limitations. I advocate for conceptual and proof-based learning, emphasizing deep understanding over rote memorization.

EDUCATION

Indian Institute of Technology Indore *Aug. 2024 - Present*
M.S Research in Computer Science and Engineering *CPI: 9.5/10*

Amrita Vishwa Vidyapeetham, Bangalore *Aug. 2020 - Jul. 2024*
B.Tech in Artificial Intelligence and Engineering *CPI: 9.12/10*

Sri Chaitanya Junior Kalasala, Hyderabad *Aug. 2018 - Jul. 2020*
Senior secondary *Percentile (JEE Mains): 97.8*

RESEARCH EXPERIENCE

Enhancing Multi-GPU Cluster Training : A Temporal graph based algorithm to address the challenges of using Optical Circuit Switches *June . 2024 - Ongoing*

- Working on a temporal graph based algorithm to address the challenge of **high reconfiguration latency in Optical Switches**.
- Framed the problem as a temporal graph problem and propose an efficient algorithm to mitigate packet queuing latency.

Simulator for multi GPU setup optimizations for LLM workloads. *Nov . 2024 - Ongoing*

- Studied the recent research publications on optimal resource usages and **communication characteristics** for different LLM workloads.
- Creating a distributed deep learning training simulator to support high performance computing evironments with **network capabilities**.

Network Anamoly Detection using Hadoop and Pyspark *Oct. 2022 - Feb. 2023*

- Used supervised and un-supervised approaches for **real-time anamoly detection** using big data tools.
- Performed a comparative analysis on different approaches and got acquainted with big data tools like hadoop and pyspark.

Automatic short answer grading system *Jul. 2022 - Jan 2023*

- Project addresses the problem faced by teachers in manually putting the effort for correcting the answer sheets.
- Collected the manually graded quiz responses from multiple professors and trained multiple language models for grading the sheets.
- Performed a comparative analysis on multiple language models.

PUBLICATIONS

– **Masabattula Teja Nikhil**, Duvvuri Kavya, Kanisettypalli, Harshitha, Amudha J., Krishnan Sajitha. "DynaGlaucoDetect: Leveraging Dyna-Q learning for glaucoma detection", *Journal of Intelligent & Fuzzy Systems 2024*, DOI: https://content.iospress.com/articles/journal-of-intelligent-and-fuzzy-systems/ifs219400.

– **Teja Nikhil Masabattula**, Duvvuri Kavya, Harshitha Kanisettypalli, Susmitha Vekkot, Deepa Gupta, and Mohammed Zakariah. "Unravelling stress levels in continuous speech through optimal feature selection and deep learning", *Procedia Computer Science (Elsevier) 2024*, DOI: https://doi.org/10.1016/j.procs.2024.04.163.

– **Masabattula Teja Nikhil**, Shaik Reeha, Amrita Thakur. "A Deep Learning Approach for Prediction of Binding Affinity for Anti Malerial Drugs and Their Target Proteins", *3rd International Conference for Innovation in Technology (INOCON)*, DOI: https://ieeexplore.ieee.org/abstract/document/10512173.

– T. Venuka, Sangita K., **Masabattula Teja Nikhil**, Amrita Thakur "Prediction of Ground-Level Ozone in Bengaluru Using Machine Learning Techniques", In *IEEE 9th International Conference for Convergence in Technology (I2CT)*. DOI: https://ieeexplore.ieee.org/abstract/document/10544159

– **Masabattula Teja Nikhil**, Jaswanth, K., Siddhartha, M.S.S., Radha, D., Thakur, A. (2023). "A Naïve Approach for Mutation Detection Using Color Encodings and String Matching Techniques", *Smart Innovation, Systems and Technologies, vol 326. Springer, Singapore (FICTA 2022)*, DOI: https://doi.org/10.1007/978-981-19-7513-4_8

PROJECTS

Audiowise : A centralized framework to convert old typographical scripts into audio books - Addressing Blind people *Sept 2023 - Jul. 2024*

– Project addresses the blind people who cant read but has the ability to hear and learn things.
– Created a centralized android application that is capable of converting telugu books into audio books.
– Used custom trained MT5 transformer model for text correction and Google TTS for speech synthesis.
– Used API based approaches to integrate the android application with the AI pipelines.

A Context-Based Telugu Text Correction Pipeline Using MT-5 Transformer Addressing Post OCR Errors *July 2023 - Jan. 2024*

– Used a novel approach for post ocr text correction for Telugu language.
– Manually collected the dataset from old story books and some historical books.
– Performed a comparative analysis on MT5, fast text and other statistical models for text correction.

Cause Prediction system using patient symptoms description *Aug 2023 - Dec 2023*

– Project addresses the problems of people who experience delays in medications.
– Manually collected the dataset that captures the cause and effect relation between the symptoms and diseases.
– Trained the data using LSTM model on AWS platform and created an interactive chatbot using AWS LEX for user interactions.%.

WORK EXPERIENCE

Juniper Networks Bangalore
Network Automation Intern *Jan 2024 - July 2024*

- Worked with different Machine Learning Models for abnormal Access point detection
- Incorporated scripts using python and selenium to develop automation frameworks for access point testing
- Created a personal chatbot using large language models for personal information retreival.

Nala Robotics Hyderabad
Research Intern *July 2022 - Sept 2022*

- Worked on creating a mobile co-bot for a kitchen manipulators using ROS software and real time sensors
- Gained real time experience working with ROS software and robotic manipulators

Acceleron Labs Pvt Ltd Bangalore
Research intern *Oct 2021 - May 2022*

- Worked on NLP projects using NVIDIA NeMo libraries, contributing to the enhancement of user queries and emotions of the bot.

EXTRACURRICULAR ACTIVITIES

- **Teaching Assistant**, IIT Indore, for course subject "Foundations of Graph Theory".
- **Scholarly Reading**, Standard Books, Research papers, Blogs and Social media.
- **Collaborations**, Connect to various scholars and industry professionals for work collaborations.
- **NGO**, Joined Live In Labs conducted by Amrita Vishwa Vidyapeetham, Jan 2023.