

Madhumitha V

📍 India 📩 ai23resch11004@iith.ac.in 🌐 madhuv29.github.io 💬 madhu-v 🎙 madhuV29

Interests

Computer Vision, Deep Learning, Anomaly Detection, Explainability, AI for Neuroscience, Medical Image Analysis, Foundation models, Multimodal AI

Education

Indian Institute of Technology, Hyderabad	Aug 2023 - Present
<i>PhD in Artificial Intelligence [TCS Research Scholar]</i>	<i>GPA: 8.38/10</i>
BMS Institute of Technology and Management, Bangalore	Aug 2019 - Jun 2023
<i>B.E in Artificial Intelligence & Machine Learning [Gold Medalist]</i>	<i>GPA: 9.49/10</i>
Delhi Public School Bangalore North	May 2019
<i>CBSE, PCMB [12th Std]</i>	<i>Perc: 93.4%</i>
St. Vincent Pallotti School	May 2017
<i>ICSE [10th Std]</i>	<i>Perc: 95.3%</i>

Experience

Data Scientist Intern	Feb 2023 – Jul 2023
<i>IBM India Systems Development Lab</i>	<i>Bangalore, India</i>
◦ Worked with Team AI on IBM-Z systems	
◦ Built, tested, and delivered a prototype for deploying ML models (using SnapML) for Credit Card Fraud Detection on S/390x Z systems using the Triton Inference Server.	
Research Intern	Aug 2022 – Dec 2022
<i>NeuRonICS Lab, DESE, Indian Institute of Science</i>	<i>Bangalore, India</i>
◦ Guided by Ms. Madhuvanthi and Prof. Chetan Singh Thakur	
◦ Trained Neural Network using Simultaneous Perturbation Stochastic Approximation techniques on MNIST for deployment on Neuromorphic hardware.	

Publications

DermaCon-IN: A Multi-concept Annotated Dermatological Image Dataset of Indian Skin Disorders for Clinical AI Research ↗	NeurIPS 2025 (Accepted)
Shanawaj S Madarkar*, Mahajabeen Madarkar*, Madhumitha V* , Teli Prakash, Konda Reddy Mopuri, Vinaykumar MV, KVL Sathwika, Adarsh Kasturi, Gandla Dilip Raj, PVN Supranitha, Harsh Udai	
Rel-SA: Alzheimer's Disease Detection using Relevance-augmented Self Attention by Inducing Domain Priors in Vision Transformers ↗	CVPR-W 2025 (Accepted)
Madhumitha V* , Shanawaj S Madarkar*, Sunayna Padhye*, Susmit Agrawal, Konda Reddy Mopuri	
Can memory networks play a role in task-specific modulation of neural circuits?	ICLR-W 2025
Susmit Agrawal, Krishn Vishwas Kher, Madhumitha V , Vineeth N. Balasubramanian	(Accepted)
Detecting Alzheimer's disease with Efficient ViTs ↗	ISMRM Indian Chapter 2025
Shanawaj S Madarkar, Madhumitha V , Sunayna Padhye, Konda Reddy Mopuri	
MOYAGEN3D: Geometric Deep Learning Model of Internal Carotid Artery towards understanding pathogenesis of Moya Moya Angiopathy	SBMT 2024 (Accepted)
Muthu Palaniappan, Madhumitha V , Santhi Natarajan, Sundharakumar KB, Ram Kishan Nekkanti, Manjunath N, Sanjay HM, Sudhir Jayanand, Prasad Patnaik BSV	
URVoice: An Akl-Toussaint/ Graham-Sklansky Optimization for Sign Language Interpretation ↗	IEEE-EMBS BHI 2023
Madhumitha V , Santhi Natarajan, Bharathi A, Manjunath Sargur Krishnamurthy	

Machine Learning Approach for Diagnosis of Schizophrenia Using EEG Signals	MARC 2023
I. S. Rajesh, D. Sri Lakshmi Priya, V Madhumitha , Shreyas Sreenivas	
A Comparative Study for Early Diagnosis of Alzheimer's Disease Using Machine Learning Techniques.	ICICC 2023
A. Bharathi Malakreddy, D. Sri Lakshmi Priya, V Madhumitha , Aryan Tiwari	
SENSE3D: A Novel Optimality Sensing Algorithm to Characterize Internal Carotid Artery in Moya Moya Disease	ConfAI 2022 (Accepted)
V Madhumitha , Santhi Natarajan, B Jayanand Sudhir, Sanjay H M, Manjunath N	

Projects

Knowledge-informed Deep Learning for High dimensional Neuroimaging in Low data regime [PhD Thesis]	Dec 2023 - Present
<i>DiL Lab, Guide: Dr. Konda Reddy Mopuri</i>	
<ul style="list-style-type: none"> ◦ Employing Deep learning models in diagnosis of Brain disorders using sMRI and fMRI modalities. ◦ Providing interpretable solutions for the assistance of doctors in various disorder diagnosis like Alzheimer's disease, Schizophrenia, Parkinson's disease, etc. 	
Hallucination Detection in Large Language Models	Jan 2024 - Apr 2024
<i>NLP coursework, Advisor: Dr. Maunendra Desarkar</i>	
<ul style="list-style-type: none"> ◦ Performed a comparative study of SOTA models (GPT-3, LED, BART-Base, T5) in generating hallucinated text using the BERT Score, Question Answering and N-gram variants of SelfCheckGPT. 	
Blood report (CBC-DBC) generation using blood smear images	Jan 2024 - Apr 2024
<i>IVP coursework, Advisor: Dr. Sumohana Channappaya</i>	
<ul style="list-style-type: none"> ◦ Employed Image processing techniques to segment out RBCs and WBCs, and count them. ◦ Trained YOLO model to detect and classify the 5 major classes of WBC cells. 	
Radiogenomics approach for Neurocognitive disorders;	Dec 2021 - Jan 2023
<i>BMSIT&M, Advisor: Dr. Santhi Natarajan, Dr. Bharathi Malakreddy</i>	
<ul style="list-style-type: none"> ◦ Applied Radiomics and Genomics techniques on a patient's data and later combined the results using statistical mapping to identify a neurocognitive disorder. ◦ Worked on employing genetic algorithms and GATK pipeline for the Genomics part of the research. 	

Achievements

TCS Fellowship	Aug 2025
<ul style="list-style-type: none"> ◦ Awarded the TCS Fellowship under the TCS Research Scholar Program 2025. 	
Second best project in NLP coursework	Apr 2024
<ul style="list-style-type: none"> ◦ Project on “Hallucination detection in Large Language Models” was awarded 2nd best project. 	
Awarded GOLD MEDAL from Visveswaraya Technological University, Karnataka	Aug 2023
<ul style="list-style-type: none"> ◦ Secured First Rank in Bachelor of Engineering (Dept. of AI&ML) in Karnataka State. 	
Winner of Project-based learning, Open Day, BMSIT&M	Jul 2022
<ul style="list-style-type: none"> ◦ Project on “Early detection of Alzheimer's Disease using Machine Learning techniques”. 	
Special Recognition Award, Srishti Hackathon 2022	Apr 2022
<ul style="list-style-type: none"> ◦ State-level competition, conducted by Yuvaka Sangha in association with BMS College of Engineering. ◦ Presented a project on “Smart System for Patient Health Records Management”, which focused on integrating AI with Medical Transcriptions. 	
Illustrator and Coordinator of NATYRA	Jun 2022
<ul style="list-style-type: none"> ◦ Contributed paintings to NATYRA, a handbook published on behalf of Eco club [OIKOS], BMSIT&M. ◦ Was also a coordinator for the release of the handbook. 	

Coursework

Matrix Theory, Probability, Advanced Data Structures and Algorithms, Convex Optimization, Foundations of Machine Learning, Deep Learning, Natural Language Processing, Image and Video Processing, Explainability in Machine Learning, Introduction to Brain & Neuroscience.

Teaching Assistantship

Online FDP hands-on session for NIT Warangal faculty	7th Jun, 2025
Deep Learning 🔗	Spring 2024 & 2025
“Certificate Program on Artificial Intelligence and Emerging Technologies (AIET)” by IITH 🔗	16 th & 23 rd Feb, 2025
DRDO Workshop on Deep Learning and Computer Vision algorithms	11 th – 13 th Jul, 2024

Sub-Reviewer

ICLR 2026, ICLR 2025, WACV 2025, TPAMI 2024, ECAI 2024

Conferences Attended

CVPR 2025, Nashville, Tennessee, USA	Jun 2025
ISMRM India Chapter, IIT Hyderabad	Mar 2025
ICVGIP, IIIT Bangalore	Dec 2024
NCVPRIPG, IIST Trivandrum	Aug 2024
ICVGIP, IIT Ropar	Dec 2023

Technologies

Languages: Python, C, HTML, CSS, SQL

Packages: Linux, LATEX, Docker, Git

Framework: Numpy, Pandas, Scikit-learn, Pytorch, Tensorflow, OpenCV, Matplotlib, Seaborn

Languages

English [Technical Proficiency], Telugu, Kannada, Tamil