

Madhumitha V

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Interests

Computer Vision, Deep Learning, AI for Neuroscience, Explainability

Education

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

Experience

Data Scientist Intern <i>IBM India Systems Development Lab</i>	Feb 2023 – Jul 2023 <i>Bangalore, India</i>
<ul style="list-style-type: none"> 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 <i>NeuRonICS Lab, DESE, Indian Institute of Science</i>	Aug 2022 – Dec 2022 <i>Bangalore, India</i>
<ul style="list-style-type: none"> 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

BRAIN-ViT: Boosting Representations with Anatomical Knowledge for Identifying Neurodegenerative Disorders using ViTs <i>Madhumitha V, Sunayna Padhye, Shanawaj S Madarkar, Konda Reddy Mopuri</i>	Under Review (A* conference)
MOYAGEN3D: Geometric Deep Learning Model of Internal Carotid Artery towards understanding pathogenesis of Moya Moya Angiopathy <i>Muthu Palaniappan, Madhumitha V, Santhi Natarajan, Sundharakumar KB, Ram Kishan Nekkanti, Manjunath N, Sanjay HM, Sudhir Jayanand, Prasad Patnaik BSV</i>	SBMT 2024 (Accepted)
URVoice: An Akl-Toussaint/ Graham-Sklansky Optimization for Sign Language Interpretation <i>Madhumitha V, Santhi Natarajan, Bharathi A, Manjunath Sargur Krishnamurthy</i> URVoice 🔗	IEEE-EMBS BHI 2023
Machine Learning Approach for Diagnosis of Schizophrenia Using EEG Signals <i>I. S. Rajesh, D. Sri Lakshmi Priya, V Madhumitha, Shreyas Sreenivas</i> 10.1007/978-981-97-5231-7 🔗	MARC 2023
A Comparative Study for Early Diagnosis of Alzheimer's Disease Using Machine Learning Techniques. <i>A. Bharathi Malakreddy, D. Sri Lakshmi Priya, V Madhumitha, Aryan Tiwari</i> 10.1007/978-981-99-4071-4 🔗	ICICC 2023
SENSE3D: A Novel Optimality Sensing Algorithm to Characterize Internal Carotid Artery in Moya Moya Disease <i>V Madhumitha, Santhi Natarajan, B Jayanand Sudhir, Sanjay H M, Manjunath N</i>	ConfAI 2022 (Accepted)

Projects

Deep Insights: Understanding Brain Disorders with AI [PhD Thesis] <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.	Dec 2023 - Present
Hallucination Detection in Large Language Models <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.	Jan 2024 - Apr 2024
Blood report (CBC-DBC) generation using blood smear images <i>IVP coursework, Advisor: Dr. Sumohana Channappayya</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.	Jan 2024 - Apr 2024
Radiogenomics approach for Neurocognitive disorders; <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.	Dec 2021 - Jan 2023

Achievements

Second best project in NLP coursework <ul style="list-style-type: none">Project on "Hallucination detection in Large Language Models" was awarded 2nd best project.	Apr 2024
Awarded GOLD MEDAL from Visveswaraya Technological University, Karnataka <ul style="list-style-type: none">Secured First Rank in Bachelor of Engineering (Dept. of AI&ML) in Karnataka State.	Aug 2023
Winner of Project-based learning, Open Day, BMSIT&M <ul style="list-style-type: none">Project on "Early detection of Alzheimer's Disease using Machine Learning techniques".	Jul 2022
Special Recognition Award, Srishti Hackathon 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.	Apr 2022
Illustrator and Coordinator of NATYRA <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.	Jun 2022

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.
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Teaching Assistantship

Deep Learning	Spring 2024 & 2025
AJET course by TalentSprint on Computer Vision	16 th & 23 rd Feb, 2025
DRDO Workshop on Deep Learning and Computer Vision algorithms	11 th – 13 th Jul, 2024

Sub-Reviewer

ICLR 2025, WACV 2025, TPAMI 2024, ECAI 2024

Technologies

Languages: Python, C, HTML, CSS, SQL
Packages: Linux, LATEX, Docker, Git
Framework: Numpy, Pandas, Scikit-learn, Pytorch, Tensorflow, OpenCV, Matplotlib, Seaborn

Conferences Attended

ICVGIP, IIT Bangalore	Dec 2024
NCVPRIPG, IIST Trivandrum	Aug 2024
ICVGIP, IIT Ropar	Dec 2023

Languages

English [Technical Proficiency], Telugu, Kannada, Tamil