

Harshithreddy Kethireddy

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EDUCATION

University of Michigan - Dearborn

Master of Science

Major: Artificial Intelligence Specialization: Machine Learning

Courses: Artificial Intelligence, Software Engineering, Data Structures and Algorithm Analysis

Dearborn, MI

Expected Graduation: May 2026

Indian Institute of Technology Jodhpur

Bachelor of Technology

Major: Artificial Intelligence and Data Science Engineering

Key Courses: Deep Learning, Optimization for Machine Learning, Pattern Recognition And Machine Learning, Advanced Artificial Intelligence, Dependable Artificial Intelligence, Artificial Intelligence, Computer Vision

Jodhpur, India

December 2020 - May 2024

INDUSTRIAL EXPERIENCE

Indian Institute Of Technology Jodhpur

Summer Research Intern in collaboration with Swiggy | Advisor: Dr.Richa Singh

Jodhpur, India

May 2023 - July 2023

- The challenge is to overcome the stability-plasticity dilemma by handling catastrophic forgetting. An additional challenge is imposed if the dataset contains only a few samples of each new class.
- Implemented Constrained FSCIL on the CiFAR-100 dataset and trained D-LORD dataset for facial verification using various models and loss functions to find the best combination so that Constrained FSCIL is performed on the D-LORD dataset using this specific combination of model and hyperparameters.

Indian Institute of Science

Summer Research Intern at Robert Bosch Centre for Cyber-Physical Systems

Bengaluru, India

June 2022 - August 2022

- Created a marker simulation of people moving from one place to another using different modes of transport in the IIT Jodhpur campus.
- Leveraged Leaflet to create a dynamic marker simulation, optimizing transportation routes on campus; decreased average travel time, resulting in enhanced operational efficiency.

RESEARCH PUBLICATIONS AND RESEARCH ASSISTANT EXPERIENCE

Indian Institute Of Technology Jodhpur

Differential Diagnosis of Thyroid Tumors through Information Fusion from Multiphoton Microscopy Images using Fusion Autoencoder | Paper Publication at ICPR 2024 and Undergraduate Capstone Project

Co-Authors: Dr.Angshuman Paul, Ms.Tejaswee Anandan

April 2023 - August 2024

- The field of automated analysis of Multiphoton Microscopy images for the diagnosis of cancer is in its infancy.
- Introduce a novel fusion autoencoder (FAE) for the differential diagnosis of thyroid tumors through information fusion from different types of MPM images.
- Extensive experiments demonstrate the superiority of the proposed method compared to a number of state-of-the-art classification techniques.

Indian Institute Of Technology Jodhpur

Multi-Object Detection through Meta-Training in Resource-Constrained UAV-based Surveillance Applications Paper Submitted at VLSID 2025

Co-Authors: Dr.Binod Kumar, Mr.Abhishek Kumar

January 2023 - December 2023

- Focused on implementing You Look Only Once (YOLO) models on resource-constrained devices with improved generalization, for drone imagery-based multi-object detection.

- The proposed meta-learning is an aspect of transfer learning that focuses on domain generalization (or adaptation) through learning a variety of domains using transfer learning.

PROJECTS

3 Model Compression Techniques | Advisor: Dr.Mayank Vatsa January 2023 - April 2023

- Engineered a multi-faceted approach to compress deep neural networks, integrating pruning and quantization methods that improved inference speed by 30% without sacrificing performance on critical machine learning tasks.
- Findings helped identify the most suitable compression technique for each dataset, enabling the deployment of efficient models on resource-limited devices.

Efficient Adversarial Attack Settings in Black Box Settings | Advisor: Dr.Richa Singh January 2023 - April 2023

- Examined how well a trained Resnet-50 model can withstand the Boundary Biased Attack, and how well "adversarial training" functions when this attack that we have implemented attacks it.
- Compared the performances of various other attacks with this attack.

Multiplayer Nim AI Game Engine | Advisor: Dr.Manish Agarwal July 2022 - December 2022

- Extended the Minimax approach to multiplayer (more than 2 players) games.
- Minimax cannot be directly applied to multiplayer games, hence a new approach MaxN is introduced which tries to maximize the utility for current players at each layer.
- Implemented Paranoid algorithm which transforms the MaxN approach to Minimax, where we treat all other players as a single opponent.

Music Genre Classification | Advisor: Dr.Richa Singh January 2022 - April 2022

- Created a popup which takes the .wav file as the input and gives the genre as the output.
- Implemented code which helps classify any audio file which is in the .wav format into one of the following ten genres: Blues, Classical, Country, Disco, Hip-hop, Jazz, Metal, Pop, Reggae and Rock.

TECHNICAL SKILLS

- **Programming:** C++, Python, R, SQL, Matlab, LaTeX
- **Tools & OS:** Github, Jupyter Notebook, Google Colab, macOS
- **Libraries/Frameworks:** Pandas, PyTorch, Numpy, scikit-learn, MySQL, Seaborn

CAMPUS LEADERSHIP

Sangam - Music Club at Indian Institute of Technology Jodhpur

Mentor and Event Organizer

August 2023 - May 2024

- Directed members and provides mentoring on growing their musical talents, practice meetings, and helps create collaboration within the club.
- Co-ordinated in all music related events like performances, concerts and workshops making sure that the same is carried out smoothly.

Lit Society - Literature Club at Indian Institute of Technology Jodhpur

Mentor and Event Organizer

August 2023 - May 2024

- Mentoring members of literature society with an intent to develop their literacy skills and support them in their creative projects or events.
- Planned literary events such as readings, discussions, and competitions to ensure efficient organization and active membership.

Artificial Intelligence and Data Science Engineering - Class of 2024

Class Representative

August 2021 - August 2023

- Served as a bridge between the students and faculty by representing student voices in administrative and academic decisions.