Annapoorna Sai Sriram Mandalika

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Research Interest
Deep Learning, Computer Vision, Learning Problems, Active learning
Continual Learning, Generative Models, Machine Learning, Robustness and Reliability

Education

Bachelor of Technology, SRM University Sep 2021 - Jun 2025

Department of Computational Intelligence
Advisor: Dr. Athira Nambiar
Courses: Artificial Intelligence, Deep Learning, Digital Image Processing, Computer Vision, Calculus and Linear Algebra, Applications of Remote Sensing and GIS.

Skills

Technical Skills: Python/PyTorch, R, SQL, MATLAB, AWS
Deep Learning: Neural networks, Active learning, Continual Learning, Computer Vision, Supervision based learning, DL Algorithms, Autonomous Vehicles.
Tools: Jupyter, Git/Github, LaTeX
Soft Skills: Research, Collaboration, Ethical Awareness, Adaptability to Interdisciplinary Knowledge

Research Experience

National Remote Sensing Centre, ISRO
Research Engineer Intern Aug 2024 - Present
Supervisor: *Confidential*

- Will be working on building AI systems for remote sensing applications using weak supervision and poisoned data, helping in disaster management and urban planning.

King's College, London
Research Collaborator June 2024 - Present
Collaborator: Soumya Snigdha Kundu (PhD Candidate)

- Currently working on a foundational model for biomedical imaging using self-supervised learning and pretext learning. We aim to build models that work on the least amount of medical image data using pretext tasks.

SRM Institute of Science and Technology, Chennai
Undergraduate Researcher Jan 2023 - Present
Supervisor: Dr. Athira Nambiar

- Trained and Developed an Explainable Active Learning (XAL) model for semantic segmentation in driving scenes. Leveraged Grad-CAM-based XAI and Entropy-based uncertainty metrics to enhance human-AI collaboration, improving data efficiency and interpretability. Demonstrated superior performance on the Cityscapes dataset compared to state-of-the-art models through extensive quantitative and qualitative analyses.

Indian Institute of Technology, Hyderabad
Research Intern/Research Collaborator Jul 2023 - Apr 2024
Supervisor: Dr. C. Krishna Mohan

- Worked on model optimisation for continual learning paradigm for general-purpose computer vision applications. Trained an end-to-end convolutional neural network and energy-based generative model to generate synthetic data to mitigate

catastrophic forgetting via generative replay to perform object recognition. I worked on a scenario where training labels were sparse.

SRM Institute of Science and Technology, Chennai
Undergraduate Researcher — Mar 2023 - May 2023
Supervisor: Dr. N. Meenakshi

- Worked on self-driving robot vehicles that can navigate through dense crowds which are more fine-tuned for Indian scenarios. Also, we were exploring possible applications relevant to the defence industry and real-world applications.

Indian Institute of Technology, Hyderabad
Research Intern - Distributed Machine Learning — Dec 2022 - Jun 2023
Supervisor: Dr. C. Krishna Mohan

- Investigated and trained IoT-based custom optimisation function for Federated learning setting, solving classic image classification problems benchmarking on datasets like CIFAR-10/100, FashionMNIST and DigitMNIST. All the experiments were done on a modified pre-trained DenseNet-121 model.

Indian Institute of Technology, Hyderabad
Research Intern - Image Classification Problem — Mar 2022 - Jun 2022
Supervisor: Dr. C. Krishna Mohan

- Conducted extensive literature survey understanding various algorithms used for Image classification and model fine-tuning. surveyed over 250 research papers for a fundamental understanding of the functionality of neural networks.

Publications

Sriram Mandalika and Athira Nambiar, âSegxal: Explainable active learning for semantic segmentation in driving scene scenariosâ 2024. 27th International Conference on Pattern Recognition (ICPR), [Online]. Available: https://arxiv.org/abs/2408.04482 **(Accepted)**

Aruna, S., G. Usha, A. Saranya, M. Maheswari, and **M. Annapoorna Sai Sriram Mandalika**. "Deep Learning-Based Speech Emotional Analysis Using Convolution Neural Network: Bi-Directional Long Short-Term Memory." In Machine and Deep Learning Techniques for Emotion Detection, pp. 96-116. IGI Global, 2024.

Teaching & Service

Director, IEEE SRM Student Branch — Apr 2024 - May 2025
Head of R&D, IEEE SRM Student Branch — Feb 2023 - Apr 2024

Certifications

AWS Academy Machine Learning Foundations, Amazon Web Services (AWS) — Feb 2023
Computer Vision Onramp, MathWorks — Feb 2023
Machine Learning for Data Science and Analysis, Columbia University — Feb 2022
Programming using C Language, SRM University — Jan 2022

References

Dr. Athira. M. Nambiar, Research Assistant Professor, SRM University,
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Dr. C. Krishna Mohan, Professor, Indian Institute of Technology - Hyderabad,
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Dr. B. Hariharan, Associate Professor, SRM University,
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Dr. Saranya A., Assistant Professor, SRM University,
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