Sriram Mandalika

https://srirammandalika.github.io/ ; LinkedIn

Email : mc9991@srmist.edu.in

Mobile : +91 9963426596

Education

- **SRM Institute of Science and Technology** — Chennai, India
  Bachelor of Technology in Computer Science and Engineering (AI & ML) GPA: 8.82/10.0 — *Sept 2021 – Jul 2025*

Skills

- **Technical Skills**: Python, PyTorch, R, SQL, MATLAB, C, C++, AWS, Cloud Computing, Speech Recognition, Performance Analysis, Git/Github, Neural Networks, Data Structures
- **Soft Skills**: Research, Collaboration, Communication, Analytical, Teamwork.

Research Experience

- **National Remote Sensing Centre, ISRO** — Hyderabad, India
  Research Engineer Intern — *Aug 2024 - Present*
  - **Machine Learning**: Developed robust Statistical algorithms for automating the analysis of changes in urban water bodies in major cities in India, my work helped us detect water bodies 4% better than the SOTA.
  - **Data Engineering**: Formulated, implemented and optimized data pipelines for these architectures for detecting changes in water bodies using PyTorch, also working with various teams to ensure proper Information Retrieval.
- **SRM Institute of Science and Technology** — Chennai, India
  Undergraduate Researcher — *Jan 2023 - Present*
  - **Deep Learning**: 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, reducing the misclassification rate by about 6%. Our work got accepted at ICPR-2024.
  - **Thesis**: Building a foundation model addressing catastrophic forgetting using continual incremental learning, a step towards AGI.
- **Indian Institute of Technology, Hyderabad** — Hyderabad, India
  Research Intern — *Summer 2022, 2023 2024 and Winter 2022*
  - **Federated Learning**: Worked on a custom optimization function specifically designed for medical image classification in federated setting, additionally was also tested on benchmark datasets like CIFAR-10/100. Used wide range of models designed from scratch.
  - **Learning Methodologies**: Trained an optimisation end-to-end CNN and energy-based generative model to mitigate catastrophic forgetting via generative replay to perform object recognition for general-purpose computer vision applications, improving memory retention by 12%. I worked on scenarios where training labels were sparse.

Publications

- **Sriram Mandalika** and Athira Nambiar, "SegXal: Explainable active learning for semantic segmentation in driving scene scenarios," 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.
- Bhoovi Chauhan, **Sriram Mandalika**, Abel Jaba Deva Krupa, Samiappan Dhanalakshmi. "Active Learning based Semi-Supervised Approach with Attention Mechanisms for Improved Fetal Arrhythmia Detection". 21st IEEE India Council conference. **(Under Review)**

Projects

- **SegXAL Framework**: A semi-supervised learning-based framework for autonomous vehicles to take quick and logical decisions.
- **Urban Water Spread area characterization**: Built an efficient workflow to predict the characteristics of inland urban water bodies over seasons in India, worked with major metro cities in India.
- **Active FETAL Pulse Classifier**: Built a custom end-to-end neural network model that monitors FETAL heart rate during labour and pregnancy for doctors to provide efficient treatment, using active learning and signal processing.