Manogna Sreenivas

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Education

Indian Institute of Science — Bengaluru, India
PhD in Electrical Engineering, CGPA: 9.0/10.0 — *Oct 2020-Present*

National Institute of Technology Karnataka — Surathkal, India
B.Tech in Electrical and Electronics Engineering, CGPA: 8.72/10.0 — *Aug 2013- Apr 2017*

Research Interests

Computer Vision, 3D Vision, Multimodal Learning, Generative Models, Continual Learning

Work Experience

PathPartner Technology — Bengaluru, India
Senior Software Engineer — *Jan 2020 – Sep 2020*
Software Engineer — *July 2017 – Dec 2019*

- **Face Detection for Driver Monitoring Systems:** Built and deployed a Single-Shot Detector-based face detection system for driver monitoring, integrated across Intel, ARM, Qualcomm, and Cadence platforms for real-time inference.
- **Edge Deployment of Deep Learning Models:** Ported and optimized TensorFlow/Caffe models to edge devices using SNPE, OpenVINO, and ArmNN, enabling efficient on-device inference.
- **MLPerf-style Benchmarking:** Benchmarked representative CNN architectures (e.g., ResNet, Inception) on NVIDIA Jetson TX2 and Nano, analyzing latency, throughput, and energy trade-offs to inform deployment decisions on edge hardware.
- **Industrial Defect Detection:** Developed a CNN-based visual inspection system for detecting defective vacuum-sealed food packages for real-time deployment in industrial production pipelines.
- **DSP Optimization for ML Workloads:** Implemented SIMD-vectorized kernels using intrinsics to accelerate TensorFlow operations on Cadence Tensilica Vision DSPs, improving execution efficiency on resource-constrained edge devices.

Wipro Technologies — Bengaluru, India
Intern — *April 2016 – June 2016*

- **Pedestrian Detection:** Implemented a classical feature extraction pipeline (HOG + SVM) for pedestrian detection as part of an autonomous vehicle project.

Research Experience

Adaptive Vision Systems under Domain Shift — *2021 – Present*
Image Analysis and Computer Vision Lab, IISc — *Bengaluru, India*

- **Adaptive & Open-World Vision Systems:** Developed and evaluated methods for adapting models at deployment time across real-world scenarios including closed-set, open-set, and incremental settings, using streaming, unlabeled data while handling evolving label spaces and domain shifts.
- **Learning under Limited Data and Domain Shift:** Designed a style-based augmentation method for cross-domain few-shot learning to improve generalization under limited labeled data. Proposed an adaptive margin-based loss to address class imbalance and feature confusion in cross-domain facial expression recognition.
- **Controllable Generative Models:** Addressed the visual storytelling task requiring consistent character generation and accurate attribute realization across scenes. Developed an attention-based test-time objective to enforce alignment between attribute-object pairs while preserving character consistency in diffusion-based models.
- Built a **Research Twin**, an LLM-based system enabling natural language querying over my research corpus using structured summaries and retrieval; designed for interactive exploration of my work on domain shifts and generative models.

Technical Skills

Programming: Python, C
Frameworks: PyTorch, TensorFlow, OpenCV

Selected Publications

- **AttriStory: Fine-grained Attribute Realization for Visual Storytelling with Diffusion Models**, Manogna Sreenivas, Rohit Kumar, Soma Biswas, *IEEE/CVF Computer Vision and Pattern Recognition (CVPR) Workshops, 2026.*
- **Segmentation Assisted Incremental Test Time Adaptation in an Open World**, Manogna Sreenivas, Soma Biswas, *British Machine Vision Conference (BMVC), 2025*
- **Efficient Open Set Single Image Test Time Adaptation of Vision Language Models**, Manogna Sreenivas, Soma Biswas, *Transactions on Machine Learning Research (TMLR), 2025*
- **pSTarC: Pseudo Source Guided Target Clustering for Fully Test-Time Adaptation**, Manogna Sreenivas, Goirik Chakrabarty, and Soma Biswas, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2024*
- **Similar Class Style Augmentation for Efficient Cross-Domain Few-Shot Learning**, Manogna Sreenivas and Soma Biswas, *IEEE/CVF Computer Vision and Pattern Recognition (CVPR) Workshops, 2023*

Additional

- **Teaching:** Teaching Assistant - Advanced Image Processing (IISc, 2023–2024), Digital Image Processing (IISc, 2022–2023), Deep Learning for Computer Vision (NPTEL, 2022, 2025); Visiting Faculty - Mathematics for Machine Learning (PES University, 2023)
- **Academic Service:** Reviewer for CVPR, ICCV, ECCV, BMVC, AAAI, NeurIPS, ICLR.
- **Achievements:** Prime Minister's Research Fellowship (PMRF), 2022–2025