Santhoshini Gongidi

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Interests: Foundation Models for 2D/3D Vision, Multimodal Learning, 3D Scene Understanding and Reasoning

Education

Carnegie Mellon University - School of Computer Science — **Pittsburgh, PA**
Master of Science in Computer Vision — December 2025

International Institute of Information Technology (IIIT), Hyderabad — **Hyderabad, India**
Master of Science in Computer Science & Engineering by Research *(CGPA: 8.67/10)* — December 2022

Indian Institute of Information Technology (IIIT), Sri City — **Chittoor, India**
Bachelor of Technology with Honours in Computer Science & Engineering *(CGPA: 9.38/10)* — May 2018

Work Experience

Micron Technology — **Hyderabad, India**

Senior Engineer, Data Science — October 2023 - November 2023

- Scaled an anomaly detection solution using **image morphing** and **semi-supervised learning** techniques, leading to deployment across three use cases and saving an estimated $5.6 million.

Engineer, Data Scientist — July 2021 - September 2023

- Improved anomaly detection in wafer images with a 90% recall using **instance segmentation**.
- Contributed to the development of image **auto-labeling algorithms** and tools to streamline annotation processes.
- Established domain-relevant feature aggregation methods, earning an internal award and team-wide adoption.

Research Experience

CVIT, IIIT Hyderabad (Advisor: Prof. C. V. Jawahar) — **Hyderabad, India**
Graduate Research Assistant — June 2018 - December 2021

- Devised a **multi-head joint training** method for CNN-CTC handwritten text recognition models, boosting feature extraction efficiency and slashing average error rates by 15% on Latin and 20% on Indic datasets. Thesis
- Designed and implemented a real-time **zero-shot multimodal search engine** to enable search across unseen handwritten documents by leveraging shared latent space training of image and text encoders. Achieved an average top-10 precision of 0.86 for unseen queries in multiple languages. CVIP
- Developed a **large-scale benchmarking dataset** for Indic handwritten text, encompassing 10 major languages, and conducted baseline studies to assess inter-language transfer learning efficacy. ICDAR

CVPR Unit, Indian Statistical Institute (Advisor: Prof. Umapada Pal) — **Kolkata, India**
ML Research Intern — May 2017 - July 2017

- Achieved 97% accuracy with limited training data for offline writer identification in Indic scripts by developing stroke-based clustering approach for feature generation. ICDAR, ACPR

Projects

Indoor Scene Image Generation — **Pittsburgh, PA**
CMU — October 2024 - Present

- Developing an augmentation pipeline to generate indoor scene panoramas by extracting **3D furniture meshes** and rendering enhanced panoramic images for virtual staging.

Sentiment Analysis for Code-Mixed Tweets — **Chittor, India**
IIIT Sri City — August 2017 - December 2017

- Proposed a sub-word **hierarchical BiLSTM** model for sentiment classification on Hindi-English code-mixed tweets, surpassing previous state-of-the-art LSTM model by a substantial 16.74% margin. AAAI

Publications

Google Scholar

Santhoshini Gongidi, C V Jawahar, INDIC-HW-WORDS: A Dataset for Indic Handwritten Text Recognition, ICDAR 2021

Upendra Kumar, Vishal Singh Rana, Chris Andrew, Santhoshini Reddy, and Amitava Das, Consonant-Vowel Sequences as Subword Units for Code-Mixed languages, AAAI 2018

Skills

Programming languages & Databases: Python, Javascript, PostgreSQL
Frameworks & Libraries: PyTorch, OpenCV, NumPy, scikit-learn, FAISS, Detectron2, Flask
Tools & Platforms: Docker, Google Cloud Platform (GCP), Google Kubernetes Engine (GKE), MLflow