enkata Satya Sai Prudhvi Gudla

♣prudhvigudla.pro

Education

Year	Degree/Certificate	Institute	CPI/%
2025	B.Tech, Metallurgical and Materials Engineering with	Indian Institute of Technology, Kharagpur	8.66/10
	Minor in Computer Science Engineering		
2021	APBIE(XII)	Sri Venkateswara Classes, Visakhapatnam	96.1%
2019	CBSE(X)	Delhi Public School, Visakhapatnam	95.8%

Experience

Akridata Computer Vision Research Intern Sep 2025 - Present

Remote

• Developing automated document parsing pipelines to extract and curate annotated image-text datasets from complex manufacturing documents, supporting data-centric AI solutions for the Akrinomaly visual inspection platform

Laboratoire Hubert Curien, Jean Monnet University

Apr 2024 – Jul 2024

Charpak Lab Scholar - Research Internship | Guide: Prof. Kamal Singh

St. Etienne, France

- Designed a novel compression algorithm for JSON-LD data that provides network overhead savings up to 95.1%
- Developed a Python library for efficient encoding and decoding of JSON-LD data using our novel compression algorithm

Smart Wireless Applications and Networking Lab, IIT Kharagpur

Jan 2024 – Nov 2024

Project Lead, SteelEye - Ladle Tracking System

Kharagpur, West Bengal, India

- Designed a Ladle Tracking System that automates ladle number detection in steel plants using fine-tuned YOLOv8 model and a FastAPI web application integrated with a MySQL database to deliver real-time key performance indicators
- Developed a RAG chatbot that generates SQL queries to retrieve data and answer user queries within the web app

Projects

CLIP CPE Zero Shot Defect Classification

Aug 2025 - Sep 2025

• Implemented a zero-shot defect classification pipeline with CLIP model and Compositional Prompt Ensemble technique, achieving 64.5% accuracy on MVTec AD hazelnut dataset through two-stage binary and multi-class classification

Machine Learning for Modeling Interatomic Potentials

Jan 2025 - Apr 2025

• Developed a Moment Tensor Potential for scalable molecular dynamics simulations of Tungsten and Gallium Arsenide Visual Web Agent

Jan 2025 – Feb 2025

• Engineered a multi-stage visual AI system using LangGraph and Gemini-2.5-Flash to autonomously navigate web UIs

Publications

 A Amalanshu, V Nagaswamy, G Prudhvi, Y Sirvi, Entity Augmentation for Efficient Classification of Vertically Partitioned Data with Limited Overlap - GLOW Workshop, International Joint Conference on Artificial Intelligence, 2024

Achievements

- Awarded the Charpak Lab Scholarship 2024, granted to 35 students nationwide from the French Institute in India
- Received the AI4ICPS Chanakya Fellowship for building an end-to-end distributed ladle tracking system for steel plants
- Secured National Finalist position at Smart India Hackathon 2023 as team lead for developing an end-to-end pipeline for automating real-time hot metal ladle tracking at Visakhapatnam Steel Plant through ladle number detection
- Built the gold-winning prototype for volumetric weight estimation at Inter IIT Tech Meet 11.0, Kanpur, UP

Languages and Libraries: C, MATLAB, Python, SQL, NumPy, Pandas, Matplotlib, PySpark, Scikit-learn, TensorFlow, PyTorch, CUDA, Flower, FastAPI, Streamlit, MLflow, LangChain, LangGraph, OpenCV, Open3D, NetworkX Technologies/Frameworks: ROS, Git, GitHub, Docker, Kubernetes, Airflow, Kafka, Linux, AWS, Arduino, ESP32

Positions of Responsibility

Student Satellite Program IIT KGP

Nov 2023 - Apr 2025

Founding Member

Kharagpur, West Bengal Executed a pivotal role in CubeSat design by overseeing sensor testing and successfully implementing a LoRa RFM95W-based communication system with a spring antenna on the satellite and a Yagi antenna at the ground station

Autonomous Ground Vehicle Research Group, IIT Kharagpur

Aug 2022 - Apr 2025

Mechatronics and Vision Team lead | Guide: Prof. Debashish Chakravarty

Kharaapur, West Bengal

• Engineered a novel entity augmentation technique for vertical federated learning, achieving a 69.5% accuracy on ResNet-18 trained on the CIFAR-10 dataset with 5% entity alignment, significantly outperforming traditional VFL approaches

Relevant Coursework

- Advanced Digital Image Processing and Computer Vision
- Probability and Statistics
- Machine Learning Foundation and Applications
- Programming and Data Structures
- Computer Architecture and Operating
- Switching Circuits and Logic Design