Gudla Venkata Satya Sai Prudhvi

4th Year Undergraduate
Department of Metallurgical and Materials Engineering
Pursuing a Minor in Computer Science and Engineering

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Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2021 - Present	B.Tech	Indian Institute of Technology, Kharagpur	8.5/10
2021	APBIE(XII)	Sri Venkateswara Classes, Visakhapatnam	96.1%
2019	CBSE(X)	Delhi Public School, Visakhapatnam	95.8%

Experience

- **Charpak Lab Scholar - Research Internship, Laboratoire Hubert Curien, St. Etienne, France**
  - Worked on the CoSWoT(Constrained Semantic Web of Things) project funded by the ANR, France under Prof.Kamal Singh
  - Engineered a State-of-the-art compression algorithm for JSON-LD data for constrained Web of Things applications and submitted our research paper to the IEEE International Conference on Web Intelligence and Intelligent Agent Technology
  - Created a Python library to facilitate efficient encoding and decoding of JSON-LD data using our compression algorithm
- **Undergraduate Researcher - Smart Wireless Applications and Networking Lab, IIT Kharagpur**
  - Built an end-to-end Ladle Tracking System that automates ladle number detection using a fine-tuned YOLOv8 model. The system provides real-time analytics to industry personnel via a Fast-API web app integrated with a MongoDB database
  - Leading the development of a resilient wireless mesh network using multiple Raspberry Pi devices and Batman-adv, a layer-2 wireless routing protocol implementation, ensuring reliable communication in industries with challenging environments
- **Undergraduate Researcher, Autonomous Ground Vehicle Research Group, IIT Kharagpur**
  - Engineered a novel entity augmentation technique for vertical federated learning, achieving a 69.5% accuracy on the resnet18 model trained on the CIFAR10 dataset with 5% entity alignment, significantly outperforming traditional VFL approaches
  - Researched extensively on 3D reconstruction methods, including Neural Radiance Fields and 3D Gaussian Splatting. Authored a reproducibility report: "Exploring Explicit Representations in 4D: A Comparative Analysis with HexPlane"
  - Successfully implemented PID control on a Turtlebot3 robot in Gazebo environment using ROS publisher and subscriber nodes. Crafted a URDF package for a 2-wheeled bot and operated it through teleop using a differential drive plugin

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
- *P Gudla, K Singh, "CBL: Compact Encoding of JSON-LD Data using CBOR and Bitmaps for Web of Things" - arXiv preprint arXiv:2407.04398, 2024* - submitted to the IEEE International Conference on Web Intelligence and Intelligent Agent Technology

Achievements

- Selected as a **Reviewer** for the prestigious **International Conference on Learning Representations (ICLR) 2025**
- Achieved academic excellence, ranking 2nd in the Department of Metallurgical and Materials Engineering with a CGPA of 8.5/10
- Received **AI4ICPS Chanakya Fellowship** for building a distributed tracking system for operations management in steel plants
- Led a team to the National Finals of **Smart India Hackathon, 2023**, where we developed an end-to-end pipeline for tracking hot metal ladles in the SMS-1 and SMS-2 of Visakhapatnam Steel Plant, automating ladle number detection and arrival notifications
- Ranked 15th nationally in the **Awiros X Intel App-A-Thon 2** for conceptualizing an innovative app that utilizes Neural Radiance Fields for 3D reconstruction from multiple images, empowering designers and engineers to capture 3D models
- Built the gold-winning prototype using a Py-Serial operated conveyor belt system, movable Intel RealsenseD455 Depth camera, and computer vision methods such as U2NetP for volumetric weight estimation at **Inter IIT Tech Meet 11.0, Kanpur, UP**
- Global Finalist at the **International NeuroTechX Hackathon 2023** showcasing innovative solutions in neurotechnology

Skills and Expertise

- **Programming Languages and Libraries:** C, C++, Matlab, Python, numpy, pandas, matplotlib, Seaborn, Scikit-Learn, TensorFlow, Pytorch, Flower Fast-API, PyMongo, SQLAlchemy, OpenCV, CBOR2, Paho-mqtt, rospy, pyserial, ultralytics
- **Softwares:** ROS, Gazebo, Matlab, Git, Github, Docker, Arduino IDE, Arduino IoT Cloud, MongoDB, SQL

Positions of Responsibility

- **Founding Member, Student Satellite Program IIT KGP** (*Nov'23- Present*)
  - Executed a pivotal role in the CubeSat design and overseeing sensor-related tests. Built a successful communication system utilizing a LoRA RFM95W module with a spring antenna on the satellite and a Yagi antenna for the ground station

Extra Curricular Activities

- Authored creative pieces and articles revolving around happenings on the campus as an Editor at The Scholar Avenue
- Mentored 50+ students in an IEEE-certified workshop at the Winter School of AI and Robotics, IIT Kharagpur

Relevant Courses

Probability and Statistics	Algorithms-I*
Transform Calculus	Ubiquitous Computing
Machine Learning Foundation and its Applications*	Computer Applications in Metallurgical Processes*
Advanced Digital Image Processing and Computer Vision	(*with laboratory course)