

KALATHUR CHENCHU KISHORE KUMAR

COMPUTER VISION & ML ENGINEER, HCLTECH R&D

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Education

M.Tech in Artificial Intelligence

Indian Institute of Technology, Jodhpur

July 2021 - Jun 2023

CGPA: 7.58/10

B.Tech in Computer Science and Engineering

Sree Vidyanikethan Engineering College, Andhra Pradesh

July 2015 - May 2019

CGPA: 8.02/10

Professional Experience

Computer Vision & ML Engineer, Technical Lead, HCLTech, Chennai

October 2023 - Present

- Built a **3D scene reconstruction pipeline** with **NeRF** and **COLMAP** from **monocular camera** frames, enhancing environment modeling and enabling precise in-house equipment installation.
- Explored and implemented **Stable Diffusion Model** to generate images from **facial landmarks** and vice-versa while incorporating **ControlNets** for precise control over prompt text and depth maps from landmarks to generate image.
- Developed a comprehensive **Alert-Monitoring system** to track unsafe driving behaviors, optimizing & **quantizing** the model for **edge devices** with **OpenVINO**, achieving an **83% reduction in model size** & **60 FPS** performance.
- Developed a method for **detecting periodic patterns** in semiconductor images using **frequency domain techniques**, **wavelet decomposition**, and **histogram equalization**, achieving a **proof of concept** with an **IoU score of 80%**.
- Explored and implemented strategies to address the **catastrophic forgetting** challenge in **incremental object detection** using **knowledge distillation**. Incorporated unseen classes from the **COCO dataset**, achieving a **mAP score** of approximately **85%**, closely matching the **mAP** of traditional object detection methods.

Assistant System Engineer Trainee, TCS, Chennai

May 2019 - October 2019

ETL Developer

- Developed workflows using **Informatica** & Mainframe systems, improving policy & claims management for BFSI client.
- Created **SQL** scripts to detect **fraud** claims, cutting false claims to **20%** and boosting processing speed by **30%**.

Masters Thesis / Project

Smart Routing Algorithms for Pickup and Delivery Operations by Enhancing Capacity Utilization Jun 2023

- Developed a framework for the **capacitated vehicle routing problem** with **pickup and delivery**, integrating **driver preferences** and **spatiotemporal features** using **Markov Models** and **LSTMs**.
- Optimized **route selection** and **vehicle utilization**, resulting in **1.5 to 2 times higher serving capacity** compared to traditional methods, improving **fuel** and **labor** efficiency.
- Evaluated the impact of **vehicle size**, **simultaneous pickups and deliveries**, and **number of stops** on **vehicle counts** and capacity limits.
- Achieved a **deviation of less than 20%** from optimal paths, demonstrating **cost-effectiveness** and reliability in managing **one-stop** pickups and deliveries.

Technical Skills

Programming: Python, C/C++, Java.

Machine Learning Frameworks: Scikit Learn, PyTorch, OpenCV, LangChain, LLamaIndex, RAG, LORA & QLORA.

Technical: Machine Learning, Deep Learning, Video & Image Processing, Computer Vision, NLP, GenerativeAI, LLM.

Relevant Coursework

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|---------------------------|--------------------------|--------------------------|--------------------------|
| • Advanced Deep Learning | • Computer Vision | • Machine Learning | • Financial Engineering |
| • Artificial Intelligence | • Computer Graphics | • ML-Ops & DL-Ops | • Virtualization & cloud |
| • Blockchain & Security | • Cognitive Neuroscience | • Non-linear programming | computing |

Academics Accomplishments & Extracurricular

- Presented a **Mixed Reality** concept at **INAE-SERB Youth Conclave 2022**, IIT Jodhpur.
- Attended workshops on **Ethical Hacking & Information Security** (IISC Bangalore, Jan 2018) and **Google Android Development** (IIT Bombay, 2017-2018).
- 96.68th Percentile in **GATE 2021**.
- TA for courses: Deep Learning, DLOps, Security and its Applications.
- Managing **Student Wellbeing Committee** web portal and providing **student guidance** at **IIT Jodhpur** (2022).
- 3K+** followers on LinkedIn.