

CHEDEMALA BALAJI PRANEETH KAMAL

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EXPERIENCE

Software Engineer Intern <i>RedCrix</i>	Dec 2024 – Feb 2025
	<i>Mohali</i>
<ul style="list-style-type: none">Designed and optimized a high-performance backend pipeline using Flask and OpenCV, improving throughput by 30% and reducing memory footprint for large-scale image operations.Built fault-tolerant processing workflows with automated retries, validation checks, and logging to ensure 95% accuracy across 300+ production test cases.Optimized image handling with automatic resizing and JPEG compression, reducing processing time and memory usage by over 30% on large files.	
Data Science Intern <i>AI4SEES</i>	Jun 2025 – Aug 2025
	<i>Bangalore</i>
<ul style="list-style-type: none">Engineered a 6D object pose estimation system using YOLOv5-6D, OpenCV, and COLMAP to accurately detect and align 3D models for robotics and AR use.Collected and trained on 1,500+ high-quality images with Blender-based synthetic data, reaching under 6° rotation error and 3 cm position error, better than baseline results.Collaborated within a cross-functional team to integrate calibration, labeling, and dataset generation tools, ensuring reproducibility, scalability, and efficient workflows across multiple environments.	

PROJECTS

Diffender: Lightweight Diffusion Defense | *PyTorch, Diffusion Models, Quantization*

- Built a diffusion-based defense model to purify adversarial patches from images, modifying the U-Net architecture for faster real-time processing.
- Applied Post-Training Quantization (PTQ) to the model, significantly reducing memory usage to enable efficient deployment on edge devices.

Agentic RAG Research Assistant | *LangChain, CrewAI, Llama-3, VectorDB*

- Built a multi-agent system using CrewAI that automates technical document analysis, utilizing RAG with ChromaDB to improve answer accuracy and reduce hallucinations.
- Deployed a quantized Llama-3-8B SLM locally to power the agents, ensuring low latency and data privacy without relying on external APIs.

EDUCATION

National Institute Of Technology Sikkim

CGPA: 8.55, Bachelor Of Technology, Computer Science and Engineering

Ravangla, Sikkim

Nov 2022 – Jun 2026

TECHNICAL SKILLS

Generative AI & ML: PyTorch, LangChain, RAG, Llama-3 (SLMs), VectorDB (Chroma), Quantization (PTQ)

Languages: Python, C/C++, SQL (MySQL), JavaScript

Web & Backend: Flask, FastAPI, Node.js, React, REST APIs, Microservices

DevOps & Cloud: Docker, AWS (EC2, S3), GitHub Actions (CI/CD), Linux

Core Concepts: Data Structures & Algorithms, Distributed Systems, System Design, Operating Systems

Soft Skills: Strong Analytical and Logical Reasoning, Problem-Solving, Team Collaboration and Project Management

ACHIEVEMENTS

- LeetCode** – Solved **300+** problems on LeetCode (Top 30% global), covering DP, graphs, sliding window, greedy, and advanced DSA
- Finalist – Smart India Hackathon 2025** (National-level innovation challenge among 10,000+ teams)
- Contributed documentation/bug fixes to YOLOv5-6D pipeline.

CERTIFICATIONS

- AI/ML for Geodata Analysis – **ISRO, IIRS**
- Data Science – **AI4SEE**
- Web Dev – **RedCrix**