Deepak Kumar

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Summary

AI/ML and Full-Stack Developer skilled in Computer Vision, Deep Learning, Generative AI and Optimization, with experience deploying scalable end-to-end ML solutions and web applications.

Work Experience

Research Intern — AI & Computer Vision, IIT Kanpur — On-Site Jan 2025 – Jun 2025
PIL Lab, Indian Institute of Technology Kanpur

- Built a UV 365 nm, 395 nm + NoUV imaging pipeline for plant disease detection in controlled black-box setup.
- Integrated solution on Raspberry Pi with UV LEDs + camera for scalable low-cost deployment.
- Collected and curated a dataset of 14K+ leaf images across 8 imaging classes.
- Trained and fine-tuned multiple CNN models ResNet18, VGG16, SVM, XGBoost, Transformer over the custom dataset.
- Achieved 88.7% accuracy with UV+NoUV imaging, 4% higher than NoUV-only models.

Deep Learning for Agriculture, CSVTU Bhilai — On-Site Aug 2025 – Present
University Teaching Department, CSVTU Bhilai

- Designed and implemented a pipeline for early detection of sugarcane diseases, improving classification accuracy.
- Applied preprocessing (multimodal fusion) to improve robustness and generalization.
- Instructed deep learning models ResNet18, Vision Transformers, achieving 96% classification accuracy.

Projects

Coder Buddy – AI-Powered Coding Assistant Sept 2025

- Developed an AI-powered coding assistant.
- Leveraged LangGraph, large language models, and multiagent systems.
- Designed a pipeline with Planner, Architect, and Coder agents to transform natural language into a functional project.
- Implemented real-time project planning, automated code generation, error handling, and file management.

RAG Multi-Document Chatbot Aug 2025

- Developed a Retrieval-Augmented Generation (RAG)-based chatbot for intelligent document Q&A.
- Engineered parsing, embedding storage, and retrieval pipelines using LangChain.
- Achieved context-aware multi-document querying with citation support, enhancing accuracy and reliability.

Plant Leaf Detection Feb 2025

- Implemented a custom YOLOv8 object detection model on 3.5k plant images for accurate leaf detection.
- Designed a pipeline to display focus score per leaf, enabling real-time quality feedback.
- Delivered a scalable AI solution for early plant disease detection, supporting precision agriculture.

Education

2022 - present	B.Tech(Hons) CSE(Data Science), UTD-CSVTU,Bhilai	(GPA: 7.6/10.0)
2020	Class 12th UP Board	78%
2018	Class 10th UP Board	80.5%

Relevant Courses

Operating Systems, Computer Networks, Database Management Systems, Data Structures and Algorithms, Object-Oriented Programming, Machine Learning, Natural Language Processing

Achievements & Certifications

2025 Letters of Recommendation (LORs) from Professor at IIT Kanpur for academic excellence and research potential
2025 Certified in Computer Vision course by IIT Kharagpur NPTEL Swayam
2025 Certified in Management Information System course by IIT Kharagpur NPTEL swayam
2025 Completed DSA + Web Development course from - Apna College

Skills

Programming Languages	Python, Java, JavaScript, SQL,
AI/ML Frameworks	LangChain, LangGraph, TensorFlow, PyTorch, Model Deployment, scikit-learn, OpenCV
Web/App Development	REST APIs, MongoDB, ReactJS, NodeJS, React-Native, Docker
Soft Skills and Tools	Git and Github, Time Management, Communication, Team Management