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.

Research Student — 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 GitHub Link

- 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 GitHub Link

- 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 & Disease Classification System GitHub Link

- 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

Certificates

2025 Letters of Recommendation (LORs) from Professor at IIT Kanpur for academic excellence and research potential

2025 Completed DSA + Web Development course from - Apna College

2024 Selected as Internshala Student Partner – Campus Ambassador Program

Skills

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