Deepak Kumar

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SUMMARY

AI/ML and Full-Stack Developer skilled in Computer Vision, Deep Learning, and Optimization, with experience deploying scalable end-to-end ML solutions and 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 (365nm, 395nm) + 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 CNNs model (ResNet18, VGG16, SVM, XGBoost, ViT) 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

- Developed an RGB imaging-based pipeline for early sugarcane disease detection under controlled lab conditions.
- Applied preprocessing (multimodal fusion) to improve robustness and generalization.
- Trained deep learning models (ResNet18, Vision Transformers), achieving 96% classification accuracy.

PROJECTS

Coder Buddy – AI-Powered Coding Assistant [GitHub Link]
Bhilai,Sep-2025

- Built an AI-powered coding assistant leveraging LangGraph, LLMs, and multi-agent 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]
Bhilai,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 & Disease Classification System [GitHub Link]
IIT Kanpur,Feb-2025

- Trained 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, scikit-learn, OpenCV
Web Development	RestAPI, MongoDB, ReactJS, NodeJS