

# DEEPAK YADAV

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*Experienced professional with over 5 years of hands-on experience in developing cutting-edge vision-based AI models and automation tools. Proven ability to streamline complex processes, reduce development timelines, and enhance system efficiency. Actively seeking full-time opportunities to contribute to and excel in Machine Learning Engineering, with a focus on scalable solutions and real-world applications.*

## Experience

### Sony | AI & ML Consultant | Bengaluru, India

June 2021 - Present

- Contributed to the advancement of **Sony's AITRIOS™ edge AI platform** and **IMX500 vision sensors**, pioneering innovations in AI-powered camera technologies, with applications in smart manufacturing, industrial automation, and smart surveillance.
- Achieved an **83% reduction in AI model validation time**, automating the verification process for **TensorFlow, PyTorch, and ONNX models**, accelerating testing timelines from two months to just **ten days**, and significantly improving time-to-market.
- Designed and implemented an **end-to-end AI benchmarking and testing framework**, enabling faster deployment and operational efficiency for **real-time worker safety monitoring** and **predictive maintenance** in industrial applications.
- Developed **on-sensor AI models** for real-time **classification, object detection, and anomaly detection**, enhancing **data security, processing speed, and privacy** by minimizing cloud reliance in edge AI computing.
- Collaborated with cross-functional teams globally to **expand the adoption of edge AI solutions**, ensuring seamless integration of AI models into diverse industry use cases while adapting to dynamic environments.
- Played a key role in driving the development of **AI applications** that addressed critical challenges such as **latency, privacy, and security** in **industrial automation and smart surveillance**, significantly impacting client outcomes.

### Activa Incorporation | Associate Data Scientist | Hyderabad, India

Dec 2019 - April 2021

- Successfully developed an AutoML platform using Python and TensorFlow, democratizing AI by simplifying machine learning model training.
- Drastically reduced the time and effort required for model development through automated hyperparameter selection with Scikit-learn, enhancing efficiency.
- Facilitated real-world application deployment by providing downloadable models and cloud inference endpoints using Flask and AWS.

### Activa Incorporation | Intern Data Scientist | Hyderabad, India

Aug 2019 - Dec 2019

- Developed a Mask-RCNN based computer vision model for precise internal crack detection in aircraft engines.
- Successfully pitched the Proof of Concept at T-Hub Hyderabad by our team, showcasing its potential to automate and enhance efficiency in aircraft maintenance processes.

### IIST Shibpur | Postgraduate Researcher | Kolkata, India

Jul 2018 - June 2019

- Conducted an in-depth exploration of fault-detection methodologies in WSNs, delving into statistical-based and machine-learning-based approaches.
- Engineered a sophisticated algorithm dedicated to detecting faulty nodes within Wireless Sensor Networks (WSNs), contributing to the advancement of fault-tolerant systems.

## Education

7.0/10.0 **M.Tech in Information & Technology**, IIST Shibpur | West Bengal, India

2017-19

6.8/10 **BTech in Electronics & Communication Engineering**, UCER Allahabad | U.P., India

2010-14

**Courses:** Machine Learning | Algorithms | Information and Coding Theory | Advanced Database Management System | Signal and Systems | Microprocessors | VLSI Design and Embedded System.

## Skills

**Programming Languages:** Python (Expert), C/C++ (Proficient), Java, JavaScript

**ML Frameworks:** PyTorch, TensorFlow, Keras, Pandas, Scikit-learn, OpenCV, NumPy, Matplotlib, Seaborn

**Tools & Technologies:** MLFlow, Airflow, Docker, Kubernetes, Flask, Django, FastAPI, TFX, AWS (SageMaker), Jenkins, Nginx, Git, Bitbucket, SQL, MongoDB

**Other Skills:** Data Structures & Algorithms, SOLID Principles, Object-oriented Design, Design Patterns, Low-Level Design

**Soft Skills:** Time Management, Problem-solving, Documentation, Engaging Presentation, Leadership, On-site coordination.

## Personal Projects

### DocChatAI | LLM Based Custom PDF Chatbot | [GitHub Link](#)

Nov 2023 - Jan 2024

Personal Project

- Implemented Custom Chatbot leveraging advanced techniques including Retrieval Augmentation Generation (RAG), Langchain, and Large Language Models (LLMs).
- Enabled the chatbot to respond to user queries within uploaded PDF files, showcasing the document understanding capabilities.
- Successfully deployed the application on Hugging Face Spaces using Streamlit, providing an interactive and user-friendly interface.

### Prompt2Animate | Create animation using stable diffusion model | [GitHub Link](#)

Oct 2023 - Nov 2023

Personal Project

- Developed an open-source PyTorch library for Stable Diffusion Models, enhancing accessibility to state-of-the-art techniques.
- User can use text to generate the short animation and videos.