

# Utkarsh Yadav

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## SUMMARY

Innovative AI practitioner with expertise in **Generative AI, agentic AI, and Retrieval-Augmented Generation (RAG) frameworks**. Strong foundations in machine learning, deep learning, natural language processing, and statistical modeling. Skilled in designing and deploying scalable **AI agents and RAG pipelines using AWS, Docker, Flask, and vector databases**.

## EXPERIENCE

### Data Science Intern

*Zidio Technologies*

April 25, 2025 – June 25, 2025

Remote

- Developed an end-to-end deep learning pipeline for image captioning and semantic segmentation, utilizing **CNN-LSTM** architectures for sequence generation and **U-Net/Mask R-CNN** models for pixel-level image segmentation, enabling accurate visual scene understanding.
- Improved image caption accuracy by **18%** using attention mechanisms and dataset-specific tuning (**MS COCO**). Increased segmentation IoU scores by **14%** through model optimization and data augmentation. Integrated both systems into a deployable web application using Flask.
- Executed a Time Series Forecasting project on stock market trends using **ARIMA**, Prophet, and **LSTM** models. Reduced **RMSE** by **12%** through model comparison and hyperparameter optimization. Created interactive dashboards with Plotly and Streamlit for real-time visualization.

### Data Science & Analytics Intern

*Proxenix*

April 20, 2025 – June 20, 2025

Remote

- Participated in a structured internship focused on core data science competencies, including data preprocessing, feature engineering, data visualization, and predictive analytics using Python, Pandas, NumPy, and Matplotlib.
- Executed hands-on projects involving exploratory data analysis (EDA), statistical modeling, and supervised machine learning algorithms (e.g., Logistic Regression, Random Forest, SVM), incorporating model evaluation techniques such as cross-validation and ROC-AUC scoring.

## PROJECTS

### Medical Chatbot-RAG [🔗](#)

- Developed a retrieval-augmented medical chatbot leveraging **Generative AI, RAG and agentic AI** concepts. The system integrates LangChain for orchestrating AI agents with vector embeddings stored in Pinecone, enabling efficient retrieval of domain-specific medical knowledge.
- Built with Python, Flask backend, and deployed using Docker and **AWS CI/CD pipelines** for scalable, production-ready AI solutions. Utilized OpenAI GPT models for natural language understanding and generation, enabling contextual and accurate medical responses through **RAG-based** inference.

### Sign Language Detection [🔗](#)

- Engineered a real-time Sign Language Recognition system utilizing **OpenCV, Mediapipe, and TensorFlow**, achieving high precision in hand gesture tracking and classification for improved accessibility solutions.
- Designed and trained an **LSTM**-based deep learning model for sequential sign language recognition, applying time-series analysis and computer vision to achieve over **90%** accuracy on gesture datasets..

### Object Tracking [🔗](#)

- Enhanced real-time multi-object tracking performance by integrating **YOLOv5** for object detection and **DeepSORT** for robust tracking, improving frame-by-frame accuracy and minimizing identity switches in dynamic environments.
- Enhanced object detection accuracy by **15%** utilizing **Convolutional Neural Networks (CNNs)** and transfer learning methodologies, leading to a significant reduction in false positives for crucial object tracking tasks.

## EDUCATION

### Bachelor of Technology

Jaypee University of Engineering and technology Guna • Guna, Madhya Pradesh • 2026

## SKILLS

C++, C, Java, Python, Machine Learning, Deep Learning, Natural Language Processing (NLP), Flask, Pinecone, Vector Embeddings, MongoDB, Computer Vision, LangChain, LangGraph, MySQL, Git, Docker, AWS EC2, ECR, Github, GenAI, AgenticAI, AI Agents and RAG.

## INVOLVEMENT

### • Flipkart Grid 6.0 (Software Development Track)

Successfully completed round 1 and received an invitation from Flipkart for DSA round based on performance

### • GDSC Leadership Role

Appointed as Google Developer Student Clubs **(GDSC)Co-ordinator(2024)**, spearheading technical workshops, hackathons, and collaborative coding events to build a thriving community of student developers. Successfully shortlisted for Google Summer of Code **(GSOC)** 2024 from college, demonstrating strong proficiency in software development, open-source collaboration, and community engagement.