Kushagra Agrawal

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🪪 PROFILE

Data Scientist with hands-on experience building production-grade AI systems, including multi-agent architectures, computer vision pipelines, and GenAI applications.

🧠 SKILLS

Languages: Python, SQL, JavaScript

ML & AI: TensorFlow, PyTorch, LangChain, LangGraph, YOLO

Databases: PostgreSQL, MongoDB, Redis, Pinecone

Cloud & DevOps: Docker, AWS, Firebase, DigitalOcean, MLflow

💼 PROFESSIONAL EXPERIENCE

❖ **AI & Data Science Intern | Unihox, Pune**   **July 2025 – Present**

- **Architected and deployed a production-grade multi-agent AI system** with Research, Multimodal Fusion, and Orchestration agents **using neural ensemble coordination and consensus-based decision making**.

- **Engineered end-to-end backend infrastructure for AI-driven platform**, **integrating PostgreSQL & MongoDB (processing 1K+ patient records)**, Redis caching layer, **Pinecone vector database** for semantic search, and **real-time WebSocket communication**-**managing full ML lifecycle** from data ingestion to **containerized deployment via Docker & DigitalOcean**.

- **Developed NLP-powered doctor matching engine** utilizing sentence transformers**, multi-criteria scoring algorithms (35% specialization, 20% availability, 15% experience...)**, and dynamic doctor-patient matching through ML-based semantic search **achieving 95%+ match accuracy** for personalized healthcare recommendations**.**

- **Implemented scalable data processing pipelines** featuring centralized embedding service, **Pinecone vector indexing for 3+ specialized knowledge bases**, **optimized connection pooling**, and Redis caching-**achieving <100ms query latency** for **semantic search across 5K+** documents.

💼 PROJECTS

❖ **NexusAgent.ai** [Platform Link](#)

- **Engineered an end-to-end AI interview Agent platform leveraging Google AI SDK and Vapi AI** to deliver real-time, voice-interactive mock interviews with instant performance analysis.

- **Implemented Vapi Web SDK for seamless voice interactions,** that simulate realistic interview scenarios **with live speech recognition, natural language processing and dynamic response generation.**

- **Designed secure backend infrastructure using Firebase Firestore for data management, Firebase Auth for user authentication, and Firebase Admin for server-side operations supporting 50+ interview sessions.**

- **Architected a comprehensive automation system using GitHub Actions for scheduled cron jobs, delivering automated email reminders (24h before interviews), weekly performance reports with PDF attachments, AI-powered** interview suggestions**, and gamified streak tracking** to drive user engagement.

❖ **Vision Play** [GitHub Link](#)

- **Developed a computer vision-based system** using **YOLO-based object detection** architecture to perform real-time tracking and trajectory analysis of moving objects in video streams, processing 30+ FPS with 90%+ detection accuracy across sports analytics and surveillance applications.

- **Implemented camera movement estimation and perspective transformation** to accurately measure object positions in real-world coordinates enabling precise spatial measurements with sub-meter accuracy and movement analysis.

- **Designed an advanced tracking system** to compute the **speed and distance** of moving objects using frame- by-frame analysis, maintaining consistent object identity across occlusions and rapid movements in dynamic scenes.

- **Optimized computer vision pipeline** through vectorized NumPy operations**, OpenCV GPU acceleration, and YOLOv8 model quantization, achieving 3x performance** improvement for real-time processing of **HD video streams (1080p @ 30 FPS) with <50ms latency** per frame on standard hardware**.**

🎓 EDUCATION

Bachelor of Computer Applications (BCA)

Amity University, Noida — CGPA: 9.08

2024 – 2027

Noida, Uttar Pradesh

- Relevant Coursework: Data Structures & Algorithms, Data Science, Big Data, Fuzzy Logic,

📑 CERTIFICATIONS

- **Deep Learning Specialization – DeepLearning.AI**
- **Generative AI for Everyone – DeepLearning.AI**
- **Python for Data Science, AI & Development – IBM**

📑 Publications

- **My Data Science Lessons So Far** (Nov 2024) Link
- **Struggles in My Data Science Journey** (Aug 2024) Link
- **My Journey into the World of Data** (Aug 2024) Link