Kushagra Agrawal

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🪪 PROFILE

Data Scientist specializing in multi-agent AI systems and computer vision, with experience deploying ML models for healthcare, sports analytics applications, and GenAI applications, using Python and deep learning frameworks.

🧠 SKILLS

Languages: Python, SQL, JavaScript

Machine Learning & AI: TensorFlow, PyTorch, Transformers, OpenCV

Databases & Vector Stores: PostgreSQL, MongoDB, Redis, Pinecone, Chroma

Cloud & DevOps: Docker, AWS, Google Firebase, DigitalOcean, MLflow, GitHub Actions

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💼 PROFESSIONAL EXPERIENCE

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

- **Built** a production-grade **multi-agent AI system** that **coordinates research, data fusion, and decision-making agents** to connect patients with appropriate medical specialists based on symptoms, medical history, and doctor availability.

- Designed and deployed backend infrastructure **supporting 500+ patient profiles with real-time query processing, integrating PostgreSQL** for structured data, **MongoDB** for medical records, **and Pinecone vector database** for semantic search across medical knowledge bases.

- Built intelligent **doctor-patient matching system** that **analyzes medical history, specializations, and patient needs** to recommend optimal healthcare providers, **achieving 95% user satisfaction in initial deployment.**

- **Optimized search performance** through Redis caching and connection pooling, **reducing average query latency to under 100ms** while **handling concurrent requests across 5,000+ indexed medical documents.**

💼 PROJECTS

❖ **NexusAgent.ai Link**

- Built an end-to-end **AI interview Agent platform** using **Google AI SDK and Vapi AI** to deliver real-time, voice-interactive mock interviews with instant performance analysis.
- Integrated **Vapi Web SDK for natural voice interactions,** that simulate realistic interview scenarios **with live speech recognition, and dynamic AI-generated follow-up questions based on responses.**
- Implemented Firebase backend for **data management,** Firebase Auth for **user authentication, and** Firebase Admin for **server-side operations supporting 50+ interview sessions.**
- **Automated user engagement system** using GitHub Actions **cron jobs,** delivering **automated email** reminders **(24h before interviews), weekly performance reports with PDF analytics,** and **streak tracking** notifications.

❖ **Vision Play Link**

- Developed real-time object tracking system using YOLO for **sports analytics and surveillance**, processing HD video at 30 FPS with **90% detection accuracy** across multiple object classes.
- Implemented perspective transformation and **camera calibration to convert pixel coordinates** to real-world measurements, enabling **accurate distance and speed calculations** for tracked objects.
- Built **motion analysis pipeline** that maintains object identity across occlusions and **calculates velocity vectors** through frame-by-frame trajectory analysis in dynamic environments.
- Optimized inference pipeline with **OpenCV GPU acceleration, and model quantization, achieving 3x throughput** 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**

07/2024 – 06/2027
Noida, Uttar Pradesh

- Cumulative GPA: 9.08/10.0

- Relevant Coursework: Algorithms and Data Structure, Machine Learning, Deep Learning, Probability and Applied Statistics, Database Management System

🗂 CERTIFICATIONS

- Deep Learning Specialization – DeepLearning.AI

- Generative AI for Everyone – DeepLearning.AI

- Python for Data Science, AI & Development – IBM