Kushagra Agrawal

Data Scientist

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PROFILE

I am a budding Data Scientist with hands-on experience in AI/ML research pipelines, computer vision, and generative models. Actively exploring applications of AI in defense and robotics, with proven ability to prototype end-to-end solutions—from data ingestion through model deployment.

SKILLS

Languages & Tools: Python, MySQL, FastAPI, TensorFlow, PyTorch, OpenCV, PowerBI

Core Skills: Machine Learning, Deep Learning, Computer Vision, Model Optimization, EDA, Statistics

Dev Tools: Git, GitHub, Docker, Streamlit, Postman, Firebase

Soft Skills: Problem Solving, Communication, Documentation, Team Collaboration

PROJECTS

Vision Play GitHub Link

- **Developed a computer vision-based system** using **YOLO-based object detection** to track and analyze object movement in videos.
- **Implemented camera movement estimation and perspective transformation** to accurately measure object positions in real-world coordinates.
- **Designed an advanced tracking system** to compute the **speed and distance** of moving objects using frame-by-frame analysis.
- **Optimized the pipeline for efficiency**, leveraging **OpenCV, NumPy, and YOLOv8**, ensuring real-time processing of sports and surveillance footage.

Network Security Detection GitHub Link

- **Designed and implemented a robust ML pipeline** to detect phishing websites using scikit-learn, achieving efficient data preprocessing, model training, and evaluation.
- **Processed 5,000+ samples and engineered** 30+ features for phishing detection.
- **Processed and validated structured data** using YAML schema, ensuring accuracy and consistency of 30+ features for model input with 95% accuracy in phishing detection using ML.
- **Conducted hyperparameter tuning using GridSearchCV**, improving model performance and precise evaluation metrics like R^2 scores.

Virtual Broadcaster GitHub Link

- **Developed a real-time virtual broadcasting system** using YOLOv8, OpenCV, and FastAPI, enabling seamless background segmentation and dynamic virtual environments.
- **Integrated real-time virtual camera streaming** with PyVirtualCam, allowing users to replace or blur backgrounds dynamically for video conferencing and content creation.
- **Optimized segmentation with YOLOv8 and custom post-processing**, enhancing mask accuracy through erosion techniques for smoother and more natural background effects.
- **Built RESTful API controls** to start/stop stream, adjust FPS, and switch virtual environments.

EDUCATION

Bachelor of Computer Applications (BCA) 2024 – 2027
Amity University, Noida — **CGPA: 9.08** Noida, Uttar Pradesh

- Relevant Coursework: Algorithms, Data Structures, DBMS, Linear Algebra, Fuzzy Logic, Big Data

Schooling – Agarwal Vidya Vihar, Surat; 2012 – 2024
Surat, Gujarat

- Relevant Coursework: Python Programming, Probability, Applied Statistics, Communication, Ethics

CERTIFICATIONS

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

Publications

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

INTERESTS

Reading Books | Writing Tech Blogs | Traveling | Playing Badminton, Chess