Faijan Khan

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Education

VIT Bhopal University Oct 2022 – May 2026
B.Tech in Computer Science *CGPA: 8.3*

Skills

Languages: Python, Java, SQL
Frameworks & Libraries: PyTorch, TensorFlow, OpenCV, YOLO, FastAPI, Gradio, Docker, Redis, Celery
Machine Learning & AI: Computer Vision, Deep Learning, CNN, OCR, OpenPose, Object Detection, Pose Estimation
Certifications: Dataiku: Advanced Designer, ML Practitioner, MLOps Practitioner, Generative AI Practitioner

Experience

Data Science Intern Jan 2025 – Present
Sabudh Foundation *Remote*

- Built automated computer vision pipeline analyzing 540+ frames from NBA highlights to detect advertising placements using Python and OpenCV.
- Developed end-to-end video processing system extracting insights from YouTube sports content at scale with machine learning models.
- Achieved 85% accuracy in brand detection through deep learning techniques, delivering automated advertising analytics solution from raw video to dashboard.

Projects

NBA Advertisement Analysis | *Python, OpenCV, Keras-OCR, PaddleOCR, FastAPI, Redis* Feb 2025 – Present

- Developed a robust end-to-end video analysis system to detect brand ads in NBA games using OCR-based deep learning models.
- Fine-tuned Keras-OCR and Paddle-OCR on a custom-labeled dataset of tilted and low-quality brand logos to improve detection accuracy under real-world sports footage conditions.
- Evaluated performance across pretrained vs. fine-tuned OCR models; PaddleOCR (PP-OCRv5, Epoch 50) achieved **Precision: 84.68%**, **Recall: 88.26%**, **F1-score: 86.44%**, with inference at **2.75 FPS**.
- Built automated reporting pipeline with frame-wise detection, fuzzy brand matching (RapidFuzz), and PDF generation, fully deployed using FastAPI + Celery + Redis.
- Reduced manual ad-tracking effort by 90%, enabling scalable analysis of 2+ hour-long game videos with report delivery via email.

Virtual Try-On System | *Python, PyTorch, U-Net, TPS, cGAN, OpenPose, Google Colab* Aug 2024 – Jan 2025

- Developed photo-realistic virtual try-on system using U-Net generator with residual blocks and Conditional GAN framework, achieving high-quality garment transfer with preserved texture and details.
- Implemented Thin-Plate Spline (TPS) Grid Generator for spatial garment warping, enabling accurate clothing alignment with diverse body poses and shapes across multiple datasets.
- Optimized inference pipeline to generate try-on results in 20 seconds, improving runtime efficiency by 40% through lightweight model execution and streamlined preprocessing.
- Deployed interactive system via Google Colab notebook with zero local installation requirements, providing seamless user experience for 1,000+ users with pose estimation and segmentation integration.

Extracurricular Activities

EDU4U club Sep 2023 – Nov 2024
Event Management Lead *VIT Bhopal*

- Organized 10+ technical and educational events, coordinating logistics and leading teams of 10+ students to engage 500+ attendees.
- Developed skills in project management and problem-solving, ensuring smooth execution under tight deadlines.