ATANU DEBNATH

+91 6296843271 | playatanu@gmail.com | linkedin.com/in/playatanu | github.com/playatanu

Skills

Programming Language: Python

Technologies & Tools: NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, Scikit-Image, Pillow, OpenCV, PyTorch, Flask, Docker, VS Code, Jupyter Notebook, Git, Linux

Experience

Swatah.AI *March 2025 – Present*

Computer Vision Engineer Pune, India

- Built an **anomaly detection** system, achieving **92%** accuracy and **32%** fewer false positives, and integrated it into live camera systems for real-time quality monitoring and automated alerts.
- Optimized models for **edge deployment**, delivering >20 FPS real-time performance with ~**40%** lower latency.

Personal Projects

VIS-RPB3: AI Assistive Device for the Visually Impaired (Raspberry Pi) [GitHub] [YouTube] *June 2025*

- Designed and developed a low-cost AI-powered assistive device using **MobileNetV3-SSD** for **object detection**, enabling visually impaired users to detect obstacles and navigate safely.
- Integrated pytesseract for scene text extraction and Flite for text-to-speech, delivering spoken feedback of detected objects and text, deployed efficiently on **Raspberry Pi** for edge performance.

Image Similarity Search (ResNet50, FAISS, SQLite) [GitHub] [YouTube] *February 2025*

- Developed a deep learning-powered image search system using **ResNet50** (pre-trained on ImageNet) for feature extraction and **FAISS** (Facebook AI Similarity Search) for nearest searches across large-scale image datasets.
- Integrated **SQLite** to store image metadata (e.g., file paths,) and link them to FAISS indices.

Virtual Hair Colour Try on System (U-Net, Flask, Docker) [GitHub] [YouTube] [Web] *February 2025*

- Developed a deep learning-based virtual hair colour try-on system using **U-Net** for precise hair **segmentation** and realistic colour transformation, deployed on **Google Cloud** with **Docker** for scalability and reliability.
- Built a user-friendly web application with **Flask**, enabling seamless hair colour visualization across platforms.

Blood Cell Detection (Faster R-CNN) [GitHub] *January 2025*

- Developed a blood cell detection system using **Faster R-CNN** from microscopic images.
- Accurately identified and classified Red Blood Cells (RBC), White Blood Cells (WBC), and Platelets for medical analysis.

Smart Parking System (YOLO, OCR) [GitHub] [YouTube] *January 2025*

- Developed a Smart Parking System for real-time vehicle detection, tracking, and monitoring, implementing unique vehicle tracking to prevent duplicate counts.
- Integrated number plate detection using **YOLO** and **OCR** to extract and store license plate details with timestamps for comprehensive parking data logging.

Android Based Object Detection System (Flutter, YOLO) [GitHub] [YouTube] *December 2024*

- Developed an object detection system for visually impaired users using **Flutter** and **YOLO**.
- Implemented multiple object detection models, including currency detection, and road obstacle detection with **TTS** (Text to Speech) voice-based alerts to provide object identification feedback.

Face Recognition System (FaceNet) [GitHub] [YouTube] *November 2024*

- Developed a **Face Recognition** System using **FaceNet** for accurate and efficient face identification.

Education

University of Kalyani *October 2023 – June 2025*

MSc in Computer Science CGPA: 7.6

Relevant Coursework: Statistics, Data Analytics, Machine Learning, Deep Learning, Digital Image Processing, Object Oriented Programming, Data Structures and Algorithms, Database Management System, Operating System, Computer Networks

Workshops and Certificates

- Deep Learning for Ecological Studies, IIRS, Dehradun
- Getting Started with Deep Learning, NVIDIA