

ATANU DEBNATH

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Education

University of Kalyani

October 2023 - Present

MSc in Computer Science

CGPA: 7.33

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

Skills

Programming Languages: Python, C/C++, Java, JavaScript, SQL

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

Projects

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.
- Built a web application using **Flask**, enabling a user-friendly hair colour visualization experience.
- Deployed the application using **Docker** on **Google Cloud** to ensure scalability, reliability, and seamless accessibility across platforms.

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

January 2025

- Developed a blood cell detection system using **Faster R-CNN** for 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.
- Implemented object tracking to uniquely identify vehicles and prevent duplicate counts.
- Integrated number plate detection using **YOLO** and **OCR** to extract and store license plate details along with timestamps.

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.
- Designed an interactive, user-friendly web application with **Streamlit**.

Workshops and Certificates

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