

# Ashu Singh

[Github](#)[Linkedin](#)

## Skills

**Frameworks and Tools:** Pytorch, Tensorflow, Scikit-learn, MySQL, Django, Flask, Docker, Git, AWS  
**Libraries:** Numpy, Pandas, Matplotlib, Seaborn, OpenCV, React.js, Node.js, Express.js  
**Languages:** C++, C, Python, Java, SQL, HTML, CSS, JavaScript

## Experience

**TestAlng Sol Pvt Ltd** Jun 2024 - Aug 2024  
ML Engineer Intern

- Spearheaded the integration of an ensemble model into the audio pipeline, merging predictions from **Wav2Vec2**, **WavLM**, and a **Siamese network**, propelling accuracy from **78%** to **99%** across datasets with **3** distinct accents.
- Designed an interactive **Streamlit** dashboard for audio classification, utilizing **Mel Spectrogram** analysis to distinguish between audio, enhancing client usability by **95%**.
- Deployed an interactive **Power BI** dashboard, led **UAT** server installation and configuration, and provided detailed documentation for seamless production server deployment.

**Indian Institute of Technology, Bhilai** Jun 2024 - Jul 2024  
Research Intern

- Conducted a research internship focused on road anomaly detection, leveraging computer vision techniques to identify surface defects such as cracks and potholes with high accuracy.
- Built and trained a custom object detection model using **YOLOv8** on a Roboflow-augmented dataset of over **2,000** labeled images, achieving a mean Average Precision (mAP) of **91%** on test data.
- Constructed wrong-way vehicle movement detection system in real-time from dashcam and surveillance feeds, operating at **~20 FPS** with **>93%** detection accuracy.

## Projects

**Wildlife Monitoring System** [Github](#) Jul 2024 - Oct 2024

- Developed a **YOLOv8** model from scratch on custom datasets and trained it with an accuracy of **92%**.
- Evaluated model performance using key metrics, including the **confusion matrix**, **F1 score** and **precision-recall curves**.
- Leveraged OpenCV to perform detection and tracking based on the prediction of the custom model with **1 ms** runtime speed.
- Integrated predictive output into the centralized dashboard that can decrease manpower by **50%**.
- Implemented an approach to integrate the object detection technology in **drone** led to arial surveillance of wildlife.
- **Tech Stack:** YOLO, OpenCV, Flask, MySQL, QGIS, AWS, Docker

**TravelMate - AI-powered itinerary planner** [Github](#) Nov 2024 - Jan 2025

- Developed a **full-stack AI-based** platform to streamline travel planning across **1,000+** Indian destinations, featuring drag-and-drop scheduling, real-time collaboration, and budget tracking.
- Implemented a recommendation system achieving **85%** accuracy in suggesting expert-level destination insights, including must-visit attractions, local customs, transportation options, and dining recommendations.
- Integrated a GPT-powered virtual assistant using **OpenAI API**, **Hugging Face Transformers** and **spaCy** to automate travel suggestions and handle up to **10,000+** natural language queries, reducing planning time by up to **60%**.
- **Tech Stack:** React.js, Node.js, Socket.io, MongoDB, JWT, Scikit-learn, LightFM, OpenAI GPT API

**FaceGuard: GAN-based Face Anonymization for Privacy Protection** [Github](#) Feb 2025 - Apr 2025

- Designed a two-stage pipeline integrating **StyleGAN2** and **SimSwap** to generate synthetic human faces and anonymize individuals in video frames while preserving facial expressions and movements.
- Achieved over **90%** face anonymization accuracy on **30-second** video clips (**~750** frames) using Mediapipe for real-time face detection and landmark alignment.
- Reduced facial identity similarity scores by **95%** (using FaceNet embeddings), demonstrating significant privacy preservation for applications in surveillance, smart cities, and legal media handling.
- **Tech Stack:** Streamlit, StyleGAN2, SimSwap, Mediapipe, OpenCV, PyTorch, FaceNet, FFmpeg

## Education

**National Institute of Technology, Arunachal Pradesh** Nov 2022 - Jun 2026  
BTech, Computer Science and Engineering CGPA: 9.11

**Sant Atulanand Convent School, Varanasi** Apr 2020 - Mar 2022  
AISSCE, CBSE 93%

## Achievements

- Solved **500+** problems on Leetcode.
- Secured SURE Internship Program 2024 by **IIT Hyderabad** from over **1,000+** applicants for one of **200** internship positions.
- Qualified for **round 2** of **NetElixir Algnition** Hackathon.
- **Flipkart Grid 5.0** semifinalist team alongside **1,300+** others from among **300,000+** registrations.
- **JP Morgan Chase** Software Engineering Virtual Experience.
- **Walmart USA** Advanced Software Engineering simulation certificate.