

HARSHAL BARHATE

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Summary

- AI & Full-Stack Developer with hands-on experience building and deploying real-world applications in computer vision and scalable web systems. Strong in backend development, ML model integration, and performance optimization.

Education

- **B.E. Computer Engineering (AI/ML)** CGPI: 8.55
Viva Institute of Technology, Virar

Skills

- **Languages:** Python, JavaScript, C, C++
- **Frameworks:** React, Flask, FastAPI, REST APIs
- **Databases:** MongoDB, SQLite
- **AI/ML:** YOLOv8, Computer Vision, NLP, Sentence Transformers, OpenCV, Scikit-learn
- **AI Concepts:** Supervised Learning, Model Evaluation, Data Preprocessing, Feature Engineering
- **Tools & Platforms:** Git, GitHub, Postman, Render, Vercel

Projects

COASTVISION – AI Beach Surveillance System GitHub — Demo

Tech: Python, YOLOv8, OpenCV, Flask

- Built a real-time AI-based surveillance system for swimmer detection and drowning risk identification
- Trained a custom YOLOv8 model on 1,478 images achieving **86.5% mAP@50** and **53% mAP@50–95**
- Achieved highest performance on drowning detection with **90.5% mAP@50**
- Optimized inference pipeline to **12.8 ms per image** enabling near real-time monitoring
- Designed zone-wise alert system with Telegram integration for rapid lifeguard response

LetsTravel – Full-Stack Travel Booking Platform Live

Tech: Flask, MongoDB, JavaScript, HTML/CSS

- Developed a full-stack travel booking platform with authentication, itinerary generation, and PDF ticket generation
- Built an admin dashboard to manage tours, bookings, and user activity
- Deployed the application using Render for real-world usage

Student Management System Live

Tech: Flask, SQLite, Bootstrap

- Developed a full-stack CRUD system for managing student records
- Designed a dashboard for efficient data handling and search functionality

Publications & Achievements

- Secured **2nd place** for presenting **COASTVISION** research paper at a college-level technical conference (NCR EnB)
- Published a research paper on AI-based beach surveillance and drowning detection system

Certifications

- GeoData Processing using Python and Machine Learning – Indian Institute of Remote Sensing (ISRO), 2025
- The Complete Full-Stack Web Development Bootcamp – Udemy, 2025
- Introduction to Front-End Development – Coursera, 2024