Pravender kumar

kumarpravender1999@gmail.com | 7983002393 | Shikohabad, Uttar Pradesh | Indian

linkedin.com/in/pravender-kumar-213463193 | https://github.com/Pravender

EDUCATION

National Institute of Technology, Durgapur **2024**
M.Tech in Operations Research *CGPA – 8.21*

Guru Gobind Singh Indraprastha University, Delhi **2020**
B. tech in Mechanical Engineering *CGPA-7.88*

PROFESSIONAL EXPERIENCE / INTERNSHIP

Senior Engineer – Tata Elxsi ***Dec 2023– Present***
Real-Time Person Re-Identification and Unauthorized Access Detection System

- Designed and implemented a real-time surveillance system to identify and track individuals across multiple camera views.
- Used **YOLOv9** for person detection and **Dlib + face_recognition** for facial recognition.
- Extracted facial and body embeddings using **ResNet50**, enabling vector-based matching and Implemented **cosine similarity** for feature matching and unique identity assignment.
- Developed a **proximity-based alert mechanism** for unauthorized vehicle access prevention.
- Technologies: Python, OpenCV, YOLOv9, ResNet50, Scipy, JSON, real-time video streaming.

Internship– Tata Elxsi ***June 2023 – April 2024***
Fusion of Camera & LiDAR Sensors for Depth Estimation (*Associate with TATA ELXSI***)**

- Created a fusion algorithm combining LiDAR point cloud (via **Open3D**) with camera detections.
- Applied **YOLO** for object detection to support depth estimation in real-time scenarios.

ACADEMIC PROJECTS

A Meta-Heuristic Solution for Finding an Optimal Mix of a Truck and Multi Drones for Last-Mile Delivery.
(MTech project supervised by Dr. Subhadip Sarkar, Department of Management Studies, NIT Durgapur)

This dissertation introduces a new prototype that makes use of cutting-edge computational algorithms to integrate drones into the traditional Vehicle Routing Problem (VRP). The study first visits every city using the nearest neighbor technique, and then it uses the two-opt heuristic to fine-tune its routes. Combining Metaheuristics with a Mixed Integer Linear Programming **(MILP)** technique allows for the resolution of additional complications.

1. Formulation a last-mile delivery vehicle and drone mathematical model to maximize work distribution and routing.
2. Utilizing an industrial **GUROBI** optimization solver, code and solve the mathematical model.
3. Verify and validate the **Meta-Heuristic** solution for finding an optimal mix of a truck and multi drones for Last-Mile Delivery (LMD).

POWER GENERATION USING MANUAL TRADMILL (*B. tech Project***)**

SKILL

TECHNICAL PROFICIENCY: Machine Learning, Computer Vision, Optimization Techniques, Deep Learning, Gen AI
PROGRAMMING LANGUAGE: Python, C++, CPLEX, Gurobi, Google OR-Tools
DEVELOPER TOOLS: Visual Studio, Google Colab, Jupyter Notebook, PyCharm
TECHNOLOGY/FRAMEWORK: Pandas, NumPy, Scikit-Learn,Matplotlib,Langchain,Git,RAG

AWARDS

Secured an **AIR** rank of **1726** in **GATE-2022.**
Publication of paper entitled **"A REVIEW PAPER ON UTILITY OF TREADMILL FOR POWER GENERATION "** published in IJTRE(International Journal for Technological Research in Engineering), Volume 7, Issue 3,November-2019