TANMAY ADHIKARI

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PROFESSIONAL SUMMARY

AI/ML Engineer specializing in Generative AI, Computer Vision, and Logistics Automation Systems. Experienced in building enterprise Retrieval-Augmented Generation (RAG) platforms, edge AI monitoring pipelines, waste segmentation systems aligned with Google CircularNet workflows, and large-scale route optimization engines. Proven track record in deploying production-grade AI solutions, intelligent automation, and data-driven operational systems for Fortune 500 companies.

TECHNICAL SKILLS

Programming Languages: Python, SQL
Generative AI & LLMs: RAG Systems, LangChain, OpenAI API, Gemini API, Prompt Engineering, Vector Databases
Computer Vision: YOLOv8, Object Detection, Waste Segmentation, ANPR, RTSP Video Processing, Edge AI Deployment
Machine Learning: Scikit-learn, Pandas, NumPy, Model Development, Data Processing Pipelines
Optimization & Analytics: Linear Programming, K-Means Clustering, Logistics Routing, Operational Efficiency
Tools & Platforms: Git, Linux, Streamlit, FastAPI, Edge Computing Devices, SQL Databases, Google Distance Matrix API

EDUCATION

Bachelor of Technology in Computer Science Engineering **2025**
Graphic Era Hill University, Dehradun CPI: 7.8

PROFESSIONAL EXPERIENCE

AI/ML Engineer | Transport Corporation of India (TCI) **November 2024 – Present**

- Architecting enterprise Retrieval-Augmented Generation (RAG) systems for intelligent document analysis and operational knowledge automation, enabling semantic search across multi-document repositories
- Developing AI-driven dock management automation platform using real-time computer vision monitoring and edge inference workflows for warehouse operations optimization
- Leading waste segmentation initiatives for subsidiary OneStep Greener aligned with Google CircularNet architecture, processing conveyor belt waste streams via RTSP pipelines
- Contributing high-quality annotated datasets with structured bounding boxes for waste detection and segmentation model development, supporting internal CV model improvement through data feedback loops
- Deploying enterprise AI solutions including edge processing systems, automation pipelines, and logistics intelligence platforms at scale

AI/ML Intern | OneStep Greener **July 2024 – November 2024**

- Developed AI-assisted logistics planning system for urban waste collection operations across Delhi, optimizing resource allocation and route efficiency
- Implemented K-Means clustering algorithms and Google Distance Matrix API to segment city regions into locality-based zones and dynamic sub-areas for operational clusters
- Designed intelligent driver allocation logic based on vehicle capacity, estimated household waste volume, and operational constraints, improving fleet utilization by 20%
- Built automated scheduling workflows for collection days and service areas, enabling scalable routing and workforce planning

Generative AI & Machine Learning Intern | Genpact **January 2024 – June 2024**

- Contributed to enterprise ML and NLP pipelines supporting operational automation for Fortune 500 clients
- Assisted in last-mile route optimization systems, improving logistics efficiency and reducing delivery costs by up to 15%
- Gained hands-on exposure to scalable AI deployment methodologies and enterprise engineering best practices

KEY PROJECTS

Enterprise Multi-Document GenAI Assistant (RAG System)

- Developing production-grade Retrieval-Augmented Generation platform enabling contextual Q&A across enterprise document repositories
- Implementing semantic embeddings and vector-based information retrieval pipelines with response latency under 2 seconds
- Designing conversational AI interface with memory persistence and citation-based response generation for audit trails

Warehouse Dock Automation System with ANPR and Edge AI

- Built real-time dock monitoring system processing RTSP CCTV streams on edge devices for automated warehouse operations
- Deployed YOLOv8-based vehicle detection models for automated dock occupancy tracking with 95% accuracy
- Integrated Gemini API for Automatic Number Plate Recognition (ANPR) and developed SQL-backed web dashboard displaying real-time dock states

LLM-Powered CSV Data Transformation Tool

- Developed intelligent CSV manipulation tool using natural language instructions for automated data operations
- Achieved 95% accuracy in generated data transformation commands through LLM-driven workflows, reducing manual processing time by 70%

Multi-Week Hub Distribution Optimizer

- Engineered logistics optimization platform using linear programming models for supply chain efficiency
- Achieved up to 25% reduction in simulated distribution costs through intelligent route planning and resource allocation