ARYAN KUMAR BAGHEL

aryan22102@iiitnr.edu.in | Github | Linkedin | Leetcode | Codeforces | +917000978867

Education

International Institute of Information Technology, Naya Raipur, India **Nov 2022 - Jun 2026**
Computer Science and Artificial Intelligence | *CGPA:* ***8.00***

Skills

Languages/ Tools: C++, Python, Javascript, PostgreSQL, Git, Docker, Kubernetes, MongoDB, ChromaDB, Neo4j, AWS EC2
Technologies/ Frameworks: Flask**,** FastAPI, Scikit-Learn, Pytorch, Tensorflow, MLOPs, RAG, LangGraph, React.js, Numpy, Pandas, Matplotlib, Prompt Engineering.

Experience

Samsung Prism | R&D Intern ***Aug 2024* - Present**
- Fine-tuning LLM using **LoRA** to generate prompts for the autonomous creation of AI agentic system using the user query. Conserving **data privacy** by using **open source LLM**.
- Generating **neo4j queries** from LLM to create a **knowledge graph** from document, and contextual information retrieval from different parts of document (Graph-RAG), leading to increase in response accuracy by 100%.

Mahyco Grow | Computer Vision Intern ***Aug 2024* - Dec 2024**
- Developing a crop yield detection system for large cotton fields by **semantic segmentation**. Improved yield forecasting accuracy by 50% and reduced resource allocation time by 200% by detecting crop disease regions.

Experiences Digital | Python Developer Intern **Oct *2024* - Present**
- Boosting efficiency and user experience by 100% by incorporating Gemini for manual and redundant tasks. Generated product descriptions using images and generated CSV files from Bill images. Tech Stack : **FastAPI, Streamlit, AWS.**

Projects

B2C-AIDE | link
business sales booster. New store location suggestion, Product Demand forecasting, enhanced buying experience.
- Used **K-Means and DBSCAN clustering** to identify ideal store locations, reducing networking costs by 100% using highway proximity and distance to hospitals, airport, railway stations leveraging **OpenStreetMap**.
- Implemented demand forecasting using **AI agents (CrewAI**), improving inventory accuracy by 50% through festive / normal day sales analysis and scraping trending product data. Used, **Serper API, Pandas, Gemini API.**
- Built chatbot to guide customers through product selection and post-purchase queries, increasing user satisfaction by 100% through personalized assistance and optimal vehicle allocation. Used **FastAPI**, **Streamlit , Reactjs** for web app

FLI-VERY |
A drone delivery system, new charging spot location suggestions, drone allocation for orders, and optimal routing of drones.
- Attained a 30% reduction in delivery time using **Neural Network** for drone allocation and drone routing using DP.
- Improved city coverage by 40% through satellite **image segmentation** and **clustering** for infrastructure planning.
- Utilized **FastAPI, React.js, SQLAlchemy**, and **Firebase** for backend, frontend, and real-time data management.

Speed-Vision |
Vehicle speed detection using CCTV footage and capturing vehicle no. plate if overspeeding.
- Users can specify points in the video to detect speed, enhancing software usability by 50%. Web app built with **Flask**.
- Vehicle and license plate detection was engineered using a **YOLOv9** model fine-tuned on a custom dataset.

E - Saarthi |
AI-powered complaint portal with automatic spam detection and complaint classification into various departments.
- Achieved 10x faster complaint classification with an 80% reduction in misclassifications using fine-tuned **BERT** (NLP).
- Cut manual review time by 90% through **spam** and **recurring complaint detection**.
- Web app built with **Flask** and included geographical analysis using **Folium**.

Relevant Coursework

Reinforcement Learning | Statistical Data Analysis | Operating System | Graph Theory | Computer Networks | Computer Vision | NLP | Artificial Intelligence | OOPS | Distributed Systems | Data Structures and Algorithms | ML Algorithms | DBMS |

Academic and Extracurricular Achievements

- **1st position in ROBOLUTION 2.0 |** *Automatic line follower robot reducing computation complexity by 100 X* | Link
- **2nd Runner up in HACK-A-SOL 2024 |** *AI-powered Vs-code extension that assists in writing secure code* **|** *Link*
- **AIR 107 in Amazon ML Challenge |** *Detection of height, weight, voltage, etc. using the images of products.* | *Link*

Publications

Dynamic Maze Solver: Algorithms for Optimal Path-finding in Varied Environments | issued by IATMSI **Mar 2024**
Our study compares A and Dijkstra algorithms, visualizing their time and space complexities across 100+ settings.*

Positions of Responsibility

- **Head of AIML Club | IIIT - NR** **Apr 2024 - Present**