

AMAN SINGH

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PROFILE SUMMARY

Experienced engineer with 6 years in railway signaling and ETCS/ERTMS, now specializing in Artificial Intelligence and Data Science. Eager to apply my technical expertise and analytical skills to innovative AI solutions. Seeking an internship to bridge engineering with cutting-edge AI technologies.

EDUCATION

Post Graduate Certification in Artificial Intelligence and Data Science Loyalist College – Toronto, ON, Canada	Sep 2023 – Apr 2025
Post Graduate Diploma in Data Science Upgrad and IIIT Bangalore – Bengaluru, KA, India	Nov 2019 – Nov 2020
Bachelor of Computer Science Engineering Kurukshetra University – India	Aug 2011 – Jul 2015

PROJECTS

TalkingPDFs (Offline PDF Chatbot using LLAMA) - [Github Link](#)

- This project implements an **AI-powered document analysis and question-answering system** that uses **Large Language Models (LLMs)** and **vector embeddings** to intelligently extract contextual answers from PDF documents. The system efficiently **ingests multiple PDF files**, processes their content into **semantic embeddings** for faster and more accurate information retrieval, and leverages the power of **LLMs** to generate human-like responses to queries based on the content of the documents. By integrating **Ollama** for local deployment of LLMs and **LangChain** for managing the LLM applications.
- Learning:** Gained hands-on experience in Developed a **Retrieval-Augmented Generation (RAG) PDF Query System**, integrating **NLP models** for intelligent document search. Gained expertise in **PDF processing, text retrieval, and generative AI**, enhancing real-time query accuracy.

Doodle-Guesser Game (CNN-Based Doodle Recognition) - [Github Link](#)

- This project implements a **real-time doodle recognition system** using a **Convolutional Neural Network (CNN)** trained on Google's **QuickDraw dataset** (345 classes, 50M+ images). It enables users to draw on a canvas while the AI predicts the doodle in real time, displaying the top 5 predictions with probabilities. Deployed using **TensorFlow, Keras, and Streamlit**.
- Learning:** Developed expertise in **CNN architecture, image processing, real-time AI inference, model training, and deployment**, enhancing knowledge in **computer vision and interactive AI applications**.

AuthentiScan (AI generated Face detector) - [Github Link](#)

- This project implements a **neural network-based detection system** to distinguish between real and AI-generated faces. It utilizes **transfer learning with ResNet50**, dataset scraping, and **customized neural network layers** to enhance classification accuracy.
- Learning:** Gained expertise in **transfer learning, neural network fine-tuning, image processing, and deepfake detection**, exploring the ethical implications of AI in combating synthetic media.

Used Car Price Prediction

- This project implements **machine learning models** using **Linear Regression and Random Forest** to predict used car prices based on features like model, fuel type, transmission, mileage, and brand. The system includes **feature engineering, data preprocessing, and model evaluation** to enhance prediction accuracy.
- Learning:** Gained hands-on experience in **feature engineering, model evaluation, and real-world data preprocessing**, improving predictive modeling skills using **Python and machine learning algorithms**.

TECHNICAL SKILLS

- Competencies:** Railway Signaling Design, ERTMS/ETCS Configuration, Data Management & Analysis, Machine Learning, Deep Learning, Natural Language Processing, Signal Processing, Data Preparation, Feature Engineering, Model Training & Evaluation, Requirement Gathering, Project Management, Technical Documentation, Training & Mentorship, Troubleshooting, System Optimization, Quality Assurance, Version Control
- Data Engineering:** Data Preparation, Feature Engineering, Data cleaning, PCA, Handling missing Data.
- Programming Languages:** Python, SQL, C++, R
- Machine Learning & AI:** Scikit-Learn, TensorFlow, Keras, PyTorch, XGBoost, LightGBM, OpenCV, YOLO
- Data Science & Analytics:** Pandas, NumPy, Matplotlib, Seaborn, Plotly, Tableau, Power BI, Hadoop, Spark, Jupyter Notebooks, Google Colab

- **Cloud Platforms:** AWS
- **Databases:** Microsoft SQL Server, MongoDB, MySQL
- **DevOps & Version Control:** Git, Docker
- **Project Management:** Agile, SDLC
- **Development/Deployment & Monitoring Tools:** Visual Studio, VS Code, SQL Server Management Studio, AutoCAD, Tableau, PyCharm

INTERPERSONAL SKILLS

Presentation & Communication Skills, Critical & Logical Thinking, Ownership, Problem-Solving Skills, Cross-functional Collaboration, Continuous Learning & Adaptation, Leadership.

WORK EXPERIENCE

INTELENSE, Toronto, ON, Canada (Co-op) Jan 2025 – April 2025

AI & ML Intern

- Assisted in designing and deploying **AI-powered solutions** for real-time **object detection and tracking** in retail environments using computer vision techniques.
- Contributed to developing and optimizing **data pipelines** for ingesting and processing video and **sensor data streams** (e.g., RTSP).
- Collaborated with cross-functional teams to integrate business intelligence dashboards and analytics into **computer vision** systems.
- Worked on network-level data extraction and analysis, leveraging WiFi and RSSI signals to infer movement patterns for **indoor tracking**.
- Conducted performance **tuning and evaluation of models** to ensure accuracy and real-time responsiveness in live retail settings.
- **Documented workflows**, presented findings and supported ongoing research into scalable **AI-driven retail analytics**.

TECH MAHINDRA, Bengaluru, KA, India Dec 2017 - Nov 2022

Application Design Engineer | ERTMS/ETCS Specialist

- Gathered and analyzed large volumes of data from international clients and cross-functional teams, applying advanced Excel techniques to manipulate CSV and XML files for structured data preparation.
- Used proprietary tools such as GOLIAT and SIG-ART for ETCS Level 1 & 2 data preparation, validation, and data cleansing, ensuring system configurations met global ERTMS standards.
- Optimized system safety and operational efficiency by managing complex data packet configurations and customizing variable definitions for real-time data transfer.
- Created reusable templates for XML-based configuration files, enhancing automation and reducing manual data entry errors by up to 30%.
- Delivered technical training on data handling workflows and tool usage to internal teams across multiple projects, contributing to faster onboarding and knowledge sharing.
- Acted as liaison between global clients and internal engineering teams to gather, document, and implement functional requirements, showcasing strong international collaboration and communication skills.

NEGOCIOS IT SOLUTIONS, Bengaluru, KA, India Jun 2016 - Nov 2017

Signaling Design Engineer

- **Advanced Signaling Techniques:** Gained hands-on experience with cutting-edge technologies in the railway industry, focusing on **ERTMS Level 1** and **Level 2** systems. Successfully applied **AutoCAD** and **advanced Excel** for complex design tasks.
- **Comprehensive ERTMS/ETCS Training:** Completed intensive training on **Level 1** and **Level 2 ERTMS**, solidifying foundational knowledge in signaling design and **system architecture**.

GBH RAIL SERVICES, Bengaluru, KA, India Sep 2015 – May 2016

Associate Engineer

- **Foundational Training in Railway Signaling and Safety:** Gained in-depth knowledge of **ERTMS/ETCS architecture**, mastering Euro-Balise configuration and understanding various **ETCS levels** and modes. Developed expertise in **configuring telegrams and packets** to ensure the safety, efficiency, and operational reliability of train systems, including **emergency braking** and **speed control** across different conditions.