Omvesh Singh

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SKILLS

- **Languages**:   C++, Java, Python, JavaScript, SQL
- **Frameworks**:   Pandas, NumPy, Matplotlib, Scikit-learn, Pytorch, Streamlit, Django
- **Tools/Platforms**:   Git, GitHub, HackerRank, FreeCodeCamp
- **Soft Skills**:   Problem-Solving, Team Player, Adaptability, Time Management

PROJECTS

- **Smart PDF Processing & AI-powered Chatbot System** | GitHub   August 2025 – October 2025
  - Engineered a document-intelligence workflow that converted unstructured PDFs into structured text using OCR and preprocessing, increasing usable text extraction accuracy by **18–25%** .
  - Built a modular pipeline for segmentation, feature enrichment, and embedding generation, enabling efficient similarity search and topic-level retrieval.
  - Integrated a lightweight conversational layer using LLM-based inference to surface relevant information from large documents with minimal latency.
  - Improved document-query resolution by optimizing chunk boundaries, indexing strategy, and retrieval logic, yielding a **15–22% increase in answer relevance and retrieval precision** over the initial implementation.
  - **Tech**: Python, OCR stack (pdf2image, Tesseract), embedding models, vector indices, LLM inference frameworks.

- **Smart Traffic Management** | GitHub   March 2025 – May 2025
  - Developed an AI-driven traffic signal system using real-time vehicle detection with ResNet50 and a Random Forest Regressor for dynamic green-light allocation.
  - Led the end-to-end ML pipeline: data preprocessing, model training, feature engineering, vehicle-type weighting, and lane-width estimation.
  - Incorporated rule-based emergency vehicle prioritization with model-influenced overrides, enabling accelerated green-phase switching and junction pre-clearance for ambulances, fire trucks.
  - Delivered measurable gains with **30%** higher green-light utilization, **30–40%** reduction in avoidable red-light halts, and **improved emergency vehicle clearance times**, enhancing operational efficiency.
  - **Tech**: Python, Pytorch, Computer vision, pandas, pickle, sklearn

- **AI-Powered Goal Assistant** | Live   March 2025 - April 2025
  - Built a custom chatbot using Gemini's API with functionality like Gemini, but tailored to new custom UI.
  - Engineered **context sanitization and conversation state control**, pruning unrelated history dynamically to prevent drift and reinforce goal-focused interaction loops.
  - Developed **task-specific supervised fine-tuning strategies** (prompt-driven adaptation + few-shot alignment), restricting generation to goal-centric reasoning while suppressing off-topic completions.
  - Ensured **strict domain adherence** via controlled generation policies, achieving high topical precision with minimal hallucination or cross-domain leakage.
  - **Tech**: HTML, CSS, JavaScript Server, Gemini's API, Render (for deployment)

TRAINING

- **Machine Learning with Data Science** | Github   June 2025 – July 2025
  - Performed EDA with NumPy and Pandas to extract user-behavior patterns and improve preprocessing.
  - Trained and evaluated multiple classification models, including Logistic Regression, Random Forest,using Scikit-learn, resulting in a **12–20%** lift in predictive accuracy across experiments.
  - Engineered customer behavior features (browsing time, clicks, purchase history) and built a probability-based pipeline to identify high-intent customers for targeted e-commerce marketing.

CERTIFICATES

- Data Analytics with Python from NPTEL | Certificate   June 2025
- Unveiling Basic Python towards ML/AI by CSE Pathshala | Certificate   May 2024

EDUCATION

- **Lovely Professional University**   Punjab, India
  Bachelor of Technology - Computer Science and Engineering; CGPA: 8.38   *August 2023 - Present*

- **St. John's School**   Varanasi, Uttar Pradesh
  Intermediate; Percentage: 87   *April 2022 - May 2023*

- **St. John's School**   Varanasi, Uttar Pradesh
  Matriculation; Percentage: 90   *April 2020 - July 2021*