

Deepak Kumar Rauta

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PROFESSIONAL SUMMERY

Skilled in Python, ML, Deep Learning, NLP, and GenAI with expertise in Scikit-learn, TensorFlow, SQL, and Cloud (Azure, Docker). Passionate about AI-driven solutions & scalable deployments.

EDUCATION

National Institute of Science and Technology, Berhampur
Master Of Computer Application (MCA)

Nov 2022 – Jun 2024
CGPA – 8.1

SKILLS

Programming Languages

- Python

Machine Learning

- Supervised & Unsupervised Learning: Linear Regression, Logistic Regression, SVM, Clustering (K-Means, Hierarchical Cluster), Decision Trees, Random Forest, XGBoost, Hyperparameter Tuning, PCA
- ML Frameworks: Scikit-learn

Deep Learning

- Neural Networks: ANN, CNN
- Frameworks: Keras, TensorFlow
- Computer Vision: OCR, OpenCV (Object Detection), YOLO

Natural Language Processing (NLP)

- Libraries: NLTK, SpaCy, Hugging Face, Gensim
- Techniques: TF-IDF, Word2Vec, BERT, Word Embeddings
- Web Scraping: BeautifulSoup, Scrapy, Regex

Data Manipulation & Processing

- Pandas, NumPy

Databases

- SQL, PostgreSQL

Cloud & DevOps

- Docker, Azure

MLOps & Model Deployment

- LangChain, GenAI
- Frameworks: Streamlit, Flask, FastAPI

Statistics & Data Visualization

- Statistical Analysis & Hypothesis Testing
- Matplotlib, Seaborn

PROJECTS

Medical Chatbot using Gemini AI & Pinecone [Repo]

Tech Stack: Python, Flask, Gemini AI API, Pinecone, Sentence Transformers, HTML, CSS, JavaScript

- **Data Preparation & Knowledge Extraction:** Extracted medical knowledge from books and trusted sources.
- **Vector Embedding Generation:** Converted text data into numerical embeddings using Sentence Transformers.
- **Efficient Storage & Retrieval:** Stored embeddings in **Pinecone** for high-speed similarity search.
- **AI Response Generation:** Integrated **Gemini AI API** for intelligent chatbot responses.
- **Backend Development:** Built a **Flask API** to handle queries and debugging.
- **Frontend & Deployment:** Developed an interactive **web UI** using **HTML, CSS, JavaScript** for a seamless user experience.

Vehicle Number Plate Detection using OpenCV & Tesseract OCR [Repo]

- Developed a Streamlit-based web app for automatic vehicle number plate detection.
- Utilized **OpenCV Haarcascade** for number plate detection and **Tesseract OCR** for text extraction.
- Designed an interactive UI using **Streamlit** for easy image upload and processing.
- Enabled users to **upload images, detect plates, extract text, and download the processed image.**

Technologies Used:

- **Python** (OpenCV, NumPy, PIL, Tesseract OCR)
- **Streamlit** (for UI and visualization)

Technologies Used:

- **Image Upload** – Supports **JPG, JPEG, PNG** formats.
- **Detection** – Uses **OpenCV Haarcascade classifier** to identify number plates.
- **Text Extraction** – Uses **Tesseract OCR** for recognizing plate numbers.
- **Result Display** – Highlights detected plates and extracted text.
- **Download Processed Image** – Saves output image with detected number plates.

TECHNICAL BLOGS

- **Blog:** *"Understanding Bias-Variance Tradeoff in Machine Learning"* – (In Progress, to be published on Medium)

CERTIFICATION

- Data Preprocessing & Visualization – Accenture (Future Skills Prime)
- Certificate of Participation in Weekly Coding Challenge 16 of Weekly coding Challenge in Unstop
- Python Basic Programming (hacker Rank)
- NPTEL JAVA Programming (IIT Kharagpur)
- Derive Insights from BigQuery Data Skill Badge (Google)