MIRAJ DEEP BHANDARI

Eager Data Science enthusiast with a passion for applying academic knowledge to drive meaningful insights, possessing strong problem-solving skills, and seeking opportunities for growth and advancement in a dynamic organization.

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Kavresthali,Balaju,Kathmandu

TRAININGS + INTERNSHIPS :

- **Artificial Intelligence Training** — *Broadway Infosys / Jun 2023 – Sep 2023*
- **Python Django Training** — *Broadway Infosys / 2024*
- **Data Science Intern** — *Oasis Infobyte / Sep 2023 - Oct 2023*

EDUCATION :

Secondary Education	**Green Lawns Academy / Kathmandu**	**3.95 gpa**
Higher Secondary Education	**Everest Innovative College / Kathmandu**	**3.52 gpa**
Bachelor's	**Islington college / Kathmandu**	**Running**

TECHNICAL STACK :

- **Data Science / Machine Learning / Deep Learning** →

  Python OOP, Data Preprocessing, Data Visualisation, Supervised Learning Algorithms, Unsupervised Learning Algorithms, EDA, Feature Engineering, Feature Selection Techniques, ANN ,CNN, RNN, NLP.

- **Mathematics for ML & DL** →

  Linear Algebra, Probability, Statistics, Calculus and Matrices.

- **Python Packages and Frameworks** →

  Scikit-Learn, Tensorflow, Keras, Numpy, Pandas, Matplotlib, Seaborn, Plotly, Beautiful Soup, NLTK, Spacy, Scipy, StreamLit, Django, PyShark.

- **Computer Vision Frameworks** →

  Open CV, YOLO.

- **Programming Languages** →

  Python, JAVA OOP, .net , JavaScript.

- **Web Development** →

  HTML, CSS, JS, Jquery, BootStrap, Figma, React, Django, SQL, ORACLE.

Projects :

Large Language Model (LLM):

- Fine-tuned LLAMA2, Mistral, and Gemma large language models using **STP** and **DPO** methods on custom prepared **e-commerce dataset**, achieving outstanding testing results.

- Implemented quantization techniques like **LORA, QLORA, GGML**, and **GGUF** for large parameter models, performing CPU-based model inference locally, and produced a detailed PDF with mathematical explanations.

- Developed an end-to-end **RAG** project on GPU as well as on CPU, utilizing **LangChain, Groq API,** and **open-source models** and **OLLAMA**.

- Created a Food Recipe Chat Bot using LangChain and Django.

- Developed a PDF Summarizer with LangChain and Django, including relevant notes for the LLM community.

- Developed a LLM project for **generating storybooks**, incorporating various **Crew Ai Agents**, **LangChain tools, Groq API, and the Stable Diffusion model.**

- Created an SQL Database data Extractor project using LLM and LangChain.

- Developed an end to end **Text-to-Speech project** integrating LangChain and open-source LLM models.

- Developed a **multiple-choice question generator** project based on **uploaded PDFs**.

- Conducted research and established a free open-source LLM repository, covering LLM implementation, mathematics, and relevant notes.

Development of AI Enhanced Smart Parking Management System (Integration of Object Detection + IOT + Cloud Computing):

Developed an AI-enhanced Smart Parking Management System by seamlessly integrating Object Detection, IoT technology, and Cloud Computing infrastructure. This innovative solution optimizes parking space utilization and enhances user experience in real-time. The system employs cutting-edge sensors and Object Detection deep learning models to track the real-time availability of parking slots.Users can interact and park their vehicles according to the guidance provided by the Object Detection system.

News Category Predection Web Application (A Machine Learning: Classification Project) :

Created a Machine Learning-based news classification project focusing on predicting Setopati website news categories. Developed a comprehensive Web Application that accurately categorizes news articles.

Laptop Price Predection Web Application (A Machine Learning: Regression Project):

Developed a regression-based laptop price prediction system using comprehensive dataset, advanced data processing, and EDA. Enhanced accuracy through feature engineering, trained and fine-tuned model using scikit-learn. Created user-friendly web app with Streamlit for seamless model integration, offering innovative laptop price forecasting solution.

Breast Cancer Classifier: Distinguishing Between Benign and Malignant Types :

The Breast Cancer Classifier project aims to distinguish between benign and malignant breast cancer types, crucial for effective treatment. Utilizing a deep learning Artificial Neural Network (ANN), the project achieves an impressive **99%** accuracy rate, significantly impacting early and precise diagnosis in real-world healthcare settings.

Development of Face Mask Detection System (Object Detection Project):

This project involves object detection, utilizing own custom Dataset where every image is meticulously labeled then the images with labels is trained using the powerful Yolo, Darknet Frameworks and OpenCv, enabling accurate identification of whether a person is wearing a mask or not.

Web Scraping (Worldometer page) : Extracting, Storing, Data Cleaning and Visualizing The Population Statistics and Storing Data in MySQL DataBase using Python.

This project employed Beautiful Soup in Python for web scraping to extract population statistics from the worldometer website. The extracted data was filtered and exported into a CSV file, which was then transformed into a DataFrame using the Pandas library for data cleaning. Matplotlib and Plotly were used to create visualizations of the cleaned data. Data from the DataFrame was stored in a MySQL database, with Python facilitating the transfer of data into the database.

Database Full Schema Design and Implementation In Oracle Database for Ecommerce Platform.

This project entailed designing and implementing a database schema in Oracle Database for an e-commerce platform. It started with creating a conceptual data model to capture business rules and entity relationships, followed by designing a logical schema for optimal data integrity and retrieval efficiency. Using Oracle

Database, the schema was implemented with essential tables, columns, constraints, and relationships. Customized database queries and reports were developed to support business operations and decision-making.

Implementation of K-Means Clustering, an unsupervised learning algorithm, using Python (built from scratch).

Laptop Management System for Rental Shop (Buying ,Selling, Generating Invoices and Updating Stock of Laptops) File Handling Project.

Development Of BANKCARDS (Debit and Credit Card Fully Functionality) In Java Object Oriented Programming.

Fully Responsive E-Commerse Bonsai Selling Website (A Real World Business Project).

Certifications :

- **Artificial Intelligence Training**

  Broadway Infosys – 28Th Dec 2023

- **Python Django Training**

  Broadway Infosys - 2024

- **Supervised Machine Learning: Regression and Classification**

  Stanford, DeepLearning.ai, Coursera – May 2023

- **Unsupervised Learning, Recommenders, Reinforcement Learning**

  Stanford, DeepLearning.ai, Coursera – June 2023

- **Advanced Learning Algorithms**

  Stanford, DeepLearning.ai, Coursera – June 2023

- **Crash Course on Python**

  Google – March 2023

- **Python for Data Science, AI & Development**

  IBM – March 2023

- **Object Oriented Programming in Java**

  Coursera – April 2023

- **AWS Academy Graduate - AWS Academy Cloud Foundations**

  Amazon Web Services – November 2023

- **AWS Academy Graduate - AWS Academy Data Engineering**

  Amazon Web Services – November 2023

- **AWS Academy Graduate - AWS Academy Machine Learning for Natural Language Processing**

  Amazon Web Services – November 2023

- **AWS Academy Graduate - AWS Academy Machine Learning Foundations**

  Amazon Web Services – November 2023

Letter of Recommendations and Internship Offers Letter & Certificates :

- **Internship Offer Letter (click)**
- **Internship Completion Certificate (click)**
- **Letter of Recommendations (click)**

Languages :

English, Nepali, Hindi

REFERENCES :

Ayush Adhikari

DeepMind Creations / CTO | Lead Data Scientist | Artificial Intelligence Consultant | Machine Learning | Computer Vision

Miraj is a disciplined, hardworking, and talented individual. I have personally guided and trained him in Artificial Intelligence. He possesses a sharp mindset for handling AI algorithms, with a deep understanding of Machine Learning algorithms as well as other Deep Learning algorithms including ANN, CNN, RNN, LSTM, GRU, Encoder-Decoder, Attention Mechanism, and Transformers. He has also worked with various Large Language Models (LLMs) such as OpenAI, Gemini, Llama, Hugging Face, and others. Miraj has a strong mathematical foundation for each Deep Learning algorithm from scratch and has experience working on computer vision projects. Additionally, he has excelled in NLP projects and has demonstrated great proficiency in both NLP and Computer Vision domains.

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