sSafal Bhandari

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PROFESSIONAL EXPERIENCE

UNIIT Technology Pvt. Ltd   June 2024-September 2024
Data Science and Machine Learning Intern

- Conducted comprehensive exploratory data analysis on customer data to uncover **3 key trends** and insights. Utilized algorithms such as **K-Means clustering**, **Principal Component Analysis (PCA)**, and **decision trees** to identify significant patterns and drive effective segmentation strategies.
- Automated monthly reporting with **Python and SQL**, reducing manual workload by 30% and deploying supervised learning models (Logistic Regression, Random Forest, SVM, KNN) to enhance predictive accuracy by 15%.
- Collaborated with software engineers to deploy production data models and integrate an **LLM-powered chatbot** (using Docker, Flask, and REST APIs), reducing customer query response times by 25%.

Student Researcher   January 2025- February 2025
Eye Disease Classification Project

- Led a research initiative under Prof. Ruqaiya Khanam to develop a hybrid deep learning model for classifying **12 eye diseases**, integrating Swin Transformer Tiny (~5B FLOPs, 28M parameters) with EfficientNet-B2 (~1B FLOPs, 9M parameters).
- Designed an optimized architecture that fused these models using residual blocks, window attention, and efficient blocks—reducing computational complexity to **~2B FLOPs** while achieving **97% classification accuracy** with a total parameter count of **4.89M**.
- Utilized advanced TensorFlow techniques and robust image augmentation with the Keras preprocessing library to enhance training efficiency and generalization on a dataset of **48,000 images**.

PROJECTS

FinFusion   [*Github*]
AI-Driven Fintech Platform for Smart Investment & Market Intelligence

- Developed an AI-powered SaaS platform integrating web scraping with **Puppeteer** and **Selenium**, and sentiment analysis using **VADER** and **BERT**. Processed data from 5 integrated APIs (Yahoo Finance, Alpha Vantage, Financial Times, Bloomberg, Reuters) along with the top 75 trending posts from Twitter and Reddit to generate actionable investment insights.
- Engineered AI agents for portfolio risk assessment and industry trend prediction with **Random Forest** and **LSTM** models, evaluating data from 100 publicly traded companies to assess financial health and market sentiment.
- Designed an expense tracking and budgeting module leveraging **K-Means clustering** and time series forecasting, analyzing expenditure data from 200 users to deliver personalized weekly spending recommendations.

Plant Disease Detection   [*Github*]
AI-Driven Solution for Plant Health Monitoring

- Developed an AI-powered crop disease detection system using advanced deep learning models, including **CNN**, **VGG-16**, **VGG-19**, **Inception-v3**, **ResNet-50**, and **EfficientNet**, achieving **97% accuracy** in classifying healthy and diseased crops while effectively handling complex visual patterns.
- Trained on **18,345 images** and validated on **4,585 images**, leveraging **data augmentation, fine-tuning, and transfer learning** to enhance model generalization across diverse lighting conditions, angles, and background variations.
- Designed and deployed a **mobile application** for real-time disease detection, analyzing **10+ crop diseases**; integrated **U-Net** for precise segmentation of infected regions and incorporated computer vision techniques for accurate and efficient disease identification in field conditions.

SKILLS

- **Programming Langages and Frameworks:** Python, FastAPI, Flask, Django, React Native
- **AI and Machine Learning:** Pandas, NumPy, SciPy, Scikit-Learn, TensorFlow, PyTorch, NLP, CNN, LLM, Ollama, LangChain, Jupyter Notebook, MySQL, PostgreSQL, MongoDB, Streamlit, PySpark, Matplotlib, Seaborn
- **Data Science & Miscellaneous Technologies:** A/B testing, ETL, Data science pipeline (cleansing, wrangling, visualization, modeling, interpretation), Statistics, Time series, Experimental design, Hypothesis testing, OOP, OOD, APIs, Excel, Gits

ACTIVITY AND CERTIFICATES

- Developed innovative tech-driven solutions during the **NASA Space Apps Challenge 2024**, collaborating with a team of six to address challenges in space and Earth sciences; identified three critical problem areas for targeted interventions.
- Earned **IIIT Bangalore certification** for **Synergy'24**, recognizing technical expertise, perseverance, and dedication.
- Secured **4th place** in the **6th Technovation Hackathon** at Sharda University, showcasing strong **analytical and teamwork abilities**.

EDUCATION

Sharda University   Greater Noida, India
Computer Science and Engineering (B.Tech)   *2023-2027*

- Cumulative CGPA:**9.258**
- COMPEX Scholarship recipient, fully funded by the **Indian Embassy**.