Lakshya Paliwal

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Objective

As a second-year Computer Science student with a strong focus on machine learning, I am seeking a research internship to deepen my understanding of AI/ML concepts and contribute to meaningful research projects in the fields of behavioral science, healthcare AI, Agriculture and computer vision. I aim to leverage my skills in machine learning, data analysis, and computer vision to drive innovation and make an impact through collaborative research.

Education

Manipal University Jaipur *Aug 2023 - Jun 2027 (Expected)*
B.Tech in Computer Science and Engineering CGPA: 8.90/10
Relevant Coursework: Machine Learning, Deep Learning, Data Structures and Algorithms, Data Science, Artificial Intelligence, Statistics and Probability, Computer Organization and Architecture, Advanced Mathematics for Data Science, Linear Algebra for ML.

Skills

Programming Languages: Python, C, C++, Java, SQL
Machine Learning/Deep Learning Libraries: TensorFlow, Keras, Scikit-learn, XGBoost, LightGBM, pandas, NumPy, Matplotlib, Seaborn
Data Science Tools: Jupyter Notebook, Colab, Git, GitHub, VS Code, ZenML, MLflow
Research Tools: Pandas, NumPy, OpenCV, Pickle
Technologies: Flask, Docker
Domains & Expertise: Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Computer Vision (CV), Data Analysis
Soft Skills: Leadership, Collaboration, Problem-Solving, Time Management, Communication, Adaptability

Research Experience

Chronocept *Feb 2025*
Annotator

- Annotated temporal validity in text using a structured three-step process: Text Splitting, Axis Assignment, and Temporal Validity Distribution Plotting.
- Segmented sentences into grammatically and semantically meaningful subtexts while preserving temporal context.
- Classified subtexts into predefined temporal axes (e.g., Main Axis, Intention Axis, Hypothetical Axis) to structure event timelines, which follows the MATRES Annotation Scheme.
- Plotted probability distributions to model the validity of events over time.

Research Projects

- **Kisaan-Saathi:**
  - Implemented a machine learning model using the pretrained Xception architecture to accurately identify 38 different crop diseases.
  - ImageDataGenerator for data augmentation during training and fine-tuned the model by unfreezing layers, enhancing its accuracy.
  - Integrated a multi language chatbot within the application using the Gemini API to provide personalized assistance, address farmers' queries, and deliver tailored agricultural advice in real time.
  - Utilized Docker to containerize the application, ensuring consistent deployment across various environments.
  - Kisaan-Saathi Github.
  - **Technologies Used:** Python, Tensorflow/Keras, Streamlit, Google Gemini API.
- **Car-Park-In-Go:**
  - Built a user-friendly web interface to display real-time parking availability, ensuring seamless user interaction. Utilized Python with Flask for backend development.
  - Each frame is processed to extract regions corresponding to predefined parking spaces. The CNN model classifies these regions as either "Occupied" or "Free".
  - Provides an API endpoint to get the current count of free and occupied spaces.
  - Car-Park-In-Go GitHub.
  - **Technologies:** Python, Tensorflow/Keras, Flask, OpenCV, Pickle, Numpy.
- **Sentiment-Analysis-on-IBDM-Movie-Reviews :**
  - Comprehensive application of Natural Language Processing (NLP) and deep learning techniques aimed at classifying movie reviews as positive or negative.
  - Implemented text preprocessing steps such as tokenization, stop-word removal, and word embeddings to prepare the IMDB dataset for analysis. Converted textual data into numerical form using the BoW model to facilitate machine learning processing.
  - Developed a Long Short-Term Memory (LSTM) neural network model to effectively capture temporal dependencies in the text data for accurate sentiment classification.

  - Sentiment-Analysis-on-IBDM-Movie-Reviews GitHub.
  - **Technologies:** NLP, Python, NumPy, Matplotlib, Scikit-learn, Pandas
- **HealthCare-Hub:**
  - Integrates multiple machine learning models to provide solutions for various healthcare-related predictions.
  - Integrated all predictive models into a cohesive and user-friendly Streamlit web application, providing an accessible interface for users to input data and receive predictions.
  - Models integrated under this Web-Application: Bone Fracture Detection, Asthma Prediction, Breast Cancer Classification, Calories Burnt Estimation, Diabetes Risk Assessment, Heart Disease Prediction, Medical Insurance Cost Estimation.
  - HealthCare-Hub GitHub.
  - **Technologies:** TensorFlow/Keras, OpenCV, NumPy, Matplotlib, Python, Streamlit.
- **Car-Price-Prediction:**
  - End to End machine learning pipeline for predicting car prices. The model uses data (such as horsepower, enginesize, curbweight, etc.) to estimate prices of a car.
  - Conducted exploratory data analysis (EDA) using Pandas, Matplotlib, and Seaborn to understand feature correlations (Univariate, Bivariate, Multivariate analysis etc.)
  - Pipelines orchestrated using ZenML, ensuring modularity and reproducibility in data ingestion, preprocessing, model training, and evaluation.
  - Integrated MLflow for model tracking, experiment logging, and performance monitoring.
  - Car-Price-Prediction GitHub.
  - **Technologies:** Python, NumPy, Matplotlib, Seaborn, Scikit-learn, Pandas, ZenML, MLflow.

ACHIEVEMENTS

- **Dean's List:** Recognized on the Dean's List in the 2nd and 3rd semester for academic excellence.
- Deep learning Specialization: Deep Learning Specialization through DeepLearning.AI and Stanford University under the guidance of Andrew Ng.
- Machine Learning Specialization: Machine Learning Specialization through DeepLearning.AI and Stanford University under the guidance of Andrew Ng.