# Lakshya Paliwal

lakshyapaliwalodd@gmail.com | github.com/21lakshh | linkedin.com/in/lakshya-paliwal-67a5222aa/

## 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

- **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.
- **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.
- **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.
- **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, Brain Tumor 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.

## 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.