

# Lakshya Paliwal

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## 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:** Hugging Face Transformers, TensorFlow, Keras, Scikit-learn, XGBoost, LightGBM, pandas, NumPy, Matplotlib, Seaborn

**Data Science Tools:** Jupyter Notebook, Colab, Git, GitHub, VS Code, ZenML, MLflow

**AI Frameworks:** LangChain, LangGraph, Hugging Face Transformers.

**Research Tools:** Pandas, NumPy, OpenCV, Pickle

**Technologies:** FastAPI, 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

- Contributed to **Chronocept**, an AI research initiative focused on enhancing machine temporal reasoning by integrating **temporal validity** into natural language processing (NLP) systems. This enables AI models to reason about time, track event timelines, and distinguish between past, present, and future occurrences with greater accuracy.
- Annotated 250+ text samples** using a structured three-step process:
  - Text Segmentation:** Extracted grammatically and semantically meaningful subtexts while preserving temporal integrity.
  - Temporal Axis Classification:** Categorized subtexts into predefined temporal axes (e.g., *Main Axis*, *Intention Axis*, *Hypothetical Axis*) to structure event timelines.
  - Temporal Validity Modeling:** Assigned probability distributions to capture the validity of events over time, aiding machine understanding of temporal sequences.
- Contributed to the development of the [Chronocept Dataset](#), a benchmark dataset designed to improve AI-driven temporal reasoning in NLP models.

## 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.
- **Wanderwise-AI-Travel-Planner :**
  - This application helps users generate personalized travel itineraries based on their city of choice, interests, and available time, while integrating real-time weather information and Google Maps links.
  - Multi-Agent AI System: Implemented multiple AI agents for different tasks, ensuring an efficient travel planning process.
  - State Graph Workflow: Designed a structured itinerary-building process using LangGraph and custom state management.
  - [Wanderwise-AI-Travel-Planner GitHub](#).
  - **Technologies:** LangChain, LangGraph, Python, Weather API, Gradio.
- **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, Mental Health Support Chatbot.
  - [HealthCare-Hub GitHub](#).
  - **Technologies:** TensorFlow/Keras, OpenCV, NumPy, Matplotlib, Python, Streamlit.

## ACHIEVEMENTS

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- **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.