Human vs AI Face Classifier

This is a **Streamlit-based frontend** for a deep learning model that predicts whether a given face image is **authentic (real human) or AI-generated**.

How It Works

- The application loads a pre-trained TensorFlow model (final_model.h5).
- Users can upload an image (.jpg, .jpeg, .png).
- The image is resized and pre-processed to match the model's input format.
- The model makes a prediction, and the result is displayed:
    - **"Real"** if the image is classified as an actual human face.
    - **"AI Generated"** if the image is classified as synthetic.

Technologies Used

- **Streamlit**: For building the web-based UI.
- **TensorFlow/Keras**: For deep learning model inference.
- **NumPy**: For numerical operations.
- **PIL (Pillow)**: For image processing.

How to Run Locally

1. Install dependencies:

   ```
   pip install streamlit tensorflow pillow numpy
   ```

2. Run the application:

   ```
   streamlit run app.py
   ```

3. Upload an image and click **Predict** to classify.

Future Improvements

- Enhance model accuracy with more training data.
- Add explainability features (e.g., heatmaps for model interpretation).
- Deploy as a web app for wider accessibility.