User Guide: Running the YOLOv5 Object Detection Web Application

Prerequisites

Before running the application, ensure you have the following installed:

- Python (version 3.x)
- Required dependencies (install using pip install -r requirements.txt)
- Streamlit framework
- YOLOv5 model files

Running the Application

1. **Navigate to the Project Directory:** Open a terminal or command prompt and change the directory to the project folder.

   cd path/to/your/project

2. **Start the Streamlit Application:** Run the following command to launch the web application:

   streamlit run home.py

3. **Open the Web Interface:** After running the command, a web browser will open automatically with the application.

Using the Application

1. **Homepage:**
   - The homepage provides an overview of the application, displaying details about the YOLOv5 model and its capabilities.
   - Click on the "YOLO for Image" link to proceed to the image detection interface.
2. **Uploading an Image:**
   - Click the "Upload Image" button to open the file selection window.
   - Choose an image file (JPEG or PNG format only).
   - The application validates the file type before proceeding.
   - A preview of the uploaded image, along with its file name, type, and size, is displayed.
3. **Running Object Detection:**
   - Click the "Get Detections" button to process the uploaded image.
   - The YOLOv5 model will analyze the image and detect objects.
   - The processed image with labeled detected objects will be displayed.

Interpreting the Results

- The output image will contain bounding boxes around detected objects.
- Each detected object is labeled with its corresponding class name (e.g., person, bicycle, horse, etc.).
- The accuracy of detections depends on the quality of the model and input image.

Additional Information

- The application uses Streamlit, an open-source framework, to provide a user-friendly interface.
- To learn more about Streamlit, visit Streamlit's official website.

Future Enhancements

- Support for additional image formats.
- Integration of video file processing.
- Customization of detection settings for improved accuracy.

By following this guide, users can easily run and interact with the YOLOv5 object detection web application. Happy detecting!

Reference:

An AI assistant was utilized for paraphrasing, grammar, and sentence structure refinement.