YOLOv7 Pose Estimation Setup & Inference Guide

This guide walks you through setting up YOLOv7 Pose Estimation on your local environment and running inference. YOLOv7 is one of the latest and fastest object detection models, and when paired with pose estimation, it can help with various computer vision applications such as body keypoint detection.

Step 1: Clone the Repository

To get started, you need to download the YOLOv7 Pose Estimation repository. You can do this either by cloning the repo using Git or downloading the files directly.

- **Option 1: Clone using Git** Open your terminal and run the following command to clone the repository into your working directory:

  ```
  git clone https://github.com/augmentedstartups/pose-estimation-yolov7.git
  ```

- **Option 2: Download Files Directly** Alternatively, you can download the YOLOv7 Pose Files from the course, which includes the necessary weights for pose estimation.

Step 2: Create and Activate a Conda Environment

For a seamless setup, it's recommended to create a dedicated Conda environment. This ensures that the dependencies for YOLOv7 are properly installed and do not interfere with other projects.

- **Create a new Conda environment** using the provided `environment.yml` file:

  ```
  conda env create -f environment.yml
  ```

- **Activate the Conda environment** to switch to the newly created environment:

  ```
  conda activate yolov7pose
  ```

Step 3: Navigate to the Project Directory

Once the environment is activated, navigate to the `pose-estimation` folder where the project files are located. If you cloned the repo, you can navigate there by running:

```
cd pose-estimation
```

Step 4: Download the Pose Estimation Weights

To run pose estimation, you need the pre-trained model weights. You can download them from the official YOLOv7 repository:

- **Download the pose weights**: Visit YOLOv7 Pose Weights Release and download the `yolov7-w6-pose.pt` file.
- **Alternatively, on Ubuntu, you can download directly from the terminal** using:

  ```
  Wget https://github.com/WongKinYiu/yolov7/releases/download/v0.1/yolov7-w6-pose.pt
  ```

After downloading, place the `yolov7-w6-pose.pt` file inside the `pose-estimation` directory where the rest of the files are located.

Step 5: Run Pose Estimation Inference

Now, you are ready to run the pose estimation model! There are different ways to run inference depending on your setup and what data you want to process.

- **For real-time inference using a webcam (source `0`):** Run the following command:

  ```
  python run_pose.py --source 0
  ```

- **To run inference on a specific video file:** Simply provide the path to the video file in the command:

  ```
  python run_pose.py --source [path_to_video]
  ```

- **To run inference on GPU for better performance:** If you have a GPU available, you can run the model using the GPU by specifying the device as `0` (the default GPU):

  ```
  python run_pose.py --source 0 --device 0
  ```

The model will start processing the video or webcam feed and display the pose estimation results, including the keypoints detected for the human body.

References:

For more details and updates, visit the official YOLOv7 repository:

- YOLOv7 GitHub

By following this guide, you will have YOLOv7 Pose Estimation set up and running for real-time body keypoint detection, allowing you to integrate advanced pose estimation into your computer vision projects.