Computer Vision Project
Action Recognition
(Human Pose Estimation)

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Code Explanation:

In this code, we take a path of a video and the algorithm detects the human motion.

- We first import the required libraries which are import Cv2 and matplotlib.

- After that we use the readNetFromTensorFlow to load our weights.

- Then we input out initial weight and height and our threshold.

- After that, because this is human pose estimation, we enter our body parts, for this code I entered 18.

- After entering our body parts, we enter pose pairs. Meaning joint body parts for example neck & shoulder / Elbow & Wrist etc.

- After that we use the command cv.CapCapture() to take the path of our video and read it.

- Then, we use the cap.set() to set our index to 3 and our size to 800 for width and height.

- We after than initialize a while loop , we enter cv.waitKey(1) < 0 as the pose estimation takes for example the time of 1 second, we go into the loop.

- We use hasFrame, frame = cap.read() to read our video frame by frame.

- And if frame is corrupt we either go to next frame or break out of the loop, depending on the place of frame.

- Then, we read the Frame width and Frame height

- After than in order to perform the action recognition, I used net.setInput to configure the net variable I loaded in my memory earlier

- I used blobFromImage which basically grabs the image, I scaled it

- I used assert (len(Body_Parts) and points to get length and find points of body parts

- Then I made a for loop, using heatmap to divide body parts into points

- We used cv.minMax(heatmap) to find local maximas of video and find the x and y of video.

- After we get all the points, we append the point if it's confidence is higher than the threshold we entered.

- Then we pair the points of the body parts.

- After that we start drawing the lines to connect the points.

- I picked color of dots to be red and lines to be green.

- Then I used cv.imshow to show my results.