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import cv2

import torch

from tqdm.auto import tqdm


device = torch.device("cuda" if torch.cuda.is_available() else "cpu")

model = (
    torch.hub.load("ultralytics/yolov5", "yolov5s", pretrained=True).eval().to(device)
)


model.conf = 0.35


def detect(source_path, num_track_seconds=5):


    cap = cv2.VideoCapture(source_path)

    FPS = cap.get(cv2.CAP_PROP_FPS)

    total_frames = cap.get(cv2.CAP_PROP_FRAME_COUNT)

    print("FPS: ", FPS)

    print("Total Frames: ", total_frames)


    # imageWidth = int(cap.get(cv2.CAP_PROP_FRAME_WIDTH))

    # imageHeight = int(cap.get(cv2.CAP_PROP_FRAME_HEIGHT))


    # save_filename = source_path.split(".")[0] + "_result.mp4"

    # writer = cv2.VideoWriter(

    #     save_filename,

    #     cv2.VideoWriter_fourcc("m", "p", "4", "v"),

    #     FPS,

    #     (imageWidth, imageHeight),

    # )

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prev_center = None
not_moving_frame_count = 0
is_drowning = False
for frame_num in tqdm(range(int(total_frames))):
    success, frame = cap.read()
    if success:
        with torch.inference_mode():
            results = model(frame)

        xyxys = results.xyxy[0].cpu().numpy()
        for xyxy in xyxys:
            center = ((xyxy[0] + xyxy[2]) // 2, (xyxy[1] + xyxy[3]) // 2)
            # check if the detected object is a person
            if xyxy[-1] == 0 and prev_center is not None:
                # check for no movement
                if (
                    abs(prev_center[0] - center[0]) < 20
                    and abs(prev_center[1] - center[1]) < 20
                ):
                    not_moving_frame_count += 1

        prev_center = center

        bbox, conf, class_id = xyxy[:4].astype(int), xyxy[4] * 100, xyxy[5]

    if not_moving_frame_count >= (num_track_seconds * FPS):
        color = (0, 0, 255)
        frame = cv2.putText(
            frame,
            "Drowning: Yes",
            (80, 50),

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        cv2.FONT_HERSHEY_DUPLEX,
        1,
        color,
        2,
        cv2.LINE_AA,
    )
    is_drowning = True

else:
    color = (0, 255, 0)
    frame = cv2.putText(
        frame,
        "Drowning: No",
        (80, 50),
        cv2.FONT_HERSHEY_DUPLEX,
        1,
        color,
        2,
        cv2.LINE_AA,
    )
    out_frame = cv2.rectangle(frame, bbox[:2], bbox[2:], color, 2)
    out_frame = cv2.putText(
        out_frame,
        f"conf: {conf:.2f}",
        bbox[:2],
        cv2.FONT_HERSHEY_DUPLEX,
        0.6,
        color,
        2,
        cv2.LINE_AA,
    )

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center_pt = list(map(int, center))

out_frame = cv2.circle(out_frame, center_pt, 3, color, -1)


ret, buffer = cv2.imencode(".jpg", out_frame)
out_frame = buffer.tobytes()


yield (
    b"--frame\r\n"
    b"Content-Type: image/jpeg\r\n\r\n" + out_frame + b"\r\n"
)


# # writer.write(frame)
# cv2.imshow("Real-time object detection", out_frame)
# if is_drowning == True:
#     cap.release()
#     cv2.destroyAllWindows()


# # press "Q" to stop
# if cv2.waitKey(1) & 0xFF == ord("q"):
#     break


# # release resources
# cap.release()
# cv2.destroyAllWindows()


if __name__ == "__main__":
    detect("swim.mp4")
    detect("standby.mp4")

```