Lab-07

Mrinal Bhan
211020428, DSAI

Tasks

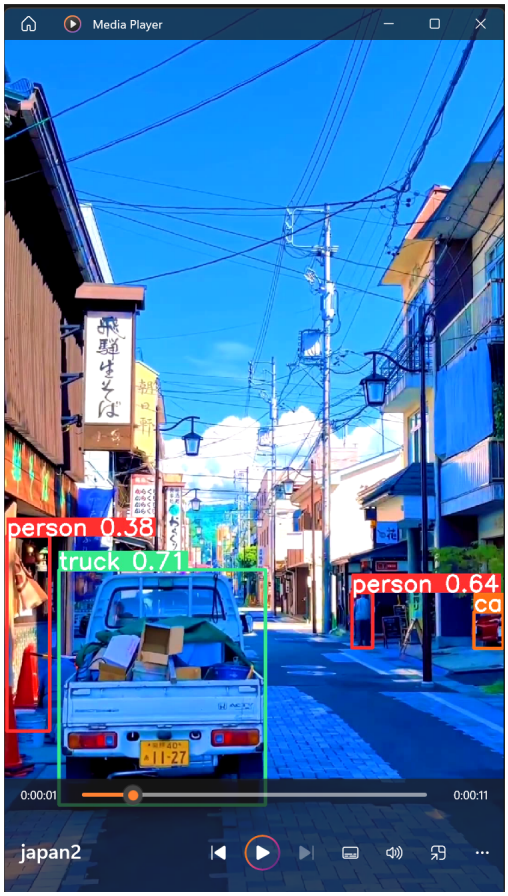
Experiment Number -01: Write a program to implement real-time object detection in a video stream.
Hint: Detect and draw bounding boxes around objects in a live video feed using pre-trained object
detection models like YOLO, Faster R-CNN, or SSD.

```
from ultralytics import YOLO

# Load a model
model = YOLO('yolov8n.pt')  # load an official model

# Predict with the model
results = model('japan2.mp4', save=True)  # predict on an image
```

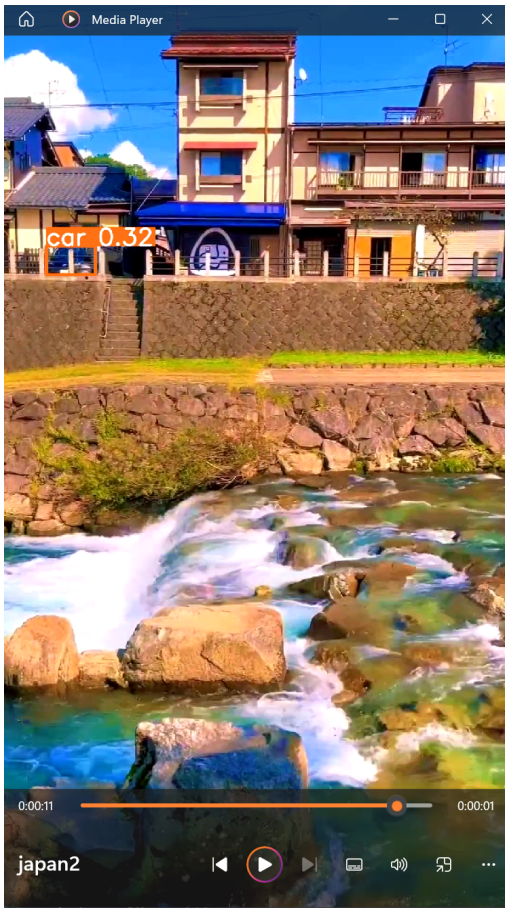
```
    WARNING ⚠ stream/video/webcam/dir predict source will accumulate
results in RAM unless `stream=True` is passed,
    causing potential out-of-memory errors for large sources or long-
running streams/videos.

    Example:
        results = model(source=..., stream=True)  # generator of Results
objects
        for r in results:
            boxes = r.boxes  # Boxes object for bbox outputs
            masks = r.masks  # Masks object for segment masks outputs
            probs = r.probs  # Class probabilities for classification
outputs

video 1/1 (1/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 1 car, 1 bus, 1 truck, 1 traffic light,
24.2ms
video 1/1 (2/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 2 persons, 1 car, 1 truck, 2 traffic lights, 28.4ms
video 1/1 (3/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 1 traffic light, 21.7ms
```

```
video 1/1 (4/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 2 persons, 2 cars, 1 truck, 1 traffic light, 21.6ms
video 1/1 (5/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 1 traffic light, 24.5ms
video 1/1 (6/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 1 traffic light, 22.6ms
video 1/1 (7/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 traffic light, 22.7ms
video 1/1 (8/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 1 traffic light, 24.9ms
video 1/1 (9/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 4 cars, 21.8ms
video 1/1 (10/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 21.4ms
video 1/1 (11/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 30.0ms
video 1/1 (12/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 2 persons, 3 cars, 1 truck, 1 traffic light, 26.5ms
video 1/1 (13/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 1 car, 1 truck, 25.8ms
video 1/1 (14/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 1 car, 1 truck, 31.8ms
video 1/1 (15/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 1 car, 1 truck, 1 traffic light, 21.7ms
video 1/1 (16/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 2 persons, 1 car, 1 truck, 23.6ms
video 1/1 (17/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 2 persons, 1 car, 1 truck, 21.3ms
video 1/1 (18/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 1 car, 1 truck, 25.2ms
video 1/1 (19/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 2 cars, 1 truck, 22.6ms
video 1/1 (20/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 person, 1 car, 1 truck, 25.2ms
......
video 1/1 (365/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 car, 28.6ms
video 1/1 (366/366) /mnt/e/acad/Semester_5/computer-vision/lab/Lab-
7/japan2.mp4: 640x384 1 car, 26.4ms
Speed: 4.5ms preprocess, 24.9ms inference, 5.0ms postprocess per image at
shape (1, 3, 640, 384)
Results saved to □[1mruns/detect/predict2□[0m
```

Screenshots of random timestamps from the video




Media Player
0:00:06
0:00:06
japan2


Media Player
car 0.32
0:00:11
0:00:01
japan2