import cv2

import numpy as np

# Load YOLO

def load\_yolo():

 net = cv2.dnn.readNet("yolov3.weights", "yolov3.cfg")

 layer\_names = net.getLayerNames()

 output\_layers = [layer\_names[i[0] - 1] for i in net.getUnconnectedOutLayers()]

 return net, output\_layers

# Load COCO class labels

def load\_labels():

 with open("coco.names", "r") as f:

 classes = [line.strip() for line in f.readlines()]

 return classes

# Process each frame

def process\_frame(frame, net, output\_layers, classes):

 height, width, channels = frame.shape

 blob = cv2.dnn.blobFromImage(frame, 0.00392, (416, 416), (0, 0, 0), True, crop=False)

 net.setInput(blob)

 outs = net.forward(output\_layers)

 class\_ids = []

 confidences = []

 boxes = []

 for out in outs:

 for detection in out:

 for obj in detection:

 scores = obj[5:]

 class\_id = np.argmax(scores)

 confidence = scores[class\_id]

 if confidence > 0.5:

 center\_x = int(obj[0] \* width)

 center\_y = int(obj[1] \* height)

 w = int(obj[2] \* width)

 h = int(obj[3] \* height)

 x = int(center\_x - w / 2)

 y = int(center\_y - h / 2)

 boxes.append([x, y, w, h])

 confidences.append(float(confidence))

 class\_ids.append(class\_id)

 indexes = cv2.dnn.NMSBoxes(boxes, confidences, 0.5, 0.4)

 for i in indexes:

 i = i[0]

 box = boxes[i]

 x, y, w, h = box

 label = str(classes[class\_ids[i]])

 confidence = confidences[i]

 color = (0, 255, 0) # Green

 cv2.rectangle(frame, (x, y), (x + w, y + h), color, 2)

 cv2.putText(frame, f"{label} {confidence:.2f}", (x, y - 10), cv2.FONT\_HERSHEY\_SIMPLEX, 0.5, color, 2)

 return frame

# Main function

def main():

 # Load YOLO

 net, output\_layers = load\_yolo()

 classes = load\_labels()

 # Open video capture

 cap = cv2.VideoCapture(0) # Use 0 for webcam, or replace with video file path

 while True:

 ret, frame = cap.read()

 if not ret:

 break

 frame = process\_frame(frame, net, output\_layers, classes)

 cv2.imshow("Traffic Detection", frame)

 if cv2.waitKey(1) & 0xFF == ord('q'):

 break

 cap.release()

 cv2.destroyAllWindows()

if \_\_name\_\_ == "\_\_main\_\_":

 main()

Output:

Python 3.12.5 (tags/v3.12.5:ff3bc82, Aug 6 2024, 20:45:27) [MSC v.1940 64 bit (AMD64)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

= RESTART: C:\Users\DivyaHarshini\AppData\Local\Programs\Python\Python312\traf.py

Traceback (most recent call last):

 File "C:\Users\DivyaHarshini\AppData\Local\Programs\Python\Python312\traf.py", line 83, in <module>

 main()

 File "C:\Users\DivyaHarshini\AppData\Local\Programs\Python\Python312\traf.py", line 62, in main

 net, output\_layers = load\_yolo()

 File "C:\Users\DivyaHarshini\AppData\Local\Programs\Python\Python312\traf.py", line 6, in load\_yolo

 net = cv2.dnn.readNet("yolov3.weights", "yolov3.cfg")

cv2.error: OpenCV(4.10.0) D:\a\opencv-python\opencv-python\opencv\modules\dnn\src\darknet\darknet\_importer.cpp:210: error: (-212:Parsing error) Failed to open NetParameter file: yolov3.cfg in function 'cv::dnn::dnn4\_v20240521::readNetFromDarknet'