import cv2

import matplotlib.pyplot as plt

# Input image

image = cv2.imread('image.jpg')

image = cv2.resize(image, (720, 640))

# Importing Models and set mean values

face1 = "opencv\_face\_detector.pbtxt"

face2 = "opencv\_face\_detector\_uint8.pb"

age1 = "age\_deploy.prototxt"

age2 = "age\_net.caffemodel"

gen1 = "gender\_deploy.prototxt"

gen2 = "gender\_net.caffemodel"

MODEL\_MEAN\_VALUES = (78.4263377603, 87.7689143744, 114.895847746)

# Using models

# Face

face = cv2.dnn.readNet(face2, face1)

# age

age = cv2.dnn.readNet(age2, age1)

# gender

gen = cv2.dnn.readNet(gen2, gen1)

# Categories of distribution

la = ['(0-2)', '(4-6)', '(8-12)', '(15-20)',

  '(25-32)', '(38-43)', '(48-53)', '(60-100)']

lg = ['Male', 'Female']

# Copy image

fr\_cv = image.copy()

# Face detection

fr\_h = fr\_cv.shape[0]

fr\_w = fr\_cv.shape[1]

blob = cv2.dnn.blobFromImage(fr\_cv, 1.0, (300, 300),

              [104, 117, 123], True, False)

face.setInput(blob)

detections = face.forward()

# Face bounding box creation

faceBoxes = []

for i in range(detections.shape[2]):

  #Bounding box creation if confidence > 0.7

  confidence = detections[0, 0, i, 2]

  if confidence > 0.7:

    x1 = int(detections[0, 0, i, 3]\*fr\_w)

    y1 = int(detections[0, 0, i, 4]\*fr\_h)

    x2 = int(detections[0, 0, i, 5]\*fr\_w)

    y2 = int(detections[0, 0, i, 6]\*fr\_h)

    faceBoxes.append([x1, y1, x2, y2])

    cv2.rectangle(fr\_cv, (x1, y1), (x2, y2),

          (0, 255, 0), int(round(fr\_h/150)), 8)

faceBoxes

# Checking if face detected or not

if not faceBoxes:

  print("No face detected")

# Final results (otherwise)

# Loop for all the faces detected

for faceBox in faceBoxes:

  #Extracting face as per the faceBox

  face = fr\_cv[max(0, faceBox[1]-15):

        min(faceBox[3]+15, fr\_cv.shape[0]-1),

        max(0, faceBox[0]-15):min(faceBox[2]+15,

              fr\_cv.shape[1]-1)]

  #Extracting the main blob part

  blob = cv2.dnn.blobFromImage(

    face, 1.0, (227, 227), MODEL\_MEAN\_VALUES, swapRB=False)

  #Prediction of gender

  gen.setInput(blob)

  genderPreds = gen.forward()

  gender = lg[genderPreds[0].argmax()]

  #Prediction of age

  age.setInput(blob)

  agePreds = age.forward()

  age = la[agePreds[0].argmax()]

  #Putting text of age and gender

  #At the top of box

  cv2.putText(fr\_cv,

        f'{gender}, {age}',

        (faceBox[0]-150, faceBox[1]+10),

        cv2.FONT\_HERSHEY\_SIMPLEX,

        1.3,

        (217, 0, 0),

        4,

        cv2.LINE\_AA)

  plt.figure(figsize=(7, 7))

  plt.imshow(fr\_cv)





