Python les-materialen

Usage example of MediaPipe Face Detection Solution API in Python (see also http://solutions.mediapipe.dev/face\_detection).

!pip install mediapipe

Upload images that contain face(s) within 2 meters from the camera to test the short range model. We take two example images from the web: https://unsplash.com/photos/JyVcAIUAcPM and https://unsplash.com/photos/auTAb39ImXg.

Also upload images that contain face(s) within 5 meters from the camera to test the full range model. We take two example images from the web: https://unsplash.com/photos/ezgW6z6oIvA and https://unsplash.com/photos/\_veZpXKU71c.

# Upload images that contain face(s) within 2 meters from the camera.  
from google.colab import files  
uploaded\_short\_range = files.upload()  
  
# Upload images that contain face(s) within 5 meters from the camera.  
from google.colab import files  
uploaded\_full\_range = files.upload()

import cv2  
from google.colab.patches import cv2\_imshow  
import math  
import numpy as np  
  
DESIRED\_HEIGHT = 480  
DESIRED\_WIDTH = 480  
def resize\_and\_show(image):  
 h, w = image.shape[:2]  
 if h < w:  
 img = cv2.resize(image, (DESIRED\_WIDTH, math.floor(h/(w/DESIRED\_WIDTH))))  
 else:  
 img = cv2.resize(image, (math.floor(w/(h/DESIRED\_HEIGHT)), DESIRED\_HEIGHT))  
 cv2\_imshow(img)  
  
# Preview the images.  
short\_range\_images = {name: cv2.imread(name) for name in uploaded\_short\_range.keys()}  
for name, image in short\_range\_images.items():  
 print(name)   
 resize\_and\_show(image)  
  
full\_range\_images = {name: cv2.imread(name) for name in uploaded\_full\_range.keys()}  
for name, image in full\_range\_images.items():  
 print(name)   
 resize\_and\_show(image)

garrett-jackson-auTAb39ImXg-unsplash.jpg

png

radu-florin-JyVcAIUAcPM-unsplash.jpg

png

brooke-cagle-ezgW6z6oIvA-unsplash.jpg

png

tracey-hocking-\_veZpXKU71c-unsplash.jpg

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All MediaPipe Solutions Python API examples are under mp.solutions.

For the MediaPipe Face Mesh solution, we can access this module as mp\_face\_detection = mp.solutions.face\_detection.

You may change the parameter min\_detection\_confidence during the initialization. Run help(mp\_face\_detection.FaceDetection) to get more informations about the parameter.

import mediapipe as mp  
mp\_face\_detection = mp.solutions.face\_detection  
  
help(mp\_face\_detection.FaceDetection)

# Prepare DrawingSpec for drawing the face landmarks later.  
mp\_drawing = mp.solutions.drawing\_utils   
drawing\_spec = mp\_drawing.DrawingSpec(thickness=1, circle\_radius=1)

# Run MediaPipe Face Detection with short range model.  
  
with mp\_face\_detection.FaceDetection(  
 min\_detection\_confidence=0.5, model\_selection=0) as face\_detection:  
 for name, image in short\_range\_images.items():  
 # Convert the BGR image to RGB and process it with MediaPipe Face Detection.  
 results = face\_detection.process(cv2.cvtColor(image, cv2.COLOR\_BGR2RGB))  
  
 # Draw face detections of each face.  
 print(f'Face detections of {name}:')  
 if not results.detections:  
 continue  
 annotated\_image = image.copy()  
 for detection in results.detections:  
 mp\_drawing.draw\_detection(annotated\_image, detection)  
 resize\_and\_show(annotated\_image)

Face detections of garrett-jackson-auTAb39ImXg-unsplash.jpg:

png

Face detections of radu-florin-JyVcAIUAcPM-unsplash.jpg:

png

# Run MediaPipe Face Detection with full range model.  
  
with mp\_face\_detection.FaceDetection(  
 min\_detection\_confidence=0.5, model\_selection=1) as face\_detection:  
 for name, image in full\_range\_images.items():  
 # Convert the BGR image to RGB and process it with MediaPipe Face Detection.  
 results = face\_detection.process(cv2.cvtColor(image, cv2.COLOR\_BGR2RGB))  
  
 # Draw face detections of each face.  
 print(f'Face detections of {name}:')  
 if not results.detections:  
 continue  
 annotated\_image = image.copy()  
 for detection in results.detections:  
 mp\_drawing.draw\_detection(annotated\_image, detection)  
 resize\_and\_show(annotated\_image)

Face detections of brooke-cagle-ezgW6z6oIvA-unsplash.jpg:

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Face detections of tracey-hocking-\_veZpXKU71c-unsplash.jpg:

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