Soutenance Stage G1

Intelligence Artificiel et Santé

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centralelille

Introduction

Implementation

```
import cv2
import os
import numpy as np
import tensorflow as tf
import qi
import sys

prototxt_path = os.path.join('resources/deploy.prototxt')
caffemodel_path = os.path.join('resources/weights.caffemodel')
model = cv2.dnn.readNetFromCaffe(prototxt_path, caffemodel_path)

modelMasque = tf.keras.models.load_model("QSTOMIT-MASQUE.model")
```

```
session = qi.Session()
session.connect("tcp://192.168.0.102:9559")

tts = session.service("ALTextToSpeech")

camera = session.service("ALVideoDevice")
camera_top = camera.subscribeCamera("camera_top", 0, 2, 11, 30)
```

```
while True:

    image = camera.getImageRemote(camera_top)
    h = image[0]
    w = image[1]
    image = np.array(image[6])
    image = np.reshape(image, (w, h, 3))
    image = cv2.cvtColor(image, cv2.COLOR_BGR2RGB)
    blob = cv2.dnn.blobFromImage(cv2.resize(image, (300, 300)), 1.0,
            (300, 300), (104.0, 177.0, 123.0))
    model.setInput(blob)
    detections = model.forward()
```

```
for i in range(0, detections.shape[2]):
    box = detections[0, 0, i, 3:7] * np.array([w, h, w, h])
    (startX, startY, endX, endY) = box.astype("int")

    confidence = detections[0, 0, i, 2]

    if (confidence > 0.5):
        frame = image[startY:endY, startX:endX]

        capture = cv2.resize(frame, (224, 224))
        capture = capture.reshape((1, capture.shape[0], capture.shape[1],
                    capture.shape[2]))
        predict = modelMasque.predict(capture)
```

```
pasDeMasque = predict[0][0]
avecMasque = predict[0][1]

if pasDeMasque > avecMasque:
    tts.say("Pas de Masque! Mettre votre masque s'il vous plaît")
else:
    tts.say("Merci d'utiliser votre masque")
```

Résultats