Reconhecimento de imagens

Importando bibliotecas

```
from google.colab import drive
drive.mount("/content/drive")
```

```
Mounted at /content/drive
```

```
from google.colab.patches import cv2_imshow
import cv2
import numpy as np
import dlib
import matplotlib.pyplot as plt
```

```
%cd '/content/drive/MyDrive/tcc/haarcascade'
```

```
/content/drive/MyDrive/tcc/haarcascade
```

Criando função para detectar rostos

```
def detecta_rosto(caminhorosto):
  imagem = cv2.imread(caminhorosto)
  cinza = cv2.cvtColor(imagem, cv2.COLOR_BGR2GRAY)
  plt.figure(figsize=(15,15))
  #plt.imshow(cinza, cmap="gray")
  classificador_rostos = cv2.CascadeClassifier('haarcascade_frontalface_default.xml')
  test = classificador_rostos.load('haarcascade_frontalface_default.xml')
  rostos = classificador_rostos.detectMultiScale(cinza, scaleFactor = 1.5,minNeighbors = 1,minSize=(30,30))
  if rostos is ():
    print("Nenhum rosto encontrado")
    return
```

```
    for(x, y, largura, altura) in rostos:
      cv2.rectangle(imagem, (x,y), (x+largura,y+altura), (127,0,255), 2)
    cv2_imshow(imagem)
    cv2.waitKey(0)

    cv2.destroyAllWindows()
```

Criando função para detectar olhos

```
def detecta_olhos(caminhoolhos):
  imagem = cv2.imread(caminhoolhos)
  cinza = cv2.cvtColor(imagem, cv2.COLOR_BGR2GRAY)
  classificador_olhos = cv2.CascadeClassifier("haarcascade_eye.xml")
  olhos = classificador_olhos.detectMultiScale(cinza, 1.3, 5)
  if olhos is():
    print("Nenhum olho encontrado")
    return
  for(x, y, largura, altura) in olhos:
      cv2.rectangle(imagem, (x,y), (x+largura,y+altura), (127,0,255), 2)
  cv2_imshow(imagem)
  cv2.waitKey(0)
  cv2.destroyAllWindows

  imagemolho = imagem[y:y+altura,x:x+largura]
  cv2_imshow(imagemolho)
  imagemolhocinza = cv2.cvtColor(imagemolho, cv2.COLOR_BGR2GRAY)
  plt.imshow(imagemolhocinza, cmap ="gray")
```

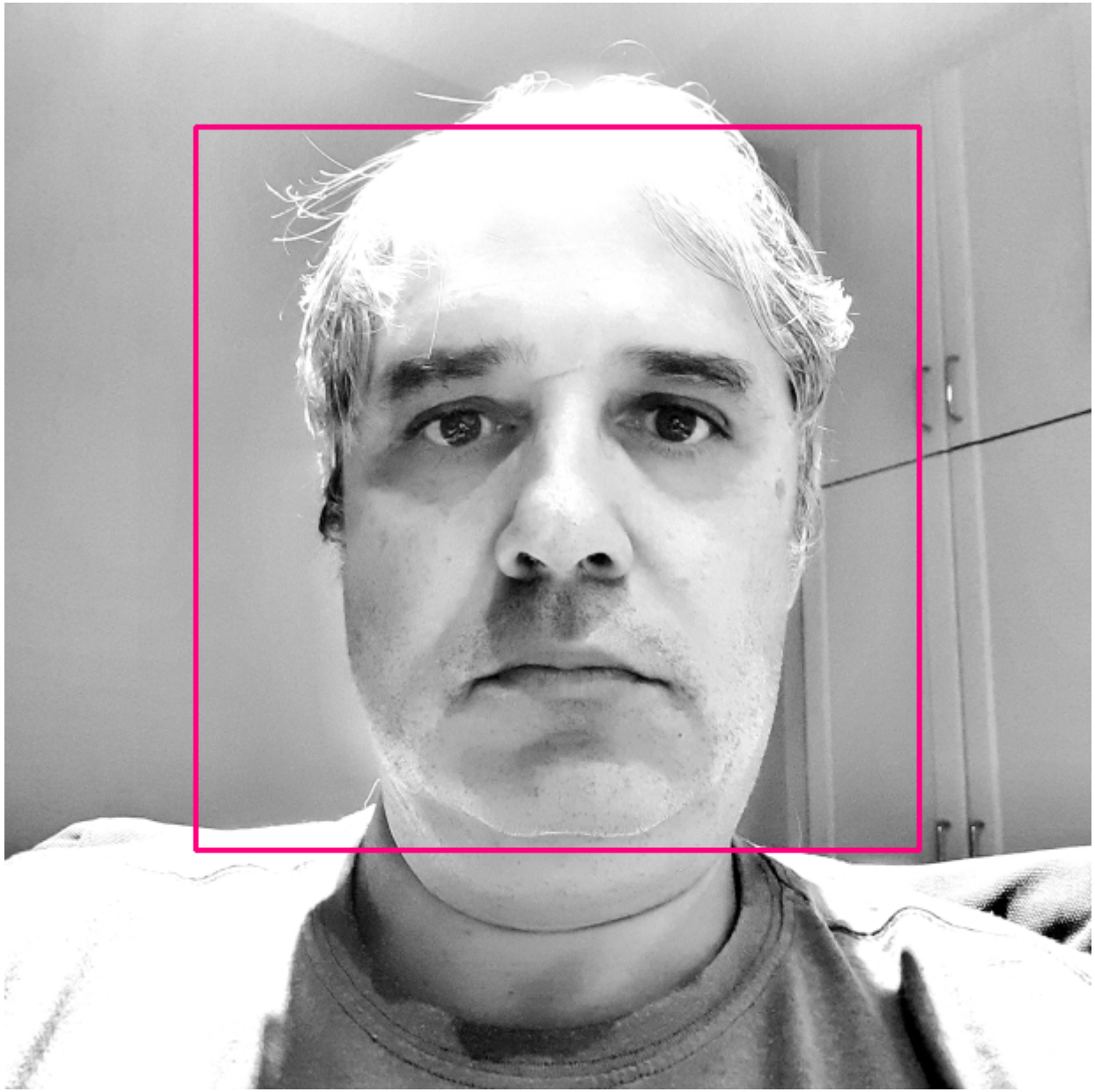
Testes com imagens em diferentes posições

```
%cd '/content/drive/MyDrive/tcc/haarcascade'
```

```
/content/drive/MyDrive/tcc/haarcascade
```

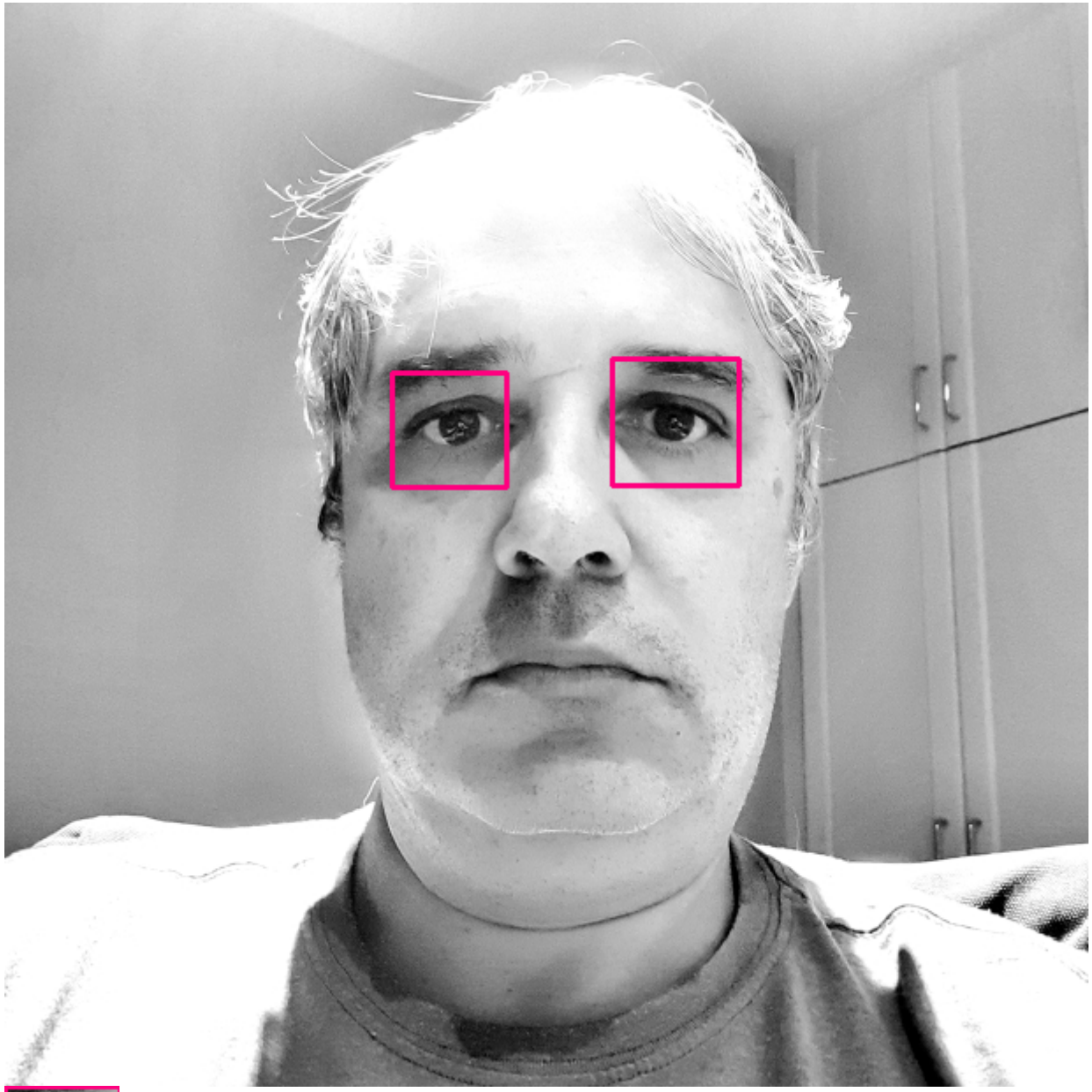
Olhos abertos

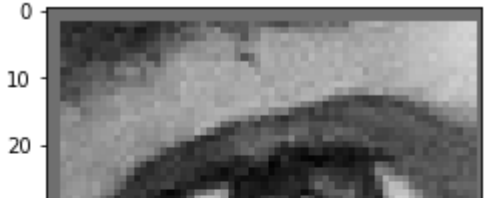
```
1  detecta_rosto("Rosto.jpg")
```

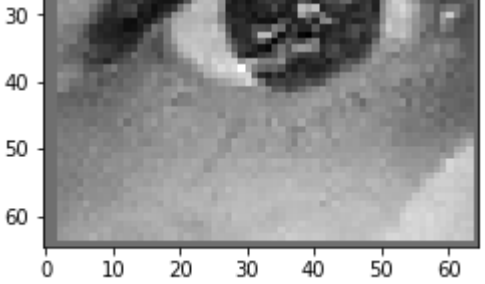


```
<Figure size 1080x1080 with 0 Axes>
```

```
1  detecta_olhos("Rosto.jpg")
```

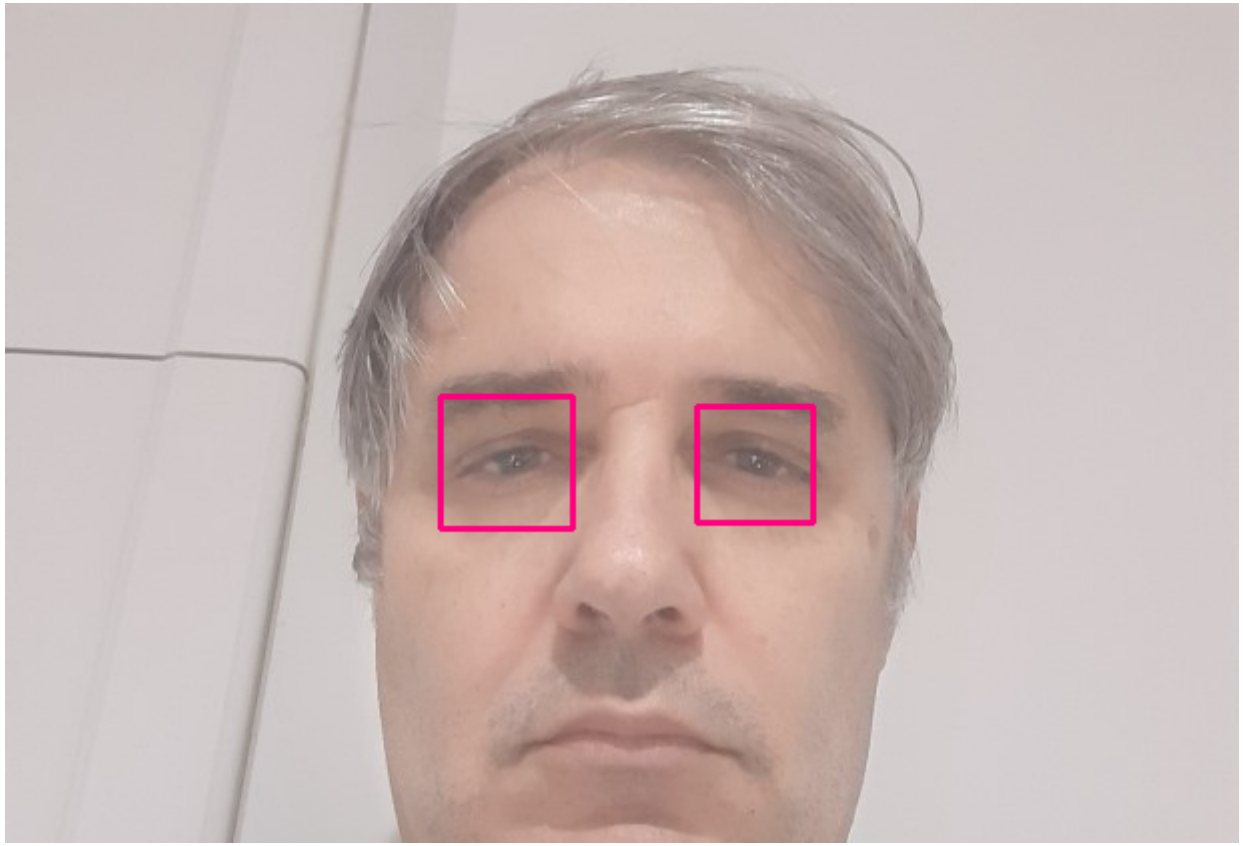



0
10
20



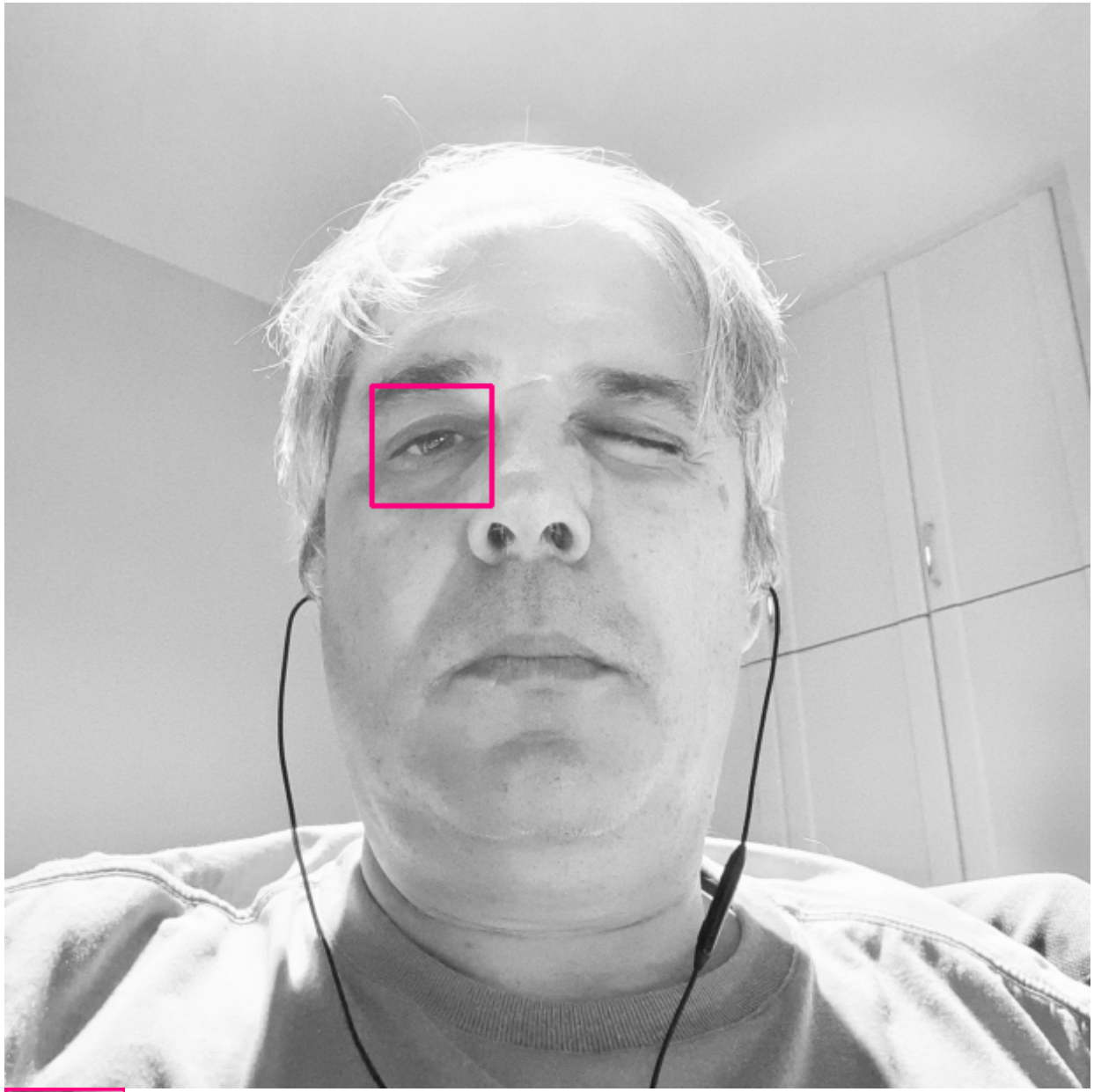
Olhos semifechados

```
1  detecta_olhos("Semicerrados.jpg")
```

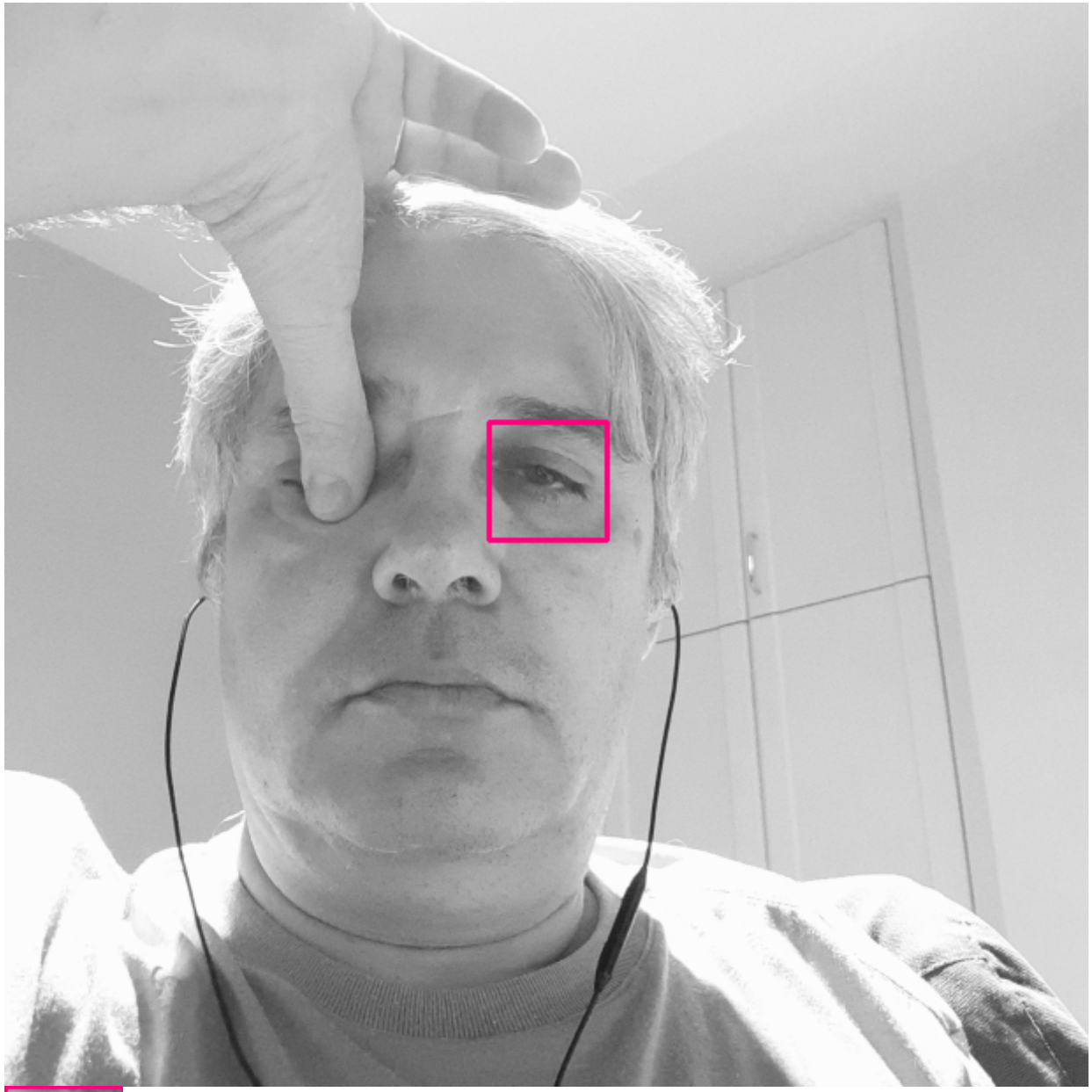


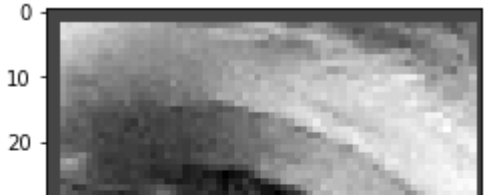
Olhos abertos e fechados

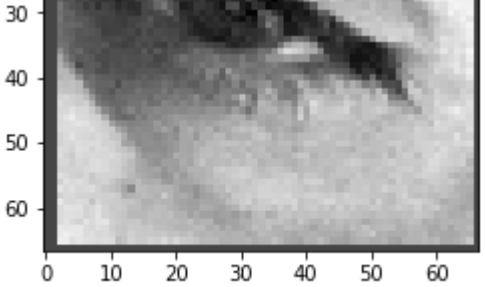
```
1  detecta_olhos("esquerdoAberto.jpg")
```




```
1   detecta_olhos("direitoFechado.jpg")
```




0
10
20


0
10
20
30
40
50
60