

Calibração de câmera

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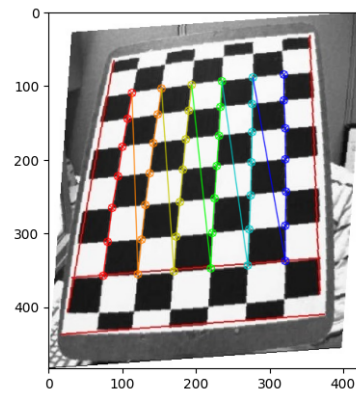
1 Calibração câmera

Para execução deste trabalho foi utilizado o GoogleColab. Código fonte está disponível no git: <https://github.com/ffaza/ta2> para clonar: <https://github.com/ffaza/t21.git>

```
1 #
2 #
3 !pip install cv2_plt_imshow
4 import numpy as np
5 import cv2 as cv
6 import glob
7 from cv2_plt_imshow import cv2_plt_imshow, plt_format
8 import matplotlib.pyplot as plt
9 import time
10 from matplotlib import pyplot as plt
11 import matplotlib.pyplot as plt
12 criteria = (cv.TERM_CRITERIA_EPS + cv.TERM_CRITERIA_MAX_ITER, 30, 0.001)
13 objp = np.zeros((6*7,3), np.float32)
14 objp[:, :2] = np.mgrid[0:7,0:6].T.reshape(-1,2)
15 objpoints = []
16 imgpoints = []
17 from google.colab import drive
18 #drive.authenticate_user()
19 drive.mount('drive')
20 list_of_image_files = glob.glob('drive/My Drive/IMAGENS_TRABALHO_TA2/TESTE6
    /LISTA/*.jpg')
21 for fname in list_of_image_files:
22     img = cv.imread(fname)
23     gray = cv.cvtColor(img, cv.COLOR_BGR2GRAY)
24     ret, corners = cv.findChessboardCorners(gray, (7,6), None)
25     if ret == True:
26         objpoints.append(objp)
27         corners2 = cv.cornerSubPix(gray, corners, (11,11), (-1,-1), criteria
            )
28         imgpoints.append(corners2)
29         cv.drawChessboardCorners(img, (7,6), corners2, ret)
30         cv2_plt_imshow(img)
31         cv.waitKey(500)
32 #
33 #
```

Listing 1: Código fonte[1] [2] [3]

Figure 1: Pontos 3d



```

1 ret, mtx, dist, rvecs, tvecs = cv.calibrateCamera(objpoints, imgpoints,
2   gray.shape[::-1], None, None)
3 img = cv.imread('drive/My Drive/IMAGENS_TRABALHO_TA2/TESTE6/IMAGEMTESTE
4   /968.jpg')
5 img2 = cv.imread('drive/My Drive/IMAGENS_TRABALHO_TA2/TESTE6/IMAGEMTESTE
6   /968.jpg')
7 h, w = img.shape[:2]
8 newcameramtx, roi = cv.getOptimalNewCameraMatrix(mtx, dist, (w,h), 1, (w,h)
9   )
10 undistorted_image = cv.undistort(img, mtx, dist, None, newcameramtx)
11 combined_image = np.hstack((img2, undistorted_image))
12 cv2_plt_imshow(combined_image)
13 cv.waitKey(0)
14 cv.destroyAllWindows()

```

Listing 2: Código fonte[4]

Figure 2: Do lado esquerdo a imagem original, direito imagem alterada

