Calibração de câmera

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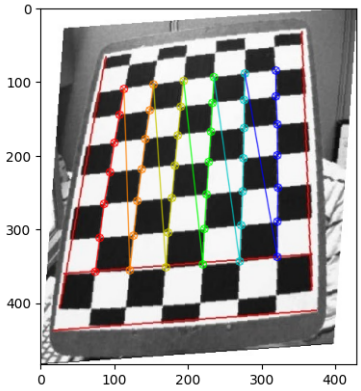
1 Calibração câmera

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/ta2.git

```
#
#
!pip install cv2_plt_imshow
import numpy as np
import cv2 as cv
import glob
from cv2_plt_imshow import cv2_plt_imshow, plt_format
import matplotlib.pyplot as plt
import time
from matplotlib import pyplot as plt
import matplotlib.pyplot as plt
criteria = (cv.TERM_CRITERIA_EPS + cv.TERM_CRITERIA_MAX_ITER, 30, 0.001)
objp = np.zeros((6*7,3), np.float32)
objp[:,:2] = np.mgrid[0:7,0:6].T.reshape(-1,2)
objpoints = []
imgpoints = []
from google.colab import drive
#drive.authenticate_user()
drive.mount('drive')
list_of_image_files = glob.glob('drive/My Drive/IMAGENS_TRABALHO_TA2/TESTE6
    /LISTA/*.jpg')
for fname in list_of_image_files:
    img = cv.imread(fname)
    gray = cv.cvtColor(img, cv.COLOR_BGR2GRAY)
    ret, corners = cv.findChessboardCorners(gray, (7,6), None)
    if ret == True:
        objpoints.append(objp)
        corners2 = cv.cornerSubPix(gray,corners, (11,11), (-1,-1), criteria
            )
        imgpoints.append(corners2)
        cv.drawChessboardCorners(img, (7,6), corners2, ret)
        cv2_plt_imshow(img)
        cv.waitKey(500)
#
#
```

Listing 1: Código fonte[1] [2] [3]

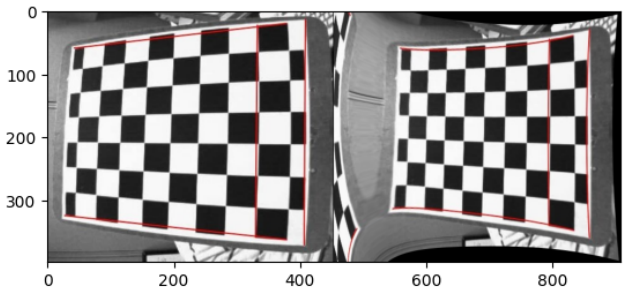
Figure 1: Pontos 3d




```
ret, mtx, dist, rvecs, tvecs = cv.calibrateCamera(objpoints, imgpoints,
    gray.shape[::-1], None, None)
img = cv.imread('drive/My Drive/IMAGENS_TRABALHO_TA2/TESTE6/IMAGEMTESTE
    /968.jpg')
img2 = cv.imread('drive/My Drive/IMAGENS_TRABALHO_TA2/TESTE6/IMAGEMTESTE
    /968.jpg')
h,  w = img.shape[:2]
newcameramtx, roi = cv.getOptimalNewCameraMatrix(mtx, dist, (w,h), 1, (w,h)
    )
undistorted_image = cv.undistort(img, mtx, dist, None, newcameramtx)
combined_image = np.hstack((img2, undistorted_image))
cv2_plt_imshow(combined_image)
cv.waitKey(0)
cv.destroyAllWindows()
```

Listing 2: Código fonte [1] [2] [3]

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



References

[1] Melo C. **Como usar OpenCV e Python para calibrar câmeras**. Online. Acessado em 01/05/2023, https://sigmoidal.ai/como-usar-opencv-e-python-para-calibrar-cameras/.

[2] OpenCV. **Camera calibration With OpenCV**. Online. Acessado em 01/05/2023, https://docs.opencv.org/4.x/d4/d94/tutorial_camera_calibration.html.

[3] OpenCV. **Camera Calibration**. Online. Acessado em 01/05/2023, https://docs.opencv.org/4.x/dc/dbb/tutorial_py_calibration.html.