



Experiment1.2

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Subject Name: Computer Vision Lab

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Aim:

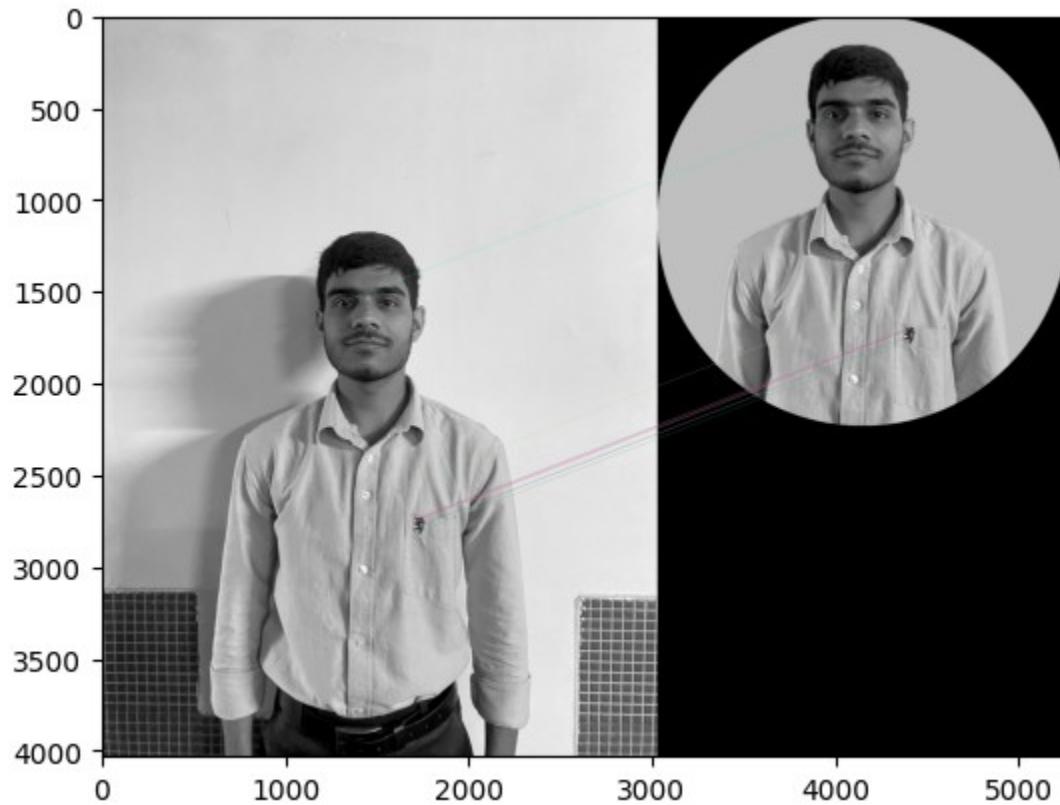
Write a program to access various feature matching algorithms for object recognition.

Software Required: Google colab notebook

Feature matching using: Brute-force algorithm -

```
import numpy as np
import cv2 as cv
import matplotlib.pyplot as plt
img1 = cv.imread('/content/IMG_5160.png',cv.IMREAD_GRAYSCALE)
img2 = cv.imread('/content/fotor_2023-5-26_21_26_26.png',cv.IMREAD_GRAYSCALE)
orb = cv.ORB_create()
kp1, des1 = orb.detectAndCompute(img1,None)
kp2, des2 = orb.detectAndCompute(img2,None)
bf = cv.BFMatcher(cv.NORM_HAMMING, crossCheck=True)
matches = bf.match(des1,des2)
matches = sorted(matches, key = lambda x:x.distance)
img3=cv.drawMatches(img1,kp1,img2,kp2,matches[:10],None,flags=cv.DrawMatchesFlags_NOT_DRAW_SINGLE_POINTS)
plt.imshow(img3),plt.show()
```

Output:



Feature matching using: FLANN algorithm -

```
import cv2
import matplotlib.pyplot as plt
%matplotlib inline
img1 = cv2.imread('/content/IMG_5160.png')
img2 = cv2.imread('/content/fotor_2023-5-26_21_26_26.png')
img1 = cv2.cvtColor(img1, cv2.COLOR_BGR2GRAY)
img2 = cv2.cvtColor(img2, cv2.COLOR_BGR2GRAY)
sift = cv2.xfeatures2d.SIFT_create()
keypoints_1, descriptors_1 = sift.detectAndCompute(img1, None)
keypoints_2, descriptors_2 = sift.detectAndCompute(img2, None)
bf = cv2.BFMatcher(cv2.NORM_L1, crossCheck=True)
matches = bf.match(descriptors_1, descriptors_2)
matches = sorted(matches, key = lambda x:x.distance)
img3 = cv2.drawMatches(img1, keypoints_1, img2, keypoints_2,
matches[:50], img2, flags=2)
plt.imshow(img3), plt.show()
```

Output:

