

HW02. SIFT Feature Matching

샘플 코드: Feature detection and matching

```
1 # https://opencv-python-tutroals.readthedocs.io/en/
2 # latest/py\_tutorials/py\_feature2d/py\_matcher/py\_matcher.html
3 # Standard imports
4 import numpy as np
5 import cv2
6 from matplotlib import pyplot as plt
7
8 img1 = cv2.imread('Yosemite1.jpg',0) # queryImage, 0-> gray
9 img2 = cv2.imread('Yosemite2.jpg',0) # trainImage
10 cv2.imshow("Query image", img1)
11 cv2.imshow("Reference image", img2)
12
13 # create SIFT feature extractor object
14 sift = cv2.xfeatures2d.SIFT_create()
15
16 # find the keypoints and descriptors with SIFT
17 kp1, des1 = sift.detectAndCompute(img1, None)
18 kp2, des2 = sift.detectAndCompute(img2, None)
19
20 # brute force matching
21 bf = cv2.BFMatcher()
22 matches = bf.knnMatch(des1, des2, k=2)
23
24 good = []
25 for m,n in matches:
26     if m.distance < 0.1*n.distance:
27         good.append([m])
28
29 img3 = cv2.drawMatchesKnn(img1, kp1, img2, kp2, good, None, flags=2)
30
31 cv2.imshow("matching", img3), plt.show()
32
33 cv2.waitKey(0)
34 cv2.destroyAllWindows()
```

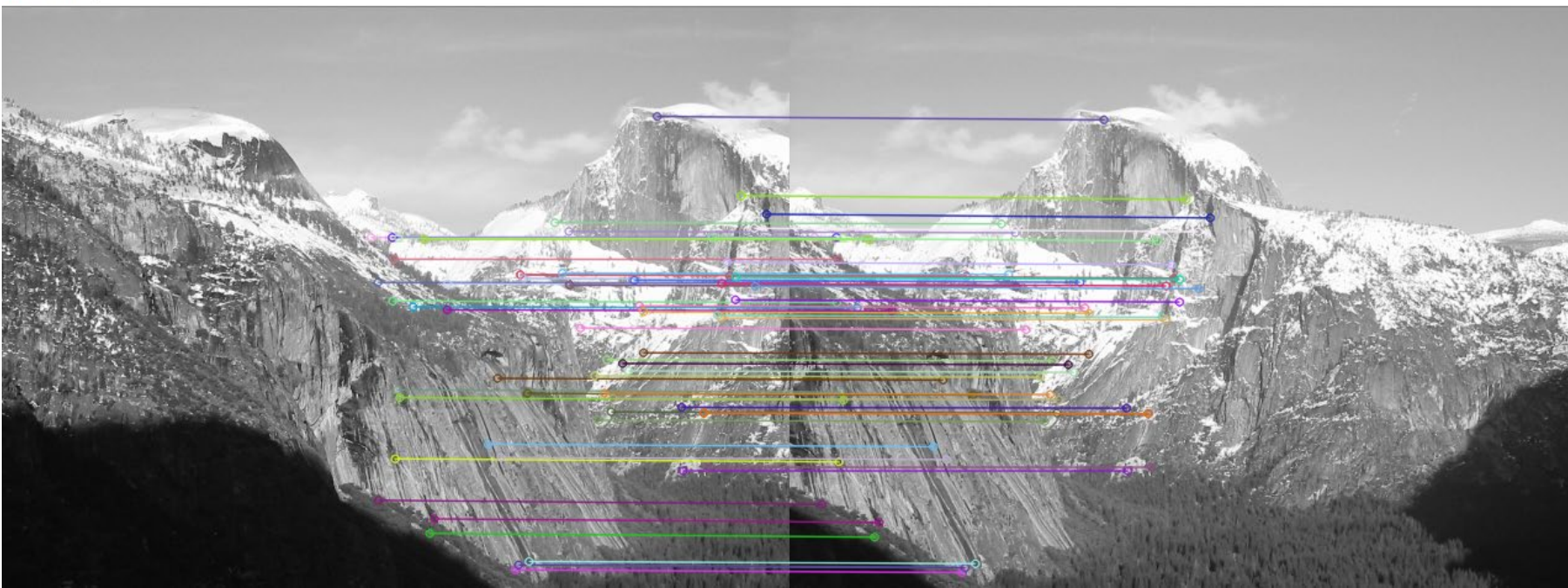
Query image



Reference image



matching



Lab과제: SIFT Matching

- 1. 책, 물체 등을 정하고 다른 각도에서 2장 찍기 (matching 해볼 이미지들)
- 2. 앞에 소스 코드를 이용하여 매칭하기
- 3. 소스코드 내부 동작 분석

```
sift.detectAndCompute(img1, None)
```

```
matches = bf.knnMatch(des1, des2, k=2)
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```
cv2.drawMatchesKnn(img1, kp1, img2, kp2, good, None, flags=2)
```

- 4. SIFT 응용 사례 2개 이상 조사
- 5. 결론