SIT 789

Assignment 3.2: Descriptor matching

Task 1:

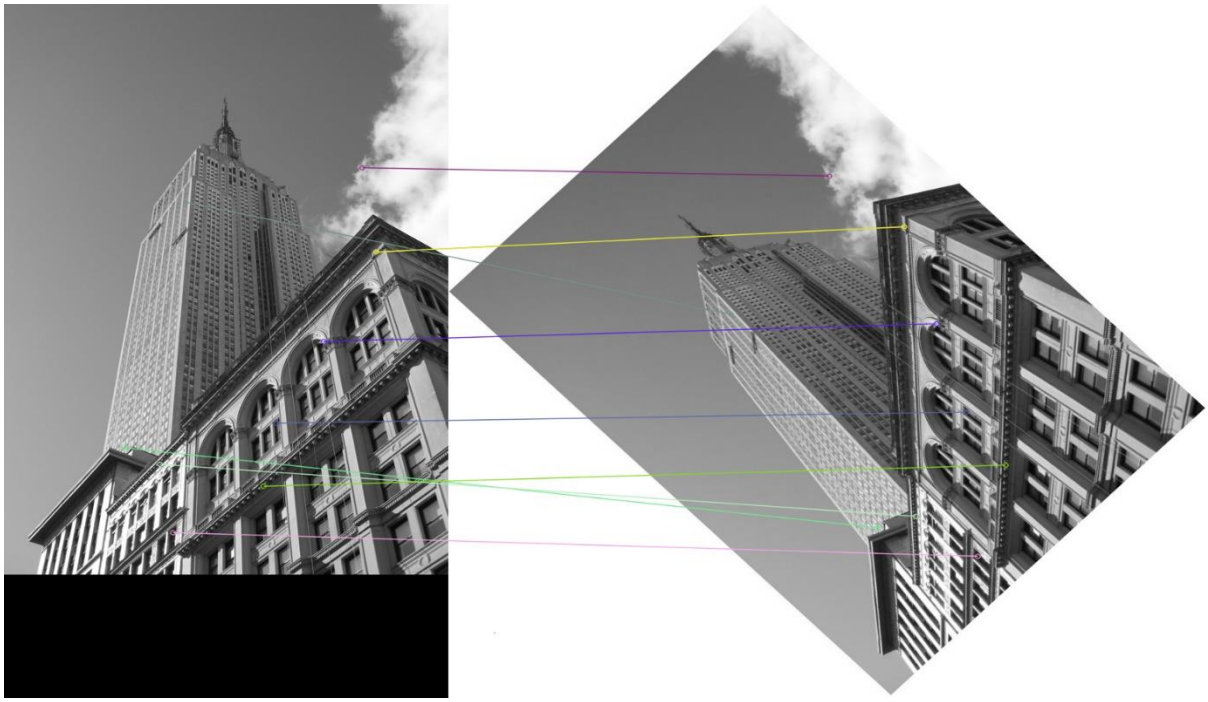

Fig 1: Image showing key point matching between empire.jpg and empire_45.jpg

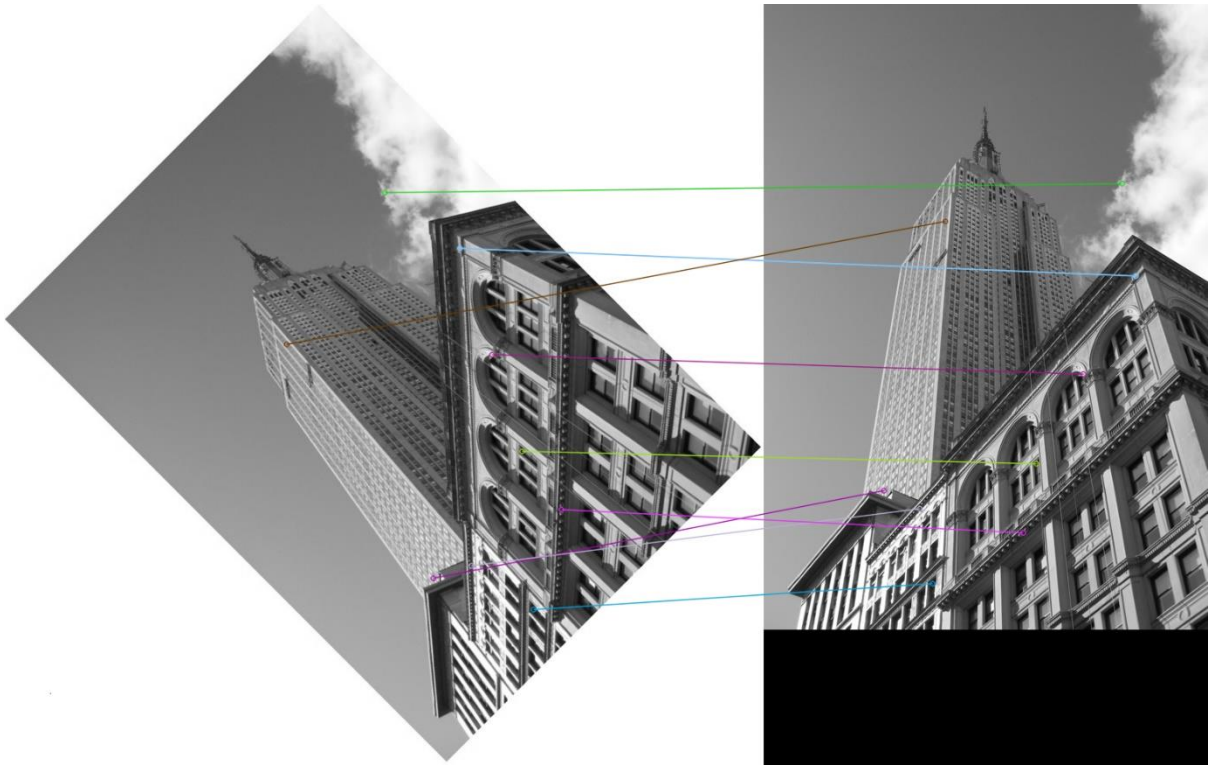

Fig 2: Image showing key point matching between empire_45.jpg and empire.jpg

Task 2:

Comparison of different image pairs:

Best Matches	Empire – Empire_45	Empire – Empire_Zoomedout	Empire – Fisherman
10	14.899664878845215	13.67479419708252	102.83432006835938
20	18.81488800048828	15.842979431152344	134.71920013427734
30	19.899747848510742	18.193405151367188	153.75214385986328
40	21.44761085510254	20.174240112304688	166.49739837646484
50	22.44994354248047	21.67948341369629	179.1666030883789
60	23.173259735107422	22.516660690307617	195.33792114257812
70	23.979158401489258	23.130067825317383	202.8136749267578
80	24.718414306640625	23.473388671875	209.47277069091797
90	25.079872131347656	23.979158401489258	214.1134796142578
100	25.826343536376953	24.372116088867188	218.73114776611328

Table 1: Shows the distances between image pairs for different number of Best Matches.

From Table 1 we can see that **empire.jpg**, **empire_45.jpg** and **empire_zoomedout.jpg** have small distances and hence can be shown as similar images. This shows tat SIFT can successfully map features between similar images even if they are rotated and of different scale (**rotation and scale invariance**).

Whereas, in last column we can see that empire.jpg and fisherman.jpg have large distances for every best matches row. This shows that SIFT features can be used to successfully differentiate different images.

We can also observe that as we increase the number of best batches, the difference between similar and different images grows. This also shows that this is a better approach to compare images as compared to the ***Hausdorff distance*** used in Task3.1, where the separation between images was not large.