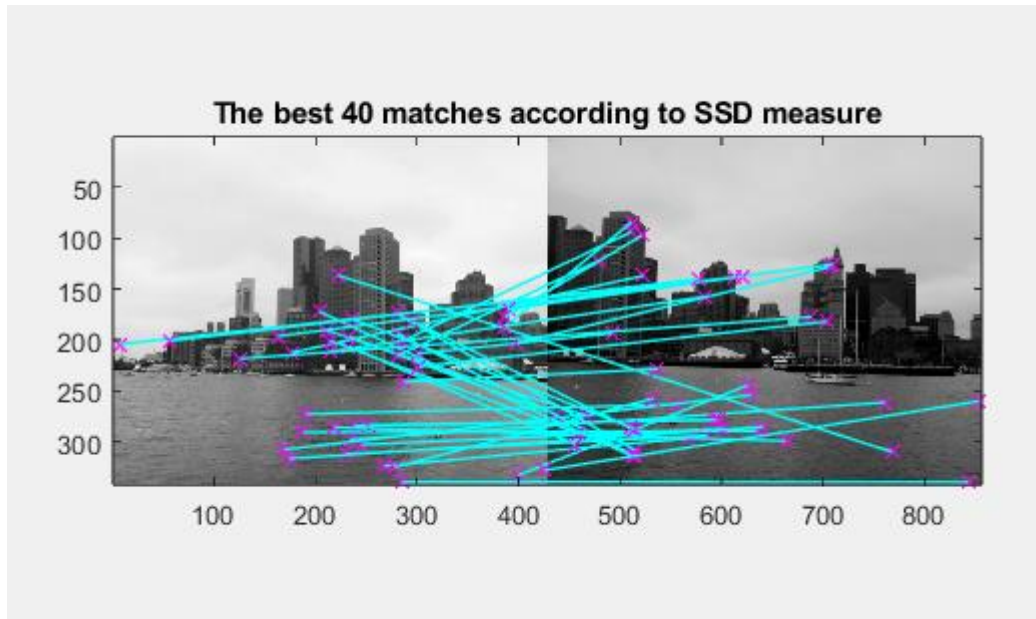
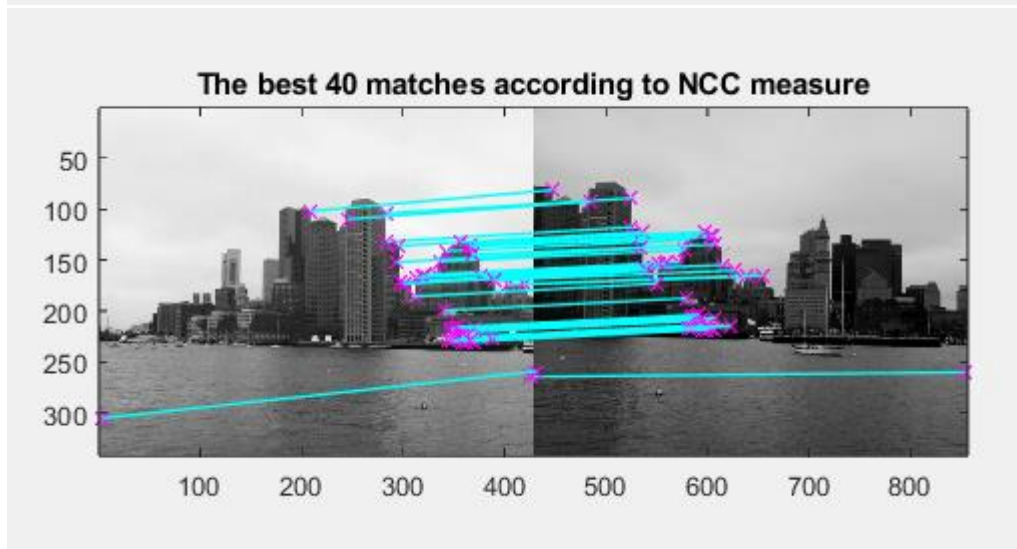


## Computer Vision Exercise 4

1.



a.



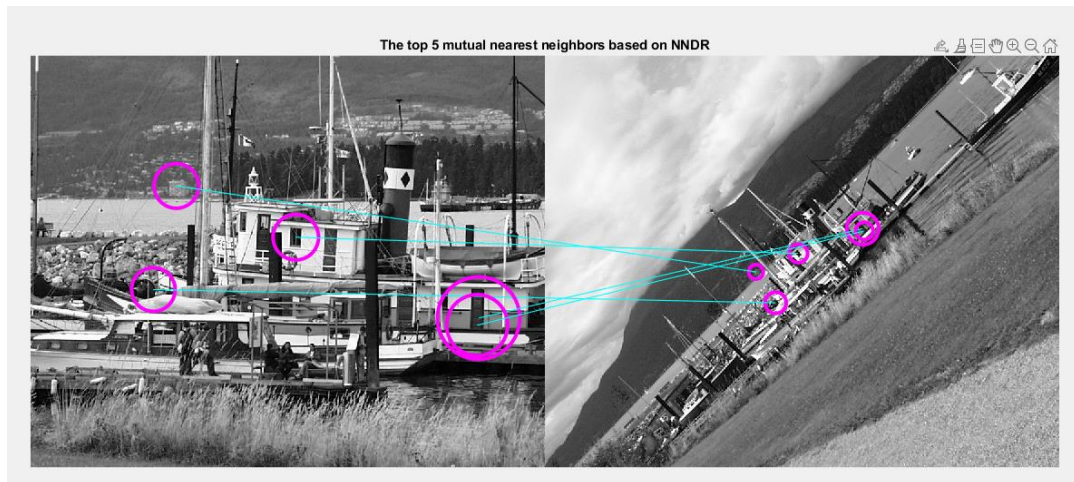
`n_correct =`

`295`

b. |

- c. Since the SSD one has correct matches of 49, the NCC measure performs better. By the lecture slides, it states that while NCC is slower, it is invariant to local avg intensity and contrast, it normalizes pixel values, while SSD takes the absolute value differences of pixels, the measure will consider small intensity changes significantly more different.

2.



a.

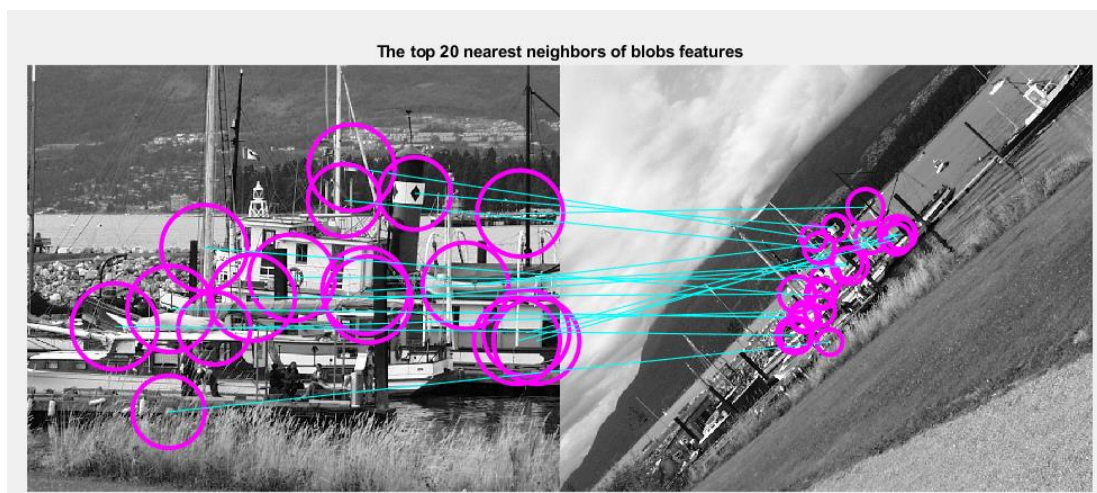
By comparing this with the previous result, it's easy to see that the NNDR one performs better.

- b. SIFT is an extraordinarily robust detection and description technique. It can handle changes in viewpoint, up to about 60 degree out-of-plane rotation, it can handle significant changes in illumination (day-night). It can also run in real time, and there's a lot of resources available. The previous explanation was summarized from the lecture slides. SIFT/SURF is designed to handle scales and rotations, but Harris corners are too sensitive to these transformations.

The images in the second task change significantly, by rotation, scaling, and camera position, therefore it would not be sufficient to use a Harrison corner method.

However, there are some cases where the Harris corner method could be more useful, as it can be faster to compute, therefore a more complex model such as SIFT/SURF would be unnecessary. E.g.: watching an environment with a stable camera for security

3.



a.