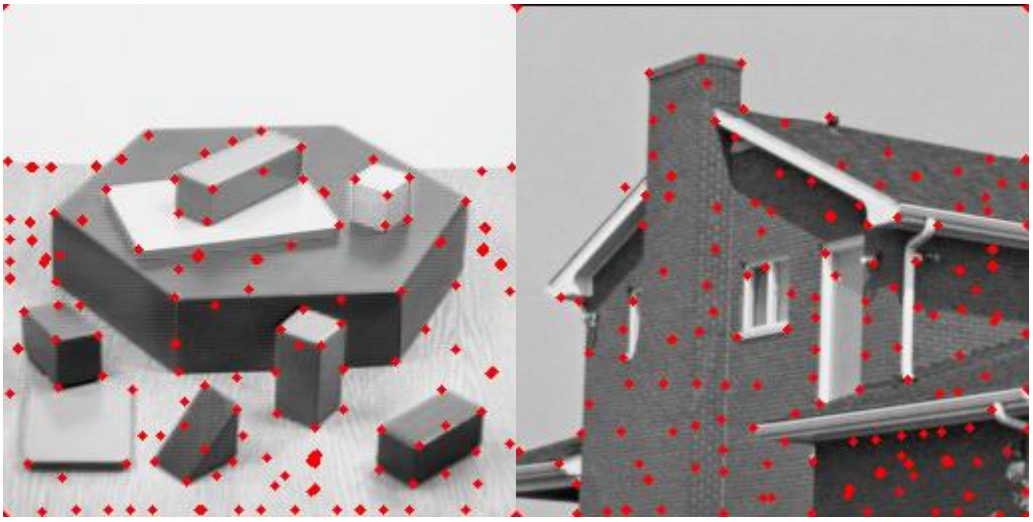
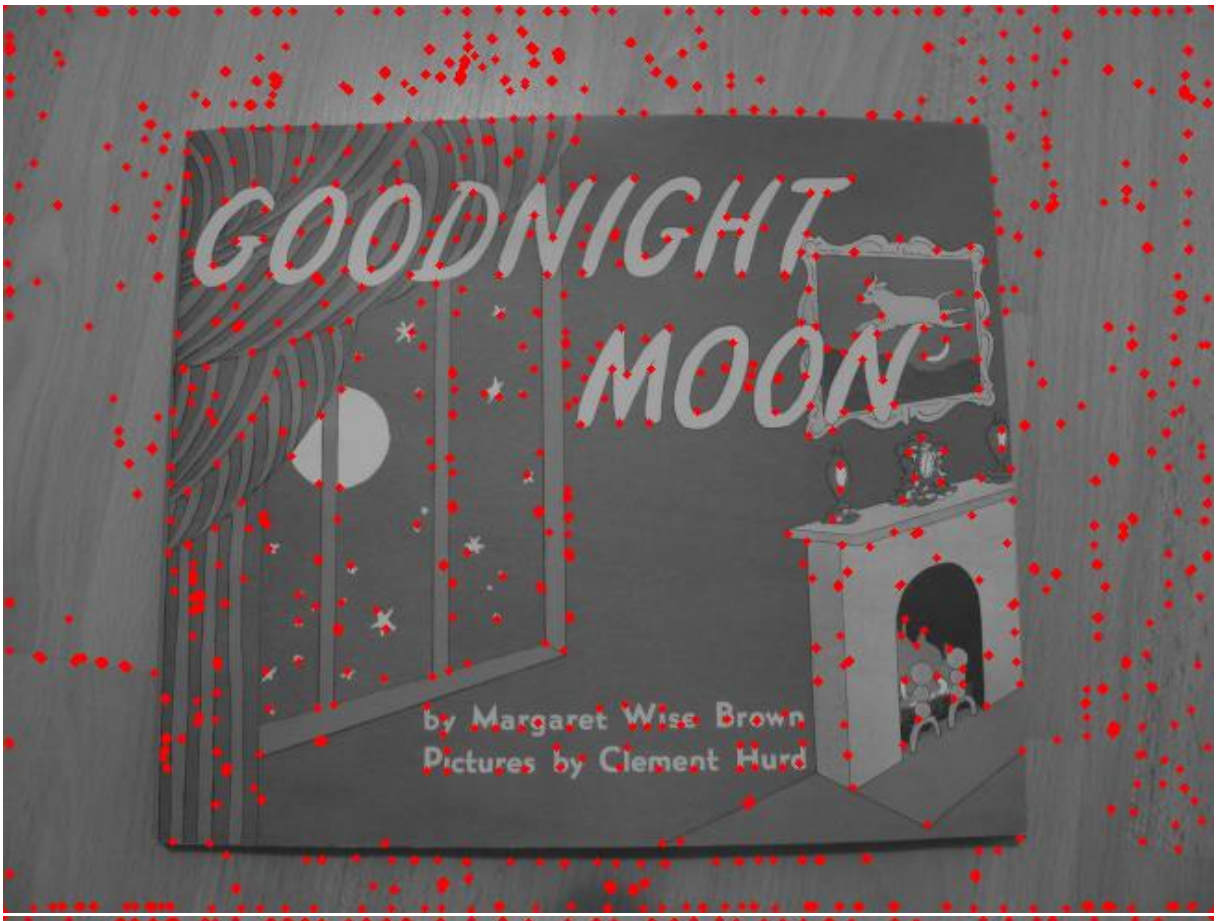
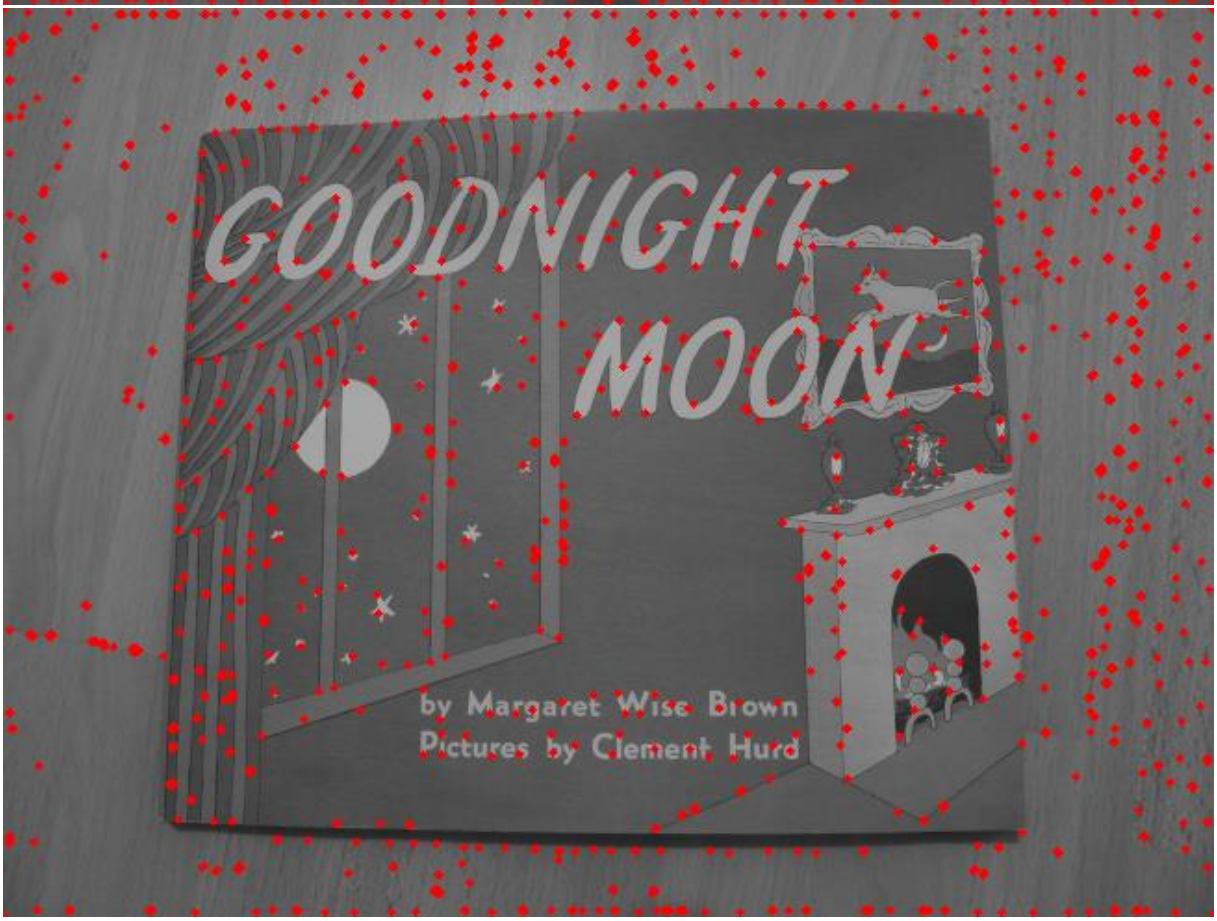
Report Lab 01 Luca Sichi

extract_harris.py

Here I implemented standard Harris corner detection. First I defined the derivation filters for x and y. Then I convolved the image and defined autocorrelation matrix with blur. I then calculated the Harris response and did non maximum suppression. I used ndimage.maximum_filter() to do the maximum filter, here we can decide how many corners there can be within a certain patch of image. Here are the results:






GOODNIGHT
MOON
by Margaret Wise Brown
Pictures by Clement Hurd

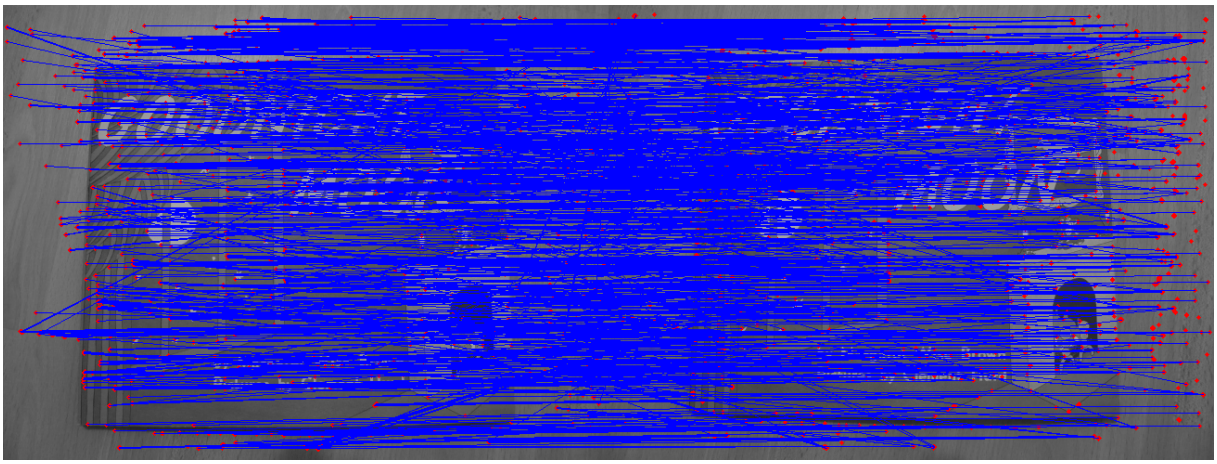
extract_descriptors.py

Here I only had to implement the filtering. This is done by looping over all keypoints and checking that they aren't on the border.

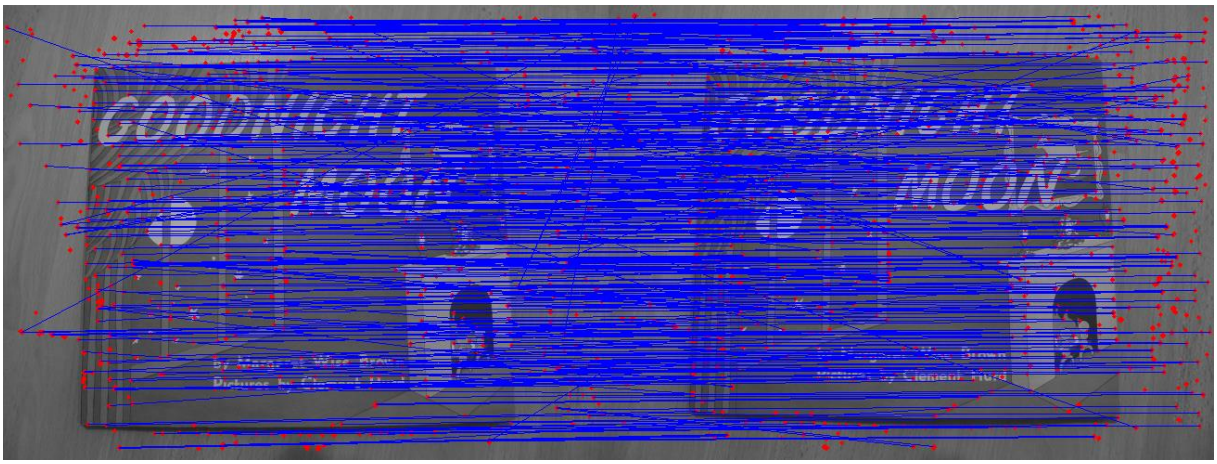
match_descriptors.py

SSD: Here I used scipy.spatial.distance.cdist() with the 'sqeuclidean' option to get the distances.

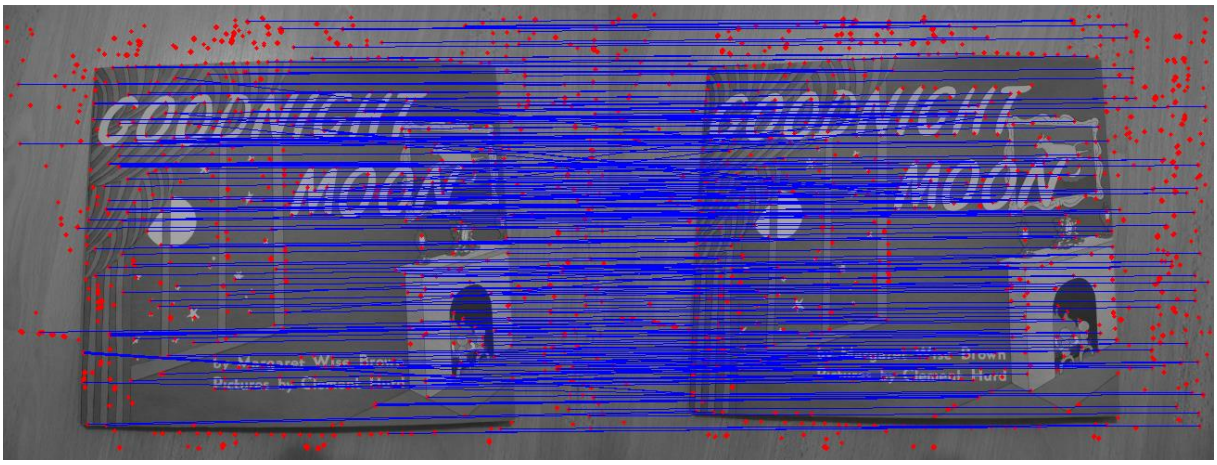
One_way: I used np.argmin to get the minima. Then stack them with np.stack



Mutual: Here I also used argmin, but on both axes. Then I check if the minimum is minimal in both pictures.



Ratio: I extract the min with argmin and the second min with np.partirion. Then I loop over the keypoints to check the ratio.


GOODNIGHT
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