Assignment 2 – GSLC – Computer Vision – LB01

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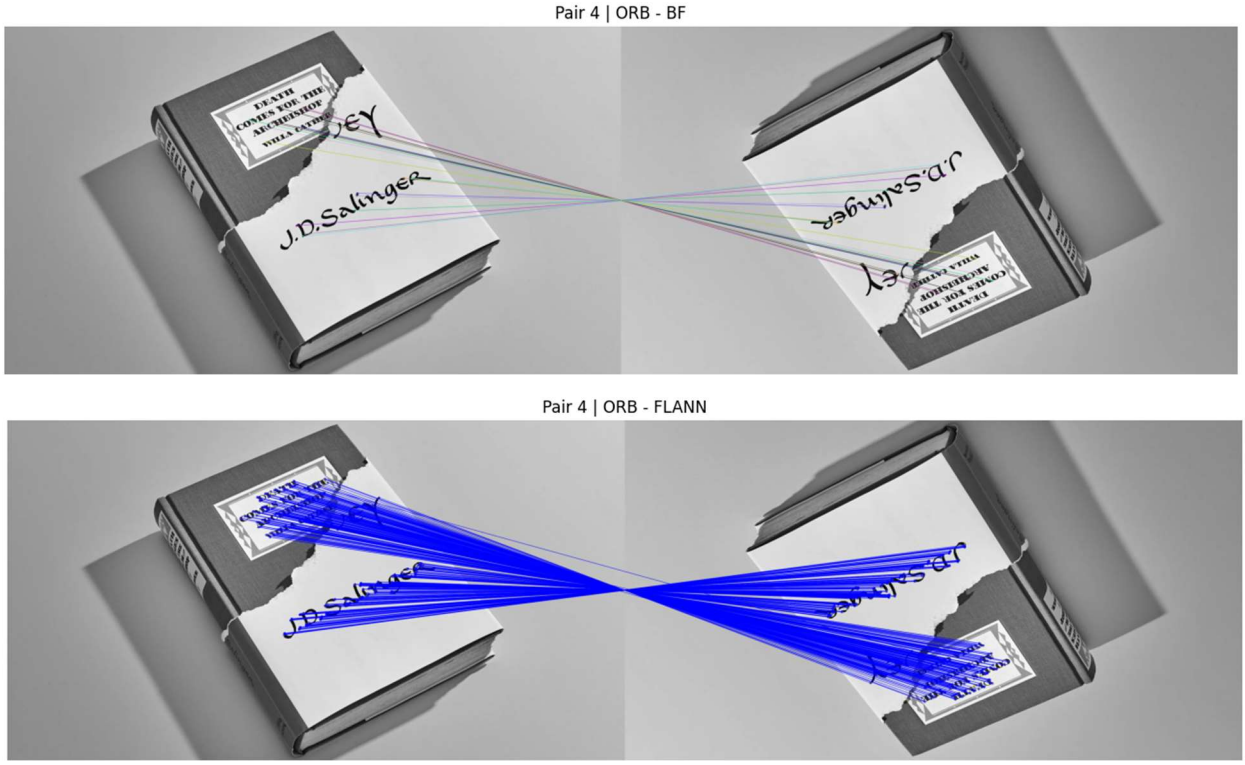
1. What are the differences found in your experiment between 2 algorithms and based on across the variety images?

- Based on my experiment, the Brute Force matcher and FLANN based matcher both gave good results across the sample images. When using the ORB descriptor, it pretty much gave the same results. But on one of my samples where it pairs between a book and a rotated book. The FLANN based matcher with ORB descriptor gives better matching result than using the Brute Force matcher. Here is the sample:



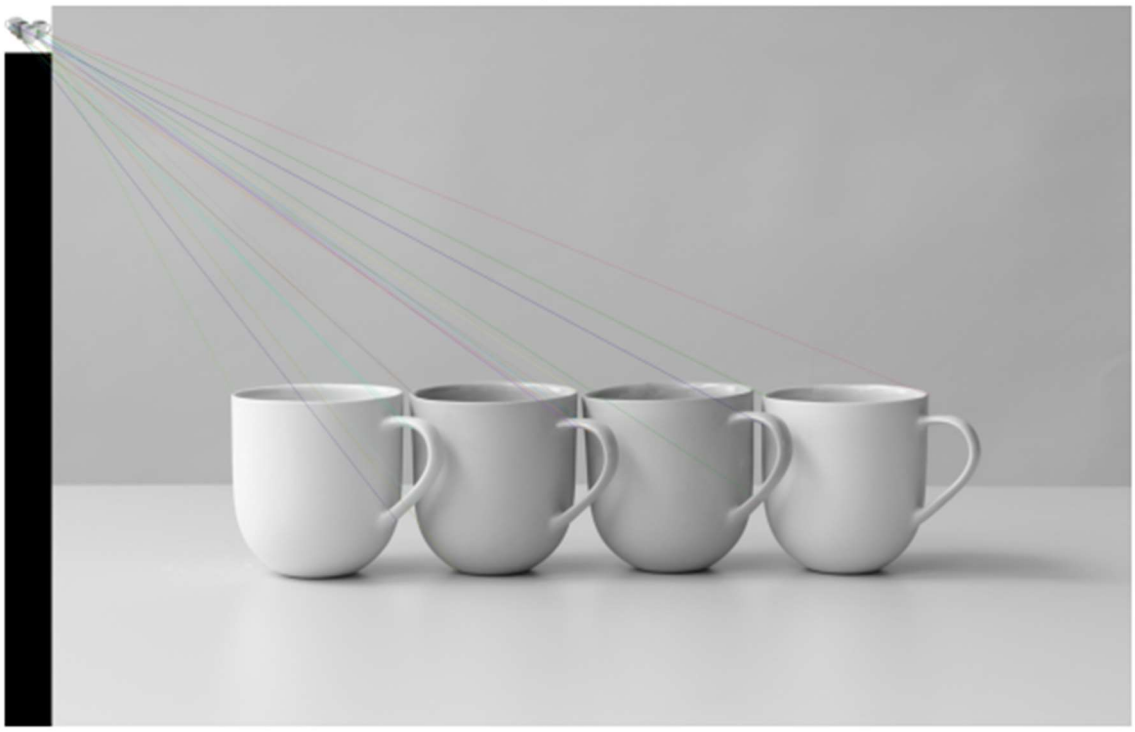
As you can see above, the ORB – FLANN algorithm gave a more accurate matching rather than the ORB – BF.

2. Based on your observation, do these 2 algorithm failed in certain cases in your samples?

- Based on my 5 samples, there is one sample that both algorithms do not match very good. Here is the sample:

And here is the result

Pair 5 | ORB - BF



Pair 5 | ORB - FLANN

As you can see from the result above, the result is not as good as expected. This probably happened because of the angle between the pair, resulting in bad match.

3. Which one is the robust feature extractor for the keypoint matching task? Explain!
   Based on my experiment, using ORB and SIFT has its own pros and cons.

- For ORB, it completed the task much faster than SIFT, but it occasionally gives mismatched lines that don't align perfectly between the pair. But it still gives good matching results on key details such as text.
- While SIFT takes much longer to complete. But it gives accurate match based on the position of the keypoint on each picture in the pair.
- In conclusion, SIFT is the more robust feature extractor, because it gives higher accuracy, but using ORB is also a good choice if speed is the priority.