Report

The suggested solution uses OpenCV functionality for keypoint detection and image matching:

- Keypoint detection and descriptor extraction is done using *ORB*'s *.detectAndCompute* function.
- For matching I use brute-force matcher (called *BFMatcher* in OpenCV), which utilizes Hamming distance to choose the closest descriptors.

Of course this is a very basic solution, which does not yield satisfying results on images from different seasons.

There is a lot to try having more time for the task:

- Dataset: images from Kaggle dataset (provided in the task specification) should do. It is not big, but I have seen similar works using smaller datasets (in 'Self-Supervised Keypoint Detection and Cross-Fusion Matching Networks for Multimodal Remote Sensing Image Registration' uses SAROpticaldataset). It seems reasonable to use a self-supervised keypoint detector, since there is no clear way to label the keypoints manually.
- I have not yet got clear ideas as to what architecture to use; I have found a paper which does a very similar task and even uses Sentinel-2 images, so I would read the paper to see if it helps. Unfortunately, they do not have a github, so it is impossible to use their solution directly (unless I decide to implement it from scratch).