Sentinel-2 image matching
Potential improvements

Classic SIFT and Brute-force matcher solutions worked pretty well for my dataset, but of course, it has exceptions. On images with a lot of clouds, snow, or other noise, the matching performed poorly. For such cases, we can try using machine learning models. But everything depends on the final task, whether we need to recognize certain objects in images, whether we need to stitch several images into one, or something else, solutions may differ. However, a machine learning model can work well for clearing clouds from images (if most of the image remains visible).

Regarding the large size of satellite images, there may be several approaches. The usual image reduction worked for me, and this did not affect the quality of the comparison. But in the case of using machine learning models, this may affect the quality, especially since in order to obtain acceptable productivity of the models, it may be necessary to further reduce its size.

We can also consider the possibility of dividing one image into several small ones (for example, 100), then passing them through a model already trained on such images, and then stitching these images together again into one. This can work well for the right type of problem, where we need to get images of the same size as the input as the output.