

Report about Task 2. Computer vision. Sentinel-2 image matching

The code implements a pipeline for processing satellite images, extracting features using a CNN model, and matching images with SIFT and RANSAC. Images are preprocessed (resized, normalized, saved as NumPy arrays), a simple CNN is trained for feature extraction, and SIFT detects keypoints with matches refined by RANSAC. Visualizations show inliers and outliers in matches.

Potential Improvements:

Enhance scalability with batch processing and memory optimizations; improve CNN with dropout, batch normalization, or pre-trained models; add validation and checkpoints in training; optimize matching with modern algorithms (e.g., ORB or SuperGlue); refactor for modularity and maintainability; integrate logging, detailed documentation, and unit testing.