

Feature-Based Deformation Analysis of the Built World using 3D Point Clouds

Background and state-of-the-art

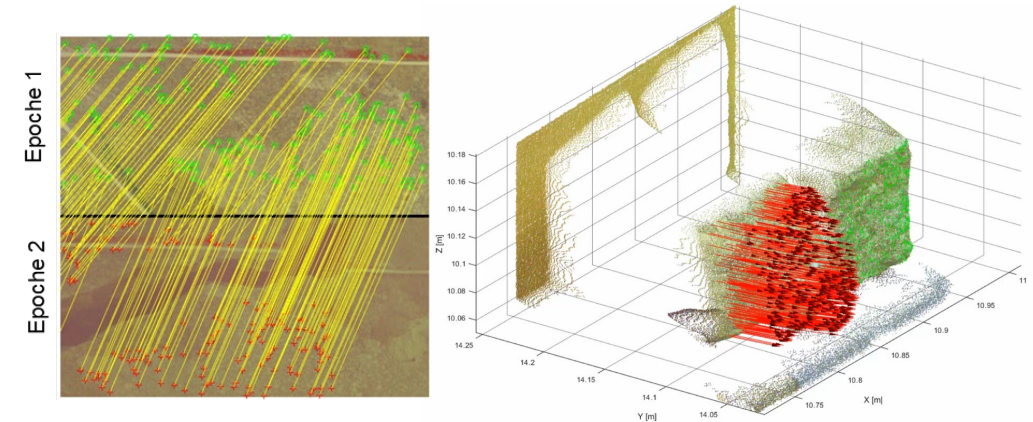
- Laser scan point clouds are suitable for areal deformation monitoring
- Existing methods for deformation analysis do not provide sufficient results due to a lack of identical points between two scan epochs
- Already developed feature-based methods rely on additional image information

Research questions

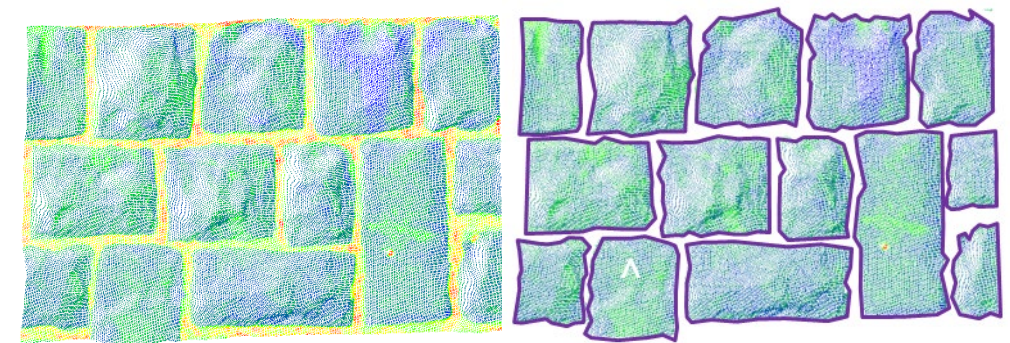
- Is it possible to implement a feature descriptor to find identical key points within point clouds which only relies on geometry?
- How could a pre-segmentation help to find suitable regions of interest for feature extraction?

Research methods

- Point cloud segmentation
- 3D feature extraction
- Feature matching



Deformation vectors derived by feature matching in RGB-D scan data



Segmentation of ROI for geometric feature matching on a rubble stone wall