

Photogrammetric Computer Vision

WS 20-21

Exercise 5: Theory

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1. Why do we need the initial pose estimation? What happens if we just run bundle adjustment?

We need the initial pose estimation to determine the position and orientation of the camera relative to the object. If we just run the bundle adjustment, we would have no accurate idea of positions of the 3D points.

2. How can more than three cameras be reconstructed? How can the reconstruction grow beyond what is visible in the first two cameras?

With the use of camera pairs (e.g. 1-2, 2-3, 3-4) more than three cameras can be reconstructed. Thus, pairing allows for a reconstruction from different directions, showing sides that were not perceived by the first two cameras.

3. What would also have to be changed to also estimate radial distortion in the bundle adjustment?

The intrinsic and distortion parameters have to be changed to estimate radial distortion in the bundle adjustment.