

Assignment 3: Common Mistakes

Computer Exercise 1

- Some of you have forgotten to enforce the constraint $\det(F)=0$.
- Some submissions seem to find and report F^T rather than F . This might be caused by reshaping the DLT solution vector to a matrix in an incorrect way.
- When computing point-to-line distances via scalar product of the respective homogeneous representations, it is important to normalize the vectors in the correct way. For the 2D points, the third coordinate should be 1, and for the lines, the first two elements (the normal vector) should be a unit vector.
- Some submissions do not include a figure of epipolar lines and corresponding points, or include a figure but the points are not clearly visible.

Computer Exercise 2

- Some of you have not submitted any camera matrix.

Computer Exercise 3

- Some of you did not provide the essential matrix in the report.
- Some have missed comparing the result to that of Computer Exercise 1.

Exercise 7

- For showing that if a 3D point X should project to $x_1=(0,0)$ in camera $P_1=[I \ 0]$, it has to be on the form $X(s) \sim (0,0,1,s)$, some submissions simply state that this holds without actually showing it. Others attempt to show it, but do not do this clearly and to a convincing degree.
- Some submissions do not include the computed s values for each of the four solutions.
- When we ask for which of the four solutions the 3D points are in front of both cameras, note that only one out of the four solutions is the correct answer.

Computer Exercise 4

- Some submissions do not include both the reprojection plots, as well as the 3D plot of triangulated points for the correct of the 4 solutions.
- For some submissions, the triangulated and reprojected points do not align very well with the image points. For others, the reprojection plot is not even included in the submission.
- For some submissions, the 3D reconstruction consists of two major parts, rather than a single structure, which is to be expected.
- There are also submissions where some of the four reconstructions look very reasonable (as expected), but where for none of these both cameras are facing the point clouds. This is not expected.

- There are submissions that do not report a comparison with the result of Computer Exercise 2.