DATA.ML.300

Exercise Round 7

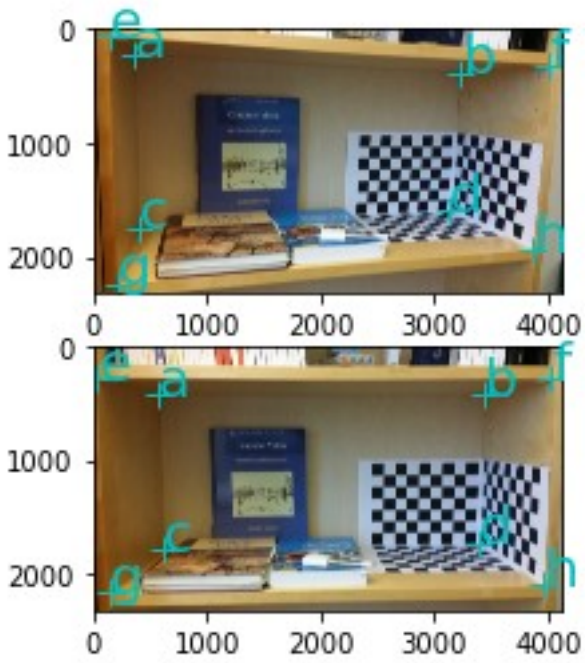
1.

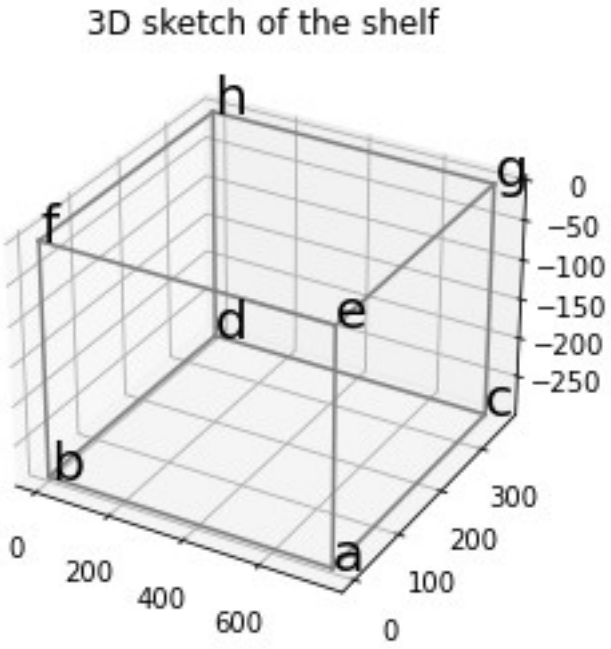
Output plot:

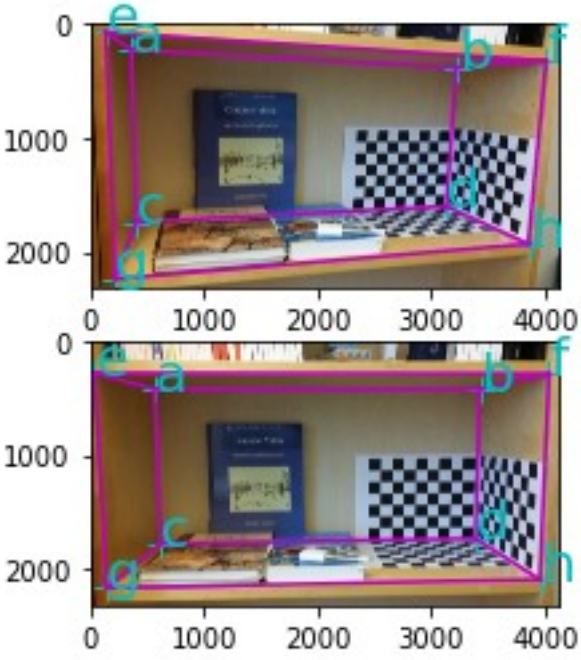
Cyan: Projection matrices, Magenta: 8-point, Yellow: Normalized 8-point

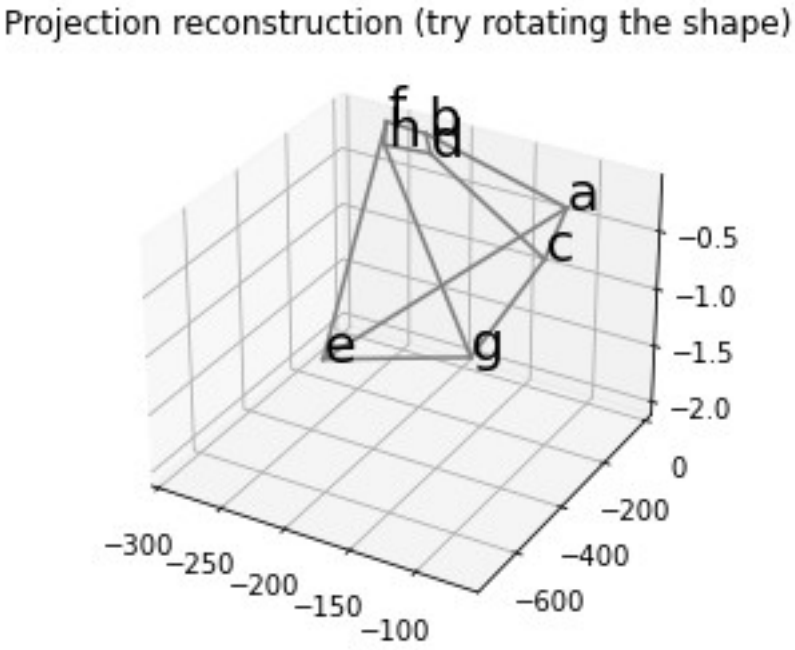
2.

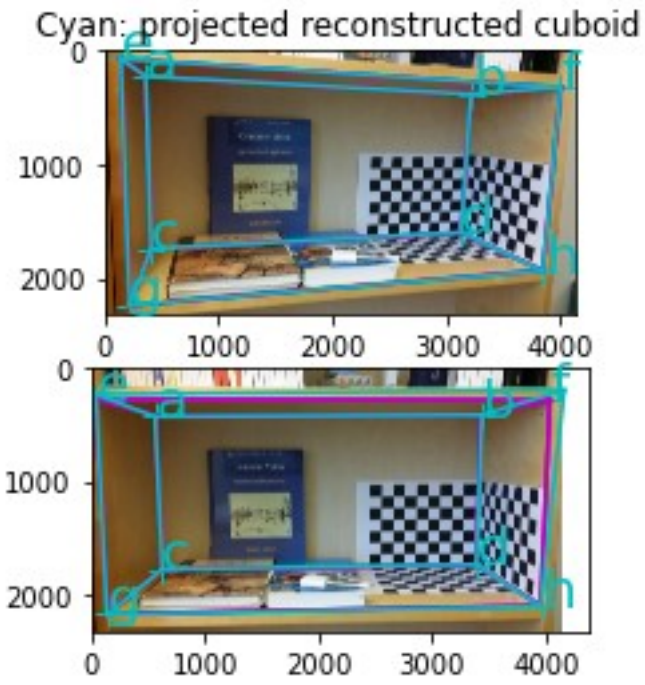
Output plots:











a)

Cameras are calibrated in such a way that the world's coordinate system is aligned to the first camera's coordinate system. It has a focal length of one and principal point of (0,0).

b)

Projective reconstruction looks distorted because of projective ambiguity. Given the images there are multiple different 3d points that could be projected to the given 2d points in the image if we vary the projection matrices. Therefore the projected 2d points doesn't give enough information to deduce the ground truth values for the 3d points and we have to be satisfied with the results that are only projected correctly.

c)

To get a better reconstruction, it is necessary to know something about the camera calibrations. To reconstruct up to a similarity transform, (obtained reconstruction differs from the true one only by similarity transformation) the each camera's inner calibration matrix has to be known.