

CAP 6415: Computer Vision
Assignment 4
Due Date: 03/08/2019 11:59 pm
Submission Type: Upload onto Canvas

Ex 6.7: Target-based calibration

Use a three-dimensional target to calibrate your camera.

1. Construct a three-dimensional calibration pattern with known 3D locations. It is not easy to get high accuracy unless you use a machine shop, but you can get close using heavy plywood and printed patterns.
2. Find the corners, e.g, using a line finder and intersecting the lines.
3. Implement one of the iterative calibration and pose estimation algorithms described in Tsai (1987); Bogart (1991); Gleicher and Witkin (1992) or the system described in Section 6.2.2.
4. Take many pictures at different distances and orientations relative to the calibration target and report on both your re-projection errors and accuracy. (To do the latter, you may need to use simulated data.)