CV Assignment 4

Geometry

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# Question 1 – Calibration

## Finding Projections

The M matrix that was output for the set of normalized points was:

The projection of the last 3D point to the normalized 2D coordinates was

Finally, L2 distance between the final projected coordinated and the actual coordinate was 0.001563 or 1.569\*10-3.

## Camera Calibration

|  |  |  |  |
| --- | --- | --- | --- |
| Iteration | K=8 | K=12 | K=16 |
| 1 | 0.9491 | 2.1337 | 1.5922 |
| 2 | 2.0937 | 1.3393 | 1.2362 |
| 3 | 6.3917 | 0.5525 | 0.6622 |
| 4 | 2.4446 | 1.2759 | 1.1603 |
| 5 | 1.3047 | 1.0214 | 1.3820 |
| 6 | 2.6850 | 1.9794 | 0.9188 |
| 7 | 2.0407 | 1.2996 | 1.1568 |
| 8 | 1.5077 | 1.4639 | 1.9969 |
| 9 | 1.6526 | 1.2504 | 1.2734 |
| 10 | 1.5828 | 0.2649 | 0.8545 |
| Sum | 22.6526 | 12.581 | 12.2333 |

The best M is

## Camera Center

The camera center was computed to be

# Fundamental Matrix Estimation

## Computing fundamental matrix

## Reducing Rank

## Drawing Epipolar lines