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CSE 803 Computer Vision: Homework 6

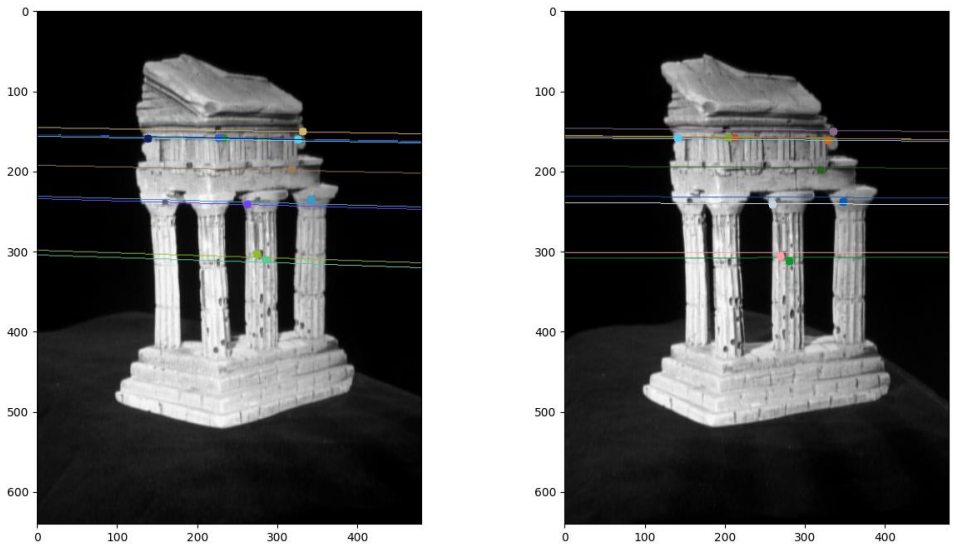
1. Camera Calibration

```
P: [[ 0.45827554 -0.29474237 -0.01395746  0.0040258 ]
 [-0.05085589 -0.0545847  -0.54105993 -0.05237592]
 [ 0.10900958  0.17834548 -0.04426782  0.5968205 ]]
```

2 Estimation of the Fundamental Matrix

F (normalized):

```
F after normalization: [[-4.72174205e-07  1.45353103e-05 -4.22745841e-03]
 [ 2.46782468e-05  5.82358857e-07  2.22336056e-01]
 [ 1.57908447e-04 -2.31608633e-01  1.00000000e+00]]
```



3 Triangulation

Essential matrix E:

```
E: [[ 8.62420523e+04  2.76917252e+05  1.88465115e+02]
 [-1.36843953e+05  5.67140362e+04 -5.29976973e+02]
 [ 3.99076490e+02  1.00664651e+03  1.00000000e+00]]
```

Camera projection matrix P1 and P2:

```
P1: [[1.5204e+03 0.0000e+00 3.0230e+02 0.0000e+00]
 [0.0000e+00 1.5259e+03 2.4690e+02 0.0000e+00]
 [0.0000e+00 0.0000e+00 1.0000e+00 0.0000e+00]]
P2: [[-1.43913351e+03  4.97164560e+02  2.91073169e+02  2.96598475e+02]
 [-5.00041635e+02 -1.44169659e+03  2.46575977e+02  2.47743309e+02]
 [-7.04208157e-03  2.21308191e-03  9.99972755e-01  9.99992821e-01]]
```

Visualization of point cloud:

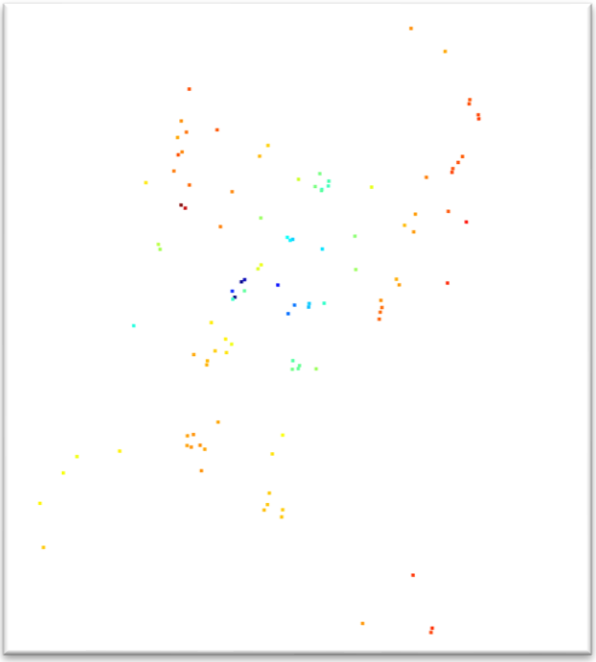


Figure 1: Visualization of the point cloud

NB: I have just included all the portions which are mentioned to included or reported. The details codes are attached in the zip file.