**EE576 HW1**

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In this homework, I learned camera calibration with OpenCV and recall the fundamentals of object oriented programing with C++. I mainly used the sample project which is present in the OpenCV website and used the code which is available at: [1].

The results also can be seen in the output file: out\_camera\_data.xml

**Intrinsic parameters:**

6.3303275833310136e+02 0. 3.1759107677482649e+02

0. 6.3303275833310136e+02 2.6809095997758357e+02

0. 0. 1.

**Distortion Coefficients:**

-9.5371055411927766e-02

5.9018193756584170e-01

7.1127397524901100e-03

6.6159070768529015e-03

-1.2173511714177523e+00

**Extrinsic parameters:**

-1.24e-01 9.94e-02 -7.43e-03 -1.29e+02 -1.01e+02 3.86e+02

-1.32e-01 -1.74e-01 -2.85e-02 -1.54e+02 -9.98e+01 3.90e+02

-1.04e-01 -6.56e-02 -3.47e-01 -1.52e+02 -7.46e+01 4.01e+02

1.78e-01 3.82e-01 4.23e-02 -1.13e+02 -9.70e+01 4.25e+02

-1.22e-01 1.91e-02 2.155e-01 -9.42e+01 -1.15e+02 4.32e+02

-4.33e-02 6.79e-02 -1.75e-01 -1.44e+02 -9.49e+01 4.09e+02

-3.65e-01 -1.46e-02 -6.23e-02 -1.23e+02 -8.61e+01 4.46e+02

1.19e-01 2.87e-01 9.83e-02 -9.08e+01 -9.95e+01 3.92e+02

-4.03e-01 3.45e-02 1.49e-02 -1.03e+02 -8.21e+01 4.23e+02

2.95e-03 2.09e-02 -2.22e-01 -1.20e+02 -7.97e+01 3.84e+02

-6.00e-04 -1.07e-01 -2.45e-01 -1.18e+02 -7.72e+01 3.52e+02

-1.68e-01 5.92e-01 2.19e-01 -6.21e+01 -9.26e+01 4.96e+02

3.55e-01 3.65e-01 -1.45e-02 -7.16e+01 -8.24e+01 4.51e+02

**References**

1. <https://github.com/opencv/opencv/blob/master/samples/cpp/tutorial_code/calib3d/camera_calibration/camera_calibration.cpp>
2. <https://docs.opencv.org/master/d4/d94/tutorial_camera_calibration.html>