CSCM77 Lab Class 2a

Release date: 14/02/2020
Due date: 28/02/2020

This lab is about becoming familiar with mono- or single-camera calibration, also known as monocular camera calibration.

`CVDL_Server.ipynb` will again be running on our host machine.

`CVDL_Student_Mono.ipynb` is the notebook you will be running. This notebook utilises images taken from the KinectV2 to attempt camera calibration, calculating the intrinsic and extrinsic parameters of the camera and the patterns used to calibrate it. The notebook also plots both the camera- and pattern-centric views of the world.

☐ Task 2a.1

Run the notebook and understand what is happening. Compare it with your understanding of camera calibration techniques. Capture some of your own calibration examples (≥ 10 images is best), and calibrate based on these images.

1. Download and study the new Jupyter Notebook and the demo data.
2. Run `CVDL_Student_Mono.ipynb`, choosing to either collect new data or load from disk.
3. Calibrate the camera using the checkerboard patterns observed.
4. Plot both the camera- and pattern-centric views.

☐ Challenge Task

1. Explore the OpenCV camera calibration documentation to discover more about the API.
2. How would we calculate the errors of the calibration?
3. Why is it important to calibrate the cameras in our system? How would we calibrate a multiple cameras?