Calibration for DSO

Part 2

Camera.txt (intrinsic parameters): I followed the instructions in the following github repo:

https://github.com/dakotabenjamin/CameraCalibration

1) Cloned the repo into a folder.
2) Printed the chessboard picture in the link provided in the repo.
3) Took several photos of the chessboard from several angles, in my case 8 pictures. And saved them in a folder named chessboard.
4) And performed the command:

```
python opencv_calibrate.py ../chessboard/ 8 10
```

Pcalib.txt: The video recorded needs to be recorded while standing still, with out any motion. Furthermore, it needs to be in a room with no light changes for example, window with moving clouds. Therefore, I recorded the video in a room with windows completely shut down and covered. Furthermore, need to have constant gain so I turned the AGC off.

Also, in order to get the wanted result, I clicked on the histogram option in the UEYE Cockpit application and made sure there was values from almost 0 to 255 (for some reason I couldn't get to 0). After doing these steps, executing calibResponse.cpp on that video gave me a pcalib.txt file that contained values from 5 to 255 monotonically increasing. Although the first 2 values weren't monotonically increasing, so I manually fixed it because I read in the GitHub issues that its ok as long its just couple of values that causing the problem.

Vignette.png: In order to get this calibration, I downloaded the ARMarker from the following link: http://chev.me/arucogen/. Need to choose original Aruco in the select option and then choose ID 213 for the desired shape (the one they used in the DSO dataset). Afterwards, I printed it and cut it into a rectangle and taped it into a white board. Then I recorded a video of it, with the same

parameter set as I used for the second Calibration but with increased exposure to make it look clearer. The algorithm finished successfully.