**INFOMCV Assignment 1**

**Authors (Group number)**

**Calibration**

(For the three runs, add (1) intrinsic camera matrix, and (2) test image with cube. Approx 1/2 page.)

**Run 1:**

|  |  |
| --- | --- |
| Image resolution = 4280 x 3970 | Afbeelding met bordspel, Games, Bordspel, Zaalspellen en zaalsporten  Door AI gegenereerde inhoud is mogelijk onjuist. |

**Run 2:**

|  |  |
| --- | --- |
| Image resolution = 4280 x 3970 | Afbeelding met bordspel, Games, Bordspel, Zaalspellen en zaalsporten  Door AI gegenereerde inhoud is mogelijk onjuist. |

**Run 3:**

|  |  |
| --- | --- |
| Image resolution = 4280 x 3970 | Afbeelding met tekst  Door AI gegenereerde inhoud is mogelijk onjuist. |

**Discussion**

Across runs we can see clear differences between the calibrations. At a first glance we can already see that for run 3 the calibration has been least effective. This makes sense as this is the run that has the least images to calibrate the camera. Despite the fact that there run 3 contains images that feature patterns that are orientated very differently. This difference in orientation does not seem to make up for the loss in image quantity. Between run 2 and 1 the difference becomes more nuanced. The difference in K is mainly found in fx and fy. For run 1 fx and fy are more than twice as large as fx and fy for run 2. This means that for run 1 the camera is considered to have a much larger focal length. This might be the reason why for run 1 the cube seems to be very effected by distortion.

**Choice tasks**

Choice Task 1: Real-time rendering. The webcam\_calibration() function opens the webcam and displays the live feed. In the background there is an asynchronous thread that collects frames in which a checkerboard pattern is found. It also checks whether new corners are different enough from previous corners to make sure that there is enough variation in the data. Once the thread has gathered enough data it calibrates the camera. This means that it works on all cameras. Once it has done this, the main thread starts drawing the cube and axis on the image in the same way that it is done for the original test image.