Exercise 2: CARLA Dataset

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1 Applied Transformations

According to the exercise sheet we applied the following transformations (they are all adjustable):

- Change in contrast, brightness and tone

- Gaussian Blur

- Gaussian Noise

- Salt and Pepper Noise

- Random Region Dropout

- Normalization

2 GUI Controls

We implemented a simple GUI based on the python package matplotlib.pyplot[1]. After executing the extract.py file, the controls are as listed below.

- Key: 'Right' : Move one image forth

- Key: 'Left' : Move one image back

- Key: 'r' : Choose a random image

- To quit the viewer, simply close the display window

The viewer features a combined display of both, the original image as well as the transformed image. Additionally, information about the current file, image index, high-level-command (red arrow), steering angle (green arrow) and speed (length of the green arrow) are provided. The arrow turns into magenta color if the speed is so small that one could not see the arrow any longer.

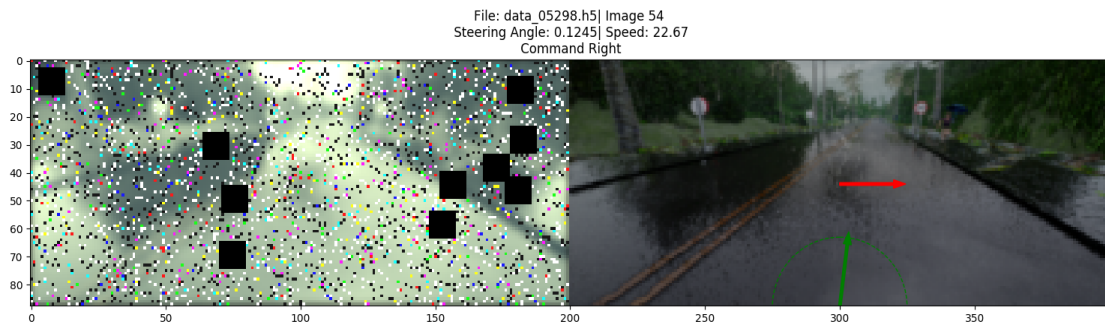[1]We had some trouble with openCV, thus we worked with pyplot.

3 Screenshots

File: data_05298.h5| Image 54
Steering Angle: 0.1245| Speed: 22.67
Command Right

Figure 1: High-Level-Command: **Right**

File: data_04374.h5| Image 147
Steering Angle: -0.6372| Speed: 21.35
Command Left
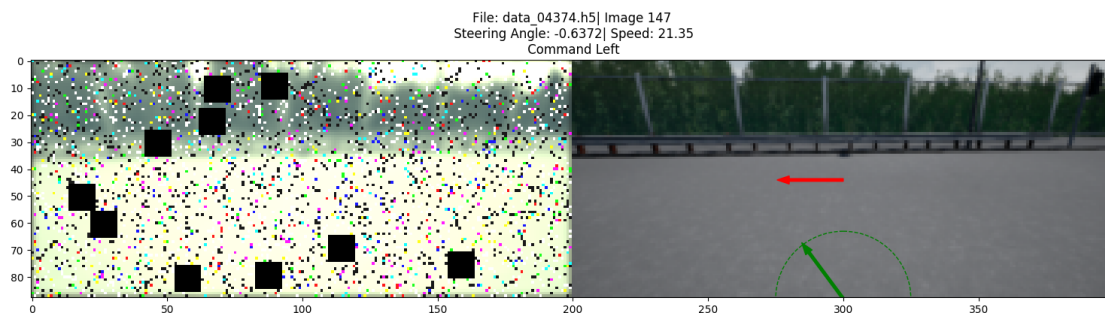
Figure 2: High-Level-Command: **Left**

File: data_04059.h5| Image 36
Steering Angle: -0.0056| Speed: 18.41
Command Straight
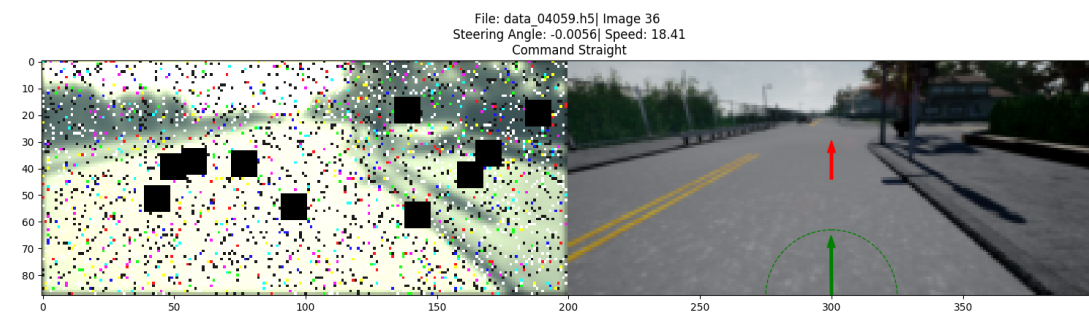
Figure 3: High-Level-Command: **Straight**

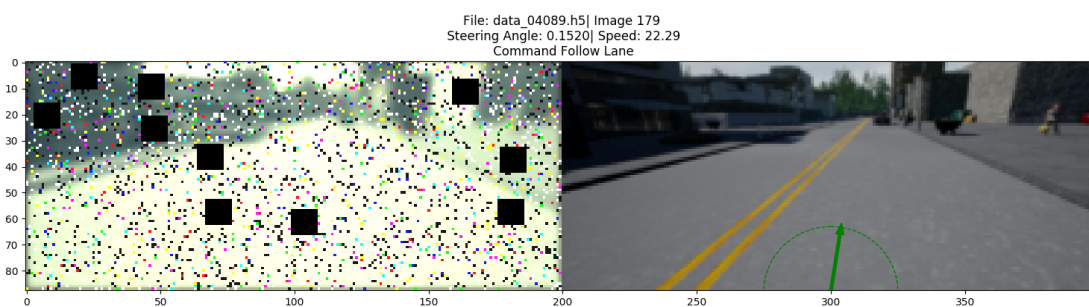File: data_04089.h5| Image 179
Steering Angle: 0.1520| Speed: 22.29
Command Follow Lane

Figure 4: High-Level-Command: **Follow Lane**