

## Exercise 8

January 3, 2022

Submission online until **Tuesday, 11.01.2022, 11:55 a.m.**

### Assignment 8-1: Lane segmentation (3 Points)

Play the provided bagfile and write a node that thresholds the lane markings. You can crop regions of the image that are of no interest. Publish the resulting image.

### Assignment 8-2: RANSAC lane detection (7 Points)

Use RANSAC to estimate a linear model ( $y = mx + b$ ) on the image and obtain the two (or three) equations of the lines on the road. As an alternative, use the Hesse normal form for the line equation. You have to write your own RANSAC code. It is not allowed to use a given function from python or from another library. It is also not allowed to use another regression algorithm.

Use `cv2.line()` to draw the lines in the original image, publish the resulting image and the  $(m, b)$  parameters of each one.

Put the resulting image with the detected lines in your Pdf. Write down the parameters, which you used. How many iterations did your RANSAC need to detect one line?

Von:

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## Parameters

$N=40$   
threshold = 30

d-proportion-of-inliners-for-first-line = 0.5

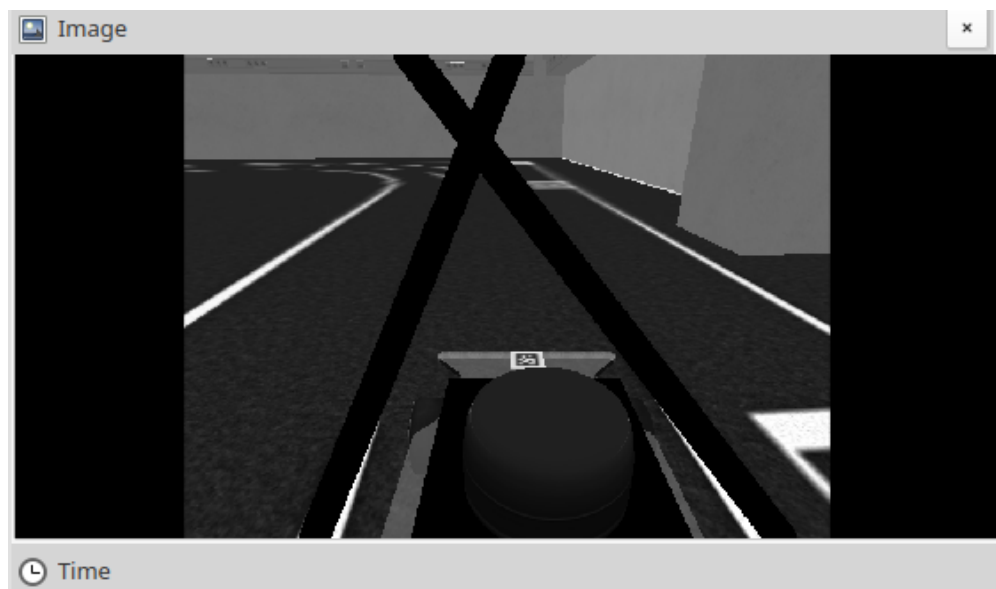
d-proportion-of-inliners-for-second-line = 0.7

ransac benötigt durchschnittlich  $\approx 5$  Iterationen

Die publisher sind zu finden unter:

```
roscppPublisher('/mypub/img', Image, queue_size=1)
roscppPublisher('/mypub/line1', String, queue_size=1)
roscppPublisher('/mypub/line2', String, queue_size=1)

thore@Ubuntu-T:~/uni/robotik/thornavid/src/assignment8_RANSAC/rosfiles$ rostopic echo "/mypub/line1"
data: "m:0.86875, b:179.0"
---
data: "m:0.81875, b:182.0"
---
data: "m:0.7958333333333333, b:205.0"
---
data: "m:0.875, b:182.0"
---
data: "m:0.7645833333333333, b:220.0"
---
```



gitlab link zur Lösung:

[https://git.imp.fu-berlin.de/thob97/thornavid/-/blob/thore/src/assignment8\\_RANSAC/src/main.py](https://git.imp.fu-berlin.de/thob97/thornavid/-/blob/thore/src/assignment8_RANSAC/src/main.py)