

Computer vision course

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Lab 4 - Edge and line detection

Task 1

Write a program that loads the image provided (street_scene.png), shows it and evaluates the Canny image. To verify the effect on the final result, add one or more trackbar(s)¹ to control the parameters of the Canny edge detector. Move the trackbars and check how changing each parameter has an influence on the resulting image. Please note: the Canny image shall be refreshed every time a trackbar is modified.

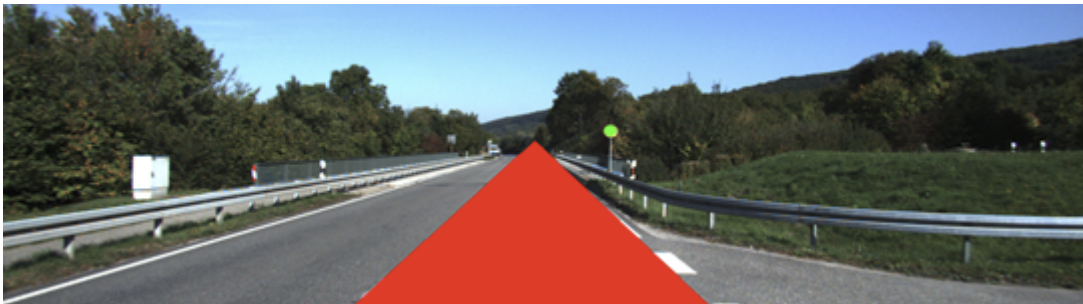
Task 2

You now need to detect the white markings on the road. How could you tackle this problem without using the Hough transform? Some suggestions:

- consider edge orientation;
- consider colors close to edge points.

Task 3

Now detect white markings using the Hough transform. Check online sources and apply it using the `cv::HoughLines()` function. Suggestion: consider the two strongest lines detected, and select their orientation. Color in red the area between the lines - example below.



Task 4

Detect the road sign using the Hough circular transform - function `cv::HoughCircles()`.

¹ A trackbar can be added following the example found at:
https://docs.opencv.org/4.9.0/da/d6a/tutorial_trackbar.html