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