Finding Lane Lines on the Road

Writeup

Finding Lane Lines on the Road

The goals / steps of this project are the following:

- Make a pipeline that finds lane lines on the road
- Reflect on your work in a written report

Reflection

1. Describe your pipeline. As part of the description, explain how you modified the draw_lines() function.

My pipeline consisted of 5 steps:

a) I converted the original three-channel image into a single-channel grayscale image:

b) The grayscale image is processed by Gaussian filtering, and the edge information in the image is detected using the canny algorithm:

c) In the region of interest, extract the straight line segment information from the edge points by Hough transform, and mark the lane line:

d) Superimpose the marked lane line into the original image:

e) Improve step 3 mark lane line function, average and extrapolate the detected lane line, mark the complete lane line with the whole solid line and superimpose on the original image:

In the draw_lines () function, the least square method is used to fit the straight line, and the slope of the fitted straight line is limited.


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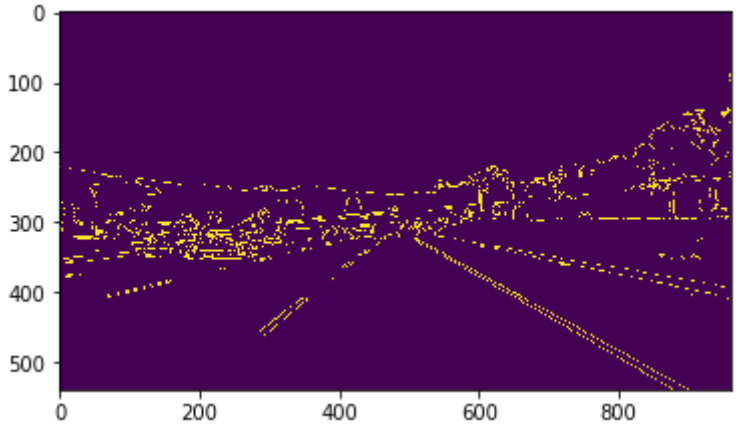
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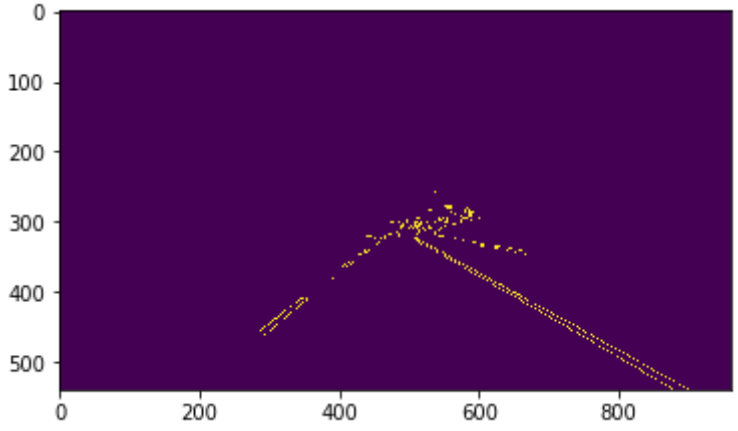
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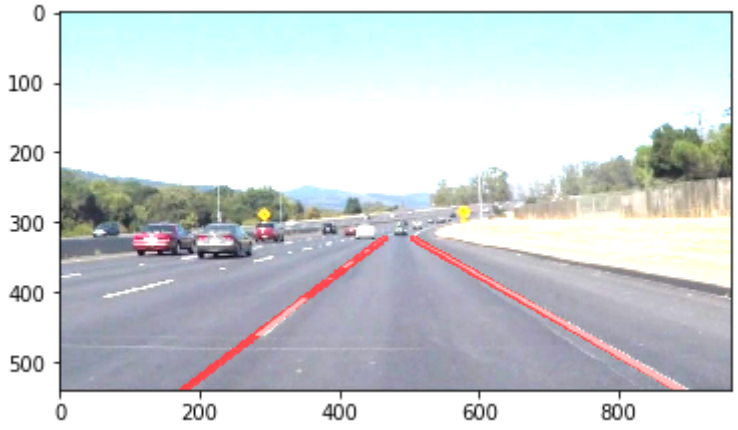

2. Identify potential shortcomings with your current pipeline

a) One potential shortcoming would be what would happen when there is a curve in the road.

b) Another shortcoming could be that it does not detect the lane lines smoothly in some cases.

3. Suggest possible improvements to your pipeline

A possible improvement is to use the length of the line segment as a weighted average to replace the least square method to fit the straight line Or use other methods to detect and fit the lane line.