Finding Lane Lines on the Road

Yulong Li

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The goals / steps of this project are the following:

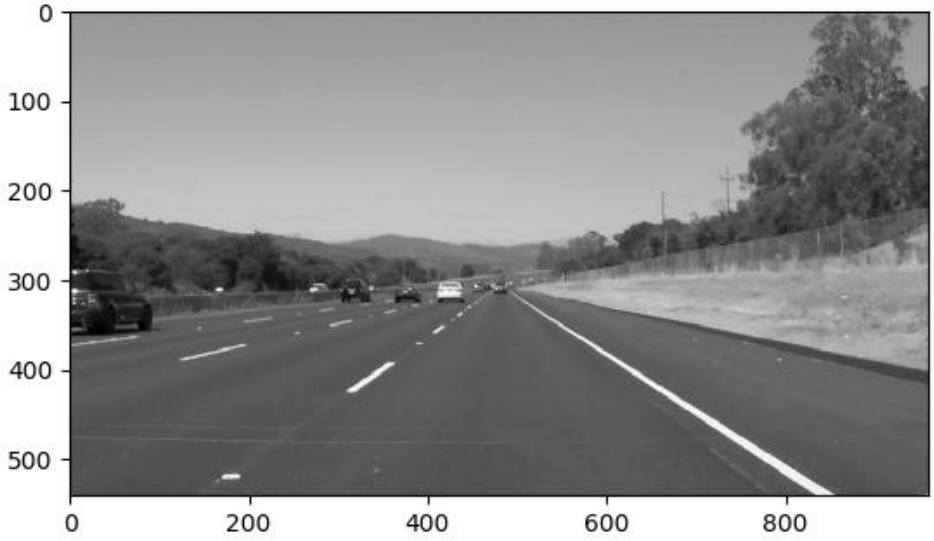
- Make a pipeline that finds lane lines on the road
- Reflect on your work in a written report

Reflection

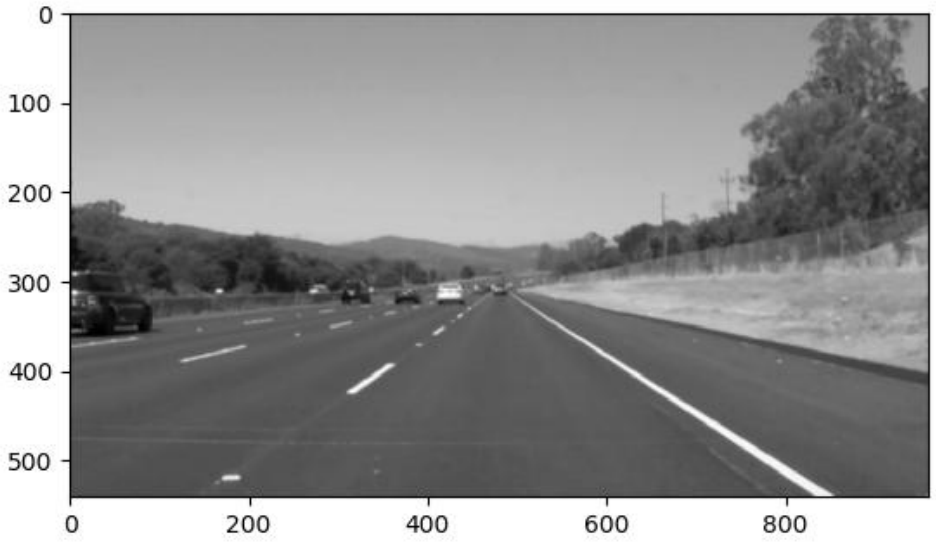
1. Describe your pipeline. As part of the description, explain how you modified the draw_lines() function.

My pipeline consisted of 5 steps.

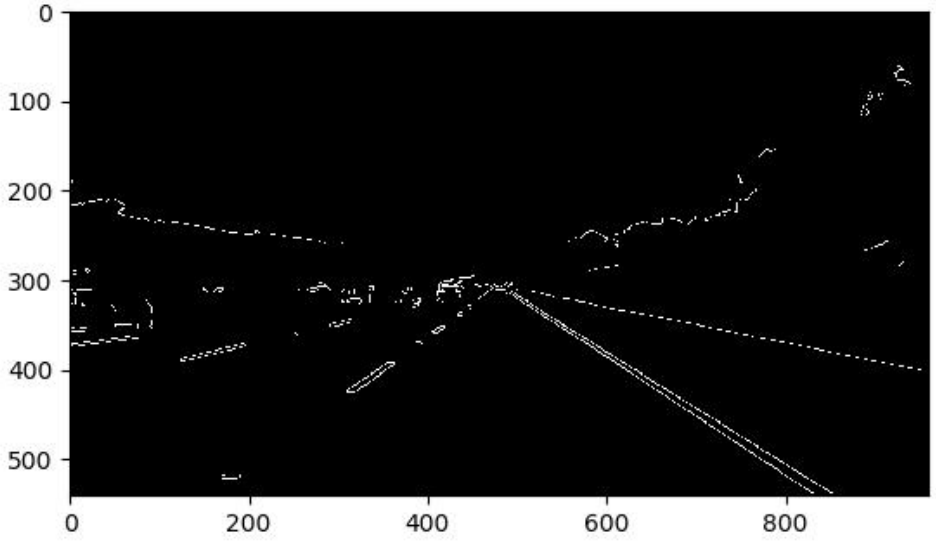
(a) Convert the images to grayscale



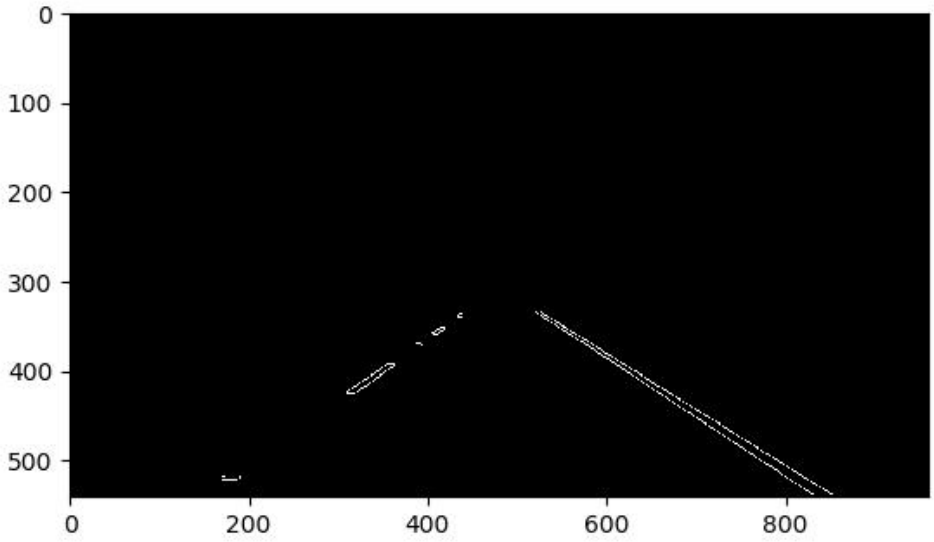
(b) Gaussian Blur



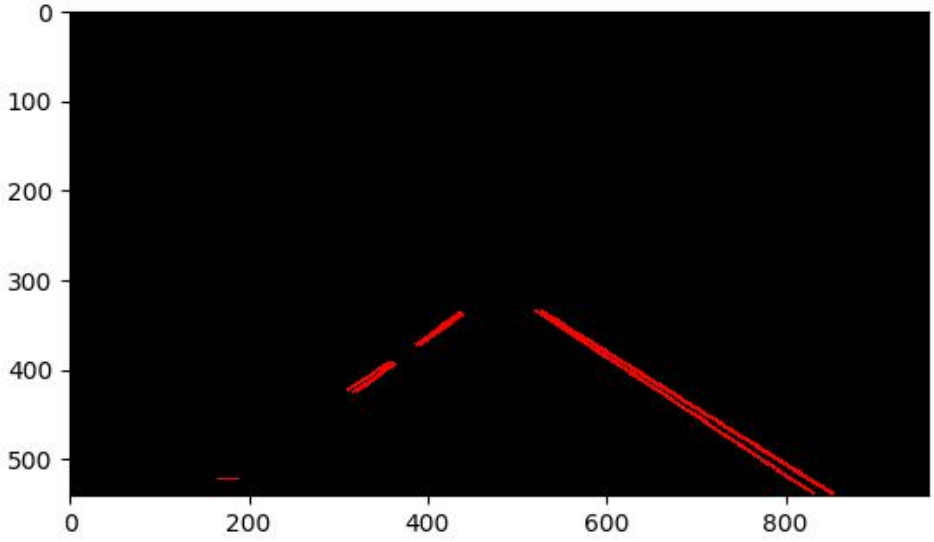
(c) Canny edge:



(d) Mask edge:



(e) Hough transform:



(f) Draw Hough lines on original image

In order to draw a single line on the left and right lanes, I modified the draw_lines() function by modifying the 'hough_lines' function to 'hough_lines2' function. The 'hough_lines2' function will calculate the mean slope for the left and right side of the line and put a single line on each side:

2. Identify potential shortcomings with your current pipeline

My current pipeline can only deal with images/videos with low noise level. It doesn't work well on complicated road condition images/videos like the challenge video.

Besides, the single lines are not very stable, it may jump a little bit but I limited the slope in a certain range.

And the single line is a straight line, which does describe the curve well.

3. Suggest possible improvements to your pipeline

Study noise cancellation techniques. Try different combinations of the parameters. Apply some algorithm to prevent big slope jump.

I’m thinking maybe it’s possible to implement 2nd or higher order functions to draw a curve on the image.