

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

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

My pipeline to find the lane lines on the road include 6 steps.

1. In the first step, I have used the `cv2.cvtColor` function to see the image as grayscale.
2. In this step, the returned image from step 1 has used the `cv2.GaussianBlur` function to reduce noise with kernel size of 5.
3. When the image has been smoothed from previous step, I have used the `cv2.Canny` method with low threshold of 50 and 150 for high thresholds.
4. In this step, I have used the `region_of_interest` function to return a mask for limiting of interest region.
5. Next, by applying the `cv2.HoughLines` method, I could return the hough lines drawn.
6. In the last step, the finding lane lines can be detected by using `cv2.addWrighted` method.

In order to explain of `draw_lines()` function, I have determined each line is in left side or right side. A positive slope denotes that a line segment is in the left side, though a negative slope shows that a line segment is in the right side.

Left lane line segments that the slope is more than 0.4 (or less than -0.4 for the right lane) are acceptable. Then the average of selected line segments will be calculated. Finally, the line segment has been extended to the whole of graph.

2. Identify potential shortcomings with your current pipeline

As a potential shortcoming for me is how I can determine the interest region of an image. And also, how can I examine each line that returned by hough function.

3. Suggest possible improvements to your pipeline

One improvement could be to how can use knowledge gained from the previous frame to recognize future frames.