Finding Lane Lines on the Road

Goal

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

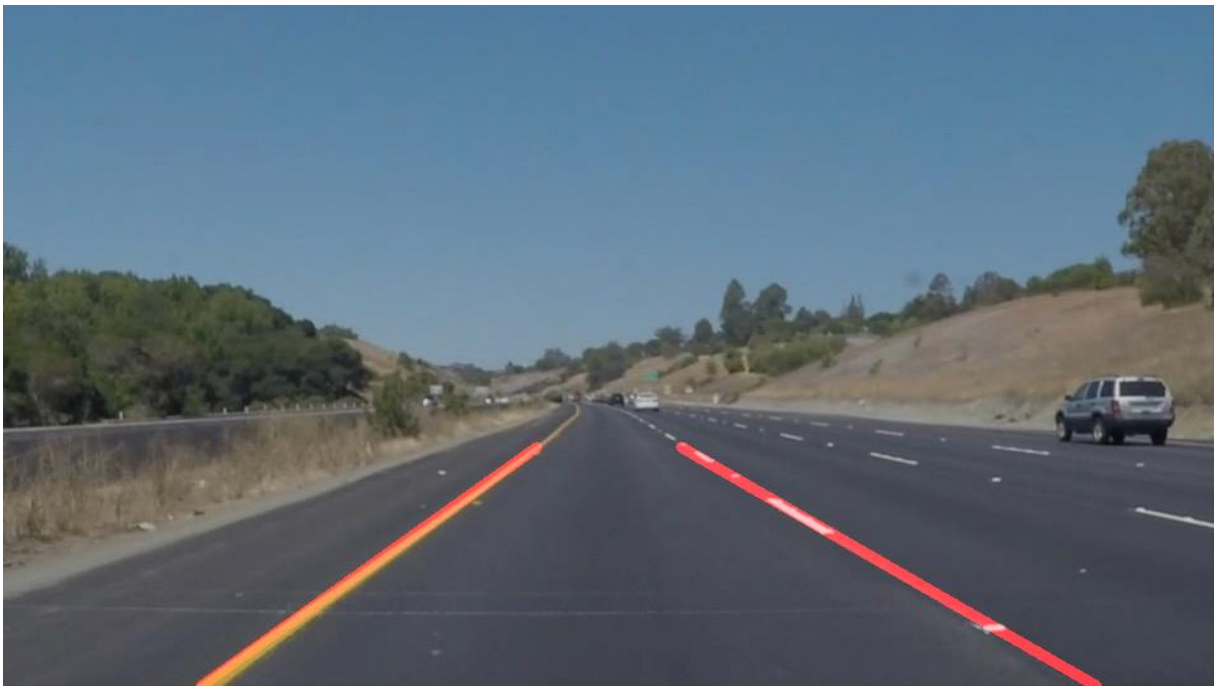
Reflection

During work I was trying different settings for main functions. The biggest challenge was to made lines more stable on video input.

Pipeline.

My pipeline consisted of 5 steps. First, I converted the images to grayscale, then the gaussian blur function with kernel size 9, after that Canny function is applied with tresholds 150-200. After defining the area of interest the hough line detection is performed. In the hough function also the lines are drawn. At the end the images of source and lines are summed.

In order to draw a single line on the left and right lanes, I modified the draw_lines() function by adding segregation on left and right lines based on slope value. The mean value of each side lines points is calculated. There is also a filter that protect from detect lines on wrong side of the road. At the end calculation of linear function for each line is performed, and applied to the lower and upper border of region of interest.



Identify potential shortcomings with your current pipeline

The draw lines function could be probably vectorised. To calculate best slope and bias the linear regression function can also be used. The stability of more complicated line detection on video images could be better.

Probably more shortcomings would appear on curved roads with shadow or night lightening.

3. Suggest possible improvements to your pipeline

A possible improvement would be to add linear regression to perform better line detection.

Another potential improvement could be to vectorise and made object oriented the draw line function instead of calculating each coordinate separately.