Project: Finding Lane Lines on the Road

1. Pipeline

   The following is the pipeline to detect lane lines. Each steps output is an input to the next.

   a. Get a frame from the video to work with
   b. Convert to grayscale (easy to work with)
   c. Filter noise using gaussian blur
   d. Find edges (canny in this case)
   e. Don't search all over the image but use prior knowledge of road to determine a region of interest.
   f. Apply probabilistic Hough transform
   g. Render the lane lines to display on each frame
   h. Combine series of frames to make a video

   To extrapolate, the lines completely, I used the points that formed lanes and fit a straight line. Using the mean of the coefficients of the resulting line, I drew the full line.

2. Shortcomings

   According to me, I think the following are the shortcoming of our approach. But it's a good place to start with.

   a. For the most part, we only dealt with straight lines, this might fail with curved line.
   b. We are searching the whole image in every frame of the video. So computationally inefficient.

3. Possible improvements

   a. In order to improve computational efficiency, we might want to use knowledge of lines from previous frames in some way.

Happy Learning!!!
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