
Approach for Extracting Lane Masks

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1 Basic Image Preprocessing

The image was blurred, and thresholding was applied to get a binary image.

1.1 Blurring

Bilateral filtering was used to blur the image, since it reduces noise while preserving edges. The image was converted to grayscale.

1.1.1 Thresholding

The image was binarized, then blurred (Gaussian), and then again binarized. This helped reduce noise in the first thresholded image. And it was effective in the final results.

2 Creating Yellow Mask

The original image was converted to HSV to extract all points that had yellow colour.

2.1 Separating lane and environment

To remove parts of the environment which were yellow, it can be seen that the thresholded image obtained previously would have yellow lane part. Thus, bitwise_and operation of the yellow image and thresholded image would give us the required yellow lane mask.

3 Creating White Mask

3.1 Second Threshold Image

Another thresholded image was created, having a threshold of 190. Now, the points that are in the earlier thresholded image but not in the newer one are noises of the environment.

Also, parts of the yellow mask were removed from thresholded images since they wouldn't be in the white mask.

3.2 Hough Lines

Lines from both thresholded images were extracted, and also from noises from the environment obtained previously by Hough Transform.

3.3 Mask

Final mask was extracted using series of bitwise operations of above lines. However, since this mask would consist of some leftover noise. Noise removal techniques were used.