Assignment 2 Report
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In this assignment I perform different experiments to detect white and yellow lanes on roads.

Experiment 1:

Dataset image : Test1
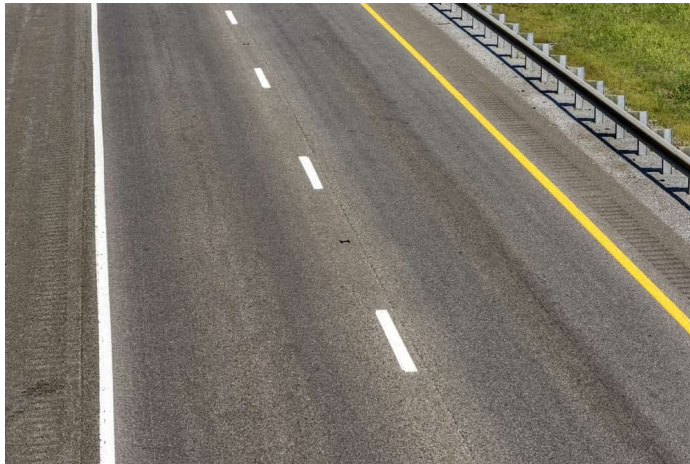Size : 150x150
White Mask upper values = (255,40,255)
White Mask Lower values = (0,0,215)
Yellow Mask upper values = (30,255,255)
Yellow Mask Lower values =(10,100,100)
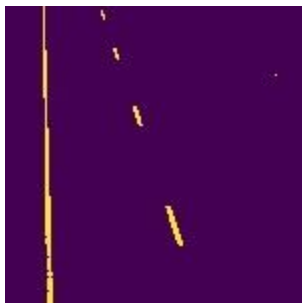Region of interest shape = (0,150)(65,50)(150,150)

Image 1:

As you can see Image 1 with white and yellow lanes on the road. I want to apply White and yellow mask to filter out these lines.
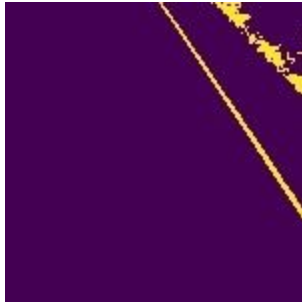
Apply White Binary Mask:

For white binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.
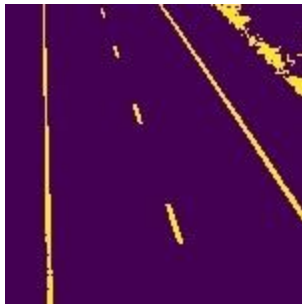
Apply Yellow Binary Mask:

For the Yellow binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.
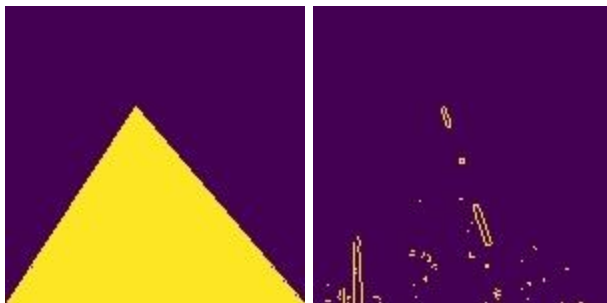

Filter Image (White and yellow Mask):

After combining both masks and applying an image to filter out white and yellow lines. It shows me the result given below.

Region of interest :

For region of interest i want a region on roads in which only lines can come in the region when cars move on the road. So I set the triangle shape on the road.

Hough Transform output :

Apply a hough transform to extract all lines passing through each of our edge points.Now filter the lines those that have horizontal slopes.After that apply linear regression and it will give you the resulting image.

Experiment 2:

Dataset image : Test2
Size : 150x150
White Mask upper values = (255,50,255)
White Mask Lower values = (10,10,215)
Yellow Mask upper values = (40,255,255)
Yellow Mask Lower values =(10,90,100)
Region of interest shape = (0,150)(65,50)(150,150)

Image 2:

As you can see Image2 with white and yellow lanes on the road. I want to apply White and yellow mask to filter out these lines.

Apply White Binary Mask:

For white binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.

Apply Yellow Binary Mask:

For the Yellow binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.
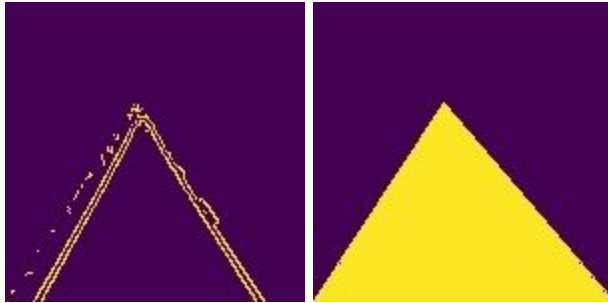

Filter Image (White and yellow Mask):

After combining both masks and applying an image to filter out white and yellow lines. It shows me the result given below.

Region of interest :

For region of interest i want a region on roads in which only lines can come in the region when cars move on the road. So I set the triangle shape on the road.

Hough Transform output :

Apply a hough transform to extract all lines passing through each of our edge points.Now filter the lines those that have horizontal slopes.After that apply linear regression and it will give you the resulting image.

Experiment 3:

Dataset image : Test3
Size : 150x150
White Mask upper values = (255,40,255)
White Mask Lower values = (0,0,200)
Yellow Mask upper values = (40,255,255)
Yellow Mask Lower values =(10,90,100)
Region of interest shape = (0,150)(100,80)(150,150)

Image 3:

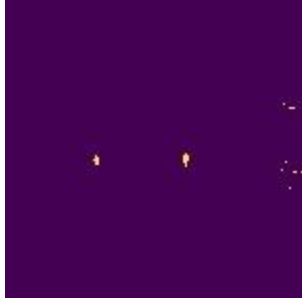As you can see this image only has white lines.

Apply White Binary Mask:

For white binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.
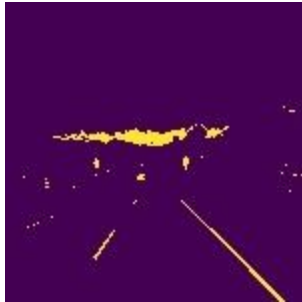
Apply Yellow Binary Mask:

For the Yellow binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it will not show me yellow lines. Because you can see in the image there are no yellow lines.
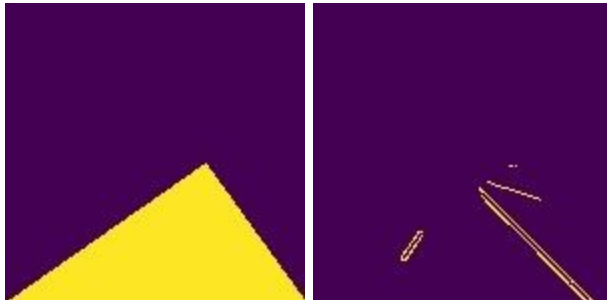

Filter Image (White and yellow Mask):

After combining both masks and applying an image to filter out white and yellow lines. It shows me the result given below.

Region of interest :

For region of interest i want a region on roads in which only lines can come in the region when cars move on the road. So I set the triangle shape on the road.

Hough Transform output :

Apply a hough transform to extract all lines passing through each of our edge points.Now filter the lines those that have horizontal slopes.After that apply linear regression and it will give you the resulting image.

Experiment 4:

Dataset image : Test4
Size : 150x150
White Mask upper values = (255,40,255)
White Mask Lower values = (0,0,200)
Yellow Mask upper values = (40,255,255)
Yellow Mask Lower values =(10,90,100)
Region of interest shape = (0,150)(10,50)(150,150)
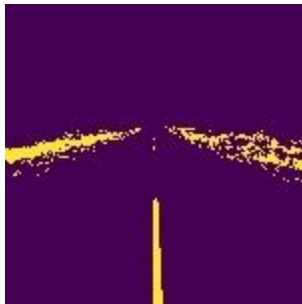
Image 4:

Apply White Binary Mask:

For white binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.

Apply Yellow Binary Mask:

For the Yellow binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it will not show me yellow lines. Because you can see in the image there are no yellow lines.
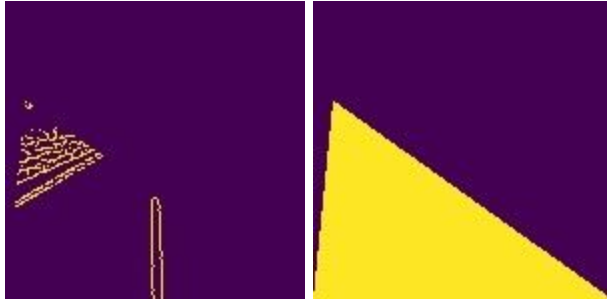

Filter Image (White and yellow Mask):

After combining both masks and applying an image to filter out white and yellow lines. It shows me the result given below.

Region of interest :

For region of interest i want a region on roads in which only lines can come in the region when cars move on the road. So I set the triangle shape on the road.

Hough Transform output :

Apply a hough transform to extract all lines passing through each of our edge points.Now filter the lines those that have horizontal slopes.After that apply linear regression and it will give you the resulting image.

Experiment 5:

Dataset image : Test5
Size : 150x150
White Mask upper values = (255,40,255)
White Mask Lower values = (0,0,200)
Yellow Mask upper values = (40,255,255)
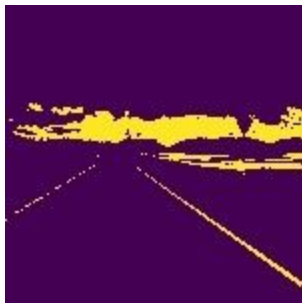Yellow Mask Lower values =(10,90,100)
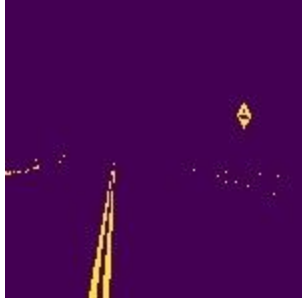Region of interest shape = (-10,150)(50,70)(170,150)

Image 5:

Apply White Binary Mask:

For white binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it shows me the result.

Apply Yellow Binary Mask:

For the Yellow binary mask I set a lower range of white till upper range of white in HSV image. When I apply a mask on an image it will not show me yellow lines. Because you can see in the image there are no yellow lines.
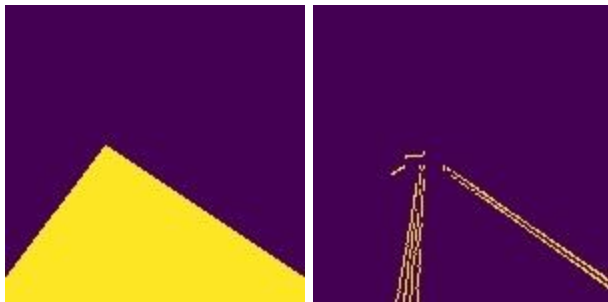

Filter Image (White and yellow Mask):

After combining both masks and applying an image to filter out white and yellow lines. It shows me the result given below.

Region of interest :

For region of interest i want a region on roads in which only lines can come in the region when cars move on the road. So I set the triangle shape on the road.

Hough Transform output :

Apply a hough transform to extract all lines passing through each of our edge points.Now filter the lines those that have horizontal slopes.After that apply linear regression and it will give you the resulting image.

Conclusion Analysis :

As you can see, all experiments have different images.I apply Yellow and White lane masks on images to detect lines of road.I set different values of upper and lower yellow and white according to HSV image.Every image has its own intensity color of yellow and white lane. So I set different ranges of the mask.After that I detected edges using canny edges. After this step I want to select Region of interest (ROI) according to the image. So I set triangle type shapes to detect road lines according to the image.So we have some lines in this step.After that I apply a hough transform to detect lines and remove unwanted lines and apply linear regression on the image. So in the final result you can see my it is detecting road lanes.