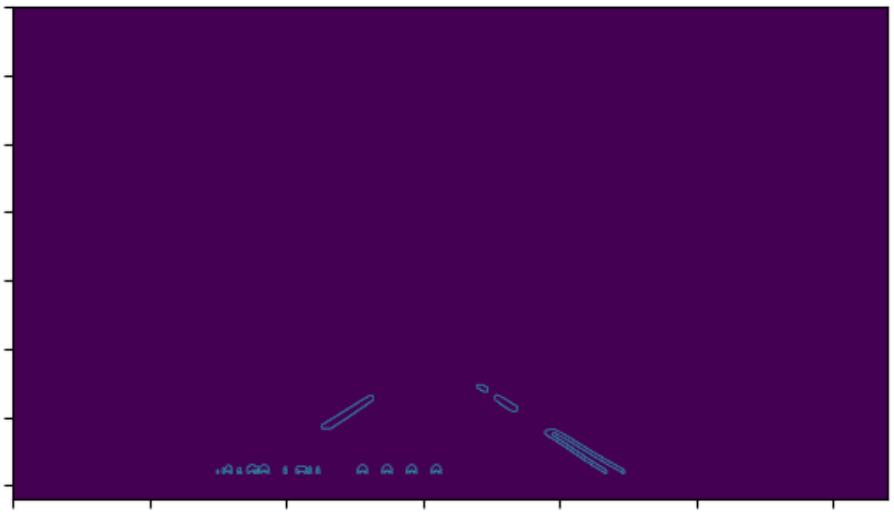
Lane Detection

OR LEVY 206263352 OFER FRITZ 313191983

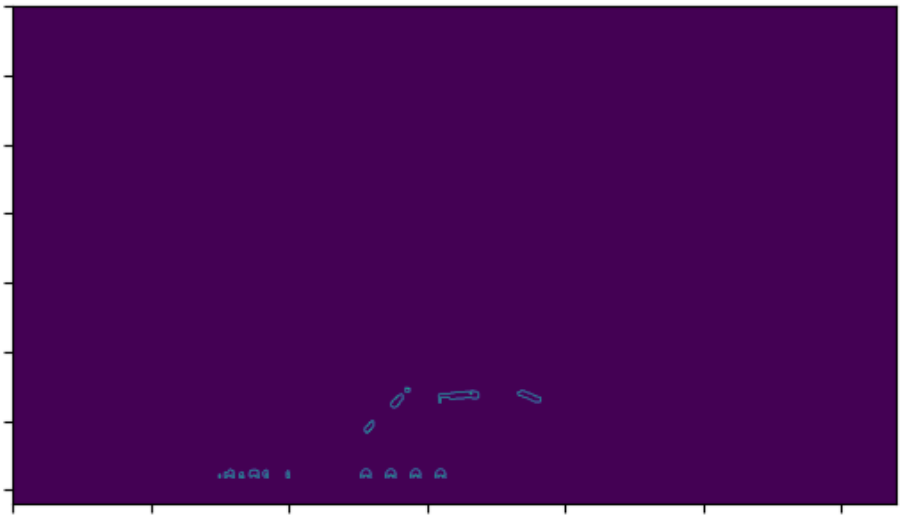
In this project we were asked to detect lanes and alert when crossing lanes from dashcam video. Below is how we did it, struggles, successions and general strategy.

1. Imports: numpy and cv2.
2. Load_save():
   - Use cv2.VideoWriter with .mp4 output file (out.mp4)
3. Makemask() :
   - Cropped the image in a trapeze shape
4. Filter_img():
   - We had some trouble with worn lanes, so we dilated the croped img so lanes get more color, and than morph closing to get more edges out of the frame.

Filtered mask



filtered mask - worn lanes



5. Houghlines():
   - TH of 30
   - R =1 | theta = PI/180
6. "For" loop to find 2 lanes, or crossing posture, in each frame:
   - R_t = [[rho, theta]]
   - If the line is horizontal (+- 20 degrees) – continue.
   - If the line is vertical (+- 20 degrees) – print "crossing" and continue (No lanes are drown).
   - If 160 > theta > 90 than it's a right lane.
   - If 90 > theta > 20 than it's a left lane.
7. Write_lane():
   - Draw lines on the image – 550 ≤ y ≤ 720
   - If it's a right lane – the (x0,y0) point is with high y value – therefore we draw the line with smaller values – make y1 longer (550-720)
   - If it's a left lane – first make an arbitrary line, than trim it that y2=550
8. Out.write is the method to save the file.

lanes detection

crossing lanes detection