Lane Detection and Image Cartoonifying

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Part I: Applying Image Processing Filters For Image Cartoonifying

The basic idea is to fill the flat parts with some color and then draw thick lines on the strong edges. In other words, the flat areas should become much more flat and the edges should become much more distinct. We will detect edges and smooth the flat areas, then draw enhanced edges back on top to produce a cartoon or comic book effect.

Generating a black-and-white sketch

Noise Reduction Using Median Filter

Edge Detection Using Laplacian Filter

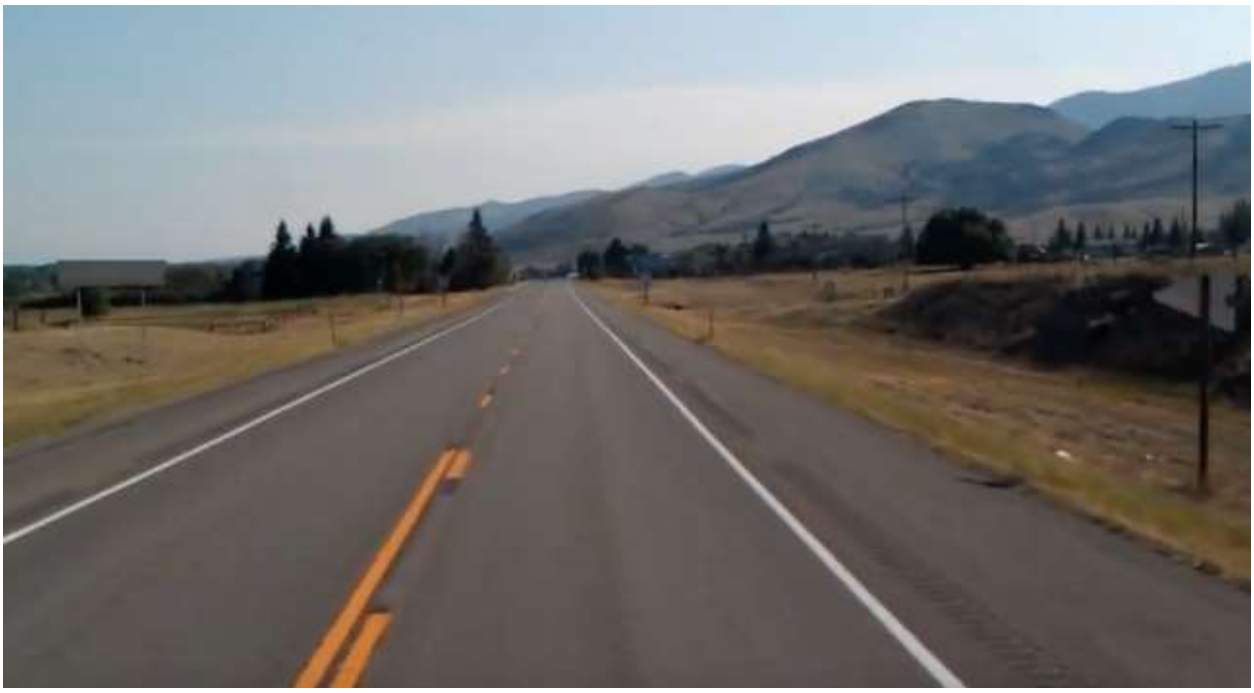
Generating a color painting and a cartoon

overlay the edge mask

Input VS output

Part II: Road Lane Detection Using Hough Transform

read image

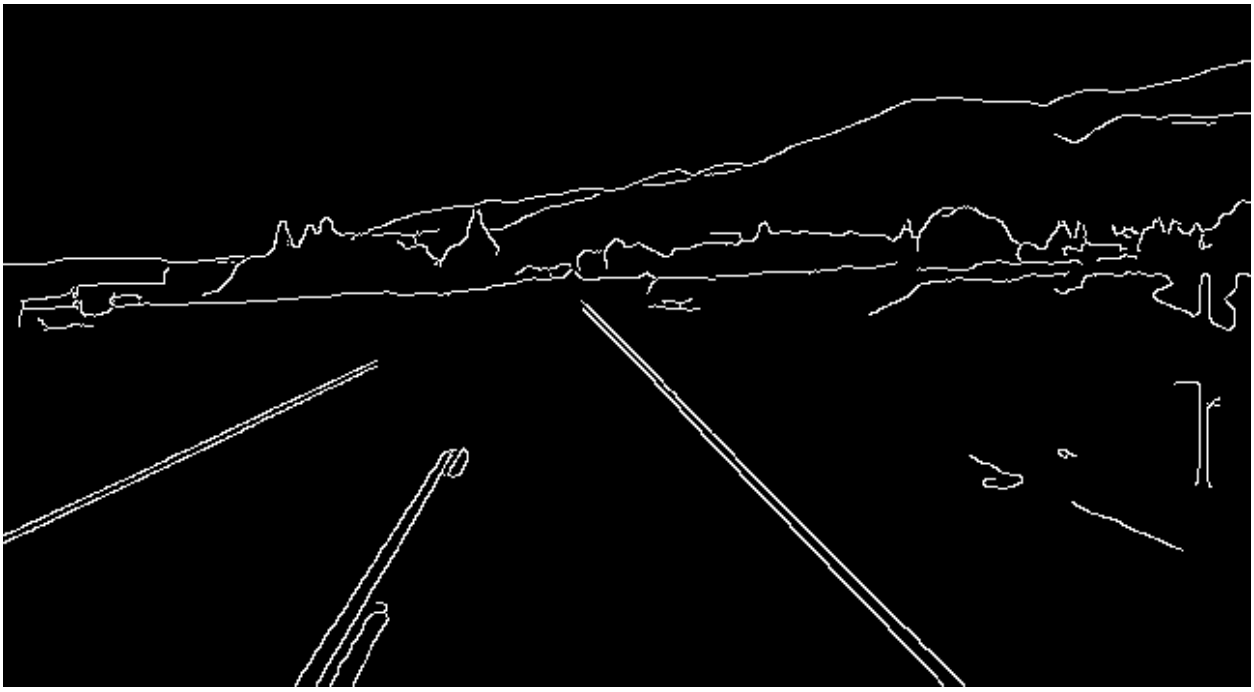


Convert image to gray scale to accelerate processing

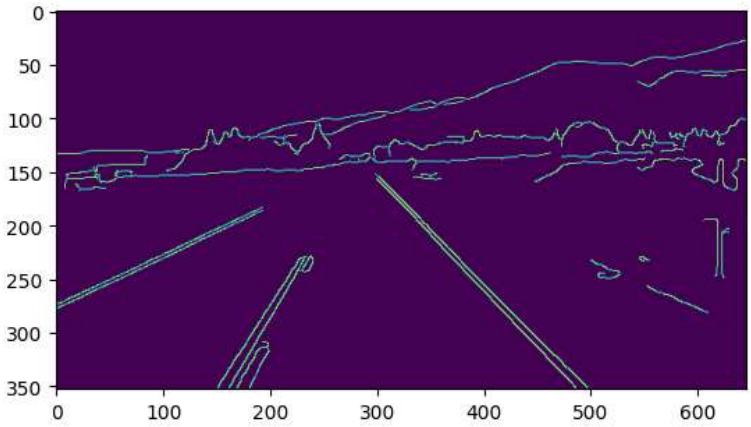
Smoothing the image using a 2-dimensional median smoothing filter

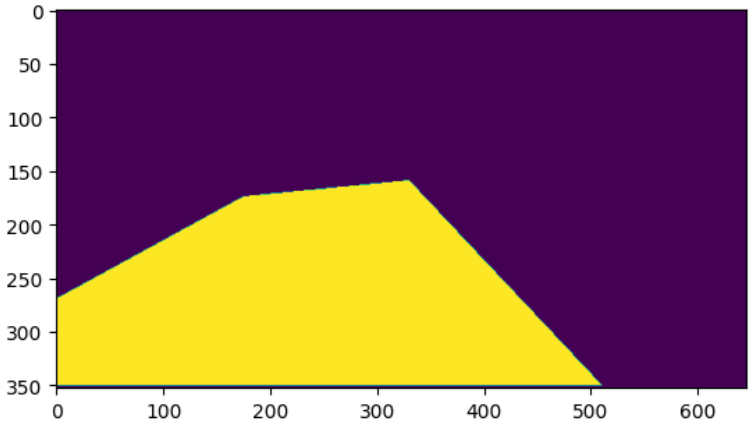
Original gray image VS Smoothed image

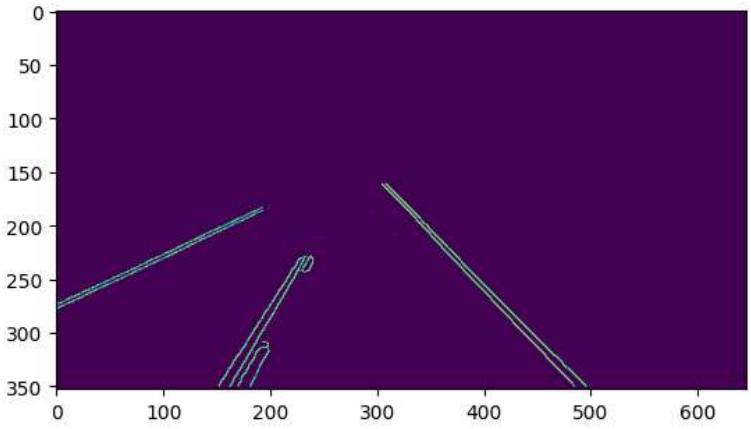
Edge Detection



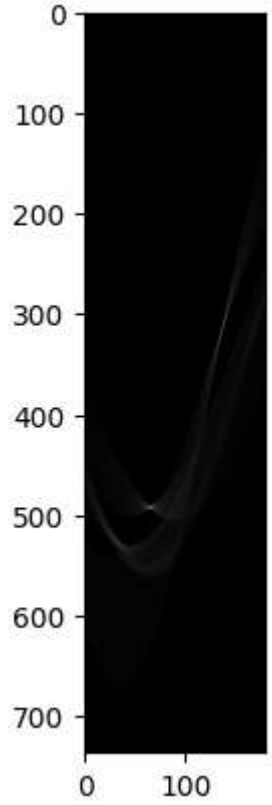
Region Of Interest Extraction

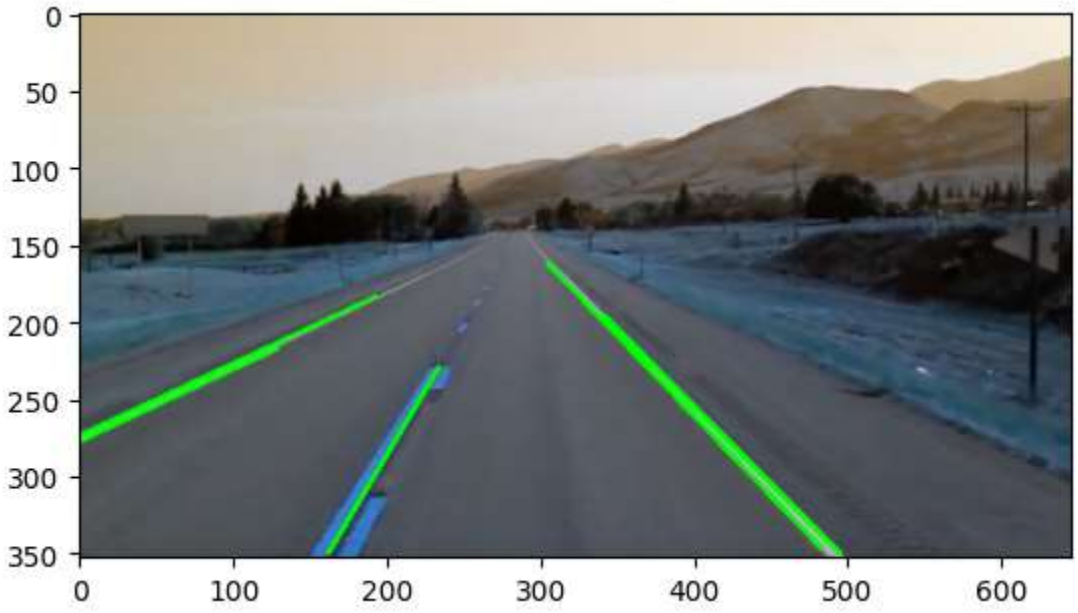






Accumulation into (ρ, θ)-space using Hough transform





Built in output