

## Optimized Road Lane Detection Through a Combined Canny Edge Detection, Hough Transform, and Scaleable Region Masking Toward Autonomous Driving

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**Abstract :** Nowadays, autonomous vehicles are developing rapidly toward facilitating human car driving. One of the main issues is road lane detection for a suitable guidance direction and car accident prevention. This paper aims to improve and optimize road line detection based on a combination of camera calibration, the Hough transform, and Canny edge detection. The video processing is implemented using the Open CV library with the novelty of having a scale able region masking. The aim of the study is to introduce automatic road lane detection techniques with the user's minimum manual intervention.

**Keywords :** hough transform, canny edge detection, optimisation, scaleable masking, camera calibration, improving the quality of image, image processing, video processing

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