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Traffic Light Detection Using Image Segmentation

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Abstract : Traffic light detection from a moving vehicle is an important technology both for driver safety assistance functions as well as for autonomous driving in the city. This paper proposed a deep-learning-based traffic light recognition method that consists of a pixel-wise image segmentation technique and a fully convolutional network i.e., UNET architecture. This paper has used a method for detecting the position and recognizing the state of the traffic lights in video sequences is presented and evaluated using Traffic Light Dataset which contains masked traffic light image data. The first stage is the detection, which is accomplished through image processing (image segmentation) techniques such as image cropping, color transformation, segmentation of possible traffic lights. The second stage is the recognition, which means identifying the color of the traffic light or knowing the state of traffic light which is achieved by using a Convolutional Neural Network (UNET architecture).

Keywords : traffic light detection, image segmentation, machine learning, classification, convolutional neural networks
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