

Investigation of Traffic Sign Image Classification for Self Driving Car

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Abstract

Artificial Intelligence has had a good impact on all fields and is making our lives easier. With the growth of autonomous vehicles, the automotive industry is improving rapidly. Autonomous vehicles are a certain conclusion in the future, and they are intended to be both safe and convenient. One of the most critical issues for autonomous vehicles is traffic sign classification. Half occlusion, colour fade by surrounding barriers, variations in shadows, reflections on signboards during the day, and movement blurring different lighting and weather situations are some of the most typical issues that might occur when identifying and detecting traffic signs. In the classification and identification of road signs, the performance of a Convolutional Neural Network (CNN) has outperformed the same of humans. The purpose of this study is to boost the accuracy of this classification in order to minimize accidents and enhance the credibility of self-driving vehicles. Otherwise, the ecology of traffic may be jeopardised. Using image processing and machine vision processing technologies, as well as the use of in-depth learning in target classification, the traffic sign recognition method based on CNN is studied. A traffic sign detection and classification method with high efficiency and high efficiency are proposed. The German Traffic Sign Recognition Benchmark (GTSRB) is employed to test the approach method, and the results reveal that it outperforms state-of-the-art approaches.

Keywords: CNN; GTSRB; Traffic sign classification; Deep learning.