

German Traffic Sign Recognition

In the last couple of years, the topic of electrical and more importantly, “Self-Driving” Cars got more and more popular. Different companies offer solutions and while they might not be allowed yet, at least in Germany, it is only a matter of time. That makes it even more important to accurately identify road signs, and visual classification plays a critical role in this area. But not just for Electrical Cars, the Traffic Sign Recognition is relevant: For regular drivers, especially for long tours such as truck drivers, having a system which can accurately detect those signs and inform the driver about that would help massively.

In the following project, one of these two data sets will be used:

1. [GTSRB - German Traffic Sign Recognition Benchmark \(kaggle.com\)](https://www.kaggle.com/shivamb/gtsrb-german-traffic-sign)
2. [German Traffic Sign Dataset \(kaggle.com\)](https://www.kaggle.com/shivamb/german-traffic-sign-dataset)

They represent the same data, including pictures of 43 different street signs, but there might be slight differences between the datasets so the first step of the project is selecting the “best” dataset based on size, documentation, ease of access and more. Afterwards, the machine learning model will be developed and iteratively improved by using different hyperparameters.

At this point in time, it is hard to set a “goal” for the project since it will depend on numerous factors such as Data Quality and Quantity, the hyper parameters, the time needed to run it and also, how the solution will be evaluated – accuracy, F1-Score, or different methods.

The initial training set as well as the validation and test set will be used to create the model.

This project has been chosen since we personally experienced that the traffic sign recognition software, even the one of very large car manufacturers, is still not totally accurate and if there is any chance to help by developing this model – even though chances are very low that we actually find out something new – we are willing to try.

The model will be part of an application in which a traffic sign can be inserted and the correct classification should come out as output. As previously mentioned, if the application can accurately detect the correct signs, creating an app for the phone, which can use the camera to classify the signs on the road would be the next step, but the focus in this iteration of the project is mostly on the implementation of the model, not of the application.

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