German Traffic Sign Recognition

Computer Vision

Domain

Automobile

Context

Traffic signs contribute significantly to road safety and are an important measure of road infrastructure quality. They provide critical information for drivers, which guides them to take decisions as per traffic rules and regulations. Without such useful signs, we would most likely be faced with more accidents, as drivers would not be given instructions on important parameters such as overspeeding, work in progress or accident ahead, etc. Thus, traffic signs can also help in reducing the number of accidents.
Similarly, autonomous vehicles must also abide by road safety and therefore *recognize* and *understand* traffic signs.

Objective

Create a CNN model to recognise german traffic signs.

Dataset

The German Traffic Sign Benchmark is a multi-class, single-image classification challenge held at the International Joint Conference on Neural Networks (IJCNN) 2011. They cordially invite researchers from relevant fields to participate: The competition is designed to allow for participation without special domain knowledge. Their benchmark has the following properties:

- Single-image, the multi-class classification problem
- More than 40 classes
- More than 50,000 images in total
- Large, lifelike database

Note: For this project, we have reduced the number of images. There are around 16,500+ images in the dataset provided. You can check the “label_details” folder for getting information about the classes.

Steps & Approach

- Split the dataset into training and validation (75% training / 25% validation)
- Define model
- Get validation accuracy more than 90%

Details about questions and marks are given in the question notebook.

Note: If the model is taking too much time to get trained then you can reduce the number of classes. There are around 43 classes in the dataset, the model should be trained on a minimum of 15 classes.

Support

You can raise a support query on Olympus for support. **Happy Learning!**