Deep learning lab for autonomous driving
Report for ex. sheet 1

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1 Introduction

In this exercise, we were supposed to use the GTSRB dataset to train a convolutional network, to recocnize street signs.

2 Structure of the CNN

The basic structure of the CNN is depicted in table 2.

	Conv1	Max-pool1	Conv2d	Max-pool2
Kernel size	3	2	3	2
Input depth	3		30	
Output depth	30		60	
Padding	1	0	0	0
Stride	1	2	1	0

Tabelle 1: Structure of the CNN

After this, a dropout filter is applied and after linearizing the data, it's first brought to a size of 512×1 and then to 43×1 by linear layers. In the end, a softmax filter is applied.

Every activation layer is a ReLU-Function.

2.1 Optimization

The optimizer is a stochastic gradient descent optimizer with momentum of 0.5 and varying learning rates.

3 Results

Abbildung 1: Learn rate: 0.01, Accuracy: TBD

Abbildung 2: Learn rate: 0.001, Accuracy: TBD

Abbildung 3: Learn rate: 0.0001, Accuracy: TBD

3.1 Performance on the training set

The best model on the validation set performed with an accuracy of TBD% on the test set.