Assignment : CNN challenge

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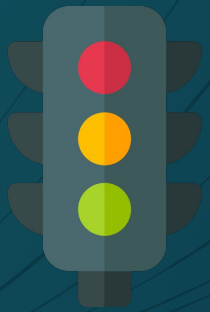
GTSDB

German Traffic Sign Detection Benchmark

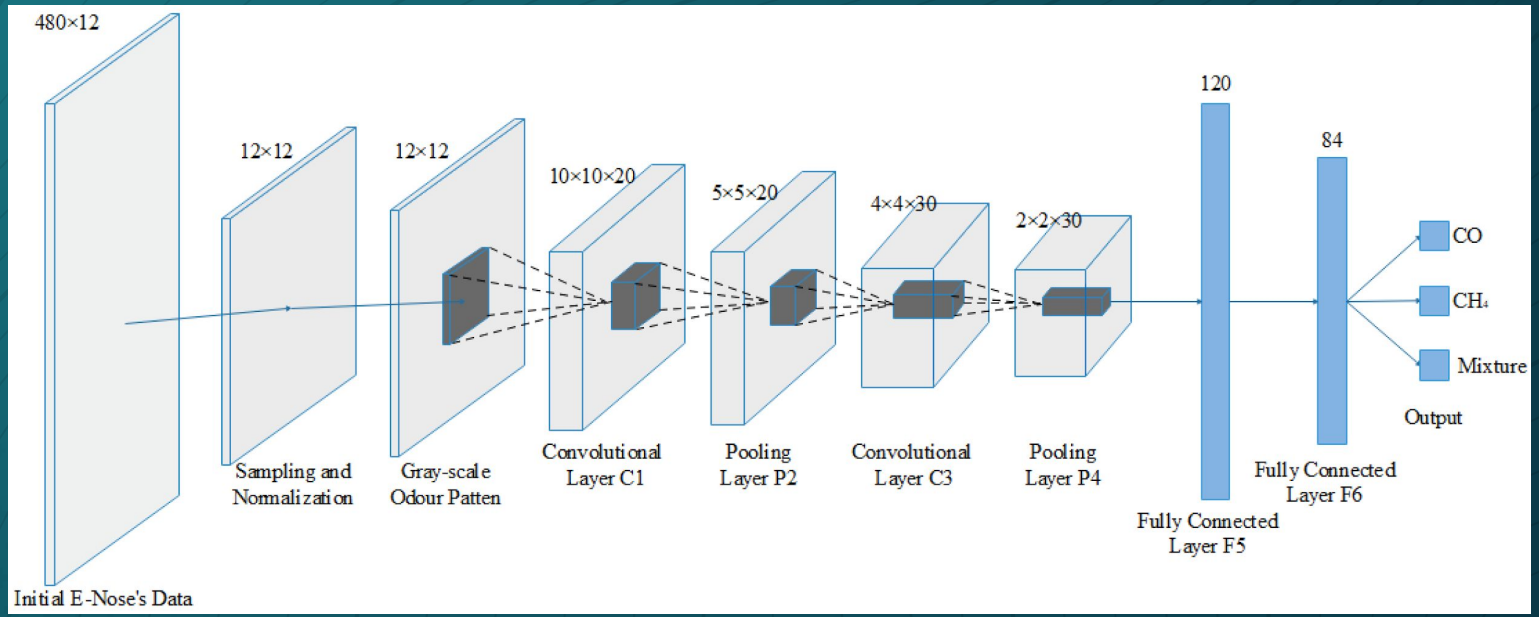


Dataset

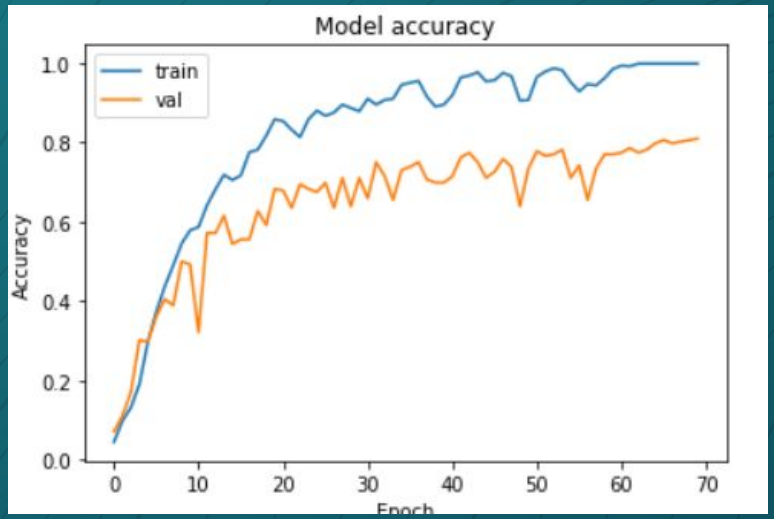
- Training: 600 images
- Validation: 252 images
- Test: 48 images
- Categories: 40

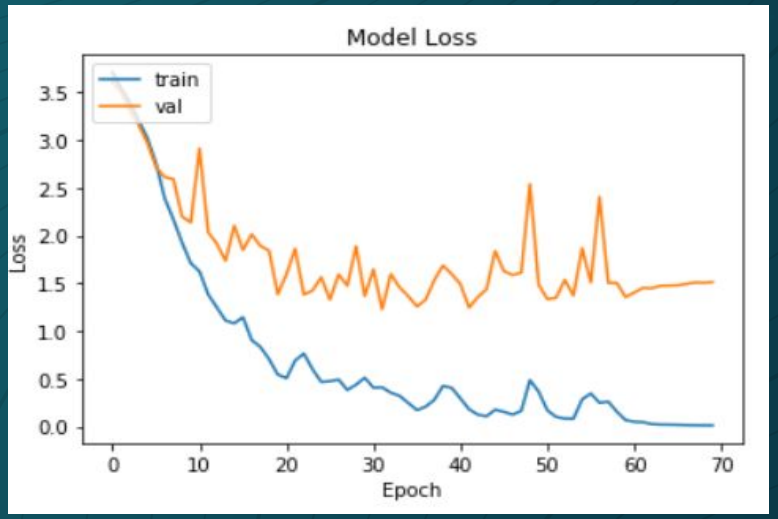
LeNet

- **Activation:** ReLU
- **Optimizer:** SGD
- **Learning rate:** 0.001



LeNet - Results





Accuracy: 85.59%

Loss: 1.159

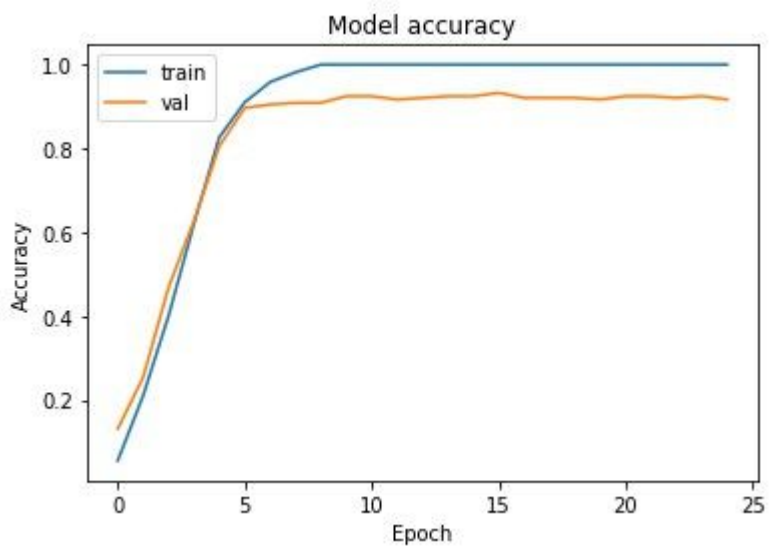
VGG16 - Pretrained

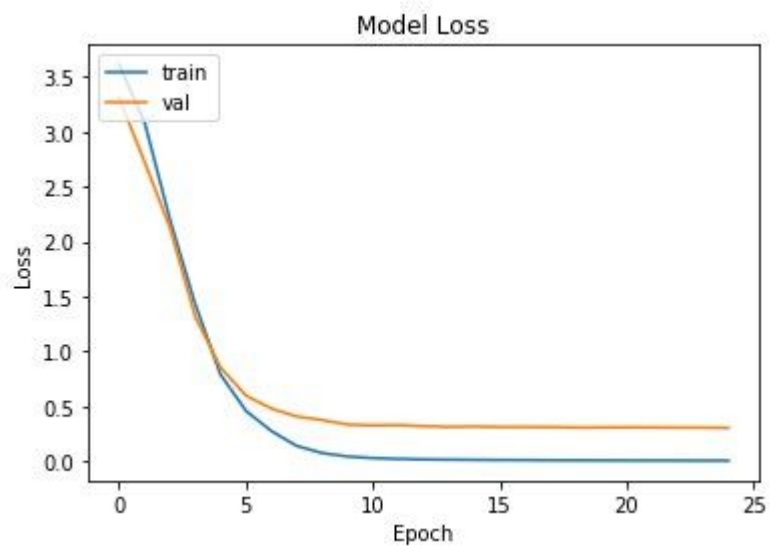
The architecture of this network is very complex: you can find it at the following address:
https://www.tensorflow.org/api_docs/python/tf/keras/applications/VGG16

Activation function: ReLU

Params: 40,449,899

VGG16 - Results

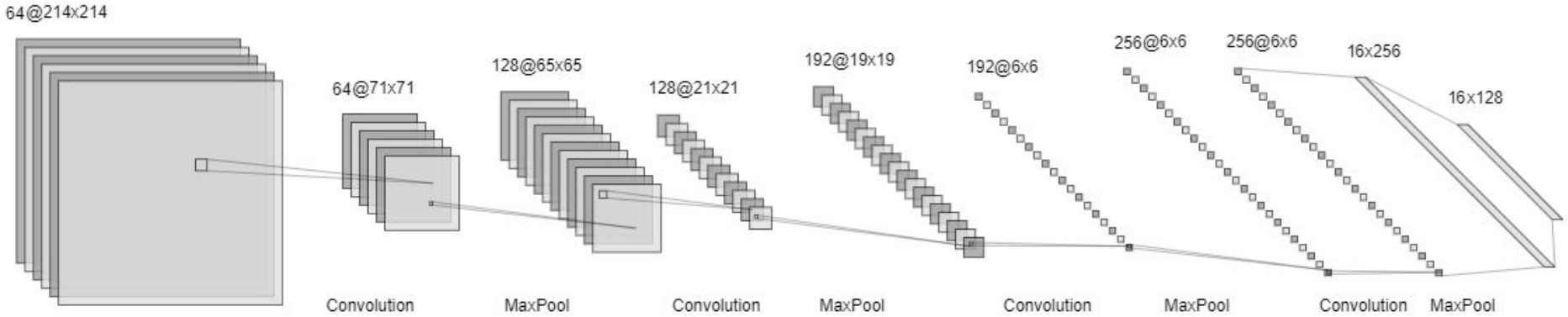




Accuracy: 95.01%

Loss: 0.2147

AlexNet



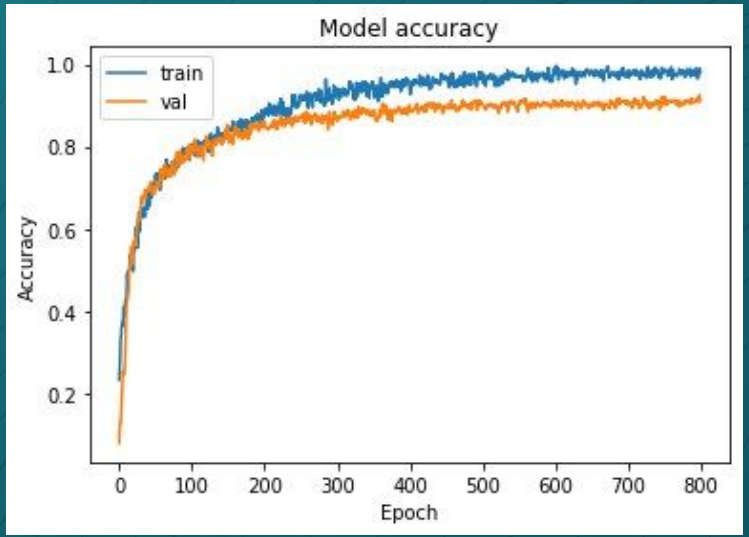
Activation function: ReLU

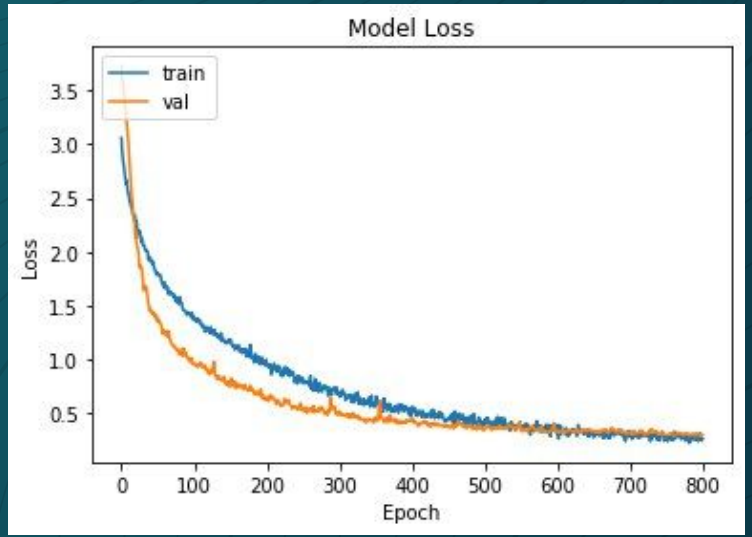
Optimizer: SGD

Learning rate: 0.001

Batch Size 40

AlexNet- Results





Accuracy: 95,56%

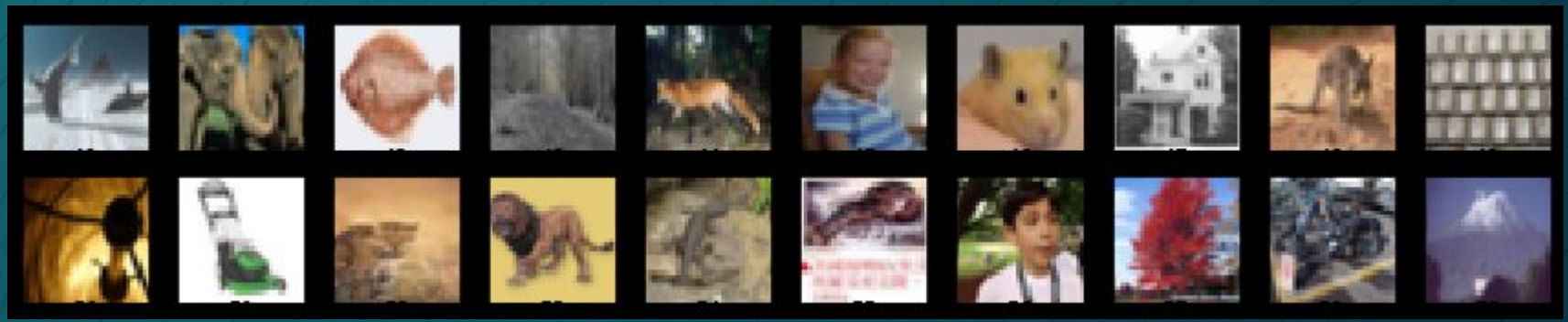
Loss: 0.2014

CIFAR Dataset

From Keras

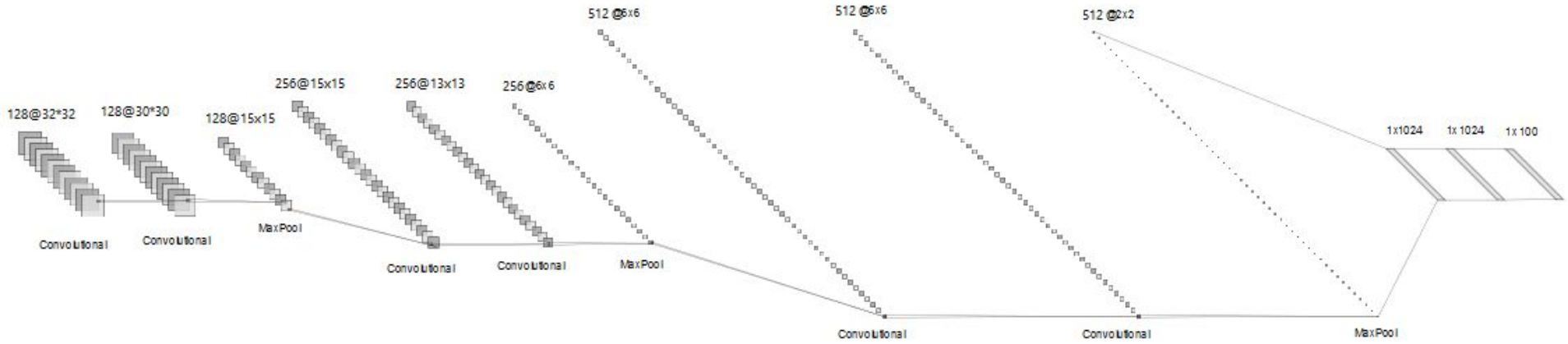
CIFAR Dataset 32x32 color images

- Training: 40,000 images
- Validation: 10,000 images
- Test: 10,000 images
- Categories: 100



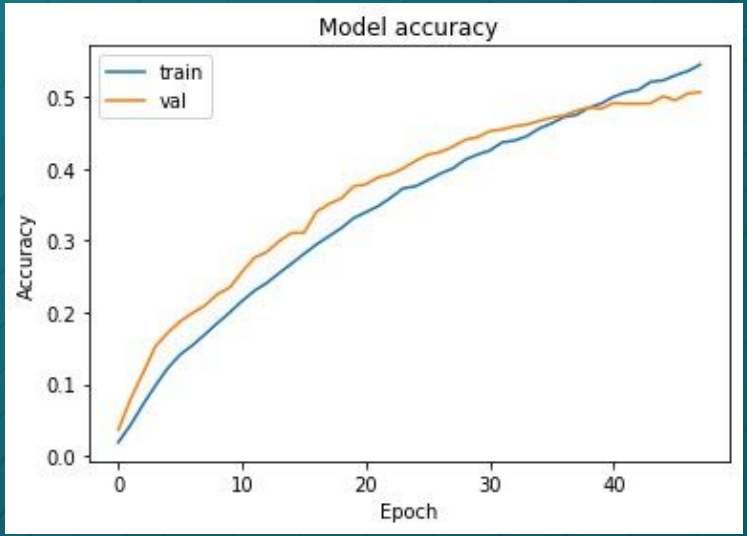
Our configuration

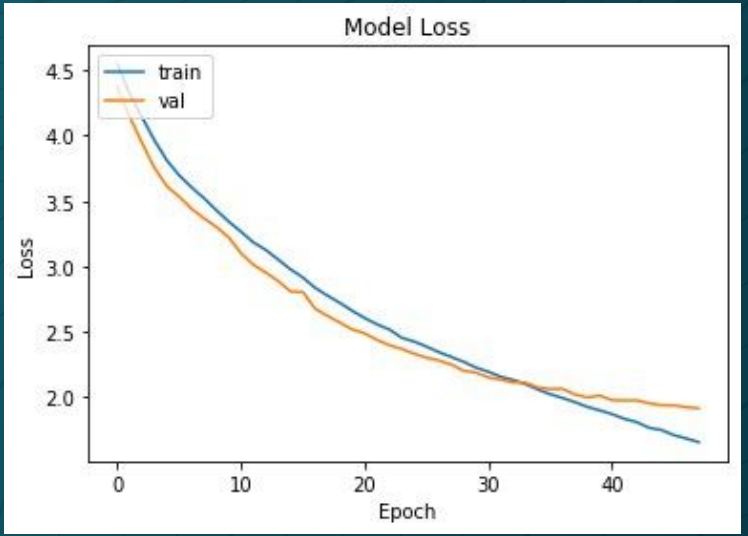
Custom Architecture



Activation function: eLU Optimizer: SGD Learning rate: 0.01 Batch Size:100

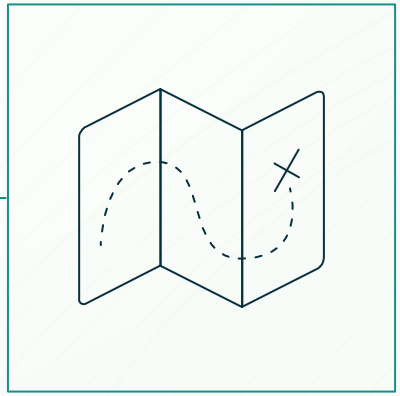
Results





Accuracy: 50.08%

Loss: 1.8855



Thanks!

Any questions?