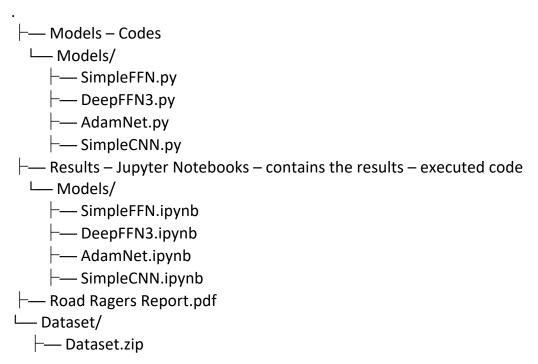
Road Sign Detection – Road Ragers Deep Neural Networks Project

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This project implements and compares several neural network architectures (SimpleCNN, DeepFFN3, AdamNet, SimpleFFN) for detecting and classifying German traffic signs using the <u>GTSRB dataset</u>. All models are implemented from scratch in NumPy, with manual training loops, optimizers, and evaluation.

Project Structure



Dataset/Train/: Contains 43 subfolders (0–42), each with images for that class.

Each *model_name.py: Script for a specific model.

Each .ipynb: Contains the Neural Network models executed with results

Each script includes:

- Data loading and preprocessing
- Model definition
- Training and validation with hyperparameter tuning

Accuracy/loss plotting

Usage

1. Prepare the dataset:

Download the <u>GTSRB dataset</u>. Place the training images in **Dataset/Train/0**, **Dataset/Train/1**, ..., **Dataset/Train/42**.

2. Install requirements:

bash pip install numpy scikit-learn matplotlib pillow opency-python

- 3. **Run a model script:** bash python SimpleCNN.py
- 4. **View results:** Training and validation accuracy/loss will be printed and plotted.