

Files and Structure:

The shared folder contains:

- Folder "Models" with 4 pretrained models' weights in HDF5 format.
- "Model_Training.ipynb" notebook used to train 4 LeNet5 models from scratch for 40 epochs.
- "Model_Testing.ipynb" notebook used to load pre-trained weights and evaluate the constructed models on the train and test data.

Model Training:

The relevant notebook can be run from scratch to train the 4 different LeNet5 models. The code creates, fits and evaluates the models on Fashion MNIST dataset and plots loss and accuracy metrics vs. the number of trained epochs.

The default settings will run on batches of 100 data points and test Dropout, L2 Regularization and Batch Normalization techniques along with "Clean" LeNet5 model.

In addition the notebook creates and saves Tensor Board logs and model weights for later usage.

Model Testing:

The relevant notebook can be run independently, using the pre-saved weights and pre-uploaded logs to the Tensor Board dev server.

The reconstructed models are evaluated versus Fashion MNIST dataset and the loss/accuracy metrics are reported in table.

In addition the Tensor Board dev session is displayed in IPython frame to show the training process which created the reconstructed models.

Important note! Before running this notebook in your Google Drive:

- Locate the shared folder.
- Right click and choose "Add a shortcut to Drive".
- This way Colab will be able to access the shared drive from a mounted destination.

Links:

- The models' weights can be accessed also at:

<https://drive.google.com/drive/folders/1SguvyFWRqIT8X8ufw-fn1dWBkE4cmPwQ?usp=sharing>

- Tensor Board logs can be accessed directly at:

https://tensorboard.dev/experiment/j0TVoKxRSPC1MNVyVOPEbw/#scalars&_smoothingWeight=0