Tensorflow-Keras API

Applied ML in Engineering - Exercise 12

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Problem 1

Use the `Tensorflow Sequential API` to build a classification feed-forward ANN that makes predictions on the CIFAR10 dataset.

(a) Think about the modeling task and the input and output shapes as well as corresponding types

(b) Define a classification metric for reporting the model score on the test set

(c) Choose the correct activation function for the output layer

(d) Choose the correct loss function for the optimizer

(e) Implement a simple neural network and check if it runs

(f) Investigate how different parameter settings (number of hidden layer, activations, ...) affect accuracy and training time.

Problem 2

Use the `Tensorflow Sequential API` to build a regression feed-forward ANN that makes predictions on the Boston Housing price dataset.

(a) Think about the modeling task and the input and output shapes as well as corresponding types

(b) Define a regression metric for reporting the model score on the test set

(c) Choose the correct activation function for the output layer

(d) Choose the correct loss function for the optimizer

(e) Implement a simple neural network and check if it runs

(f) Investigate how different parameter settings (number of hidden layer, activations, ...) affect accuracy and training time.