Computer Exercise 9

Dec. 9, 2021

Goal:

Choose one of the deep learning framework in Python (e.g. PyTorch, Tensorflow, etc.). Learn it's usage and build a model of CNN, RNN or LSTM (choose at least one of the three). For the model, choose one dataset and complete a classification task. Make observations on the effect of different choices of hyper parameters on the performances.

Data:

Find some datasets by yourself. There are many websites that provide high-quality datasets used for machine learning, such as Kaggle (https://www.kaggle.com/datasets), UCI machine learning repository (https://archive.ics.uci.edu/ml/index.php), etc.

Experiment 15 (CNN or RNN or LSTM):

1) Briefly describe your task you chose and corresponding dataset (source, sample size, features, labels, example data, etc.). Describe your experiment design.
2) Design a proper CNN, RNN or LSTM model for the task. Train the model with training set using at least 3 different sets of parameters. Draw the learning curve and calculate the training error for each set of parameters.
3) Test the performance of the trained model in a proper way.
4) Analyze and discuss the observations in the experiments, especially about observations and analyses on the experiment results with different parameter settings.
5)

Due date: Dec. 22 (Wednesday) 23:00 Beijing time