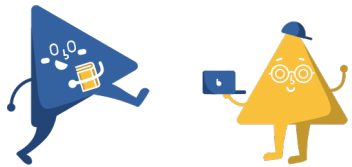
2021/12/13

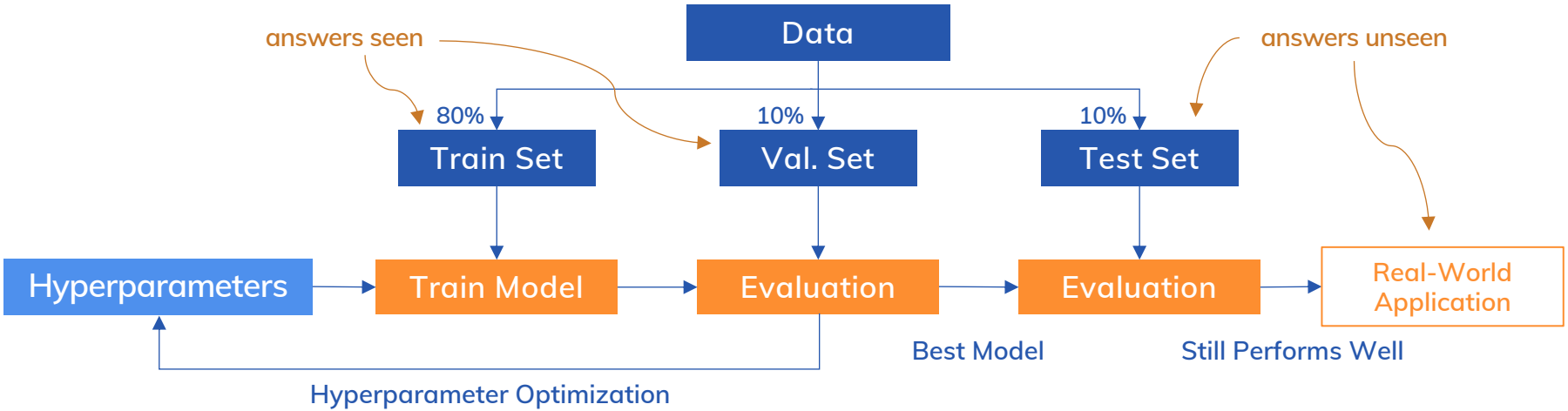
Introduction to Machine Learning

Homework 3

許伯謙



Model Selection



Model Selection

1. Model selection is a process of selecting the best performing model, which is actually finding a set of hyperparameters.
   - Hyperparameters: used to control the learning process, e.g. number of epochs, batch size, learning rate, etc.
   - Parameters: node weights learned during the training.
2. Hyperparameter optimization
   - Grid search
   - Evolutionary optimization

Loss Function

1. Classification problems
    1. Cross-Entropy Loss, aka Log Loss

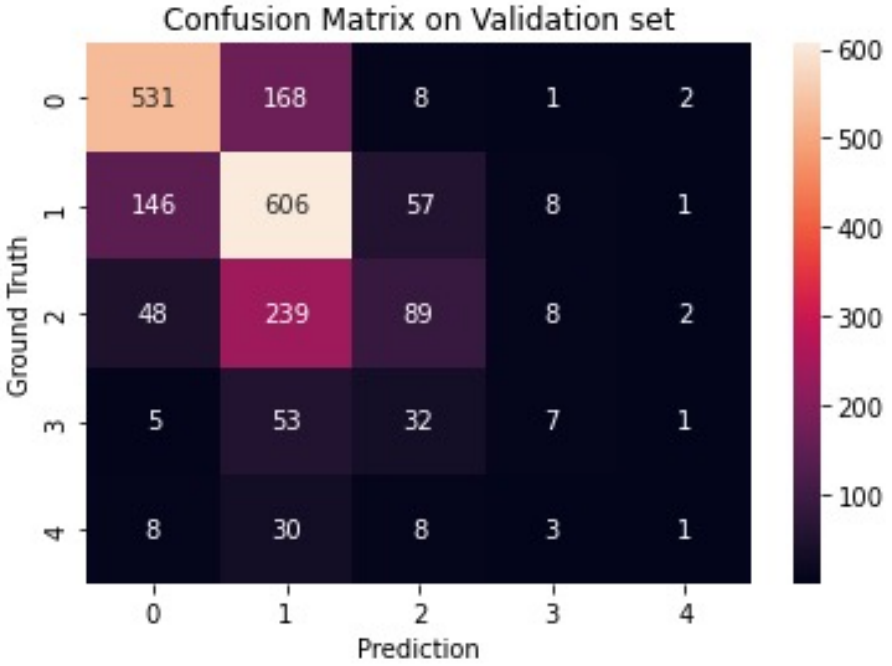
$$H(X) = \sum_{i} -p_i log_2(p_i)$$

i denotes the number of class

2. Regression problems
    1. MSE (Mean Square Error)
    2. RMSE (Root Mean Square Error)
    3. MAE (Mean Absolute Error)

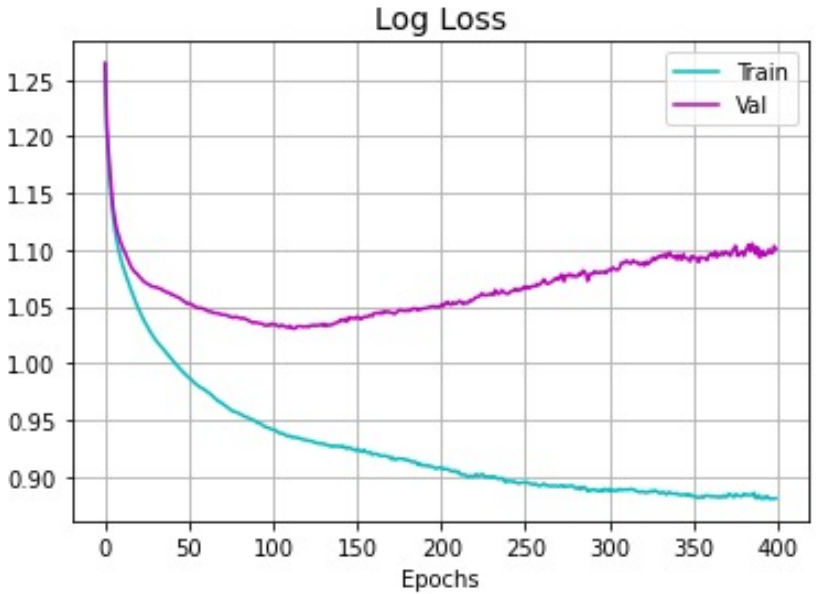
Confusion Matrix

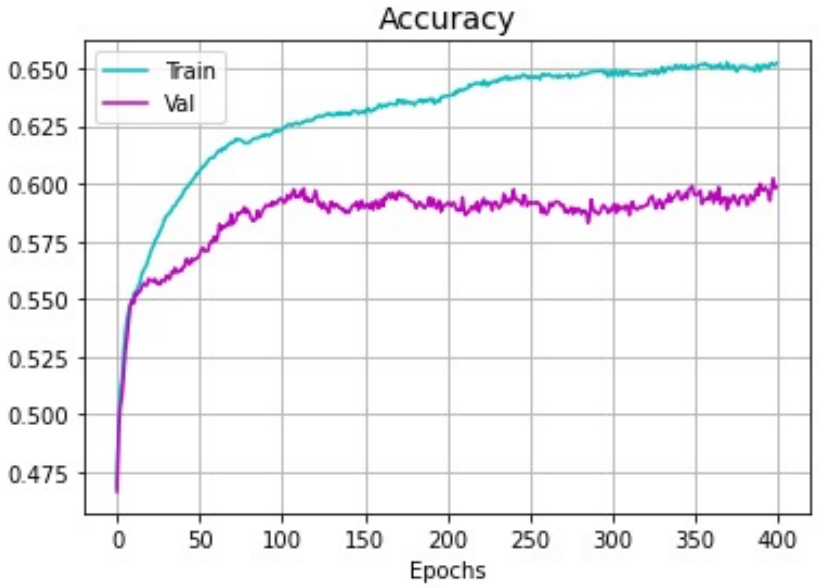
1. Recall of each class = Accuracy of each class
2. Accuracy vs. UAR



Overfitting

- How to define overfitting?





Thanks!