2. Programming Tasks

2.1 Fine Tuning and Sampling

This task will make you familiar with some popular CNN models (e.g., ResNet, Inception,...). Additionally, you will get hands-on experience with how to fine-tune Deep Learning models and learn the importance of sampling.

2.1.1 Fine-tune a network on a dataset.

1. Use the Dog-Breeds dataset on the cluster (or download it from here).
2. Create **3 stratified splits** with the ratio **7:1:2** (train:validation:test)
3. Use any model from PyTorch and compare the two experiments: fine-tuning (use the ImageNet pre-trained version) and training from the scratch. Use Categorical Cross Entropy as the loss function.
4. Report the Accuracy and Mean Error Rates for the model.

Resources

Stratification

1. http://scikit-learn.org/stable/modules/generated/sklearn.model_selection.StratifiedKFold.html