This folder contains the following files:

— main.py — main script to run experiments
— train.py — defines the function for training the model
— evaluate.py — defines the function for evaluating the model
— utils.py — contains utility functions for logging results
— resnet.py — defines model, which we used in experiments

Files implementing different versions of BatchNorm (BN):

— lasso_ridge_bn.py — BN with lasso/ridge-regularized estimates of mean and variance
— stein_corrected_bn.py — BN with Stein's correction applied to both mean and variance estimates
— mean_corrected_bn.py —BN with Stein's correction applied only to the mean estimate

How to run:

Before running main.py, you can specify:
— version of BN to use,
— the model,
— the dataset,
— loss criterion,
— the optimizer

To run, use the following command:
python main.py stein
The last word (stein in this case) specifies the BN version to use.

All hyper parameters are listed in the Appendix (experiments section) of the paper.

Requirements

We recommend using Python 3.8+.
Install the required packages via pip:
pip install torch torchvision numpy pandas scikit-learn Pillow imageio neuroCombat