Exercise 0

Train a **three-layers MLP** to solve the **MNIST classification** problem

- Each **MNIST** image is **1x28x28**, reshape it to **768**
- The MLP should have **300 hidden neurons**
- The MLP should have **10 output neurons**, one per each class
- Use the **LeakyReLU** activation function
- Use the **CrossEntropyLoss** loss function

Exercise 1

Bonus: plot a 2D PCA of the feature vectors

Train a **CNN** without residual blocks

- The CNN given an **input MNIST** image should **output** a **feature vector**
- Train the network in a way that **euclidean distance** between **feature vectors** of different classes is the **same** as the **difference between the classes**