

## CS454-554 Homework 4: KMNIST Classification with PyTorch Spring 2024/2025

In this homework, using Pytorch, you will implement neural networks of different complexities to classify the KMNIST (<https://github.com/rois-codh/kmnist>) dataset.

Use *torchvision.datasets* to load the KMNIST dataset.

Your task is to try out and report 3 different network architectures to solve this task. Below are the descriptions of the requested architectures:

- a) A linear network
- b) A multi-layer network with a single hidden layer of 40 neurons.
- c) A convolutional neural network architecture containing at least one convolutional and one fully-connected layer.

You can try out different architectures for the CNN architecture and report the one that you think is best. In your report, you must provide:

- a) The details of your architectures
- b) Plot of Training and Test Loss throughout training
- c) Plot of Training and Test Accuracy throughout training

You must use Python and the PyTorch library.

This homework is due **May 14<sup>th</sup>, 2025 (Wednesday), 23:00**.

Your submission should include a short report of your findings and your source code. Upload your report **as a pdf file** to LMS alongside your .py code file.