

AML 2025

CMI

Assignment 1

(Due Date: Sept 28, 2025)

- 1) Classifier for notMNIST: This dataset contains images of alphabets A to J in various fonts. Your task is to build a classifier for this dataset using CNN.
 - a) Classify each image into one of 10 classes
 - b) Show the effect of permuting the image pixels on CNN classifiers, as we saw in the lecturesDataset: <https://huggingface.co/datasets/anubhavmaity/notMNIST>

- 2) Build a Resnet-18 classifier for the Emotion Detection Dataset (<https://www.kaggle.com/datasets/ananthu017/emotion-detection-fer/data>)
 - a) First train a classifier from scratch.
NOTE: Resnet-18 and other models are built-in Pytorch and you can use those if you like.
 - b) Next, fine-tune a pretrained Resnet-18 on this dataset.
As before, pytorch has a pre-trained Resnet-18 built-in
 - c) For both cases show the performance on the Test set, and compare results
 - d) Note that Resnet expects images to have size 224x224 pixels, and color.
You have to pre-process the images in the dataset accordingly.

Instructions:

- **You should work in groups of 2 or 3:**
 - Only one member of the group should submit the assignment
 - Please mention the names and **roll-numbers** of all group members
- You have to submit a jupyter notebook (ipynb) with all your **code** and **outputs** of the code
 - If you don't include the outputs in the ipynb you will get partial credit
- You have to submit a 1 page writeup in pdf documenting what you have done.
- You have to upload these files on moodle, so make sure they are not larger than 8mb.
- You are free to build upon examples shown in class, but forbidden from using the internet or ChatGPT (or similar tools).
- **Make sure to upload the correct files on time**
 - No requests for re-submitting the assignment later because of any reason will be accepted after the due date.