Generating handwriting

Portfolio assignment 2

MAL2 Spring 2025

In this assignment, you will implement a **conditional generative adversarial network (cGAN)** and train it to generate handwritten letters based on the extended MNIST dataset, EMNIST. You are encouraged use the (non-conditional) GAN we wrote in class as a starting point. You will also write a function `plot_string` that takes a string as input and generates the string in handwriting. For example, `plot_string("machine")` should output something like this:

The dataset – `x_letters.npy` and `y_letters.npy` – is preprocessed for you and can be loaded using

```
X = np.load('x_letters.npy')
```

and similar for y. `x_letters.npy` contains the images and `y_letters.npy` contains the labels (with 0=a, 1=b, 2=c, …, 25=z).

You are to hand in a notebook with

- output (all cells must be run)
- relevant comments describing your approach, experiments, and findings
- your conditional generative adversarial network
- the result of `plot_string("machine")` or some other string
- at least two interesting figures or animations