GAN: Generation of MNIST digits

3 Möjliga Poäng

4/27/2025

Försök 3

4/11/2025
NÄSTA: Feedback från granskning

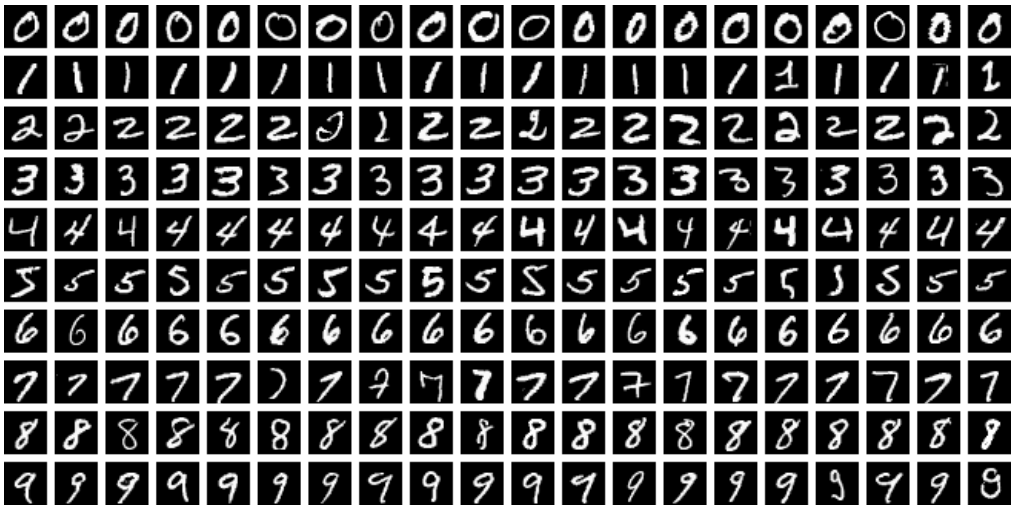
Poäng för försök 3:
Ej tillämpbart

Lägg till kommentar

Obegränsat antal försök tillåts
4/28/2025

Information

In this assignment, you will design and train a Generative Adversarial Network (GAN) to generate handwritten digits using the MNIST dataset. The MNIST dataset, which you are already familiar with from the previous course, is a large collection of handwritten digits commonly used for training image processing systems. Below are a few examples from the dataset.



The dataset can be conveniently loaded directly through torchvision via

```
import torchvision.datasets as datasets
dataset = datasets.MNIST(root="dataset/", download=True)
```

You can start from this **template (https://uppsala.instructure.com/courses/102453/files/8427871?wrap=1)** **(https://uppsala.instructure.com/courses/102453/files/8427871/download?download_frd=1)** , which gives you additional hints of how to implement the GAN.

Generate a few sample images at different training stages to show how the image generation quality improves.

Optional: Implement a Wasserstein-GAN which uses a critic instead of a discriminator network and the Wasserstein distance as a loss function. This is an entirely optional task that won't affect your grade.

emember always to include:

- A **written summary** (0.5–1 A4 page) covering (submitted either as PDF or directly as text):
  - What you did and how
  - What results you obtained
  - What challenges you encountered and what could be improved
- A **PDF (or similar format)** with all **result plots**, each with a short explanation
- Your **code**, preferably as a link (e.g., GitHub, Google Colab, etc.) so we can view it easily.

Filnamn	Storlek
GANs for MNIST.py	9,3 kB

	Filnamn	Storlek	
	Exercise_...s (2).pdf	563 kB	

(https://uppsala.instructure.com/courses/102453/modules/items/1332057)
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