

Generative adversarial networks

In this assignment you learn to work with generative adversarial networks (GANs) which can learn in an unsupervised manner (i.e. without labels or rewards). Study the following papers:

<https://arxiv.org/abs/1406.2661>

<https://arxiv.org/abs/1701.00160>

- 1) Implement a generator and a discriminator network. Use these to generate MNIST images. Plot the change in the loss for both networks. Tip: When training the networks ensure that you first run backward and update on the discriminator model and only next run backward and update on the generator model. To simplify the problem, we will only generate 0's. You can use the following function:

```
train_data, test_data = get_mnist(n_train=1000, n_test=100, with_label=False, classes = [0])
```

- 2) Generate 10 samples using the generator. Comment on your results.