

Deep Learning

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GAN Image Generation - September 15 Exam

Task

The purpose of the project is to test the ability of Generative Adversarial Networks (GANs) in generating realistic-looking images. The network has to generate realistic-looking images as similar as possible to the images contained in the test set.

Data

FashionMNIST is used as a training and test data. The notebook contains more informations about it.

Structure

Write a notebook explaining every step you take and DON'T clear the output of the cells when you submit it.

You may possibly discuss and provide results for more models, but at most a couple of them should be presented in the notebook.

The metric you will need to use to evaluate the results is the Fréchet Inception Distance (FID). More informations and the implementation are contained into the attached files. Remember to test it over 10k test images and 10k generated images.

Limitations

You are required to implement a vanilla Generative Adversarial Network (GAN), not a variant of it (e.g. PixelGAN, CycleGAN, ... are **not** accepted). The maximum number of parameters is 15 *million*, and every pre-trained network can be used as an add-on. Clearly, only the training set can be used to train the network, no additional images (Data Augmentation is ok).

Recommendation

Save the weights of your model and keep them until the discussion, we might ask you to provide them.