Submission Format

Submission contains files with necessary code and .docx file with the student's names and IDs, the results and explanations which has to be archived in .zip file with the following name:

lab<#>\_<IDnumber1>\_<IDnumber2>, where # is a lab number.

**Generative Deep Learning**

**Tasks to do Lab 7 – Image Generation (apple to orange)**

The Dataset **apple2orange** consists of images of apples and oranges.

The data is split into four folders:

trainA and testA contain images of apples and

trainB and testB contain images of oranges.

Thus domain A is the space of apple images and domain B is the space of orange images.

Our goal is to train a model using the train datasets to convert images from domain A into domain B and vice versa. We will test the model using the test datasets.

A CycleGAN is composed of four models, two generators and two discriminators.

The first generator, G\_AB, converts images from domain A into domain B.

The second generator, G\_BA, converts images from domain B into domain A.

We also need to train two discriminators that will determine if the images produced by the generators

are convincing.

The first discriminator, d\_A, is trained to be able to identify the difference between real images from domain A and fake images that have been produced by generator G\_BA.

The second discriminator, d\_B is trained to be able to identify the difference between real images from domain B and fake images that have been produced by generator G\_AB.

1. Extract the file GDL\_code-master\_1.zip

<https://drive.google.com/file/d/1gNKkDif9yNrxyREnoLPnzOBnWk20iq3B/view?usp=sharing>

1. Analyze each part of the code – file **05\_01\_cyclegan\_train\_1**.
2. Change the path (in the sections 1 and12), set in section 11 EPOCHS = 2
3. Run each part of the code.
4. You can see the generated images in …\data\apple2orange\images
5. From

<https://www.kaggle.com/arnaud58/horse2zebra>

download the data set horse2zebra

1. Using the new dataset, build and train a CycleGAN model to convert images from horse to zebra.
2. Train the network for 3 or 4 epochs.
3. Show some obtained generated images in the doc file.