Objective: To build a simple generative model making use of DTLS. Eventually, we will expect to input a 1x1x3 vector [-1,1] (ex. 0.1234) to be able to generate a photo-realistic image.

Eg. [-0.2467, 0.0083, 0.9876] to generate a [Image]

1. Please refer to the following paper for a introduction of our Domain Transfer in Latent Space (DTLS): <https://arxiv.org/abs/2311.02358>
2. This is an improved version i.) Better Loss function ii). Train in multiple degrade interpolation iii). Better size interval iv). Attached latent vector to lr face mapper network
3. The training start from mapper network first, which transfer 1024x1 vector to 3x32x32 by “mapper.py” #For reference, please read “README.md”
4. Followed by DTLS training, new version included 3 interval modes which are a) Linear [16x16, 32x32, 48x48, ... etc.] b) exponential [16x16, 32x32, 64x64, 128x128] and c) Fibonacci [16, 17, 18, 19, 21, 24, 29, 37, 50, 71, 105, 128] (default)
5. Training included multiple interpolation methods to do resizing, including nearest, area, bilinear and bicubic

*# As before the original image for training is 128x128 which reduces to 16x16, 20x20, 24x24, ……, 128x128 or 512x512 reduces to 32x32, 48x48, 64x64, 80x80, ......, 512x512 by bilinear interpolation.*

1. GAN loss is used with MSE loss in the new version as: total\_loss = MSE\_loss + GAN\_loss \* 0.001 *# As before only MSE loss*
2. Here are some generated samples by mapper network of 32x32: (randomly generated)
3. There are two versions in this package, i) Pre-trained version (model weight saved in folder “pre\_trained\_weight” and ii) you can also train by your own. #Both versions’ instruction can also be found in “README.md”