

# StyleGAN install und usage instructions

## Setup Remote Jupyterhub Notebook

### 1. Signing into Jupyterhub

Login to JupyterHub with your cluster credentials [here](#)

Choose an XS or S slice

make sure to choose cuda 11.7 from the dropdown



A screenshot of a JupyterHub interface. At the top, there is a light blue header bar. Below it, a white area contains a 'Start My Server' button with a mouse cursor icon pointing at it. The rest of the interface is a light gray background.

### 2. Installing Stylegan3

```
conda init bash
```

```
source ~/.bashrc
```

```
git clone https://github.com/NVlabs/stylegan3.git
```

```
cd stylegan3
```

```
conda env create -f environment.yml
```

```
conda activate stylegan3
```

```
conda install cudatoolkit
```

## downloading models

### make 'pretrained' directory

```
mkdir pretrained
```

### ffhq flicker faces

```
wget --no-check-certificate --content-disposition https://th-koeln.sciebo.de/s/j06LuPxYHRRtnQE/download -O  
pretrained/ffhq_faces.pkl
```

### Wikiart

```
wget --no-check-certificate --content-disposition https://th-koeln.sciebo.de/s/tbjJS7XBezBAC3B/download -O  
pretrained/wikiart.pkl
```

### Metfaces

```
wget --no-check-certificate --content-disposition https://th-koeln.sciebo.de/s/eFZAmR6dDLelSo7/download -O  
pretrained/metfaces.pkl
```

# Setup Local Stylegan

## 1. Refer to the Github Page

For major installation process refer to the [stylegan3 GitHub Page](#).

This is an in-depth YouTube tutorial on [how to install stylegan3 locally](#)

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```

# Inference

For generating single images and videos, you may follow these steps.

## activating conda environment

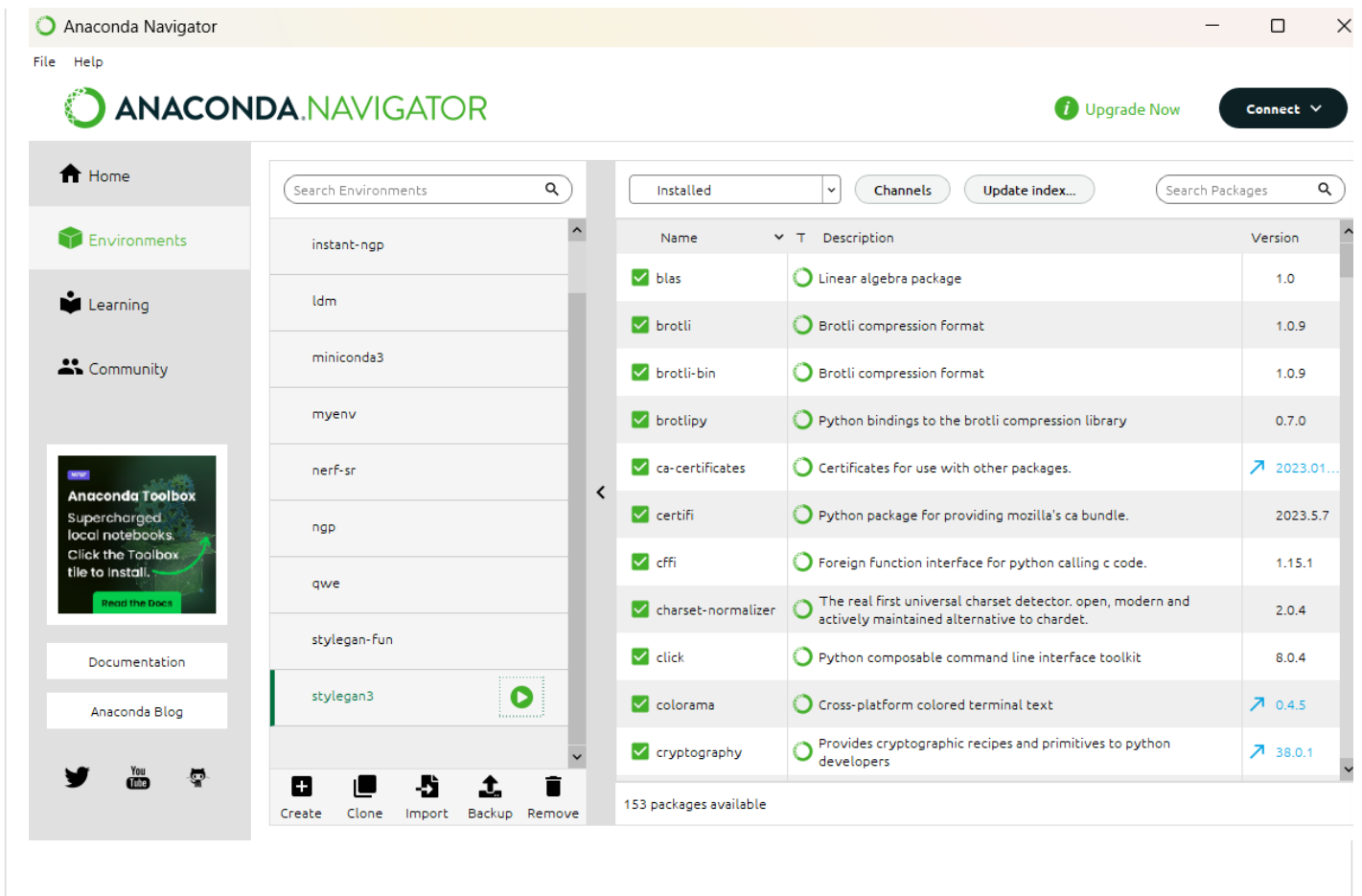
this needs to be done before every session if you want to use stylegan

```
conda init bash
```

```
source ~/.bashrc
```

```
conda activate stylegan3
```

alternatively if you are not able to activate stylegan3 through the terminal on our workstations, you can use the anaconda Navigator and start the terminal with the environment activated:



## inference images

```
python gen_images.py --outdir=out --trunc=1 --seeds=2 --
network=https://api.ngc.nvidia.com/v2/models/nvidia/research/stylegan3/versions/1/files/stylegan3-r-
afhqv2-512x512.pkl
```

## inference video

```
python gen_video.py --output=out/wikiart.mp4 --trunc=1 --seeds=0-31 --network=pretrained/wikiart.pkl
```

# Training

For training your own datasets, you can follow these steps.

For your own dataset make sure that your training data has the correct resolution. You may use either 1024x1024, 512x512 or 256x256 resolution. The chosen resolution has to match with the pre-existing dataset that you want to train on.

You may start a dataset from scratch, just be aware that generally training your collected images on a pre-existing dataset will usually give better results (and faster ones too).

### activating conda environment

this needs to be done before every session if you want to use stylegan

```
conda init bash
```

```
source ~/.bashrc
```

```
conda activate stylegan3
```

alternatively if you are not able to activate stylegan3 through the terminal on our workstations, you can use the anaconda Navigator and start the terminal with the environment activated:

The screenshot shows the Anaconda Navigator application window. The top bar includes the Anaconda Navigator logo and an 'Upgrade Now' button. The left sidebar contains navigation links for Home, Environments, Learning, and Community. The main area is divided into two panels. The left panel shows a list of environments: instant-ngp, ldm, miniconda3, myenv, nerf-sr, ngp, qwe, stylegan-fun, and stylegan3. The right panel shows a table of installed packages for the selected environment (stylegan3).

Name	Description	Version
blas	Linear algebra package	1.0
brotli	Brotli compression format	1.0.9
brotli-bin	Brotli compression format	1.0.9
brotlipy	Python bindings to the brotli compression library	0.7.0
ca-certificates	Certificates for use with other packages.	2023.01...
certifi	Python package for providing mozilla's ca bundle.	2023.5.7
cffi	Foreign function interface for python calling c code.	1.15.1
charset-normalizer	The real first universal charset detector. open, modern and actively maintained alternative to chardet.	2.0.4
click	Python composable command line interface toolkit	8.0.4
colorama	Cross-platform colored terminal text	0.4.5
cryptography	Provides cryptographic recipes and primitives to python developers	38.0.1

153 packages available

## Download Training data

If not done before, set up a new directory for the training data

```
mkdir trainingdata
```

If you want to download your trainingdata from a sciebo folder, you may use this code. Instead of the given link you may use your own one.

```
wget --no-check-certificate --content-disposition https://th-koeln.sciebo.de/s/7SzJ55ZroKPf5zY/download -O trainingdata/group01.zip
```

```
wget --no-check-certificate --content-disposition https://api.ngc.nvidia.com/v2/models/nvidia/research/stylegan3/versions/1/files/stylegan3-t-afhqv2-512x512.pkl -O datasets/stylegan3-t-afhqv2-512x512.pkl
```

<https://api.ngc.nvidia.com/v2/models/nvidia/research/stylegan3/versions/1/files/stylegan3-t-afhqv2-512x512.pkl>

## Prepare training data

Before training, it is highly recommended to check your dataset through the given stylegan3 check-up. It can resize your images too, although it is usually better to do it before on your own. (Adobe Bridge is a great tool for batch processing.)

```
python dataset_tool.py --source=trainingdata/group01.zip --dest=trainingdata/group01.zip --resolution=512x512
```

--source= your directory with the given files

--destination= the output directory, dont forget to add .zip at the end

--resolution= resolution you want your images to be saved in. (1024x1024, 512x512 or 256x256 resolution)

## start training

```
python train.py --outdir=~/.training-runs --cfg=stylegan3-t --data=~/.datasets/afhqv2-512x512.zip --gpus=8 --batch=32 --gamma=8.2 --mirror=1
```

--outdir= direction where you want to save the trained data

--data= your dataset you want to use

--gpus= depends on the gpus you have. usually 1 will be

--batch=

```
python train.py --outdir=~/.training-runs --cfg=stylegan3-t --data=~/.trainingdata/(...) --gpus=1 --batch=8 --gamma=2 --snap=20 --resume=~/.datasets/afhqv2-512x512.zip
```

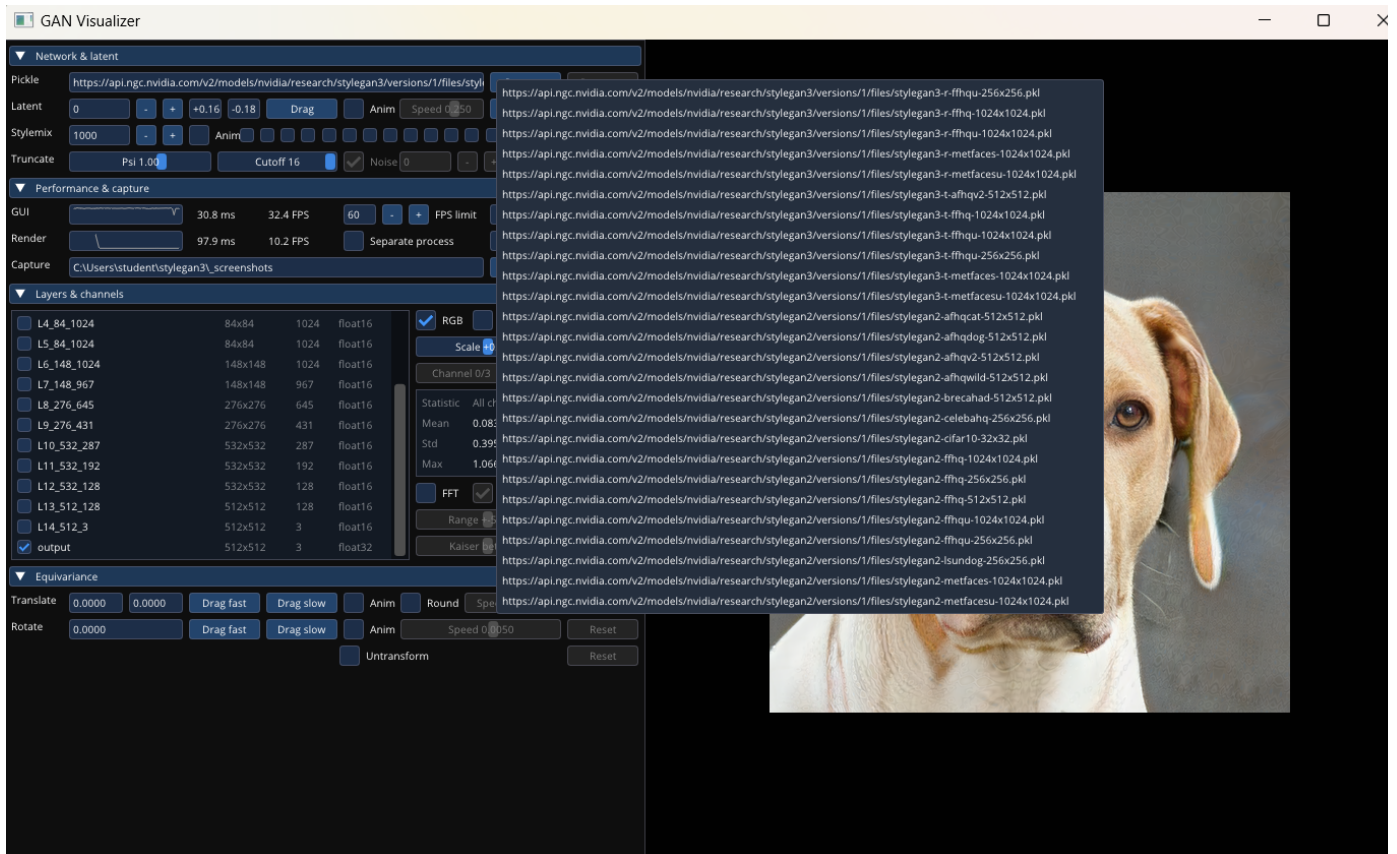
# Opening the Python Visualizer

## Python Visualizer

The following script will open the python Visualizer

```
python visualizer.py
```





You can open one of the .pkl files that NVIDIA provided or paste a local URL to your own trainingdata to visualize and play around.

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