```
gpu_info = !nvidia-smi
gpu_info = 'Wn'.join(gpu_info)
if gpu_info.find('failed') >= 0:
  print('Not connected to a GPU')
else:
  print(gpu_info)
```

```
Sun Nov  3 20:59:05 2024
+---------------------------------------------------------------------------------------+
| NVIDIA-SMI 535.104.05             Driver Version: 535.104.05   CUDA Version: 12.2     |
|-----------------------------------------+----------------------+----------------------+
| GPU  Name                 Persistence-M | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |         Memory-Usage | GPU-Util  Compute M. |
|                                         |                      |               MIG M. |
|=========================================+======================+======================|
|   0  Tesla T4                       Off | 00000000:00:04.0 Off |                    0 |
| N/A   47C    P8              11W /  70W |      0MiB / 15360MiB |      0%      Default |
|                                         |                      |                  N/A |
+-----------------------------------------+----------------------+----------------------+

+---------------------------------------------------------------------------------------+
| Processes:                                                                            |
|  GPU   GI   CI        PID   Type   Process name                            GPU Memory |
|        ID   ID                                                             Usage      |
|=======================================================================================|
|  No running processes found                                                           |
+---------------------------------------------------------------------------------------+
```

```
from psutil import virtual_memory
ram_gb = virtual_memory().total / 1e9
print('Your runtime has {:.1f} gigabytes of available RAMWn'.format(ram_gb))

if ram_gb < 20:
  print('Not using a high-RAM runtime')
else:
  print('You are using a high-RAM runtime!')
```

```
Your runtime has 54.8 gigabytes of available RAM

You are using a high-RAM runtime!
```

```
import os
import sys

os.chdir("/content/drive/MyDrive/archive_VocGan")
!git clone https://github.com/rishikksh20/VocGAN.git
sys.path.append('/content/drive/MyDrive/archive_VocGan')
os.chdir("/content")
```

```
# requirements.txt의 일부 패키지 버전을 최신 버전으로 설치
!pip install librosa matplotlib g2p-en inflect numba pypinyin pyworld scikit-learn scipy soundfile tensorboard tgt tqdm unidecode
```

```
fatal: destination path 'VocGAN' already exists and is not an empty directory.
Requirement already satisfied: librosa in /usr/local/lib/python3.10/dist-packages (0.10.2.post1)
Requirement already satisfied: matplotlib in /usr/local/lib/python3.10/dist-packages (3.7.1)
Collecting g2p-en
  Downloading g2p_en-2.1.0-py3-none-any.whl.metadata (4.5 kB)
Requirement already satisfied: inflect in /usr/local/lib/python3.10/dist-packages (7.4.0)
Requirement already satisfied: numba in /usr/local/lib/python3.10/dist-packages (0.60.0)
Collecting pypinyin
  Downloading pypinyin-0.53.0-py2.py3-none-any.whl.metadata (12 kB)
Collecting pyworld
  Downloading pyworld-0.3.4.tar.gz (251 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 252.0/252.0 kB 10.6 MB/s eta 0:00:00
  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing metadata (pyproject.toml) ... done
Requirement already satisfied: scikit-learn in /usr/local/lib/python3.10/dist-packages (1.5.2)
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (1.13.1)
Requirement already satisfied: soundfile in /usr/local/lib/python3.10/dist-packages (0.12.1)
Requirement already satisfied: tensorboard in /usr/local/lib/python3.10/dist-packages (2.17.0)
Collecting tgt
  Downloading tgt-1.5-py3-none-any.whl.metadata (764 bytes)
Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-packages (4.66.5)
Collecting unidecode
  Downloading Unidecode-1.3.8-py3-none-any.whl.metadata (13 kB)
Requirement already satisfied: audioread>=2.1.9 in /usr/local/lib/python3.10/dist-packages (from librosa) (3.0.1)
Requirement already satisfied: numpy!=1.22.0,!=1.22.1,!=1.22.2,>=1.20.3 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.26.4)
Requirement already satisfied: joblib>=0.14 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.4.2)
Requirement already satisfied: decorator>=4.3.0 in /usr/local/lib/python3.10/dist-packages (from librosa) (4.4.2)
Requirement already satisfied: pooch>=1.1 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.8.2)
Requirement already satisfied: soxr>=0.3.2 in /usr/local/lib/python3.10/dist-packages (from librosa) (0.5.0.post1)
```

```
Requirement already satisfied: typing-extensions>=4.1.1 in /usr/local/lib/python3.10/dist-packages (from librosa) (4.12.2)
Requirement already satisfied: lazy-loader>=0.1 in /usr/local/lib/python3.10/dist-packages (from librosa) (0.4)
Requirement already satisfied: msgpack>=1.0 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.0.8)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (1.3.0)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (4.53.1)
Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (1.4.7)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (24.1)
Requirement already satisfied: pillow>=6.2.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (10.4.0)
Requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (3.1.4)
Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (2.8.2)
Requirement already satisfied: nltk>=3.2.4 in /usr/local/lib/python3.10/dist-packages (from g2p-en) (3.8.1)
Collecting distance>=0.1.3 (from g2p-en)
  Downloading Distance-0.1.3.tar.gz (180 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 180.3/180.3 kB 16.6 MB/s eta 0:00:00
  Preparing metadata (setup.py) ... done
Requirement already satisfied: more-itertools>=8.5.0 in /usr/local/lib/python3.10/dist-packages (from inflect) (10.5.0)
Requirement already satisfied: typeguard>=4.0.1 in /usr/local/lib/python3.10/dist-packages (from inflect) (4.3.0)
Requirement already satisfied: llvmlite<0.44,>=0.43.0dev0 in /usr/local/lib/python3.10/dist-packages (from numba) (0.43.0)
Requirement already satisfied: cython>=0.24 in /usr/local/lib/python3.10/dist-packages (from pyworld) (3.0.11)
Requirement already satisfied: threadpoolctl>=3.1.0 in /usr/local/lib/python3.10/dist-packages (from scikit-learn) (3.5.0)
Requirement already satisfied: cffi>=1.0 in /usr/local/lib/python3.10/dist-packages (from soundfile) (1.17.1)
Requirement already satisfied: absl-py>=0.4 in /usr/local/lib/python3.10/dist-packages (from tensorboard) (1.4.0)
Requirement already satisfied: grpcio>=1.48.2 in /usr/local/lib/python3.10/dist-packages (from tensorboard) (1.64.1)
Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.10/dist-packages (from tensorboard) (3.7)
Requirement already satisfied: protobuf!=4.24.0,<5.0.0,>=3.19.6 in /usr/local/lib/python3.10/dist-packages (from tensorboard) (3.20.3)
```

```
!pip install tensorflow tensorboardX pillow pyyaml torchaudio librosa matplotlib numpy scipy tqdm soundfile
```

```
Requirement already satisfied: protobuf!=4.21.0,!=4.21.1,!=4.21.2,!=4.21.3,!=4.21.4,!=4.21.5,<5.0.0dev,>=3.20.3 in /usr/local/lib/python3.10/
Requirement already satisfied: requests<3,>=2.21.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (2.32.3)
Requirement already satisfied: setuptools in /usr/local/lib/python3.10/dist-packages (from tensorflow) (71.0.4)
Requirement already satisfied: six>=1.12.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (1.16.0)
Requirement already satisfied: termcolor>=1.1.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (2.4.0)
Requirement already satisfied: typing-extensions>=3.6.6 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (4.12.2)
Requirement already satisfied: wrapt>=1.11.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (1.16.0)
Requirement already satisfied: grpcio<2.0,>=1.24.3 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (1.64.1)
Requirement already satisfied: tensorboard<2.18,>=2.17 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (2.17.0)
Requirement already satisfied: keras>=3.2.0 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (3.4.1)
Requirement already satisfied: tensorflow-io-gcs-filesystem>=0.23.1 in /usr/local/lib/python3.10/dist-packages (from tensorflow) (0.37.1)
Requirement already satisfied: torch==2.4.1 in /usr/local/lib/python3.10/dist-packages (from torchaudio) (2.4.1+cu121)
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from torch==2.4.1->torchaudio) (3.16.1)
Requirement already satisfied: sympy in /usr/local/lib/python3.10/dist-packages (from torch==2.4.1->torchaudio) (1.13.3)
Requirement already satisfied: networkx in /usr/local/lib/python3.10/dist-packages (from torch==2.4.1->torchaudio) (3.3)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.10/dist-packages (from torch==2.4.1->torchaudio) (3.1.4)
Requirement already satisfied: fsspec in /usr/local/lib/python3.10/dist-packages (from torch==2.4.1->torchaudio) (2024.6.1)
Requirement already satisfied: audioread>=2.1.9 in /usr/local/lib/python3.10/dist-packages (from librosa) (3.0.1)
Requirement already satisfied: scikit-learn>=0.20.0 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.5.2)
Requirement already satisfied: joblib>=0.14 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.4.2)
Requirement already satisfied: decorator>=4.3.0 in /usr/local/lib/python3.10/dist-packages (from librosa) (4.4.2)
Requirement already satisfied: numba>=0.51.0 in /usr/local/lib/python3.10/dist-packages (from librosa) (0.60.0)
Requirement already satisfied: pooch>=1.1 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.8.2)
Requirement already satisfied: soxr>=0.3.2 in /usr/local/lib/python3.10/dist-packages (from librosa) (0.5.0.post1)
Requirement already satisfied: lazy-loader>=0.1 in /usr/local/lib/python3.10/dist-packages (from librosa) (0.4)
Requirement already satisfied: msgpack>=1.0 in /usr/local/lib/python3.10/dist-packages (from librosa) (1.0.8)
Requirement already satisfied: contourpy>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (1.3.0)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (4.53.1)
Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (1.4.7)
Requirement already satisfied: pyparsing>=2.3.1 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (3.1.4)
Requirement already satisfied: python-dateutil>=2.7 in /usr/local/lib/python3.10/dist-packages (from matplotlib) (2.8.2)
Requirement already satisfied: cffi>=1.0 in /usr/local/lib/python3.10/dist-packages (from soundfile) (1.17.1)
Requirement already satisfied: wheel<1.0,>=0.23.0 in /usr/local/lib/python3.10/dist-packages (from astunparse>=1.6.0->tensorflow) (0.44.0)
Requirement already satisfied: pycparser in /usr/local/lib/python3.10/dist-packages (from cffi>=1.0->soundfile) (2.22)
Requirement already satisfied: rich in /usr/local/lib/python3.10/dist-packages (from keras>=3.2.0->tensorflow) (13.8.1)
Requirement already satisfied: namex in /usr/local/lib/python3.10/dist-packages (from keras>=3.2.0->tensorflow) (0.0.8)
Requirement already satisfied: optree in /usr/local/lib/python3.10/dist-packages (from keras>=3.2.0->tensorflow) (0.12.1)
Requirement already satisfied: llvmlite<0.44,>=0.43.0dev0 in /usr/local/lib/python3.10/dist-packages (from numba>=0.51.0->librosa) (0.43.0)
Requirement already satisfied: platformdirs>=2.5.0 in /usr/local/lib/python3.10/dist-packages (from pooch>=1.1->librosa) (4.3.6)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0->tensorflow) (3.
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0->tensorflow) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0->tensorflow) (2.2.3)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests<3,>=2.21.0->tensorflow) (2024.8.3
Requirement already satisfied: threadpoolctl>=3.1.0 in /usr/local/lib/python3.10/dist-packages (from scikit-learn>=0.20.0->librosa) (3.5.0)
Requirement already satisfied: markdown>=2.6.8 in /usr/local/lib/python3.10/dist-packages (from tensorboard<2.18,>=2.17->tensorflow) (3.7)
Requirement already satisfied: tensorboard-data-server<0.8.0,>=0.7.0 in /usr/local/lib/python3.10/dist-packages (from tensorboard<2.18,>=2.17
Requirement already satisfied: werkzeug>=1.0.1 in /usr/local/lib/python3.10/dist-packages (from tensorboard<2.18,>=2.17->tensorflow) (3.0.4)
Requirement already satisfied: MarkupSafe>=2.1.1 in /usr/local/lib/python3.10/dist-packages (from werkzeug>=1.0.1->tensorboard<2.18,>=2.17->t
Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.10/dist-packages (from rich->keras>=3.2.0->tensorflow) (3.0.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.10/dist-packages (from rich->keras>=3.2.0->tensorflow) (2.18
Requirement already satisfied: mpmath<1.4,>=1.1.0 in /usr/local/lib/python3.10/dist-packages (from sympy->torch==2.4.1->torchaudio) (1.3.0)
Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.10/dist-packages (from markdown-it-py>=2.2.0->rich->keras>=3.2.0->tensorf
Downloading tensorboardX-2.6.2.2-py2.py3-none-any.whl (101 kB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 101.7/101.7 kB 5.1 MB/s eta 0:00:00
Installing collected packages: tensorboardX
Successfully installed tensorboardX-2.6.2.2
```

```
import os
import sys
import yaml


import os
import shutil
from sklearn.model_selection import train_test_split

# 데이터 경로 설정
data_dirs = ['/content/drive/MyDrive/archive/1/Happy', '/content/drive/MyDrive/archive/1/Neutral']  # 두 개의 디렉토리
output_dir = '/content/drive/MyDrive/archive_VocGan/datasets'

# 두 폴더의 모든 wav 파일 리스트 생성
all_files = []
for data_dir in data_dirs:
    all_files.extend([os.path.join(data_dir, f) for f in os.listdir(data_dir) if f.endswith('.wav')])

# 데이터셋을 훈련과 검증으로 나눕니다.
train_files, val_files = train_test_split(
    all_files,
    test_size=0.1,
    random_state=42
)

# 출력 디렉토리 생성
os.makedirs(f'{output_dir}/train_samples', exist_ok=True)
os.makedirs(f'{output_dir}/val_samples', exist_ok=True)

# 파일 이동
for file_path in train_files:
    filename = os.path.basename(file_path)
    destination = os.path.join(output_dir, 'train_samples', filename)
    if not os.path.exists(destination):  # 이미 존재하는 파일 건너뛰기
        shutil.copy(file_path, destination)

for file_path in val_files:
    filename = os.path.basename(file_path)
    destination = os.path.join(output_dir, 'val_samples', filename)
    if not os.path.exists(destination):  # 이미 존재하는 파일 건너뛰기
        shutil.copy(file_path, destination)

print("데이터셋 분할 및 복사가 완료되었습니다.")
```

```
데이터셋 분할 및 복사가 완료되었습니다.
```

```
import os

# 폴더 경로 설정
train_samples_dir = '/content/drive/MyDrive/archive_VocGan/datasets/train_samples'
val_samples_dir = '/content/drive/MyDrive/archive_VocGan/datasets/val_samples'

# 파일 개수 계산
num_train_samples = len([f for f in os.listdir(train_samples_dir) if f.endswith('.wav')])
num_val_samples = len([f for f in os.listdir(val_samples_dir) if f.endswith('.wav')])

# 출력
print(f"Train samples: {num_train_samples}")
print(f"Validation samples: {num_val_samples}")
```

```
Train samples: 3588
Validation samples: 399
```

```
import os
import subprocess

data_dir = '/content/drive/MyDrive/archive_VocGan/datasets/train_samples'
output_dir = '/content/drive/MyDrive/archive_VocGan/datasets/train_samples_converted'
os.makedirs(output_dir, exist_ok=True)

for filename in os.listdir(data_dir):
    if filename.endswith('.wav'):
        input_path = os.path.join(data_dir, filename)
        output_path = os.path.join(output_dir, filename)
        command = ['ffmpeg', '-i', input_path, '-acodec', 'pcm_s16le', '-ac', '1', '-ar', '22050', output_path]
        subprocess.run(command)
        print(f"Converted {filename}")
```

```
숨겨진 출력 표시
```

```
!python '/content/drive/MyDrive/archive_VocGan/VocGAN/preprocess.py' -c '/content/drive/MyDrive/archive_VocGan/VocGAN/config/default.yaml' -d '/conte
```

```
preprocess wav to mel: 100% 3588/3588 [01:34<00:00, 38.11it/s]
```

```
import os
import subprocess

data_dir = '/content/drive/MyDrive/archive_VocGan/datasets/val_samples'
output_dir = '/content/drive/MyDrive/archive_VocGan/datasets/val_samples_converted'
os.makedirs(output_dir, exist_ok=True)

for filename in os.listdir(data_dir):
    if filename.endswith('.wav'):
        input_path = os.path.join(data_dir, filename)
        output_path = os.path.join(output_dir, filename)
        command = ['ffmpeg', '-i', input_path, '-acodec', 'pcm_s16le', '-ac', '1', '-ar', '22050', output_path]
        subprocess.run(command)
        print(f"Converted {filename}")
```

숨겨진 출력 표시

```
!python '/content/drive/MyDrive/archive_VocGan/VocGAN/preprocess.py' -c '/content/drive/MyDrive/archive_VocGan/VocGAN/config/default.yaml' -d '/conte
```

```
preprocess wav to mel: 100% 399/399 [00:06<00:00, 58.66it/s]
```

```
import os

# 폴더 경로 설정
train_samples_dir = '/content/drive/MyDrive/archive_VocGan/datasets/train_samples_converted'
val_samples_dir = '/content/drive/MyDrive/archive_VocGan/datasets/val_samples_converted'
mels_dir = '/content/drive/MyDrive/archive_VocGan/datasets/mels'

# 파일 개수 계산
num_train_samples = len([f for f in os.listdir(train_samples_dir) if f.endswith('.wav')])
num_val_samples = len([f for f in os.listdir(val_samples_dir) if f.endswith('.wav')])
num_mels = len([f for f in os.listdir(mels_dir) if f.endswith('.npy')])

# 출력
print(f"Train samples: {num_train_samples}")
print(f"Validation samples: {num_val_samples}")
print(f"mels: {num_mels}")
```

```
Train samples: 3588
Validation samples: 399
mels: 3987
```

```
!cp '/content/drive/MyDrive/archive_VocGan/VocGAN/config/default.yaml' '/content/drive/MyDrive/archive_VocGan/VocGAN/config/config.yaml'
```

```
!python '/content/drive/MyDrive/archive_VocGan/VocGAN/trainer.py' -c '/content/drive/MyDrive/archive_VocGan/VocGAN/config/config.yaml' -n vocgan_Aihu
```

숨겨진 출력 표시

```
!python '/content/drive/MyDrive/archive_VocGan/VocGAN/trainer.py' -c '/content/drive/MyDrive/archive_VocGan/VocGAN/config/config.yaml' -n vocgan_Aihu
```

```
/usr/local/lib/python3.10/dist-packages/torch/nn/utils/weight_norm.py:134: FutureWarning: `torch.nn.utils.weight_norm` is deprecated in favor
  WeightNorm.apply(module, name, dim)
Generator :

Trainable Parameters: 4.714M
Discriminator :

Trainable Parameters: 4.355M
2024-11-04 18:37:06,674 - INFO - Resuming from checkpoint: /content/drive/MyDrive/archive_VocGan/datasets/chkpt/vocgan_Aihub_pretrained_model
/content/drive/MyDrive/archive_VocGan/VocGAN/utils/train.py:42: FutureWarning: You are using `torch.load` with `weights_only=False` (the curr
  checkpoint = torch.load(chkpt_path)
Avg : g 1.8835 d 0.1837 ad 0.7572| step 260288: 100% 224/224 [05:05<00:00,  1.36s/it]
Avg : g 1.8633 d 0.1916 ad 0.7395| step 260512: 100% 224/224 [01:03<00:00,  3.55it/s]
Avg : g 1.8631 d 0.1943 ad 0.7379| step 260736: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8750 d 0.1882 ad 0.7492| step 260960: 100% 224/224 [01:02<00:00,  3.58it/s]
g 1.8263 d 0.2764 ad 0.7139| step 260960: 100% 399/399 [07:15<00:00,  1.09s/it]
Avg : g 1.8625 d 0.1938 ad 0.7369| step 261184: 100% 224/224 [01:08<00:00,  3.29it/s]
Avg : g 1.8745 d 0.1895 ad 0.7498| step 261408: 100% 224/224 [01:03<00:00,  3.55it/s]
Avg : g 1.8613 d 0.1934 ad 0.7383| step 261632: 100% 224/224 [01:02<00:00,  3.57it/s]
Avg : g 1.8680 d 0.1910 ad 0.7408| step 261856: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8758 d 0.1886 ad 0.7501| step 262080: 100% 224/224 [01:02<00:00,  3.56it/s]
g 1.9677 d 0.2932 ad 0.8483| step 262080: 100% 399/399 [00:24<00:00, 16.57it/s]
Avg : g 1.8535 d 0.2004 ad 0.7284| step 262304: 100% 224/224 [01:07<00:00,  3.30it/s]
Avg : g 1.8437 d 0.1987 ad 0.7192| step 262528: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8727 d 0.1887 ad 0.7487| step 262752: 100% 224/224 [01:02<00:00,  3.57it/s]
Avg : g 1.8715 d 0.1893 ad 0.7458| step 262976: 100% 224/224 [01:03<00:00,  3.55it/s]
```

```
Avg : g 1.8644 d 0.1891 ad 0.7425| step 263200: 100% 224/224 [01:02<00:00,  3.56it/s]
g 1.9630 d 0.3015 ad 0.8264| step 263200: 100% 399/399 [00:24<00:00, 16.37it/s]
Avg : g 1.8524 d 0.1956 ad 0.7299| step 263424: 100% 224/224 [01:07<00:00,  3.30it/s]
Avg : g 1.8723 d 0.1889 ad 0.7480| step 263648: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8649 d 0.1911 ad 0.7431| step 263872: 100% 224/224 [01:02<00:00,  3.57it/s]
Avg : g 1.8595 d 0.1958 ad 0.7366| step 264096: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8724 d 0.1866 ad 0.7482| step 264320: 100% 224/224 [01:02<00:00,  3.57it/s]
g 1.9531 d 0.3957 ad 0.8205| step 264320: 100% 399/399 [00:24<00:00, 16.30it/s]
Avg : g 1.8384 d 0.2030 ad 0.7152| step 264544: 100% 224/224 [01:07<00:00,  3.30it/s]
2024-11-04 19:11:05,161 - INFO - Saved checkpoint to: /content/drive/MyDrive/archive_VocGan/datasets/chkpt/vocgan_Aihub_pretrained_model_epoc
Avg : g 1.8886 d 0.1825 ad 0.7644| step 264768: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8653 d 0.1925 ad 0.7402| step 264992: 100% 224/224 [01:02<00:00,  3.57it/s]
Avg : g 1.8738 d 0.1864 ad 0.7498| step 265216: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8601 d 0.1943 ad 0.7373| step 265440: 100% 224/224 [01:02<00:00,  3.56it/s]
g 1.9481 d 0.2079 ad 0.8301| step 265440: 100% 399/399 [00:23<00:00, 16.64it/s]
Avg : g 1.8818 d 0.1829 ad 0.7602| step 265664: 100% 224/224 [01:07<00:00,  3.30it/s]
Avg : g 1.8618 d 0.1918 ad 0.7403| step 265888: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8620 d 0.1939 ad 0.7362| step 266112: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8485 d 0.1994 ad 0.7261| step 266336: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8778 d 0.1878 ad 0.7527| step 266560: 100% 224/224 [01:02<00:00,  3.56it/s]
g 1.9689 d 0.2754 ad 0.8365| step 266560: 100% 399/399 [00:24<00:00, 16.40it/s]
Avg : g 1.8669 d 0.1904 ad 0.7440| step 266784: 100% 224/224 [01:07<00:00,  3.31it/s]
Avg : g 1.8588 d 0.1961 ad 0.7356| step 267008: 100% 224/224 [01:02<00:00,  3.58it/s]
Avg : g 1.8688 d 0.1877 ad 0.7468| step 267232: 100% 224/224 [01:02<00:00,  3.57it/s]
Avg : g 1.8584 d 0.1964 ad 0.7365| step 267456: 100% 224/224 [01:02<00:00,  3.57it/s]
Avg : g 1.8321 d 0.2039 ad 0.7113| step 267680: 100% 224/224 [01:02<00:00,  3.57it/s]
g 1.8944 d 0.2451 ad 0.7750| step 267680: 100% 399/399 [00:24<00:00, 16.29it/s]
Avg : g 1.8592 d 0.1947 ad 0.7377| step 267904: 100% 224/224 [01:08<00:00,  3.29it/s]
Avg : g 1.8448 d 0.1987 ad 0.7228| step 268128: 100% 224/224 [01:02<00:00,  3.56it/s]
Avg : g 1.8529 d 0.1973 ad 0.7301| step 268352: 100% 224/224 [01:02<00:00,  3.57it/s]
```

```
'''
import sys
sys.path.append('/content/VocGAN')
import torch
import numpy as np
from scipy.io.wavfile import write
from model.generator import ModifiedGenerator  # 모델 경로에 맞게 수정

# 모델 설정 불러오기 (config.yaml의 설정과 맞춰야 함)
model_g = ModifiedGenerator(
    mel_channel=80,             # 예상되는 mel 채널 수
    n_residual_layers=4,        # 잔여 계층 수
    ratios=[4, 4, 2, 2, 2, 2],  # 업샘플링 비율
    mult=256,                   # 모델 확장 계수
    out_band=1                  # 출력 채널 수
).cuda()

# 체크포인트 로드
checkpoint_path = "/content/drive/MyDrive/archive_VocGan/datasets/chkpt/vocgan_Aihub_pretrained_model_epoch/vocgan_Aihub_pretrained_model_epoch_0520.
checkpoint = torch.load(checkpoint_path, weights_only=True)
model_g.load_state_dict(checkpoint['model_g'])

# 모델을 평가 모드로 전환
model_g.eval()

mel_data_path = '/content/drive/MyDrive/archive_VocGan/datasets/mels/0050_G2A4E1S0C1_HJH_000012.npy'
mel_data = np.load(mel_data_path)  # 멜 데이터를 numpy 배열로 로드
mel_spectrogram = torch.tensor(mel_data).unsqueeze(0).cuda()  # 모델 입력 형식으로 변환

# 샘플링 레이트 설정 (일반적으로 22050Hz로 사용됨)
sampling_rate = 22050

# 생성된 오디오를 얻기
with torch.no_grad():
    generated_audio = model_g(mel_spectrogram)
    generated_audio = generated_audio.squeeze().cpu().numpy()

# 필요 시 후처리 (예: 클리핑, 정규화)
generated_audio = np.clip(generated_audio, -1.0, 1.0)

# 오디오 파일로 저장
write("generated_audio.wav", sampling_rate, (generated_audio * 32767).astype(np.int16))
'''
```

```
'Wnimport sysWnsys.path.append(W'/content/VocGANW')Wnimport torchWnimport numpy as npWnfrom scipy.io.wavfile import writeWnfrom model.generator
import ModifiedGenerator  # 모델 경로에 맞게 수정WnWn# 모델 설정 불러오기 (config.yaml의 설정과 맞춰야 함)Wnmodel_g = ModifiedGenerator(Wn    me
l_channel=80,             # 예상되는 mel 채널 수Wn    n_residual_layers=4,        # 잔여 계층 수Wn    ratios=[4, 4, 2, 2, 2, 2],  # 업샘플링 비
율Wn    mult=256,                   # 모델 확장 계수Wn    out_band=1                  # 출력 채널 수Wn).cuda()WnWn# 체크포인트 로드Wncheckpoint_
path = "/content/drive/MyDrive/archive_VocGan/datasets/chkpt/vocgan_Aihub_pretrained_model_epoch/vocgan_Aihub_pretrained_model_epoch_0520.pt"Wnc
```

```
!python '/content/drive/MyDrive/archive_VocGan/VocGAN/inference.py' -p '/content/drive/MyDrive/archive_VocGan/datasets/chkpt/vocgan_Aihub_pretrained_
```

```
/content/drive/MyDrive/archive_VocGan/VocGAN/inference.py:16: FutureWarning: You are using `torch.load` with `weights_only=False` (the current de
  checkpoint = torch.load(args.checkpoint_path)
/usr/local/lib/python3.10/dist-packages/torch/nn/utils/weight_norm.py:134: FutureWarning: `torch.nn.utils.weight_norm` is deprecated in favor of
  WeightNorm.apply(module, name, dim)
```

```
%load_ext tensorboard
%tensorboard --logdir /content/drive/MyDrive/archive_VocGan/datasets/logs/vocgan_Aihub_pretrained_model_epoch
```

```
The tensorboard extension is already loaded. To reload it, use:
  %reload_ext tensorboard
```