Speech Enhancement Tutorial

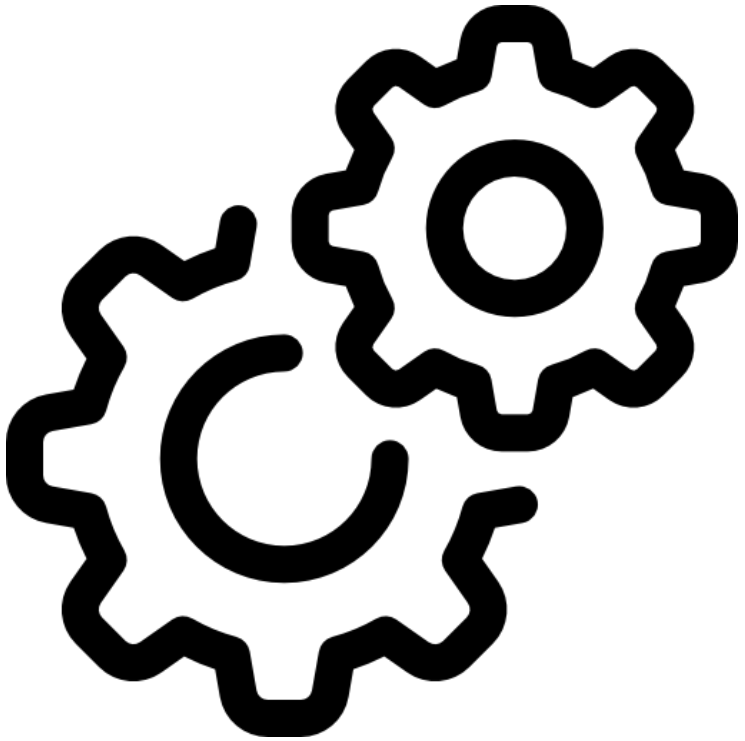
Speechless

김선준, 안희영, 명수환, 최지훈

Supervised and helped by C-J Lee, S-R Hwang, and H-U Yoon

환경 설정

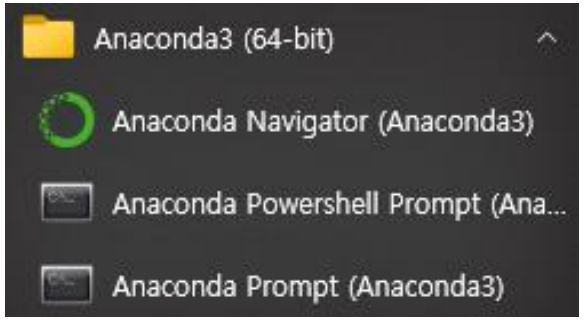
- tensorflow 2.7.0
- CUDA 11.2
- cuDNN 8.1.1
- tensorboard 2.7.0
- numpy 1.20.3
- pesq 0.0.3
- pystoi 0.3.3

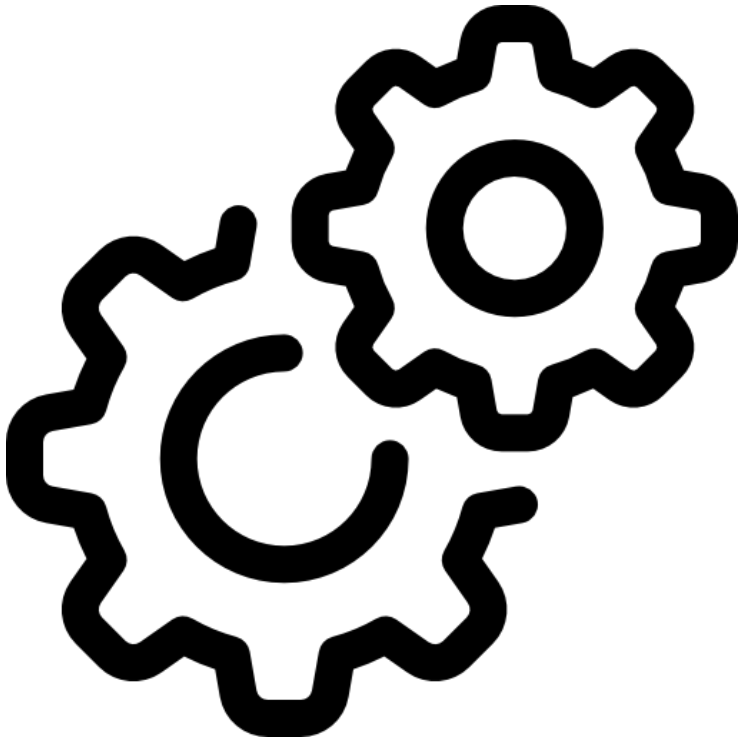


환경 설정

Anaconda3 설치

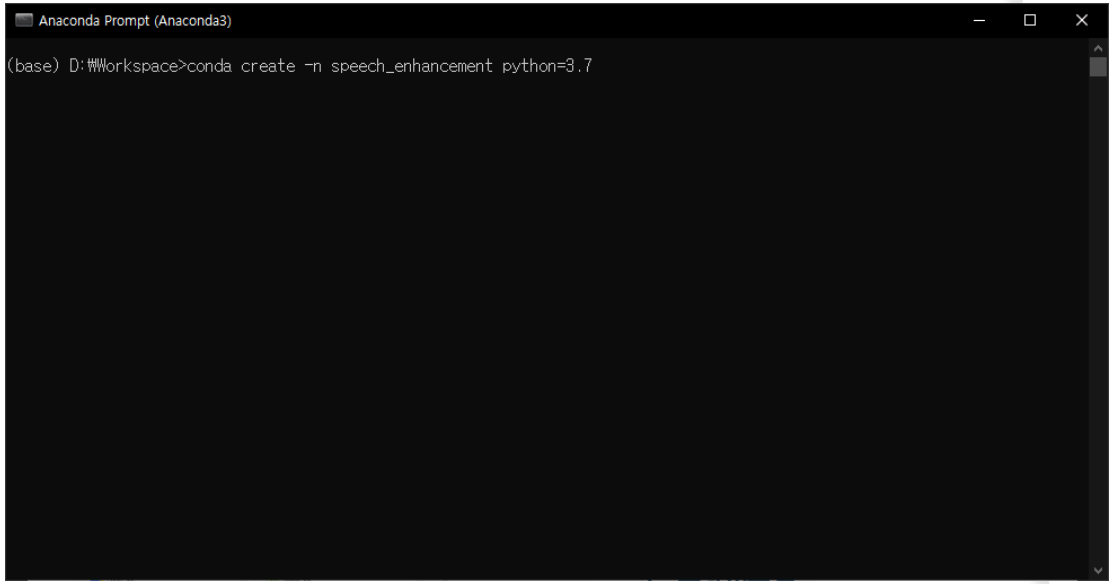
https://www.anaconda.com/products/individual

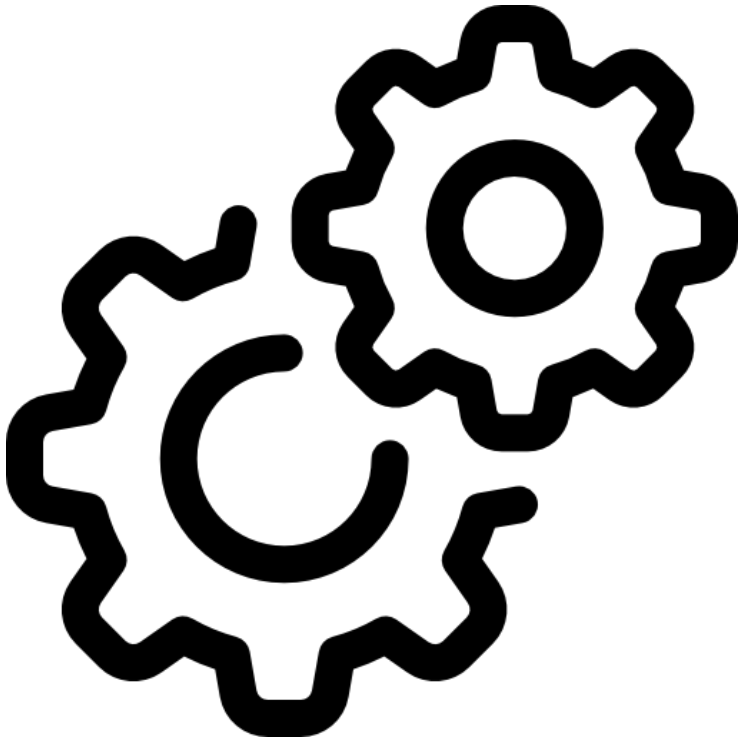




환경 설정

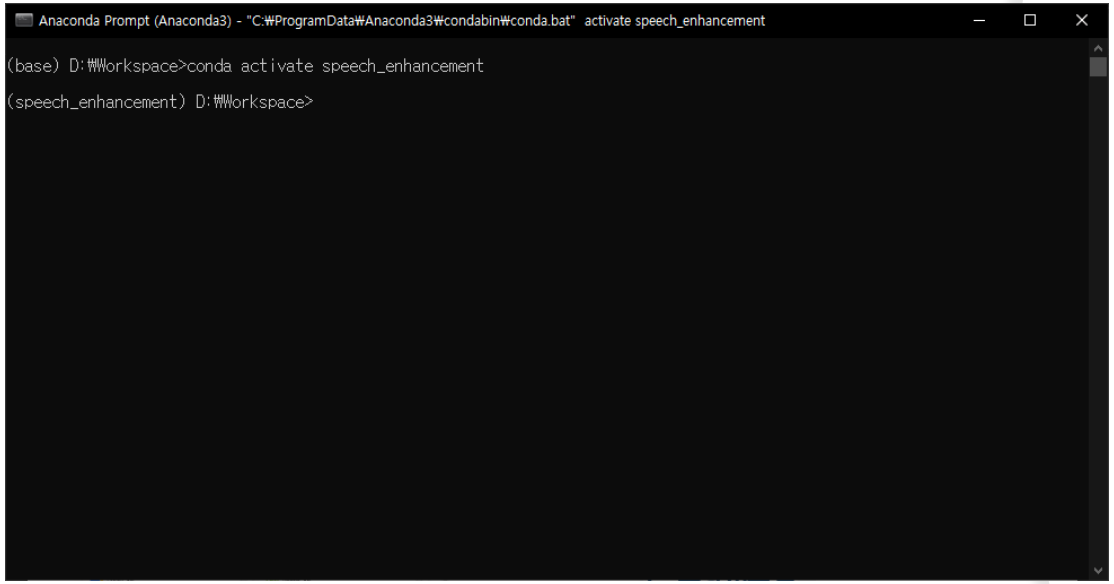
conda create –n speech_enhancement python=3.7

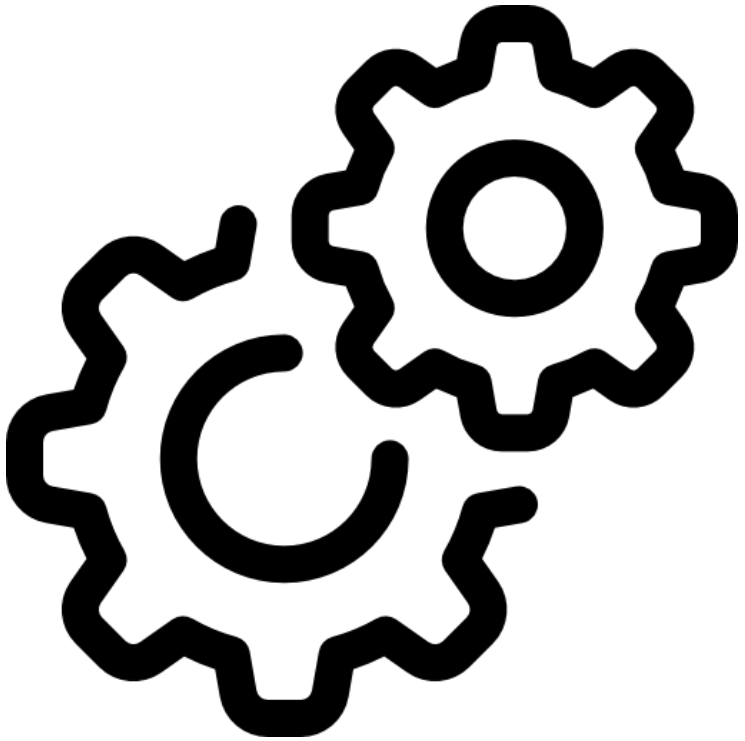




환경 설정

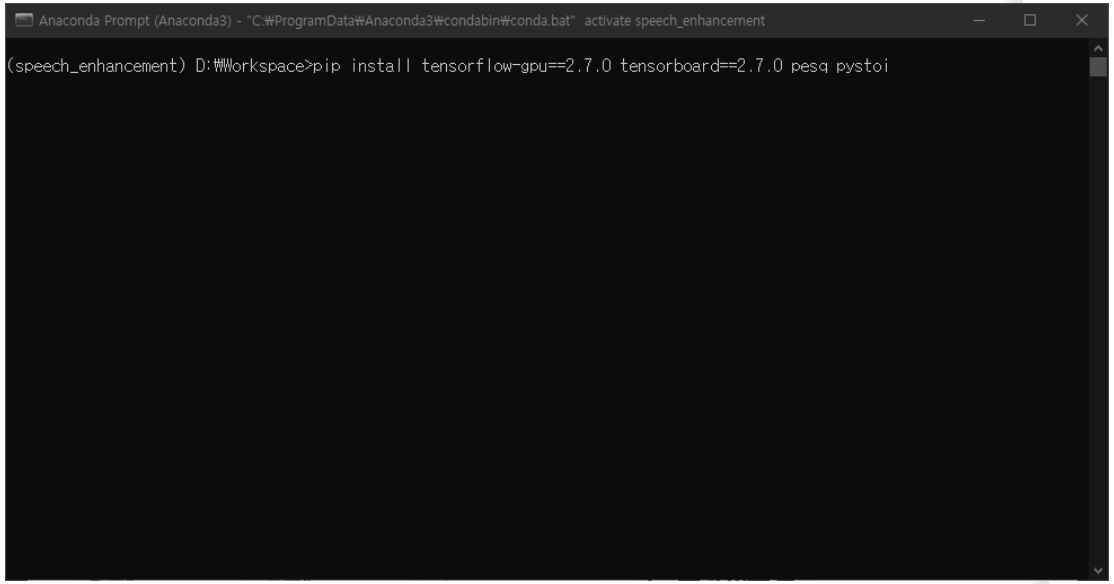
conda activate speech_enhancement

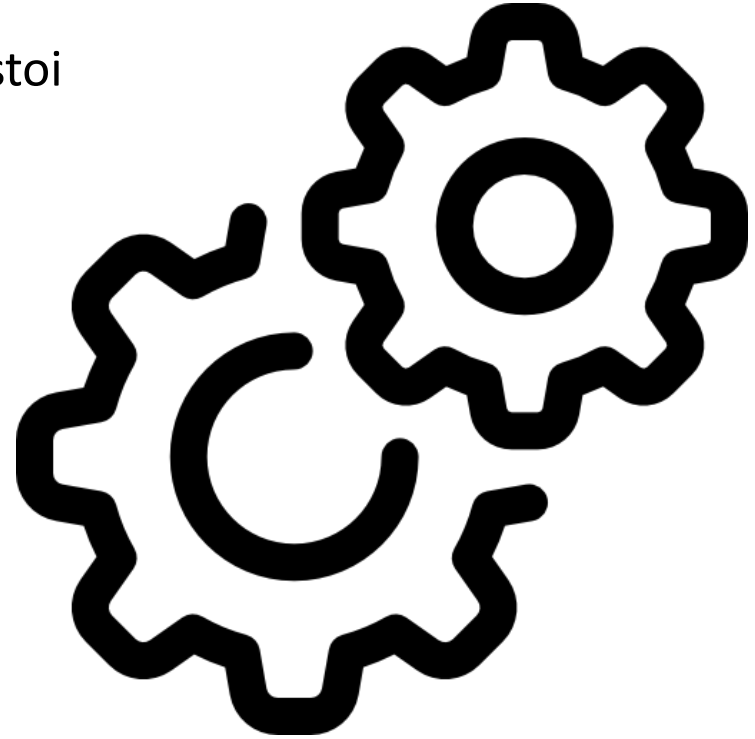




환경 설정

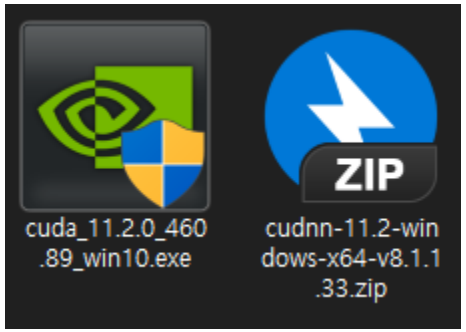
pip install tensorflow-gpu=2.7.0 tensorboard=2.7.0 pesq pystoi

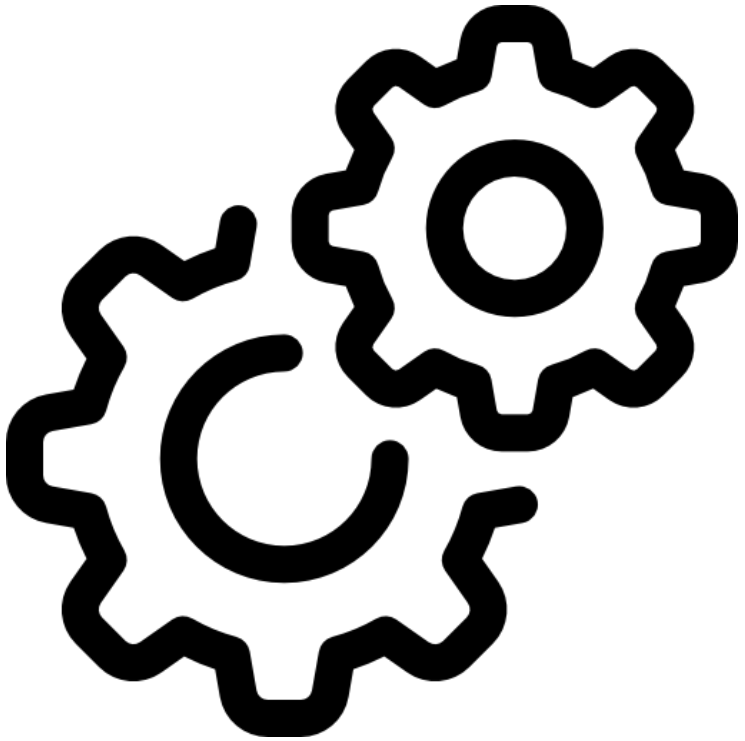




환경 설정

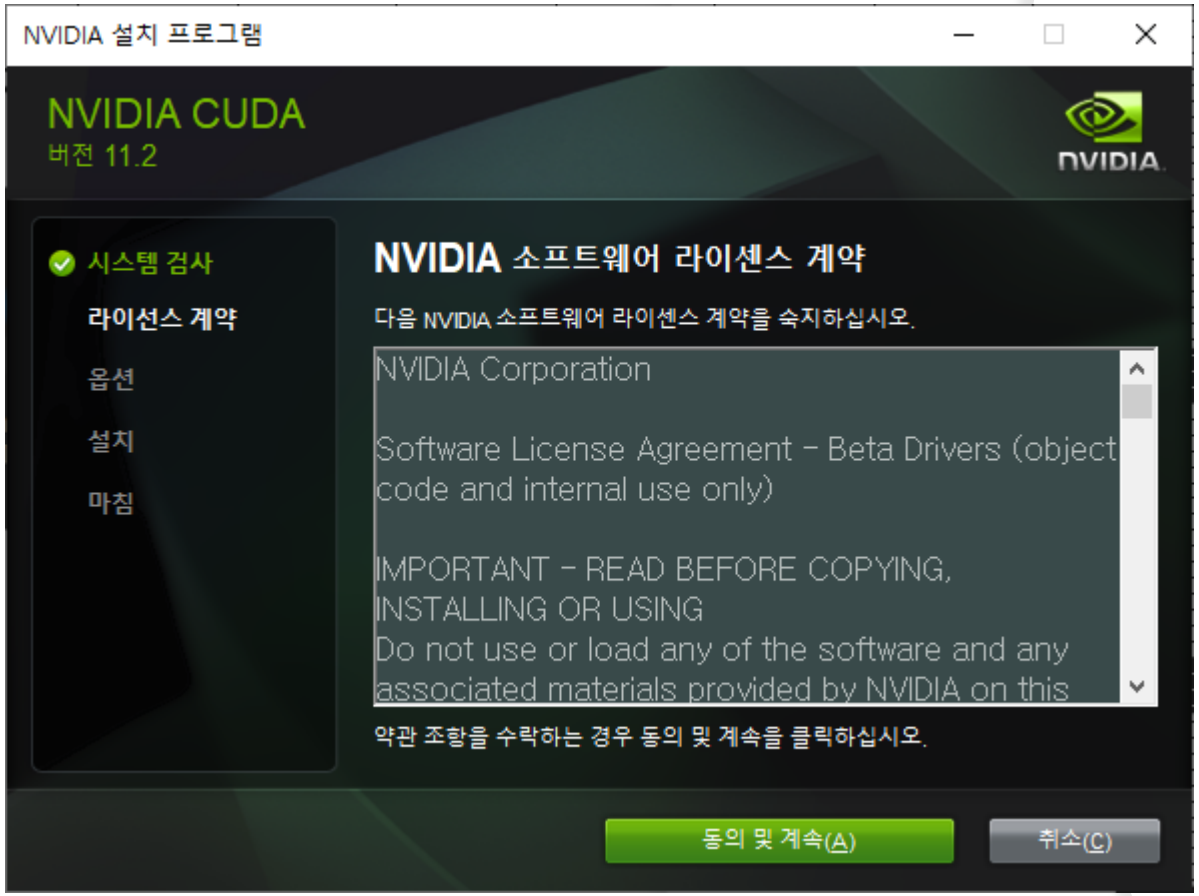
CUDA & cuDNN 설치





환경 설정

CUDA 설치


NVIDIA 설치 프로그램
NVIDIA CUDA
버전 11.2
NVIDIA
시스템 검사
라이선스 계약
옵션
설치
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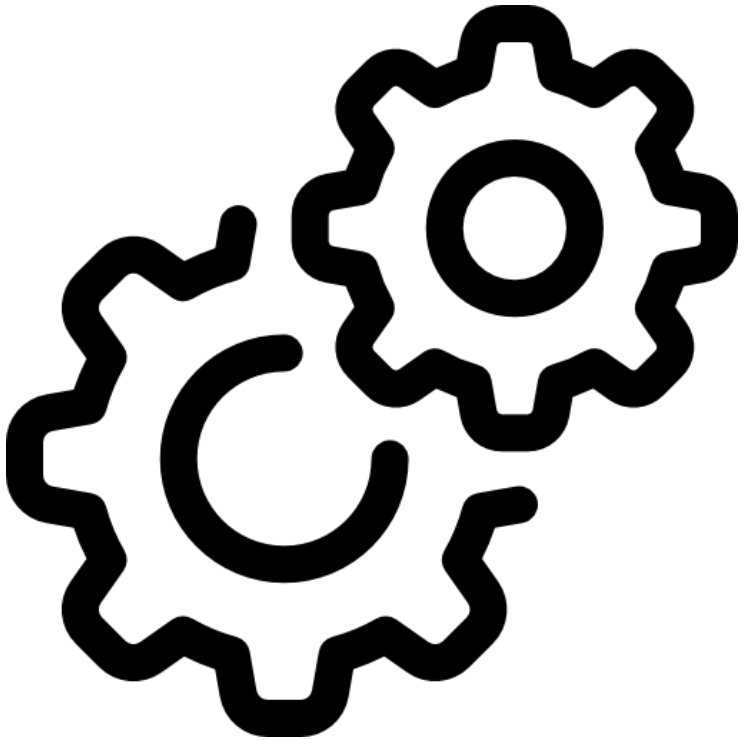
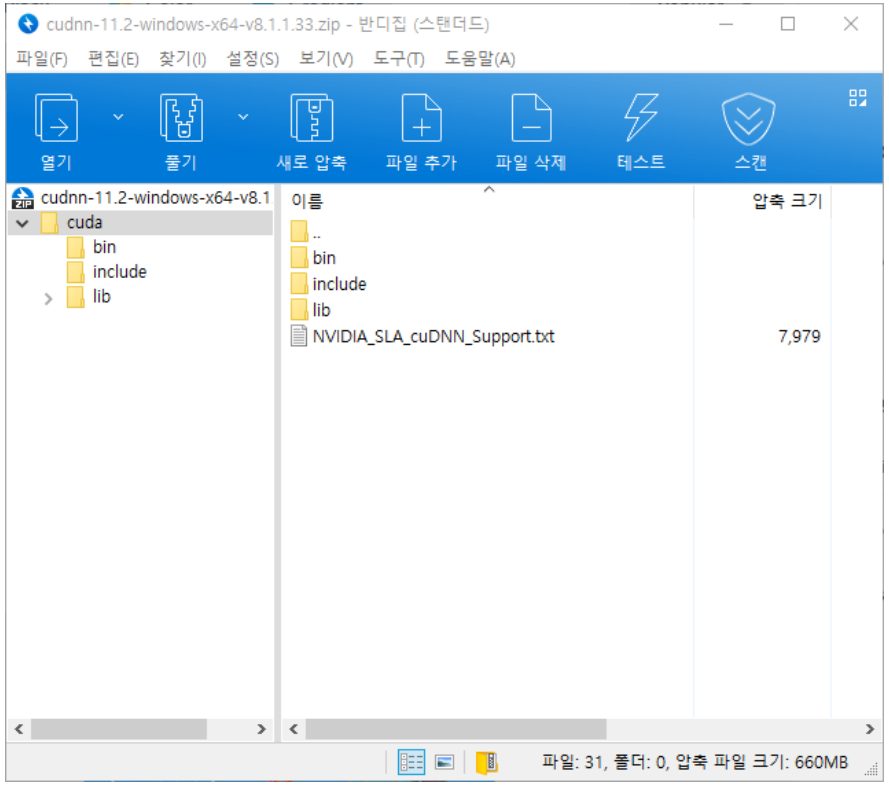
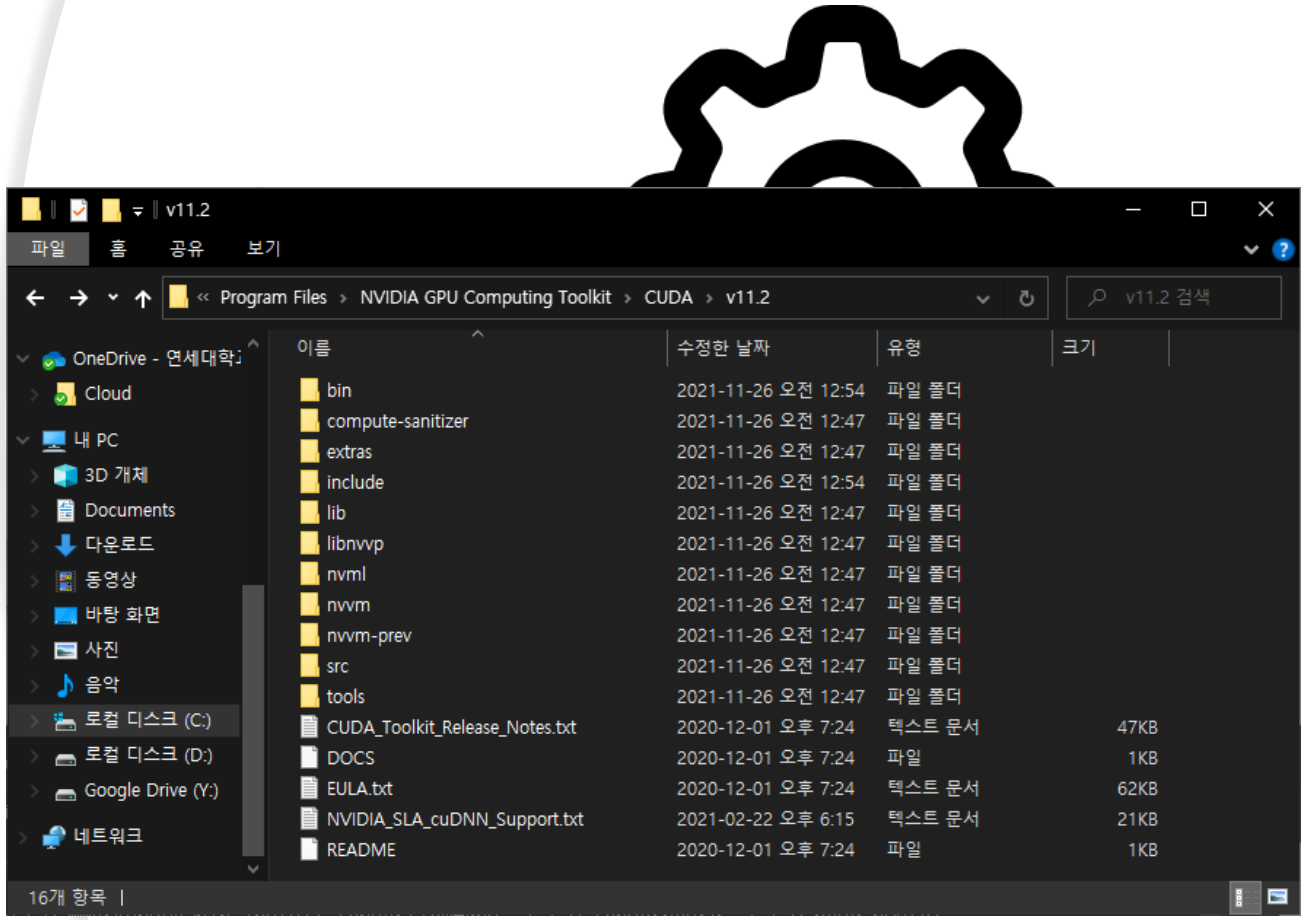
동의 및 계속(A)
취소(C)



환경 설정

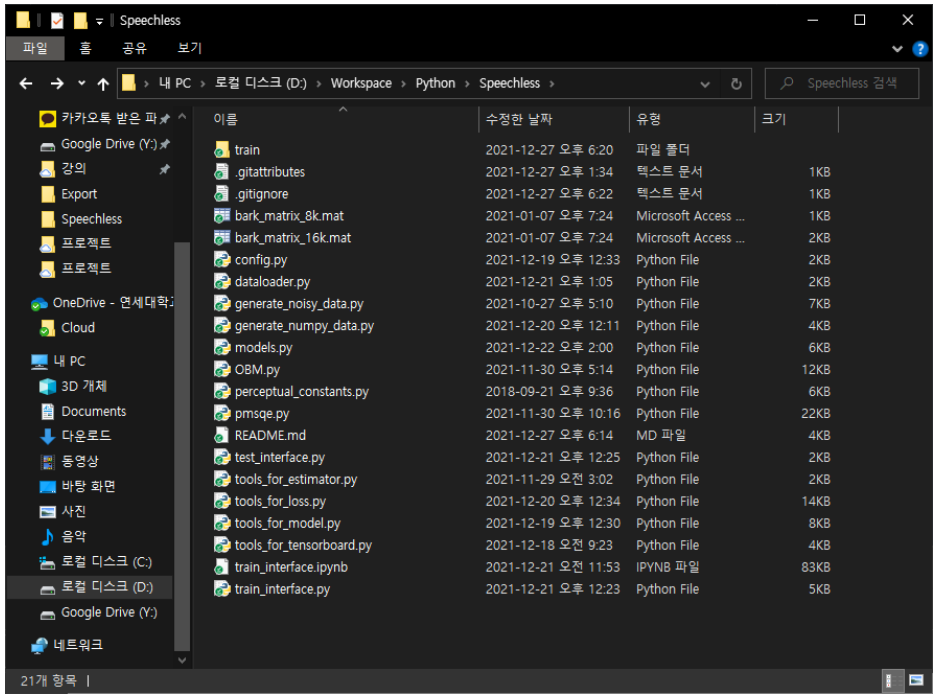
cuDNN: CUDA 설치 폴더에 복사





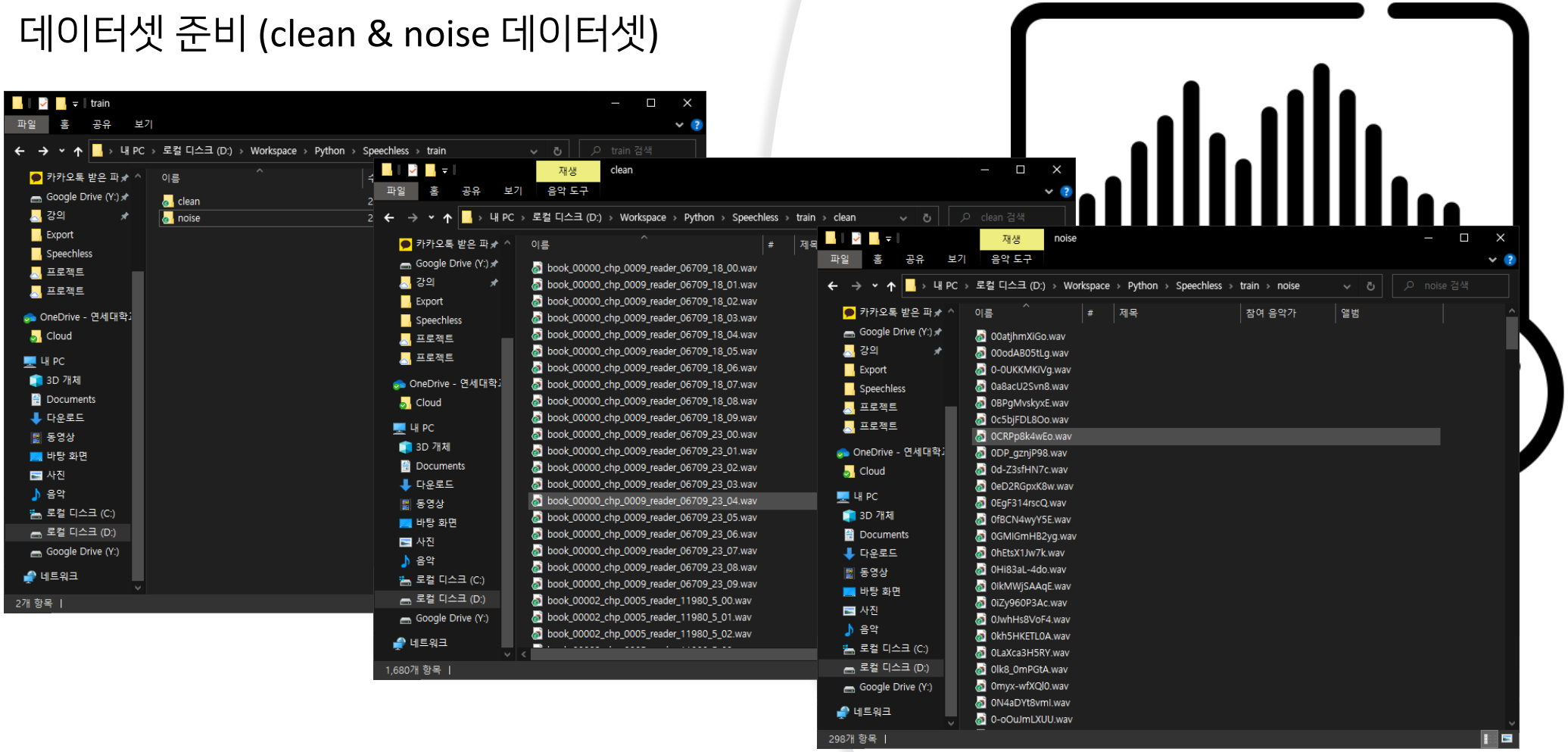
Speech Enhancement 실행

프로그램 다운로드



Speech Enhancement 실행

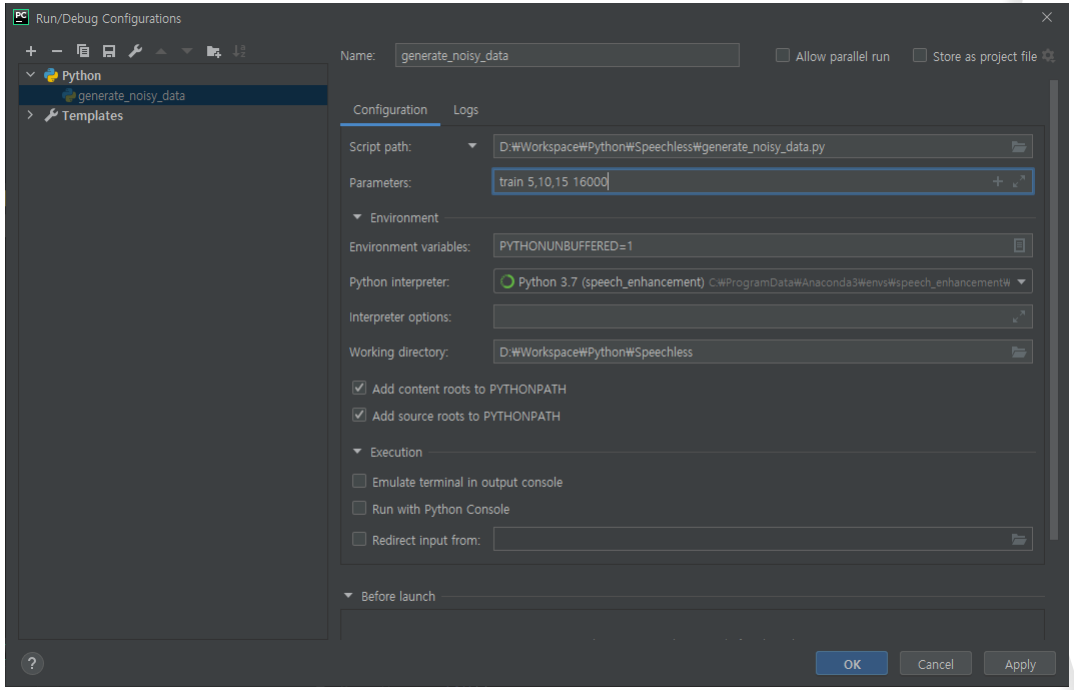
데이터셋 준비 (clean & noise 데이터셋)

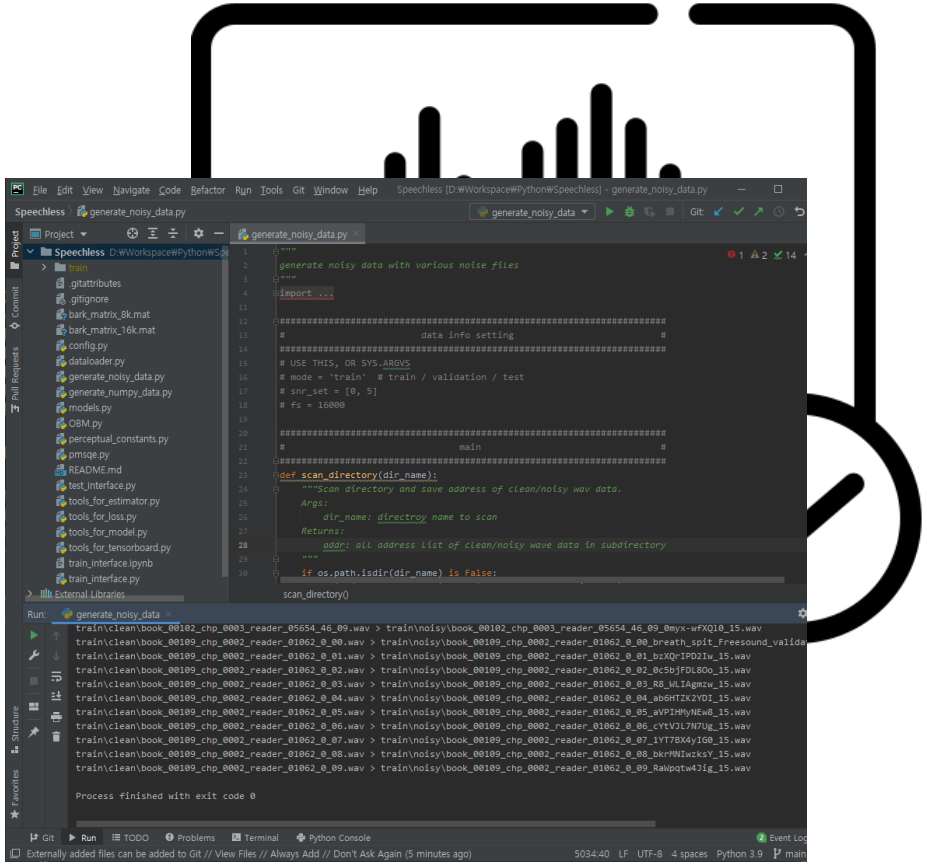


Speech Enhancement 실행

generate_noisy_data.py 실행

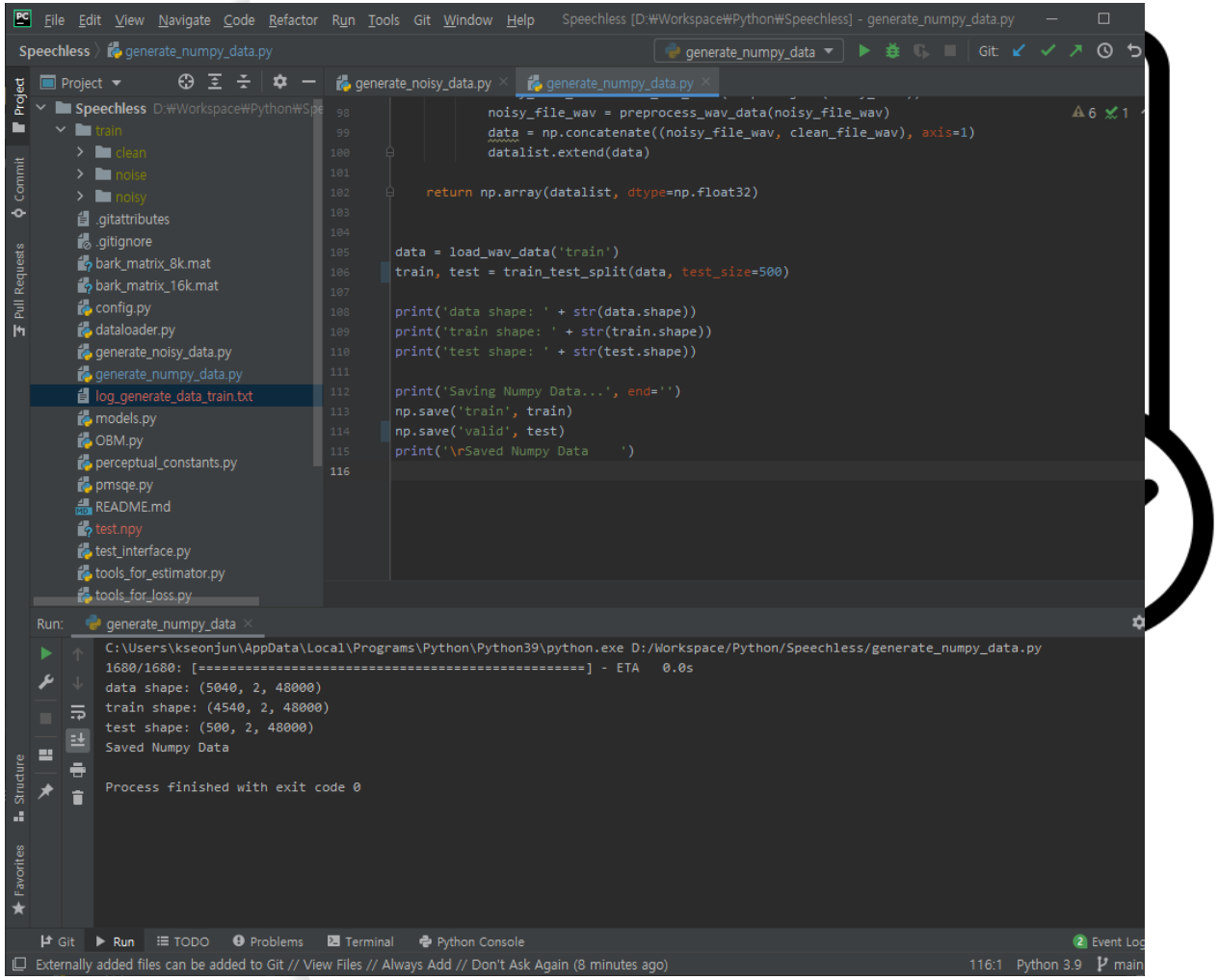
파라미터로 [Mode] [SNR] [fs] 설정 (아래는 예시)





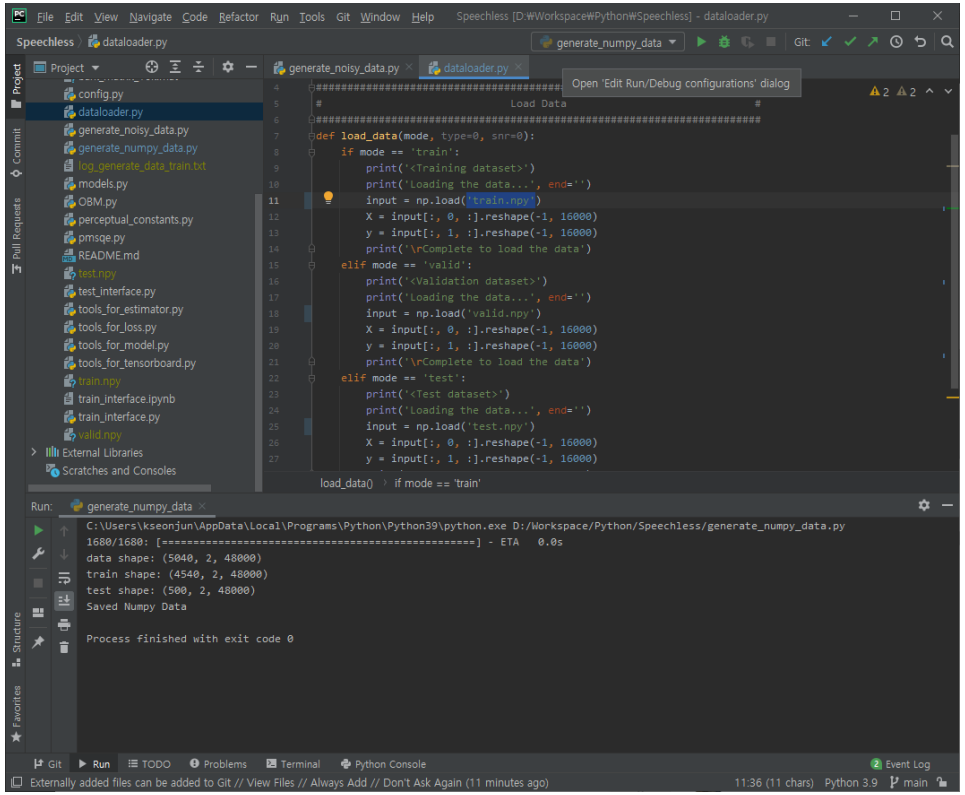
Speech Enhancement 실행

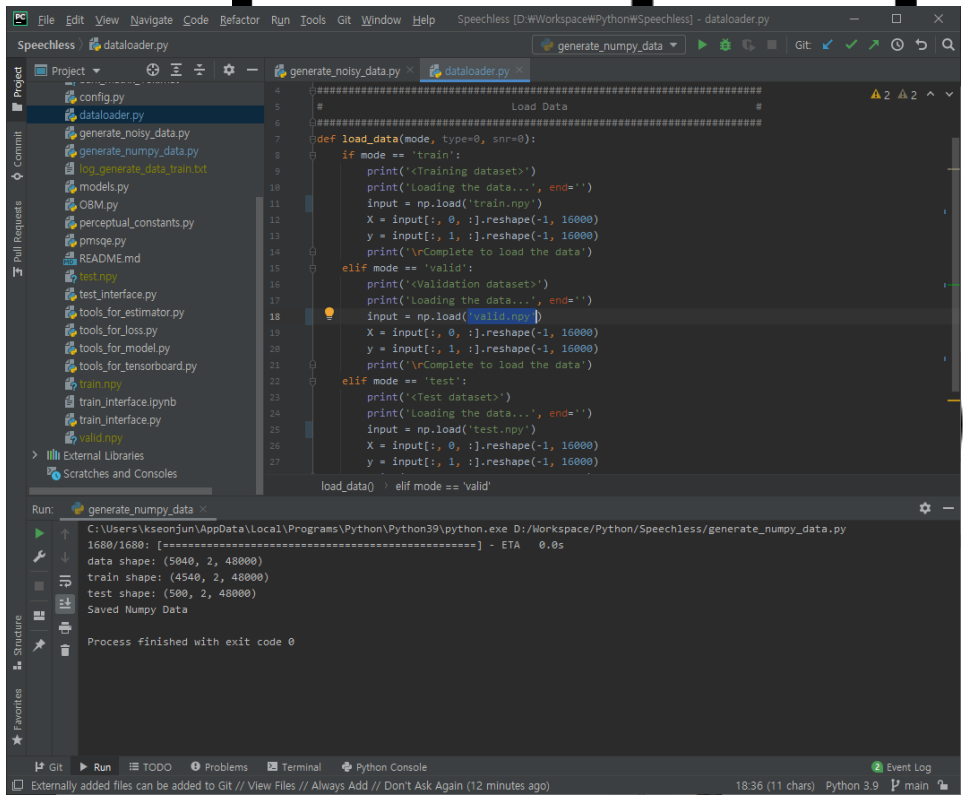
generate_numpy_data.py 실행



Speech Enhancement 실행

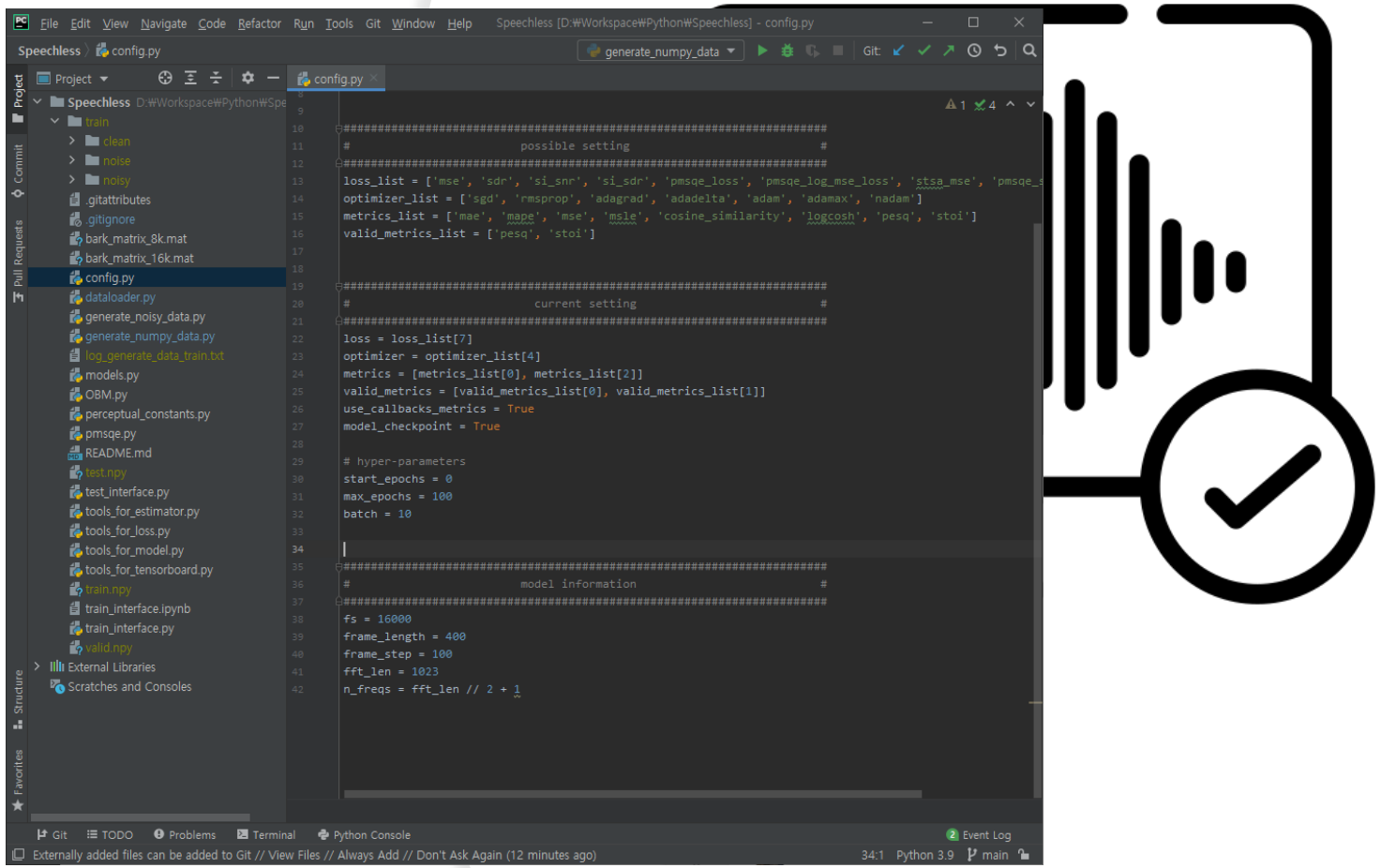
dataloader.py의 input 데이터 설정





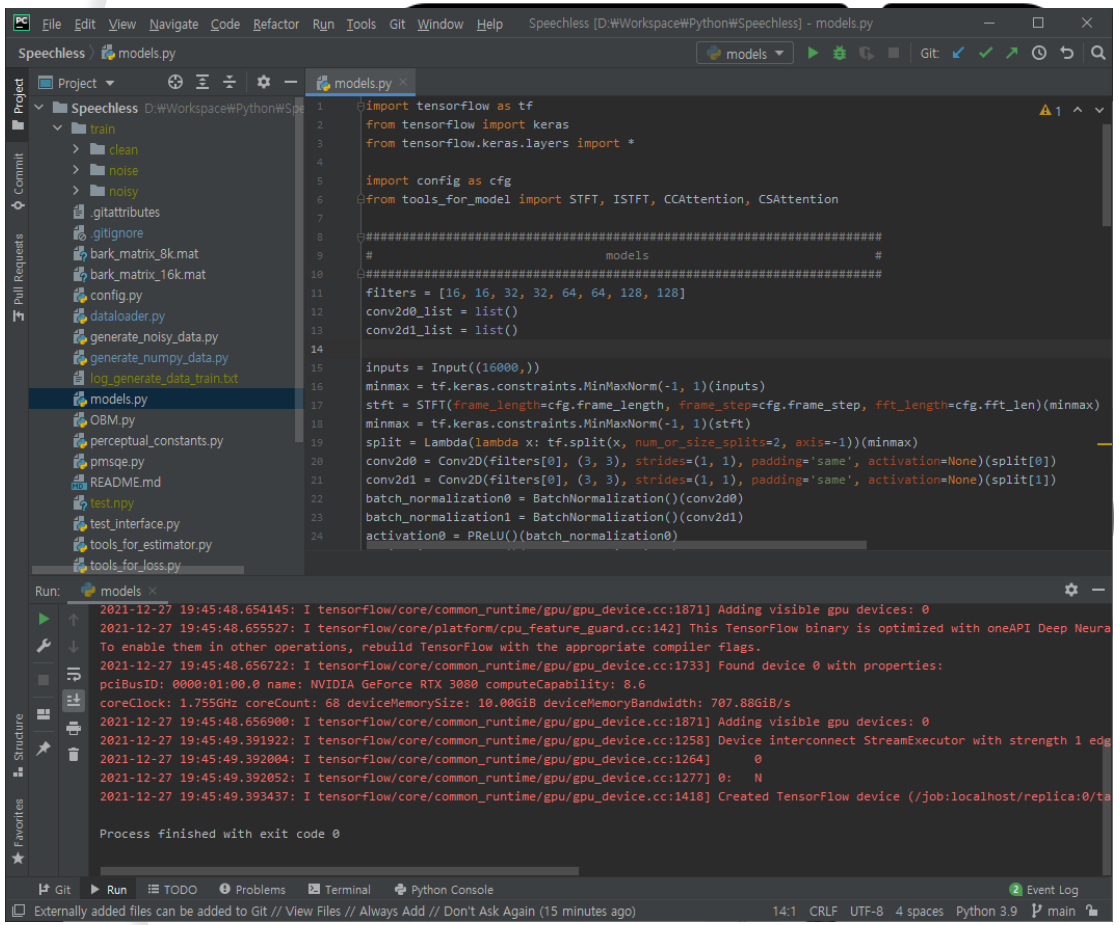
Speech Enhancement 실행

config.py에서 세부설정



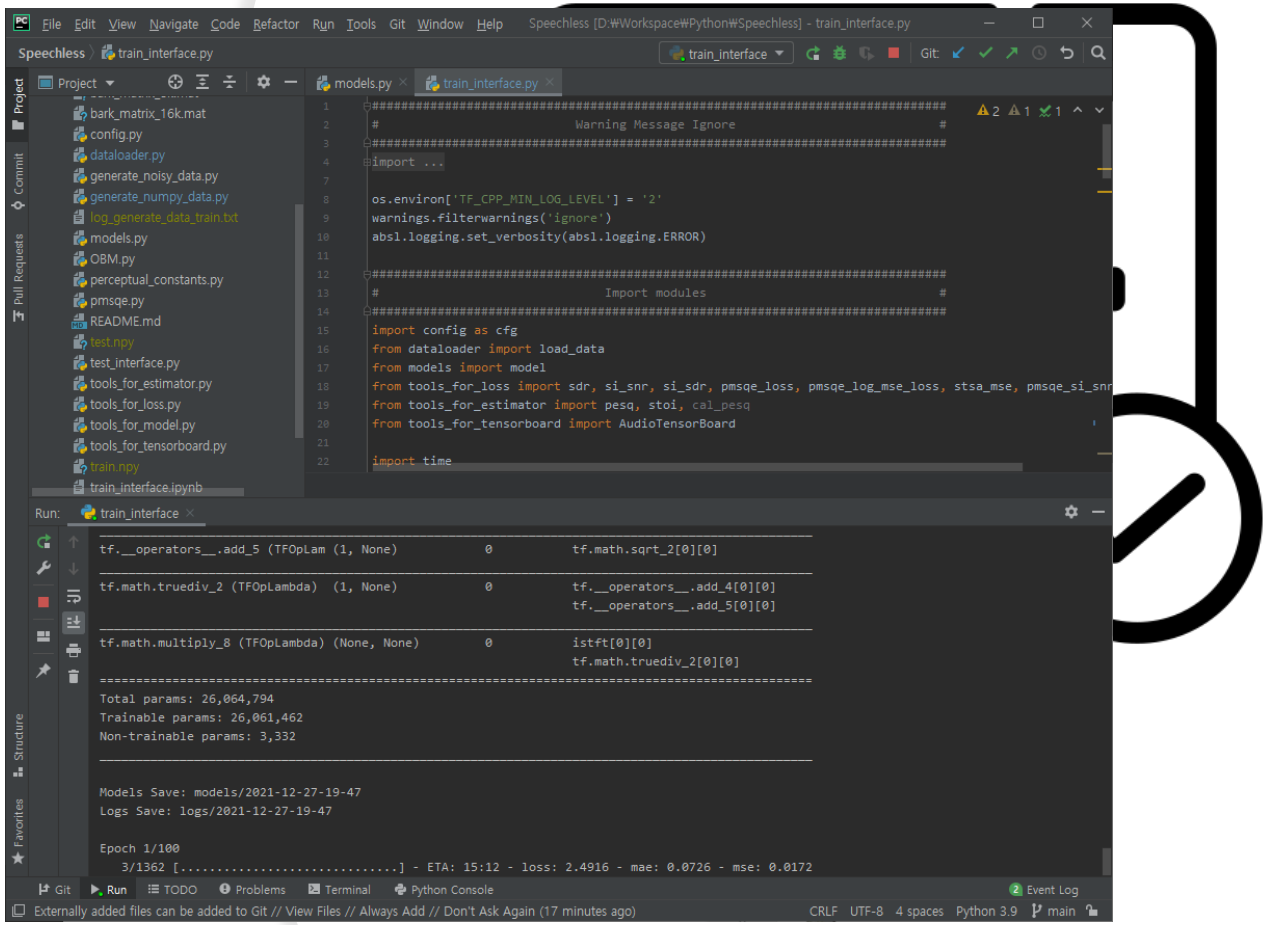
Speech Enhancement 실행

models.py에서 Keras 모델을 만들고 확인
(모델이 정상 생성된 것을 확인)



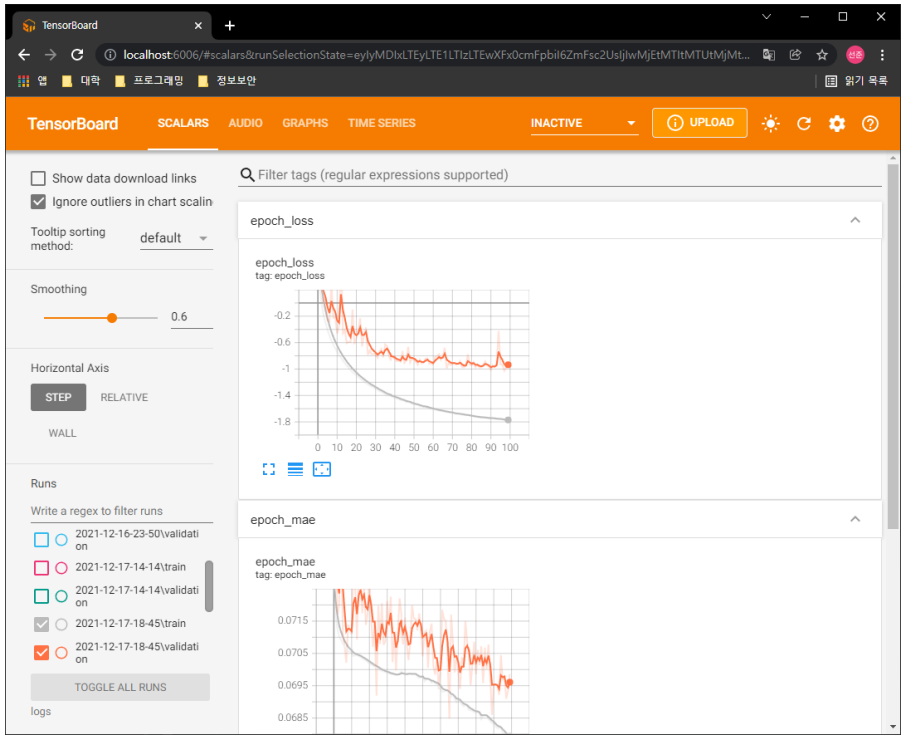
Speech Enhancement 실행

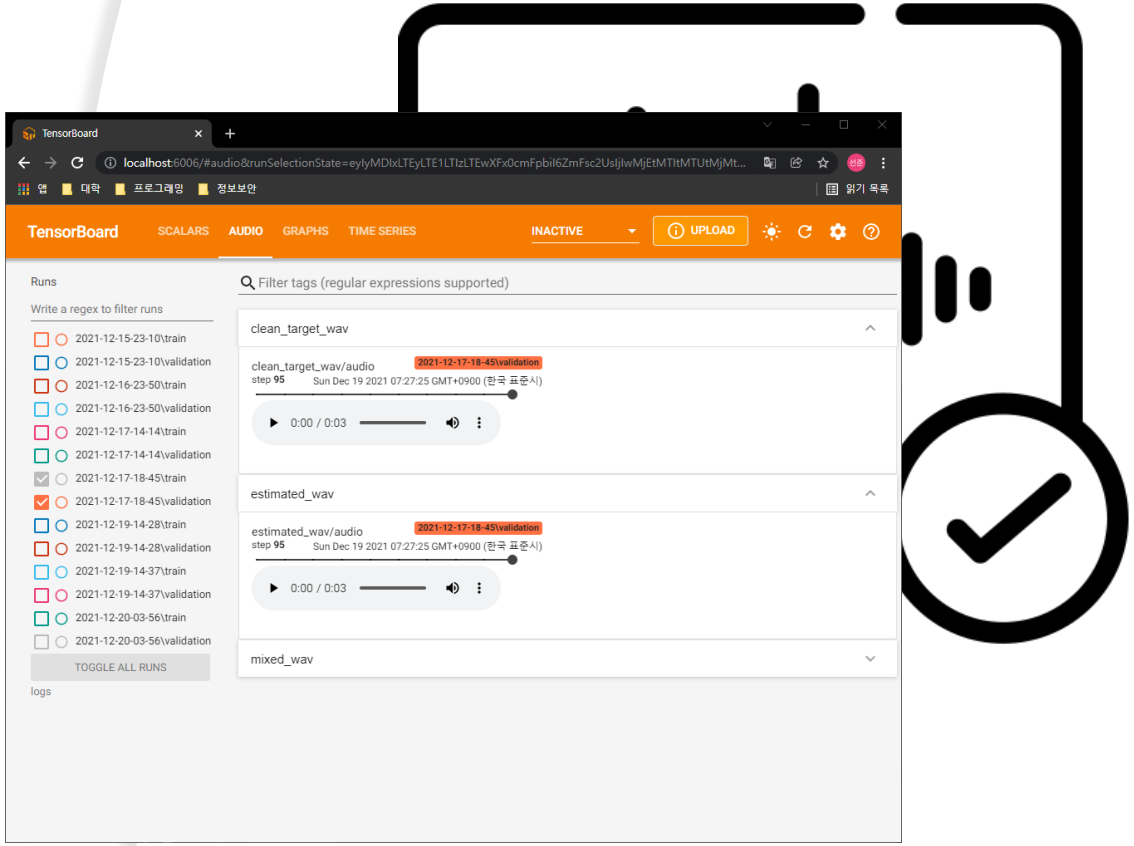
train_interface.py를 통해서 훈련



Speech Enhancement 확인

Tensorboard를 통해서 확인





참고자료

Anaconda3

https://www.anaconda.com/products/individual

CUDA 11.2

https://developer.nvidia.com/cuda-11.2.0-download-archive

cuDNN

https://developer.nvidia.com/rdp/cudnn-archive

Speechless

https://github.com/Neurumaru/Speechless