**User Guide**

# Denoising Audio Samples

## How to Run the Denoiser GUI (Inference)

Follow these steps to run the Denoiser GUI:

1. Make sure you have Python installed on your system. If not, you can install it using your package manager. For example, on Ubuntu, you can use sudo apt install python3.
2. Install the required dependencies by running the following command in your terminal:
3. pip install tkinter scipy torch
4. Navigate to the directory where the denoiser\_gui.py file is located. You can use the cd command to change directories. For example:
5. cd /path/to/directory/
6. Run the following command to start the GUI:
7. python denoiser\_gui.py
8. The GUI window will open. Click on the "Select Folder" button to choose the folder containing the audio files you want to denoise.
9. After selecting the folder, click on the "Denoise" button to start the denoising process. The denoised audio files will be saved in a subdirectory named "Results" within the selected folder.
10. The status label in the GUI will display the progress and completion of the denoising process.
11. You can repeat steps 5-7 to denoise additional folders to denoise.

Note: Make sure you have all the necessary dependencies installed, such as tkinter, scipy, and torch. If any dependencies are missing, you may need to install them using a package manager like pip.

## How to run Denoiser without GUI (Inference)

1. **Prepare Audio Files:**  
   Place the noisy audio files you want to denoise into the following directory:
2. Samples/Sample\_Test\_Input

The matching target clean audio files should be placed in the following directory:

Samples/Sample\_Test\_Target

e.g: for Samples/Sample\_Test\_Input/audio\_1.wav the target file should be Samples/Sample\_Test\_Target/audio\_1.wav

1. **Configure Model and Script Settings:**  
   Ensure the main.py script is configured to use the correct path for the trained model weights. Update the script or a config file if necessary to include:
2. model\_weights\_path = 'path/to/trained\_model\_weights.pth'
3. **Run the Denoising Process:**  
   Execute the main.py script to start the denoising process.  
   Run:
4. python main.py

This will load your model, process each audio file in the input directory, and save the denoised audio to an output directory specified in the script.

1. **Check the Denoised Audio Files:**  
   Go to the output directory set in main.py to review the denoised files.  
   The directory is set to the following:
2. Samples/Sample\_Test\_Target

The clean audio files will be saved to the following directory:

Samples/Results/

For example: after denoising Samples/Sample\_Test\_Input/audio\_1.wav the denoised file will be saved in the directory Samples/Results/audio\_1 which will contain the following:

* metrics\_clean\_vs\_denoised.txt
* metrics\_clean\_vs\_noisy.txt
* waveform\_Combined\_results.png
* clean.wav
  + waveform\_Clean.png
  + spectrogram\_Clean.png
* noisy.wav
  + waveform\_Noisy.png
  + spectrogram\_Noisy.png
* denoised.wav
  + waveform\_Denoised.png
  + spectrogram\_Denoised.png

By following these steps, you should be able to use the denoising model to clean your noisy audio files effectively. Make sure each configuration path and setting is correctly specified in your scripts to avoid any issues.

# Contact Information

Free to contact us with any problem or suggestion.

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