

WaveGenSynth

WaveGenSynth is a unique synthesizer that leverages diffusion techniques to create playable sounds. It can seamlessly integrate into your musical workflow as a VST, AU, standalone application, or run directly from the source code.

Table of Contents

- Installation
 - Binary Installations (VST/AU/Standalone)
 - Building from Source
 - * Mac
 - * Windows
- Usage
- Credits

Installation

Binary Installations (VST/AU/Standalone)

Download the latest stable release from the releases page, and follow the instructions for your specific platform.

Both Installer and Server are available for Intel and Apple Silicon Macs.

After installation, run the server and connect to it through the plugin. Note that the server executable may exhibit unstable performance on Intel Macs. If you face issues with the server executable or prefer running it as a script, download `server_light.zip` and follow the instructions in step 4 below.

Building from Source

If you prefer to build from source, follow these steps:

1. **Clone the Repository:**
 - Clone the repository along with its submodules using the command:
`git clone --recurse-submodules <REPOSITORY_URL>`
 - If cloned normally, initialize and update the submodules with:

```
git submodule init
git submodule update
```
2. **Load the Project:** Open the project using the provided CMake file.
3. **Configure Run/Debug Settings:** Create a Run/Debug Configuration by selecting one of the available executables to run the project.
4. **Set Up the Server:**

- Update the environment: `conda env update --file environment.yml` (located in the FastAPI folder)
- Activate the environment: `conda activate WaveGenSynthAPI_env`
- Start the server: `uvicorn server:app --reload`

Mac On Mac, Xcode is required for C++ support.

Windows Not yet tested.

Usage

Operating WaveGenSynth is straightforward: 1. Launch the Server and plugin. 2. Initialize a model. This step may take some time during the first run, causing the plugin to freeze momentarily. Monitor the server console until the download and setup are complete. If a timeout occurs in the plugin, hit refresh after the setup is complete. (Select ‘cuda’ if running on hardware with a Nvidia GPU, ‘mps’ if running on Apple Silicon, and ‘cpu’ as a fallback) 3. Enter a prompt in the designated field. 4. Click the “Generate” button. 5. Select the appropriate MIDI input device. 6. Enjoy creating and playing sounds!

Credits

WaveGenSynth was crafted using the following technologies: - **GUI Framework:** JUCE - **GUI Module:** foleys_gui_magic - **Diffusion Model:** AudioLDM, integrated via the pipeline and AudioLDM2, integrated via the pipeline from HuggingFace

A special thank you to the developers of these tools that made WaveGenSynth possible.