Fushimi In-Airy

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Design and Concept

Fushimi In-Airy is a Musical Plugin that takes a sound input and creates a delay and reverb effect. It turns the sound file into a matrix and performs various functions on it to create a delay or reverb (Schroeder Algorithm), depending on the user's choice.

Delay: Takes a sound input and repeats it after a specified period of time
Reverb: Simulates the effect of a sound in a large open room, reverberating the audio

Reverbs and Delays are very commonly used in music production; however, most plugins on the market are general-purpose. Fushimi In-airy allows users to fully customise multiple instances of delay and reverb simultaneously and independently. The plugin's main purpose is to be used within a DAW (Digital Audio Workstation), the final project will be shipped as a .vst, .vst3 file.

The user will be able to adjust the parameters of the delay and reverb through the UI by moving Tori Gates across the Fushimi mountain on an X-Y grid and adjusting knobs. There will be various visual elements and cues to the plugin to further increase usability and user experience.

Libraries such as soundfile will be used to convert the sound into matrices, numpy to compute them and numba among others to ensure fast computation, a plug-in must have very fast compute times that can only be accomplished in python using these libraries combined with non-computationally complex algorithms.

User Interface

Mode Switch - The Sun/Moon or the Slider at the bottom

- Delay Mode - Morning Time
- Reverb Mode - Night Time

Wet Knob - Drag up and down to adjust the level, A pop-up window will show the exact % value

- Volume of delay/reverb effect

Dry Knob - Drag up and down to adjust the level, A pop-up window will show the exact % value

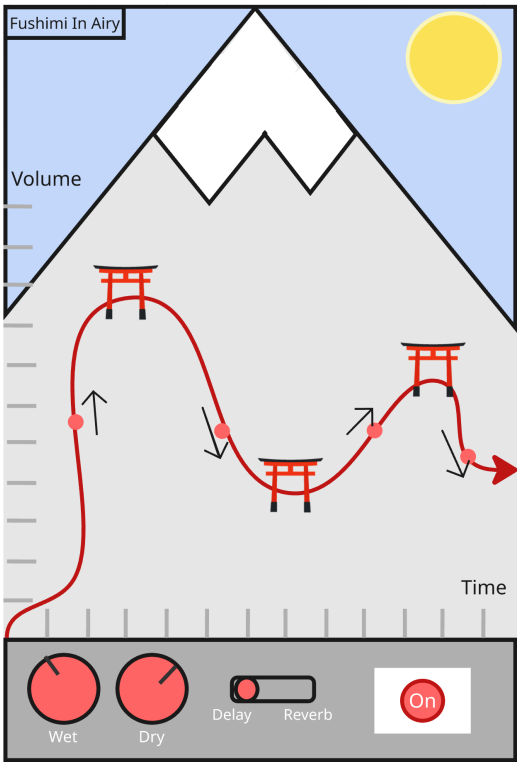
- Volume of Initial input

On/Off Switch

- Japan Flag

Mountain Grid - Tori gates can be placed anywhere on the mountain (within the grid) As gates are moved around, a window will open, giving exact coordinates.

Delay Mode



X Axis - Time

- Instant - 1 bar (4 beats)
- 0 - 4 Seconds (4000 milliseconds)

Y Axis - Volume/Attack

- 0% - 150% of Dry Signal

Climbing the Mountain

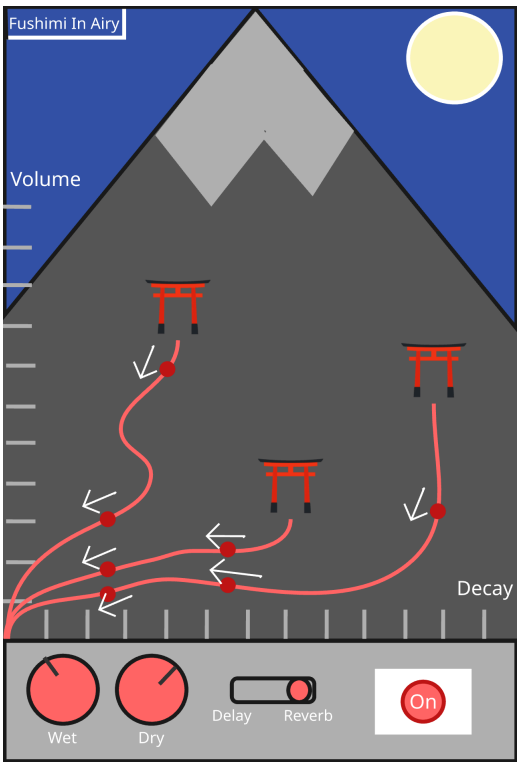
Each Tori gate represents an instance of delay.

Every time a sound goes through the plugin, a small dot is created that travels the line, starting from (0,0).

When the dot reaches a gate, the delay will play at the desired volume (height)

(Note: the red line and arrows are for demonstration purposes; these will not be visible in the final product)

Stacked Reverb Mode



X Axis - Decay

- Instant - 3 bars
- 0 - 10 Seconds (10000 ms)

Y Axis - Volume/Attack

- 0% - 100% of Dry Signal

Descending the mountain

Each Torii Gate represents an instance of reverb.

Every time a sound goes through the plugin, a small dot is created that starts from each gate and goes toward the bottom of the mountain, slowly decaying in volume.

As soon as the dot reaches (0,0), the reverb will end.

This allows for multiple reverbs in a single plugin, e.g. loud reverb that decays quickly alongside a quiet reverb that decays over a long time.