Vulpus Labs

Rapscallion

Introduction

Rapscallion has two functions. Firstly, it gates a stereo input signal, releasing the gate for a fixed amount of time when triggered. Panning is applied and the signal is faded in and out during the "gate open" period. This function can be useful by itself, for example as a way of feeding selected portions of an audio signal to a "dub" effects chain.

Secondly, when triggered **Rapscallion** generates a control signal to be sent to the "mod" input of a delay tap on **Catkins** or **Catkins Stereo**, which will move the replay head for that delay tap during playback, speeding up or slowing down the delayed signal as it passes through the gate so that playback is pitch-shifted and/or reversed.

These two functions together enable **Rapscallion** to be used alongside **Catkins/Stereo** to produce similar effects to those produced by the **Scapegrace** plugin, selecting portions of a recording buffer and replaying them with pitch-modulation effects applied, except with far greater control (**Scapegrace** is wonderful, but chaotic…)

IMPORTANT NOTE: Rapscallion by itself doesn't reverse or pitch-shift its input signal: the controls in lilac won't have *any effect at all* on its audio outputs, but solely configure the "mod" output signal consumed by **Catkins/Stereo**.

Usage

Rapscallion's controls fall into two colour-coded sections. The **red** section controls the behaviour of the audio gate, and the **lilac** section controls the behaviour of the mod signal. Unless you're connecting **Rapscallion** to **Catkins/Stereo**, you're not going to need the lilac section at all.

In the top row of the red section are stereo inputs and outputs **IN L**, **IN R**, **OUT L** and **OUT R**.

When the audio gate is closed, no signal is sent to the outputs. When a positive voltage is received by the **TRIGGER IN** input, or the manual trigger button is pressed, the gate is opened for a duration controlled by the **LENGTH** knob and CV modulation controls. Note that maximum length is set by the range switch at the bottom of the panel.

While the gate is open, the input signals are faded and panned and then passed through to the outputs. Fade in begins when the gate opens, and fade out is timed to end when the gate closes, creating a symmetric amplitude window over the duration of the gate.

The **BALANCE** knob and CV modulation controls control the panning that is applied, and the **FADE** knob/controls control how much of the gate time is spent fading in/out - at 100%, fading out starts as soon as fading in has completed. Note that the **BALANCE** amount is sampled when the trigger opening the gate is received, and remains constant during the gate open period rather than continuously modulating.

The **T/OUT** output sends a trigger signal when fade-out begins (rather than when the gate closes), so that a second instance of **Rapscallion** can start an overlapping gate with an overlapping amplitude window that fades in as the first instance fades out - this can be useful for effects where we want to stitch together audio segments into a continuous signal. The **AUTO** button fires a trigger when switched on, and causes the gate to retrigger automatically every time it ends.

The lilac controls configure the signal that is sent to the **M/OUT** output while the gate is open, which should be connected to the **MOD** input of a **Catkins/ Stereo** delay tap with the sends and receives of the tap connected to Rapscallion's inputs and outputs, like so:

In this configuration, the send/receive loop of the first **Catkins Stereo** delay tap is routed through **Rapscallion**'s audio gate, and **Rapscallion**'s mod output modulates the position of the read head for the delay tap. Note the agreement between the positions of the **RANGE** switches on both modules - this is important for correct pitch-shifting behaviour.

The **PITCH** knob and CV modulation controls can be used to configure a **MOD** control signal that will shift the playback speed of the gated audio, affecting its pitch by between -7 and 7 semitones. The **8ve UP** button will double the playback speed, causing the pitch to rise by an octave, while the **REV** button will reverse the direction of playback so that the gated audio is heard backwards.

Credits and Acknowledgements

Rapscallion was written by Dominic Fox in June/July 2023.

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