Shift by Sinevibes
animated frequency shifter

INTRODUCTION

Shift is a plugin that creates animated spectral shifting effects. It is based around a step-sequenced envelope generator that allows to easily construct sophisticated patterns that are sent to control either a frequency shifter or a ring modulator. This finely-tuned setup produces a wide range of interesting effects: from gentle inharmonic detune and chirping, to extreme spectral-thinning and metallic zaps - with intricate pulsations in perfect sync with input audio.

Shift displays a live sound waveform and aligns its sequencer graphics with it – exactly in the same way it's done by the sound engine, for true "what you see is what you get" operation. Every element in its user interface is color-coded and features subtle animations, bringing unusual ease of use and interactivity. Plus, all this goodness is rendered right on your Mac's graphics adapter meaning fast response and no extra load on the main processor, regardless of how new or old your system is.

SOUND ENGINE
— Sequencer with up to 32 steps, variable duration, division and swing ratio.
— Alias-free frequency shifter and ring modulator effects.
— Envelope matrix offering 10 envelope shapes, adjustable time, curve and lag.
— Eight parameter snapshots in each preset, available for realtime switching and automation.
— Host transport synchronization with support for tempo and time signature changes.

GRAPHIC INTERFACE
— Live input audio waveform and fluid sequencer graphics visually matched to it.
— Support for multi-touch gestures and force touch on compatible trackpad devices.
— Fully hardware-accelerated rendering with support for Retina screen resolution.

COMPATIBILITY
— Works with any application that supports Audio Unit effect plugins.
— Supports OS X 10.6 or later running on 32 or 64 bit Intel Macs.

QUICK START

Step 1

Start the host transport to
see the live audio waveform

Step 2

Adjust sequencer settings to
match the rhythmical timing
of incoming audio

Step 3

Click and drag to set
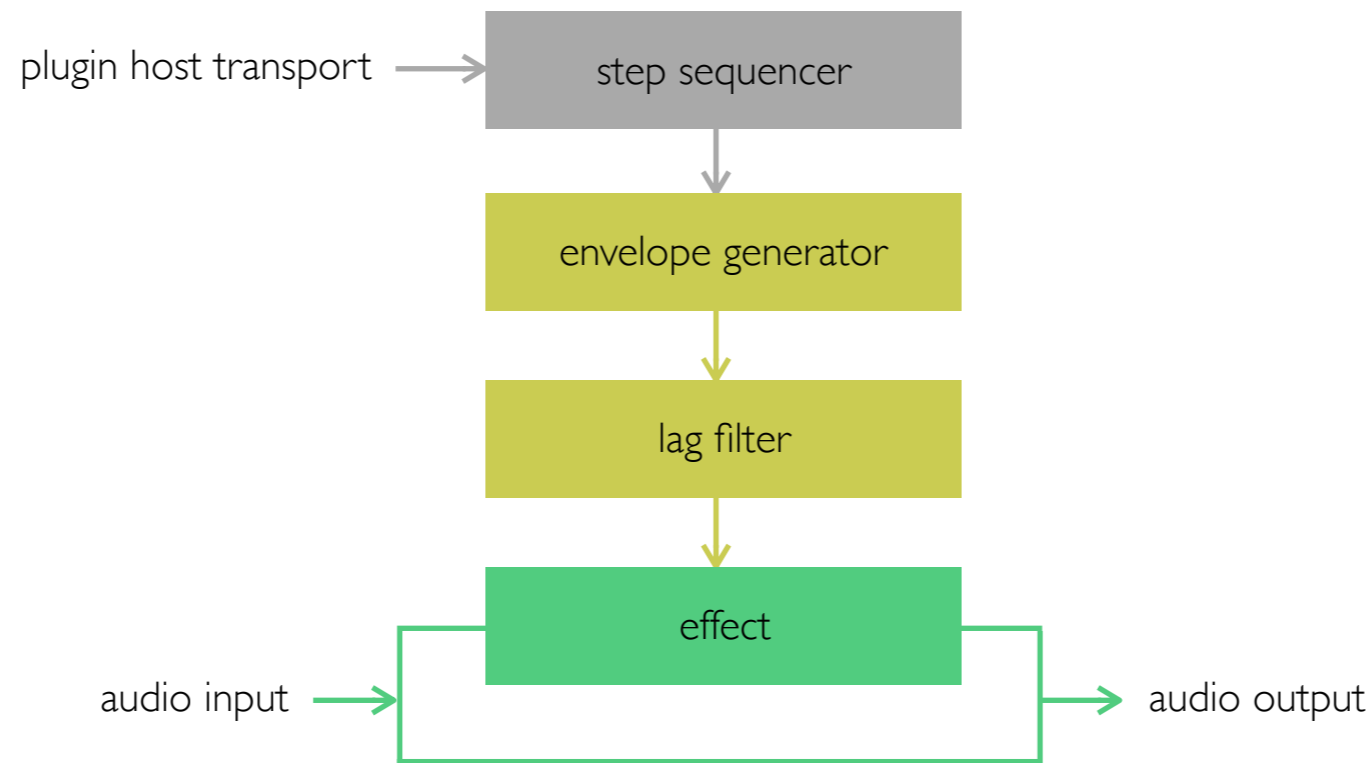frequency shift amount per
each sequencer step

Step 4

Click and drag to change the
envelope modulation depth
for each sequencer step

sequencer   duration   4 bars   division   quadruple   swing   50 %

input

+ 5.4 kHz

frequency

- 5.4 kHz

envelope

triangle
triple ramp
double ramp
single ramp
square

polarity   + + + + + + + + + + + + + + + − − − − − − − − − − − − − − − −

shape   time   100 %   curve   exponential   lag   1.0 ms

effect   type **frequency shifter** ring modulator   range   5.4 kHz   dry/wet   100 %

snapshot   1 2 3 4 5 6 7 8   copy   paste   reset   evolve   randomize   1:2x   1:4x   1:8x   <<   <   >   >>   sinevibes shift 2.0.0

BASICS & BLOCK DIAGRAM

Here is how Shift works. The input signal is sent into a frequency shifter or a ring modulator algorithm: either of them modifies the frequency ratios between the signal's spectral components, making the sound more and more inharmonic. At the same time, a step sequencer runs a multi-envelope generator that produces a complex rhythmical modulation signal. This signal is sent through a lag filter (variable shape smoothing from fast/snappy to slow/lazy) and then to modulate the shift frequency. Finally, the shifter's output is mixed with the dry signal and sent into the output.

plugin host transport → **step sequencer**

↓

envelope generator

↓

lag filter

↓

audio input → **effect** → audio output

INTERFACE OVERVIEW
Sequencer & live audio waveform

Adjusts the **swing** ratio between odd and even steps: 25% to equal to 75% (available for quadruple beat division only)

Sequencer beat **division**: into three steps (triplets) or four steps (quadruplets)

Sequencer loop **duration**: 1 bar, 2 bars, 4 bars or 8 bars

sequencer   duration |___|___|___|___| 4 bars   division ━ ━ ━ ▬▬▬ quadruple   swing |━━━●━━━| 50 %

input

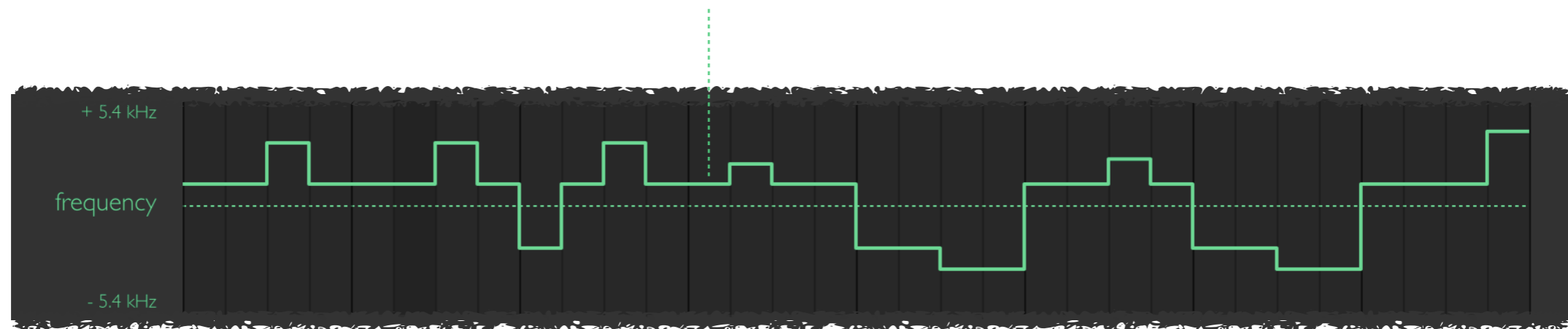Running highlight shows current sequence position

Live preview of the incoming audio signal's waveform

Sequencer length ruler: sets the **end step** of the loop

INTERFACE OVERVIEW
Per-step filter parameters

Shifter or ring modulator **frequency**: click and drag
to adjust frequency for each sequencer step, more
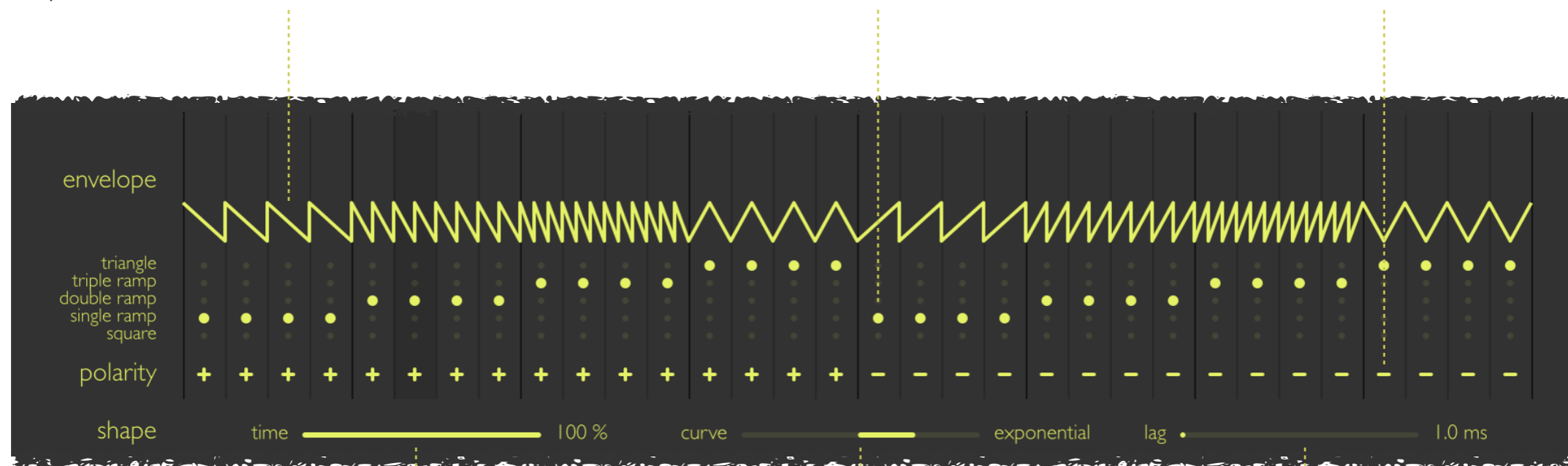actions available via <u>shortcuts</u>

INTERFACE OVERVIEW
Per-step modulation envelope parameters

Modulation envelope **level**: click and drag to adjust filter frequency modulation level for each sequencer step, more actions available via <u>shortcuts</u>

Envelope **shape**: click and drag to adjust envelope shape for each sequencer step (square, single/double/triple ramp, triangle), other actions also available via <u>shortcuts</u>

Envelope **polarity**: click and drag to adjust polarity for each sequencer step, more actions via <u>shortcuts</u>

envelope

triangle
triple ramp
double ramp
single ramp
square

polarity + + + + + + + + + + + + + + + + − − − − − − − − − − − − − − − −

shape   time ——————— 100 %   curve ——— exponential   lag • ——— 1.0 ms

Envelope duration **time**: short to standard to long

Envelope **lag**: attack/decay smoothing time from 2 ms (snappy) to 200 ms (lazy)

Overall **dry/wet** balance between the input signal and the filter output

INTERFACE OVERVIEW
Snapshot & sequencer functions

Minimum and maximum frequency **range** of the shifting effect

Overall **dry/wet** balance between original and processed audio signals

Shifting effect **type**

| effect | type **frequency shifter** ring modulator | range ———————— 5.4 kHz | dry/wet ——————————— 100 % |

| snapshot ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ | copy paste reset evolve randomize 1:2x 1:4x 1:8x ‹‹ ‹ › ›› | sinevibes shift 2.0.0 |

Current parameter **snapshot** number; can also be changed with two-finger swipe <u>shortcuts</u>

Snapshot functions to **copy**, **paste**, or **reset** the whole snapshot, as well as **evolve** (set some sequencer steps to random values) or **randomize** (set all sequencer steps to random values)

Functions to **clone** the first half, first quarter or first one eighth of the sequence (aware of current sequencer beat division)

Functions to **shift** the sequence left or right by one beat or by one step (aware of current sequencer beat division)

SHORTCUTS

Shift's graphic interface features multiple shortcuts that modify or automate the editing workflow. The shortcuts are activated by double-clicking, by clicking and dragging while pressing a key (such as *command* or *option*), and also using *multi-touch* gestures or *force-touch* clicks on a trackpad that supports them.

sequencer   *command-click* or *double-click* on any control – reset to default value

frequency   *command-click (drag)* or *force-click (drag)* – set all steps to the same filter frequency
                control-click (drag) – adjust last clicked step within 10 fixed values
                shift-drag – relatively adjust all steps at the same time
                option-click – set all steps to random frequency values

envelope   *command-click (drag)* or *force-click (drag)* – set all steps to the same envelope level
                control-click (drag) – adjust last clicked step within 10 fixed values
                shift-drag – relatively adjust all steps at the same time
                option-click – set all steps to random envelope levels

envelope matrix   *command-click (drag)* or *force-click (drag)* – set all steps to the same envelope type
                control-click (drag) – snap to last clicked envelope type
                option-click – set all steps to random envelope types

envelope polarity   *command-click* or *force-click* – flip envelope polarity on all steps
                option-click – set all steps to random envelope polarity values

envelope shape   *command-click* or *double-click* on any slider – reset to default value

effect   *command-click* or *double-click* on any slider – reset to default value

snapshot   *two-finger swipe* left or right (from anywhere in the interface) – switch to previous or next snapshot