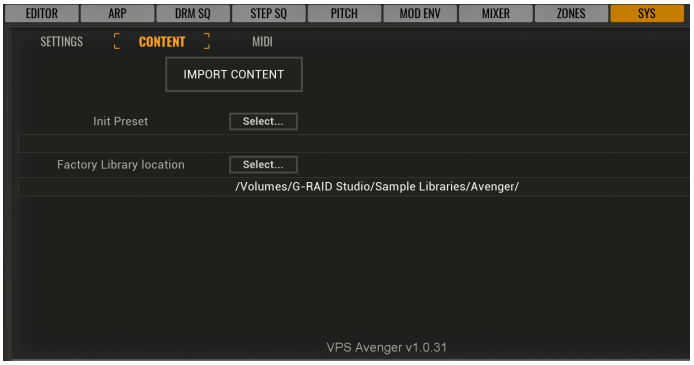
# Sound Library *Panopticon* for Avenger



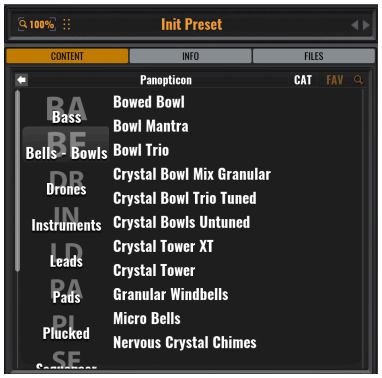

## Installation

After uncompressing the zip-file you downloaded you will find a Readme-PDF and the installation file “Panopticon.avengercontent“, please proceed as follows:

Navigate to the SYS-tab in Avenger on the far right of the main edit window, click on “CONTENT“, then click on “IMPORT CONTENT“ and locate the installation file or just drag&drop the file into the Avenger interface.



After the installation you will find the presets within Avengers preset browser.




**License agreement and terms of usage**

This license agreement is between you (the licensee) and me (Simon Stockhausen).
1.) The licensee must not distribute or share the patches, samples and wavetables from *Panopticon*, must not resample or re-synthesize, copy or otherwise replicate the patches, wavetables, samples and shapes from this sound library in any commercial, free or otherwise product. That includes sample and audio libraries and patches for samplers and sample based synthesizers. You can of course create such derivates for your own musical work as long as these derivates are only distributed in the context of musical work or sound design.

2.) The license to the sound library *Panopticon* may not be given away or sold (NFR).

**Description and Content:**

Painting with sound on sonic canvas using broad and delicate brushes, creating an exhibition of sculpted sound around a musical well, Panopticon is a collection of expressive, evocative, soothing, playful, dark, exciting, often cinematic patches, also focussing on the granular capabilities of the hybrid monster named Avenger.

The patches in Panopticon make use of re-synthesized/wave-tabled vocal, instrumental and electronic tones, processed field recordings, multi-sampled acoustic instruments like electric/acoustic guitar, soprano saxophone, accordion, singing bowls (also bowed), crystal bowls, wavetable-based drones, pads, sequencers and synths, granular/multi-sampled soundscapes, re-synthesized/wave-tabled hardware synths and more. Quite a few patches utilize the new cross-FM feature introduced in Avenger version 1.3, which allows for frequency modulation (FM) between oscillators.

**Please note:** In order to play the presets from this sound library you need to have Avenger version 1.3.3 or higher installed on your system. Sometimes looped modulation envelopes do not react to the sustain pedal, so if you release a key the envelope stops at the position where you released the key and does not loop on.

There is some overlap in the content folders for granular and sampling sources as Avenger converts a given sample/multi-sample either as a sampling source or as a granular source.

**Specs:**

- 106 tagged patches (including 4 variations).
- 113 granular sources
- 31 sample maps (multi-samples) and one-shots plus some samples embedded in the patches themselves.
- 41 wavetables
- 16 single cycle waveforms (shapes).
- 4 impulse responses.
- Library size installed: 1.26 GB (1.25 GB download)
- All patches have the modulation wheel, the three Macros and both Macro buttons assigned, many also use aftertouch and velocity to expressively shape the sound.
- Comes in the native avenger format, easy import/installation.

**Patch categories** (12 sub-folders):

- Bass – 3
- Bells - Bowls – 11 (including 1 variation)
- Drones – 10
- Instruments – 21 (including 1 variation)
- Leads – 3
- Pads – 11
- Plucked – 3
- Sequencer – 11 (including 1 variation)
- Soundscapes – 16
- Synth – 8
- Textural – 5
- Vocal Synth – 4 (including 1 variation)

## CPU

Avenger can be quite CPU-hungry depending on the buffer size in your DAW and the amount of layers and voices used in a patch. On Mac it saves CPU if you have the interface closed. To save CPU, decrease the release time and reduce the number total polyphonic voices, also when mixing and not tracking, raise the buffer of your DAW. Logic users should select an empty track when not playing Avenger as the Live-mode in Logic is quite demanding on the CPU. A few patches have a variation which uses less CPU.

## Patchlist

In the remarks about the patch setup and available controls I didn't mention all details, but a lot of them. "MW" means modulation wheel, "AT" means aftertouch, "WT" means wavetable, "VEL" means velocity, PB means pitch bend. F1-x means filters 1-x, the Macros are abbreviated with "M1 - M3", Macro buttons are labelled MB1/2. If your Midi keyboard does not support aftertouch, you can automate "C-Press" in your DAW.

| Bass | Comments / Controller Assignments |
|---|---|
| Ambient Bass Seq<br><br>used in this audio demo | 4-Bar bass sequence (in 4/4 ARP1 patterns A/B), bass sound in OSC1, additional sequencer sound in OSC2 (engage with MB2). Dial in LP filter modulation (via MODENV3) with M1, pitch modulation for OSC1 (via PITCH2) with M2, control delay mix with M3 (delay feedback modulated by MODENV 5). MB2 engages Vinylizer FX, MW introduces tempo-synced RATE/SYNC modulation. |
| Brass Bass | Cross-FM synth bass using the shape/waveform extracted from a flageolet guitar as the carrier and a trombone sustain in granular mode (OSC2) as the modulator. VEL modulates filter cutoff and filter envelope amount, MW increases FM, unison detune/ stereo panning and filter resonance/drive, AT adds vibrato. M1 engages an envelope assigned to shaper-distortion, M2 controls the sub-bass volume, M3 adds a combination of distortion/flanger FX (in FX1). MB1/2 control room/delay mix in the master FX section (with very short delay times modulated by LFO2). |
| Metro Bass<br><br>used in this audio demo | Punchy cross-FM synth bass using the WT of a singing bowl as the carrier and a transformed square wave (OSC2) as the modulator. MW increases FM and adds ensemble FX (in FX1), M1 dials in the velocity-sensitive LP filter envelope. M2 controls sub-bass volume, M3 adds SPIKE. MB1 engages the free running formant modulation, MB2 controls convolution reverb mix. |

| Bells - Bowls | Comments / Controller Assignments |
|---|---|
| Bowed Bowl<br><br>featured in this audio demo | Long sample of bowing a large singing bowl with a cello bow (6 bows in total) playing in granular mode, control grain speed with M2. MW engages unison with modulated detune and randomizes grain pitch, AT adds vibrato. M1 introduces cross FM (with a formant-modulated triangle wave in OSC2) and adds tempo-synced, triplet-based amplitude and AM modulation (LFO3). M3 introduces free-running LP filter modulation and adds chorus FX (FX1), MB1/2 control delay/reverb mix. |
| Bowl Mantra<br><br>used in this audio demo | OSC1 uses a WT extracted from a singing bowl sample, OSC2 plays a long sample with a series of accents played with a wooden beater on various differently sized singing bowls. MW adds FM in both oscillators and shifts formants in OSC1, AT modulates grain position in OSC2. M1 adds X-Cite modulation in OSC1 via LFO3. M2 randomizes grain pitch/position on OSC2, M3 adds vibrato and increases unison detune in the WT synth. MB1/2 control delay/reverb mix (Master FX). |
| Bowl Trio<br><br>featured in this video demo | An 83 second long sample of improvising on various differently sized singing bowl with a wooden beater. The sample is divided into three segments, each granular OSC playing a different segment. Control grain speed with M1, randomize grain pitch with MW, AT adds re-triggering pan modulation in each AMP (via LFO 3/4, one AMP for each OSC) and modulates grain spread pitch. M2 introduces modulation of grain direction via re-triggering, random LFO1, M3 adds a tuned comb-filter (negative polarity). MB1/2 control delay/reverb mix (FX1). |
| Crystal Bowl Mix Granular<br><br>Featured in this audio demo | Sample of a 2-minute long improvisation on eight differently sized crystal bowls played with a wooden beater, running in granular mode. Increase grain speed/ decrease grain size with Macro 1, modulate grain position with AT. MW randomizes grain pitch, adds pitch spread modulation via random-square LFO 1 and adds Multimod FX, M2 adds grain reverse and increases grain position randomization, M3 decreases key follow for pitch resulting in a microtonal tuning. MB1 switches on shaper-distortion, MB2 controls mix of convolution reverb/delay. |
| Crystal Bowl Trio Tuned<br><br>featured in this audio demo | Three fine-tuned crystal bowl samples split across the keyboard and a dedicated cross FM-wavetable-oscillator (with accordion wavetables) for each sample. MW controls FM amount, VEL modulates unison detune, M1 controls unison mix, AT adds vibrato. M2 engages a velocity sensitive LP filter envelope, M3 controls flanger FX mix (in FX1). MB1/2 control delay/reverb mix (FX1). |
| Crystal Bowls Untuned<br><br>featured in this audio demo | Multi-sampled crystal bowls played with a wooden beater (6 pitches were sampled between A#2 – C4) layered with four granulated reversed crystal bowls split across the keyboard, reverse speed is synced to host tempo and can be doubled with MB1. Control the volume of the reversed bowls (assigned to AMP 2) with M1, M2 controls unison mix for OSC1 (with randomized detune values), M3 controls chorus mix (in FX1). MW adds FM in OSC1 and introduces tempo-synced amplitude modulation (via LFO 1/2), AT randomizes grain pitch/position in the reversed granular bowls. |
| Crystal Tower XT | Multi-sampled bell resonance-drones in OSC1 (assigned to F1), 4 pitches were sampled between D#1 – D#4, layered with a WT-drone in OSC2 (assigned to F2), VEL modulates amount of formant modulation via MODENV1. M1 randomizes sample start, MW introduces FM/AM and controls/increases unison mix (detune in OSC1 modulated by LFO1), AT adds random pitch modulation if MB1 is engaged. M2 increases attack time, M3 introduces peak-filter/low-pass filter modulation via LFO 2/3, Add more punch to the attack by activating MB2 (assigned to Spike). |
| Crystal Tower | Multi-sampled bell resonance-drones, 4 pitches were sampled between D#1 – D#4, M1 randomizes sample start, MW introduces FM/AM and controls unison mix (detune modulated by LFO1), AT adds random pitch modulation if MB1 is engaged. M2 increases attack time, M3 introduces peak-filter modulation via LFO 2/3, Add more punch to the attack by activating MB2 (assigned to Spike). |

| Bells - Bowls | Comments / Controller Assignments |
|---|---|
| Granular Windbells | A long texture of four microtonal wind-bells playing in granular mode, frequency-modulated by a wavetable oscillator using a WT extracted from a crystal bowl sample. AT modulates grain position, MW randomizes grain pitch and engages grain spread pitch, M1 controls grain speed, M2 controls amount of cross-FM, M3 increases grain size/density and probability of grain reversal. MB1 randomizes grain position/sample start, MB2 controls delay/reverb mix. |
| Micro Bells<br><br>used in this audio demo | A long texture of four microtonal wind-bells playing in sampling mode, key follow is set to microtonal (25%) so 4 octaves on the keyboard = 1 octave of effective pitch change. Cross-FM can be engaged, the modulator in OSC2 has pitch modulation applied (via LFO1) resulting in ring modulation effects. MW controls unison mix, AT adds random pitch modulation. M2 controls the resonance of the tuned comb-filter in F1 resulting in chromatically playable pitches, it also engages LP filter modulation (free running via LFO3) to soften some of the high frequencies introduced by the comb-filtering. M3 controls mix of the convolution reverb which uses a custom IR. MB1 randomizes grain position/sample start, MB2 controls delay mix. |
| Nervous Crystal Chimes | Granular texture layering two crystal bowls, very low grain density and short grain size, randomize grain pitch with MW. M1 increases grain size, decreases randomization of grain position and probability of reversed grains occurring, resulting in a more sustained sound. M2 controls the resonance of the tuned comb-filter in F1 and adds chorus FX, M3 introduces FM amount/LP filter modulation via LFO 3 and tempo-synced FM Rate modulation via random LFO 4. MB1 controls mix of the convolution reverb, MB2 controls delay FX mix. |

| Drones | Comments / Controller Assignments |
|---|---|
| Accordion Phase Drone | Wavetable drone using two accordion wavetables in OSC1/2, each OSC has it's dedicated amplifier, OSC1 (with detune modulation via LF01) applies OSC3 as the modulator for cross-FM, OSC3 uses a shape extracted form an accordion.<br>M2 engages tempo-synced, re-triggering amplitude modulation in AMP1/2 via MODENV 2/3, M1 introduces velocity-sensitive, tempo-synced LP filter modulation via MODENV 1, M3 adds pitch modulation via LFO 1/2 with opposite polarity in OSC2 and wave-shaper distortion. MW controls FM amount, AT controls chorus FX mix (FX1), MB1/2 control delay/reverb mix (FX1). |
| Conjuration Drone<br><br>used in this audio demo | Drone sound made from processed speech, sampled at two pitches, playing in granular mode, oscillator crossfade between C3–C4 (C2–C3 in Avenger). Playing legato notes will not re-trigger the granular samples. MW introduces tempo-synced, re-triggering amplitude modulation via MODENV 1 and Rate-distortion nodulation via LFO3. M! adds FM with FM RATE being modulated via LFO1, M2 engages wave-shaper distortion and re-triggering LP filter modulation, M3 increases grain speed and decreases randomization of grain position, AT randomizes grain pitch.<br>MB1/2 control delay/reverb mix (FX1). |
| Cross FM Bell Drone<br><br>used in this audio demo<br>used in this audio demo | Mysterious drone combining a WT oscillator with cross-FM in OSC1 (using a WT extracted from a vocal texture) and a granular vocal resonance-texture in OSC3 (use M3 for volume control). MW randomizes grain pitch in OSC2/3, with OSC2 being the frequency-modulator for OSC1, it also transposes OSC2 downwards, and adds FM in OSC2. AT adds vibrato, VEL modulates amount of formant modulation in OSC1 (via LFO1). M1 increases resonance of the tuned comb-filter in F1, M2 engages wave-shaper distortion and LP filter modulation in F2. MB1 activates flanger FX (in FX1) affecting only the drone sound, MB2 controls delay/reverb mix (Master FX). |

| Drones | Comments / Controller Assignments |
|---|---|
| Drone From Mars<br><br>featured in this audio demo | Cross-FM drone combining a sine wave in OSC1 (routed to F1) frequency-modulated by a multi-sampled synth texture in OSC2 and a wavetable oscillator using a WT extracted from a speech sample in OSC3 frequency-modulating a triangle wave in OSC4 (routed to F2), both filters have permanent cutoff modulation applied (LFO 2/3). M3 is a dedicated volume control for OSC4. MW increases unison detune in both FM carriers and adds vibrato in OSC4, M1 engages FM in both carriers resulting in some where scientific tones, M2 introduces pitch modulation via MODENV 1 in both modulators resulting in RM-like effects.<br>VEL decreases attack time, MB1/2 control delay/reverb mix (FX1). |
| Drone Talker<br><br>used in this audio demo | Animated WT drone combining a WT extracted from a speech sample in OSC1 and a vowel shape in OSC2, it's volume assigned to MW. M1 introduces several tempo-synced, triplet-based modulations (FM/X-Cite/Formant). M2 increases unison detune, M3 controls volume of the interval in the chorder (modulated by MODENV 3) and the sub-oscillator (with tempo-synced amplitude modulation via LFO 3). MB1/2 control delay/reverb mix (FX1/Master FX), AT adds vibrato in OSC1. |
| Harmonic Winter | Dual WT-drone for cold winter nights, each OSC is routed to it's dedicated amplifier. VEL modulates LP cutoff (F1), amount of formant modulation, increases WT scanning speed and engages unison detune/pan spread modulation via LFO1 in OSC1 and increases FreqVariSpeed in OSC2. MW introduces tempo-synced modulation of amplitude (inverted polarity for AMP2) and X-Cite (via MODENV2), AT adds vibrato. M1 adds noise in both oscillators with noise color modulated by LFO2, pan modulation (inverted polarity in AMP2) and comb-filter modulation in F2. M2/3 control Multimod/ delay mix (FX1), MB1 controls reverb mix, MB2 increases release time. |
| Interior Drone<br><br>used in this audio demo | A re-synthesized/wave-tabled tenor sax wholetone scale in OSC1 routed to a tuned bandpass filter (in F1) meets a multi-sampled synth texture derived from a re-synthesized saxophone tremolo in OSC2 (routed to F2/FX2), set sample start with M1. MW adds FM in both oscillators, increases BP cutoff in F1, adds vibrato in OSC2 and decreases LP filter cutoff in F1. |
| Robo DronePad | Dual wavetable drone using the same WT extracted from male speech in both oscillators, playing reversed in OSC2, each OSC has it's dedicated amplifier. AT adds vibrato, MW introduces tempo-synced, square-shaped, re-triggering pitch modulation via LFO4, +/- 1 octave with the wheel fully engaged, inverted polarity in OSC2.<br>M1 engages tempo-synced amplitude/noise amount modulation via MODENV2 in OSC1 and tempo-synced amplitude/X-Cite modulation via MODENV 2/3 in OSC2.<br>M2 controls flanger FX mix (in FX1), decreases LP cutoff in the master filter and also adds some cutoff modulation (LFO2). M3 controls delay FX mix, MB1 controls reverb mix, MB2 increases release time. |
| Steel Drone | Multi-sampled time-stretched drones produced with a steel string acoustic guitar,<br>5 pitches were sampled between G0 – E5, each granular oscillators plays one pitch, zone crossfades are applied. MW detunes the grains and randomizes grain position, AT adds vibrato. M1 adds a velocity sensitive, tempo-synced LP cutoff envelope, M2 adds tempo-synced modulation of the tuned peak filter and tempo-synced amplitude modulation, M3 adds notch-filtering/stereo phasing (in FX1). MB1/2 are assigned to delay/reverb mix. |
| Thunder Drone | WT-drone with FM using a WT extracted from a thunder clap sample. Unison detune and resonance of the tuned comb-filter in F1 is modulated via tempo-synced LFO2, X-Cite modulation via LFO1. AT adds noise when MB1 is engaged, MW introduces tempo-synced comb-cutoff modulation (+1 octave when fully engaged). M1 controls phaser/delay mix, M2 engages a tempo-synced volume gate sequence (STP SQ1) and adds SYNC-modulation via MODENV 1, M3 adds tempo-synced, random modulation of WT index, formant and comb cutoff (via unipolar LFO4).<br>MB2 controls reverb mix. |

| Instruments | Comments / Controller Assignments |
|---|---|
| Accordion Drone Swell Split<br><br>used in this audio demo | In the lower half there is an accordion drone with six dynamic swells playing in granular mode, synced to host tempo (6x 4/4), in the upper half there is a processed version of that drone also synced to host, zone crossfade between C3–C4 (C2–C3 in Avenger). MW introduces tempo-synced, re-triggering amplitude modulation (via MODENV 1), AT randomizes grain pitch. M1 adds tempo-synced modulation of wave-shaper distortion (via LFO1), M2 adds tempo-synced, re-triggering HP filter modulation via LFO 2/3, M3 engages LP filter modulation in the master filter via LFO 4 and adds flanger FX (FX1), MB1/2 control delay/reverb mix. |
| Accordion Majesty Drones Split<br><br>featured in this video | Two long accordion drones with different root notes and their processed siblings split across the keyboard, crossfading between C3–C4 (C2–C3 in Avenger). The dry samples play in granular mode with modulation of grain pan spread and pitch randomization (via LFO1, amount of grain pitch randomization is velocity sensitive), the processed version plays in normal sampling mode, M1/2 are dedicated volume controls for each layer. VEL decreases attack time, MW introduces tempo-synced, triplet-based modulation (re-triggering) of LP filter cutoff/resonance and amplitude (via MODENV 1/2 and LFO2). M3 adds a combination of free-running LP/Notch-filter modulation (master filter and a filter in FX1) and chorus FX, MB1/2 control delay/reverb mix. |
| Accordion Octave Pad<br><br>featured in this audio demo | Wave-tabled accordion, reminding of a church organ, VEL increases WT scanning speed and decreases attack time, MW increases unison detune and adds independent vibrato (per unison voice). M1 adds SYNC-modulation via LFO1 and engages FFT partial modulation, M2 introduces notch-filter modulation via free-running LFO 2, M3 adds FM and engages tempo-synced LP filter modulation via LFO 4. MB1 controls chorus FX mix (FX1), MB2 controls delay/reverb mix. |
| Accordion Soundtrack Split | This patch layers dry and processed accordion sounds all playing in granular mode. Lower half, mapped up to B3 (B2 in Avenger) there is a long e-minor6 drone, with 9 dynamic swells (back and forth) - processed and dry. Upper half mapped from C4 (C3 upwards) there is a phrase in minor - processed and dry, the processed version loops back and forth. Control grain speed with M1, M2/3 are dedicated volume controls for dry and processed sounds. MB1 engages dual filter modulation (LP/HP), MB2 engages reverb FX. MW adds tempo-synced volume gating (STEP SQ and LFO3 via MODENV1), pan modulation and adds delay FX, AT randomizes grain pitch. |
| Accordion Sustain MS<br><br>featured in this audio demo | Multi-sampled accordion sustains, looped, up to 37 seconds long, 10 pitches were sampled between F2 – F5. M1 controls amount of unison mix (detune modulated by a re-triggering LFO), M2 adds notch filter sweeping, ensemble and stereo FX, M3 introduces tempo-synced LP filter modulation (via LFO 3/4), MW adds tempo-synced volume gating (stereo), AT adds vibrato. MB1/2 control delay/reverb FX mix. |
| Ambient Flageolet Sync 01 | An 8-bar long processed electric guitar flageolet sequence playing in tempo-synced granular mode, root note: E3 (E2 in Avenger). MW introduces tempo-synced amplitude modulation (LFO3) and controls unison mix with detune modulated via LFO1, with MB1 activated, AT transposes pitch up a wholetone when fully engaged. M1 adds FM with FM Rate modulation via MODENV 2, M2 increases grain size/density/randomization of grain position/probability of grain reversal, M3 adds wave-shaper distortion with tempo-synced modulation of amount (LFO4) and frequency (LFO1) and also control ensemble FX mix (in FX1), MB2 controls reverb mix. |
| Ambient Flageolet Sync 02<br><br>featured in this audio demo | Two layered 8-bar long processed electric guitar flageolet sequences playing in tempo-synced granular mode, root notes: E3 (E2 in Avenger). MW introduces tempo-synced amplitude modulation (LFO3) and controls unison mix with detune modulated via LFO1, with MB1 activated, AT transposes pitch up a wholetone when fully engaged. M1 adds FM with FM Rate modulation via MODENV 2, M2 increases grain size/density/randomization of grain position/probability of grain reversal, M3 adds wave-shaper distortion with tempo-synced modulation of amount (LFO4) and frequency (LFO1) and also control ensemble FX mix (in FX1), MB2 controls reverb mix. |

| Instruments | Comments / Controller Assignments |
|---|---|
| Ambient Flageolet Sync 03 FM<br><br>featured in this video demo | An 8-bar long processed electric guitar flageolet sequence playing in tempo-synced granular mode, frequency-modulated by OSC2 using a modulated sine wave (SYNC/ pitch/X-Cite modulation via MODENV 1/2 and LFO1), pitch modulation in OSC2 can be switched on/off with MB1. MW introduces tempo-synced amplitude modulation (LFO3) and controls unison mix with detune modulated via LFO1. M1 controls amount of cross-FM, M2 increases grain size/density/randomization of grain position/probability of grain reversal, M3 adds wave-shaper distortion with tempo-synced modulation of amount (LFO4) and frequency (LFO1) and also control ensemble FX mix (in FX1), MB2 controls reverb/delay mix. |
| Bouncing Steel Guitar Granular | Bouncing a screwdriver on a steel sting (acoustic guitar), playing in granular mode forward (OSC) and reverse (OSC2), root note: E3 (E2 in Avenger), MB1 mutes OSC2 which is routed to AMP2 with permanent pan modulation (polyphonic LFO1/per voice played). AT detuned grain pitch in OSC1, OSC2 has permanent modulation of grain pitch randomization applied (via LFO2). MW randomizes grain position, creating a dense grain cloud, adds FM and engages unison mix in OSC1 (with detune modulation via LFO1). M1 controls grain speed, M2 introduces tempo-synced amplitude/filter modulation (in both filters) via LFO4/STP SQ1 and adds wave-shaper distortion with frequency modulation, M3 controls reverb mix, MB2 controls delay mix. |
| Electric Space Flagos | Tonal ambient guitar flageolet soundscape, two pitches were sampled (E1/E3), the two granular oscillators crossfade between E3–C4 (E2 –C3 in Avenger), M1 controls grain speed, M2 controls grain position. MW introduces tempo-synced amplitude modulation (via STEP SQ1 and LFO3, amount of LFO modulated by MODENV1) and FM modulation (via MODENV2), AT randomizes grain pitch/position. MW introduces tempo-synced LP filter modulation (via LFO 1/2), MB1 engages a combination of delay/flanger FX, MB2 controls reverb mix. |
| Flageolet Chords Granular<br><br>featured in this video demo | Two arpeggiated flageolet chords played on an acoustic guitar with steel strings, the second chord using a coin - running in granular mode in OSC1/2 with tempo-synced envelopes modulating grain position. OSC3 adds a long tonal soundscape (forward/ reverse) in sampling mode, derived from both chords, VEL shifts sample start to the first peak of the sample. M1 controls balance between 1-2, M2 controls volume of the soundscape, M3 adds delay/phaser FX, with delay feedback and Ghost-Q modulated by MODENV2 and LFO3. MB1 sets the granular envelope speed to half, MB2 controls reverb FX mix. MW adds tempo-synced HP filter modulation, AT randomizes grain pitch. |
| Guitar Rain<br><br>featured in this audio demo | Multi-sampled electric guitar texture layering x-fade split granular oscillators (1-5) with multi-sampling (OSC6). The granular oscillators don't re-trigger when playing legato. MW adds FM, bipolar M1 controls the resonance of the tuned comb-filter in F2 (left -> negative, right -> positive), M2 engages free-running notch-filtering (F1), M3 introduces multi-band distortion and LP filter modulation (in FX1), MB1 controls delay FX mix, MB2 engages re-triggering pan modulation (LFO4). |
| Minor Guitar Duet | Two layered, 8-bar long processed electric guitar minor chord sequences playing in tempo-synced granular mode, set granular speed (and pulsating LFO3 speed) to half time using MB1, permanent re-triggering pan modulation (per note played) is applied via MODENV 2. MW introduces FM and tempo-synced AM modulation via LFO4. M1 flips the direction of the granular envelope in OSC2, when fully engaged the sequence plays reversed. M2 introduces tempo-synced amplitude modulation (via LFO3), M3 adds a combination of LP filter modulation and wave-shaper distortion with modulated frequency bands (via LFO 1/2), MB2 engages notch-filter modulation via MODENV 3 (Master Filter). |

| Instruments | Comments / Controller Assignments |
|---|---|
| Sax Guitar Hybrid FM<br><br>featured in this video demo | Cross-FM patch combining a tempo-synced soprano sax sequence in OSC1 frequency modulated by an electric guitar flageolet sequence in OSC2, VEL modulates the amount of FM modulation via LFO1. OSC3 adds a WT synth (routed to phaser in FX2), control it's volume with M1. M2 adds a tuned FM filter modulated by LFO1 (+1 octave). MW randomizes grain position in 1/2, adds FM in OSC3, increases FM in OSC1 and adds /Rate distortion/tunes up OSC2 an octave (steppy), AT adds vibrato and increases unison detune in OSC1. M3 adds LP filter modulation/filter resonance (F3) and adds wave shaper distortion (master FX). MB1 adds chorus FX for OSC1 (FX1), MB2 controls wet mix of delay/reverb FX (master FX). |
| Soprano Sax Dynamic Trills<br><br>featured in this audio demo | Soprano saxophone - multi-sampled dynamic whole-tone trills, 5 trills were sampled between C3 – D5. OSC1 plays the looped multi-samples, OSC2 adds a re-synthesized/wave-tabled sax trill, M1 is a dedicated volume control for OSC2, M2 adds tuned comb-filtering in OSC1, M3 adds polyphonic LP filter modulation in OSC1. MB1 adds ensemble FX, MB2 controls wet mix of delay/reverb. MW adds FM and vibrato in OSC1, shifts formants and adds rate distortion in OSC2. |
| Soprano Sax Granular Trills | Three soprano sax dynamic wholetone trills with zone crossfade playing in granular mode, M1 controls grain speed and other granular parameters, M2 adds re-triggering pan modulation (per voice played), M3 adds polyphonic HP filter modulation and phaser FX. MW adds cross FM - the modulating oscillators 4-6 use a cello wavetable and have tempo-synced, square-shaped pitch modulation applied (via LFO2),<br>AT adds grain pitch/position randomization. |
| Soprano Sax Minimal Seq Sync<br><br>used in this audio demo | Two 8-bar long dynamic soprano sax sequences, sampled in two octaves, playing in tempo-synced granular mode in OSC1/2 (routed to AMP1/FX1), zone crossfade between C4–G4 (C3–G3 in Avenger) - **please check the length of the granular envelopes, for some reason they reset themselves to odd values, the length should be 32 beats exactly**. OSC3 (routed to AMP2/FX2) adds a synth sequence, pitch modulation via MODENV 1, amplitude modulation via tempo-synced LFO2, use M2 for volume control. MW adds FM with tempo-synced modulation of FM Rate via MODENV 1.<br>M1 controls numerous granular parameters, turning the sequence into a grain cloud, it also increases attack/release time. M3 adds tempo-synced, re-triggering wave-shaper/ LP filter modulation via MODENV 2, MB1 controls delay FX mix for the sax sequences, MB2 controls reverb mix (Master FX). |
| Soprano Sax Octave Seq Sync<br><br>used in this audio demo | Five 8-bar long soprano sax phrases (perfect fifth/octave) split across the keyboard, M1 diffuses the grains creating a nice grain cloud and increases attack/release time. M2 adds re-triggering, tempo-synced HP filter modulation and phaser FX, M3 adds FM with FM Rate being modulated by a tempo-synced, random LFO4. MW adds tempo-synced amplitude/pan modulation, AT randomizes grain pitch, MB1 doubles the sequence speed, MB2 controls delay/reverb mix. |
| Soprano Sax Pad No Vibrato<br><br>featured in this video demo | Multi-sampled soprano sax sustains, played without vibrato, VEL decreases attack time, AT adds vibrato/increases unison detune, MW controls unison mix, detune modulation via re-triggering LFO1 and AT. M1 decreases LP cutoff, adds subtle filter modulation and introduces wave-shaper distortion, frequency bands are modulated via key follow. M2 controls chorus FX mix (FX1), M3 adds cross-FM, the modulating oscillator plays the same sample map. MB1/2 control delay/reverb mix. |
| Soprano Sax Penta Seq Sync<br><br>featured in this video demo | Two 8-bars long pentatonic soprano sax phrases playing in tempo-synced granular mode, control the balance between the phases with M2, M1 diffuses the grains creating a nice grain cloud and increases attack/release time. M3 adds FM with FM Rate being modulated by tempo-synced, random LFO4. MW adds tempo-synced amplitude modulation, shape-distortion and LP filter modulation. MB1 doubles the sequence speed, MB2 controls delay/reverb mix. |

| Instruments | Comments / Controller Assignments |
|---|---|
| Spectral Cello<br><br>featured in this video | Dual WT synth using modified WTs extracted from a cello sustain playing in opposite direction in OSC1/2 (each routed to it's dedicated amplifier, panned L-R 51%), re-triggering LOF1 modulates vibrato amount which makes for some nice, unpredictable pitch quirks. MW increases WT scanning speed, VEL decreases attack time,<br>AT increases unison detune. M1 introduces tempo-synced, re-triggering formant modulation via MODENV1, M2 adds tempo-synced, re-triggering SYNC-modulation via MODENV2. M3 controls convolution reverb mix , MB1 engages delay FX, MB2 increases release time. |

| Leads | Comments / Controller Assignments |
|---|---|
| Convertible Lead | Monophonic lead sound with 7 unison voices using a re-synthesized/wave-tabled soprano sax sustain, WT does not re-trigger from the beginning when playing legato notes, glide is activated. MW increases unison detune and adds vibrato (independent per unison voice), AT shifts pitch up 2 semitones when MB1 is engaged, VEL modulates LP cutoff and increases attack time.<br>M1 adds FM, M2 modulates X-Cite/Formant, M3 adds wave-shaper distortion, frequency band modulated via key follow. |
| Growl Leader | WT oscillator using a WT extracted from a growling trombone sample layered with a granular trombone sustain in OSC2. VEL modulates numerous things like WT scanning speed, attack time, amount of X-Cite/detune/shaper amount/<br>LP cutoff/ modulation via MODENV1. When MB1 is engaged, AT adds tempo-synced, re-triggering amplitude modulation via LFO1, MW adds vibrato in OSC1, detunes grain pitch in OSC2 and increases LP cutoff. M1 controls delay mix (very short delay time), M2 controls room mix, M3 adds distortion and raises EQ high-pass frequency to eliminate the subsonic artifacts introduces by the distortion module. MB2 engages compressor FX. |
| Mono Sax Lead<br><br>used in this audio demo | Monophonic lead sound with 7 unison voices using a single cycle waveform extracted from a saxophone tone, portamento (legato mode) is activated. AT adds vibrato, VEL modulates X-Cite and amount of detune/formant modulation via MODENV1, MW increases FM and adds a bit of SYNC.<br>M1 controls volume of the chorder voice tuned up an octave, M2 sets the amount of cutoff modulation via VEL, M3 modulates V-Strength (FFT) making the sound a bit thinner/less bright. MB1/2 control delay/reverb FX. |

| Pads | Comments / Controller Assignments |
|---|---|
| Bell Resonance Pad | Multi-sampled pad sound made from bell resonances, 8 pitches were sampled between C0–F#3, all samples are looped. M1 controls unison mix (re-triggering detune modulation via LFO1), M2 controls sample start. OSC2 (routed to F2, tuned BP filter) adds a WT pad using a WT extracted from one of the bell-pad samples, VEL modulates amount of BP filter modulation in F2 via tempo-synced, re-triggering LFO3 and shifts sample start in OSC1. MW adds tempo-synced LP filter modulation for OSC1 (in F1 via MODENV1/LFO4) and the X-Cite/Formant modulation in OSC2, M3 adds tempo-synced, re-triggering amplitude modulation (via MODENV2) |
| Cellissima<br><br>featured in this audio demo | OSC1 uses a WT oscillator playing a re-synthesized/wave-tabled cello sustain, OSC2 adds a modified saw waveform, both oscillators have unison detune mix via re-triggering LFO 1 applied. MW adds FM in OSC1 with FM-Rate modulation via tempo-synced LFO 4 and modulates SYNC in OSC2. The LP filter is velocity sensitive and has free-running cutoff modulation applied via LFO 2, VEL also decreases attack time. AT adds vibrato, M1 introduces a volume gate sequence via STP SQ1/ MODENV 3, M2 controls delay/reverb mix, M3 sets glide time for poly legato, MB1 controls flanger FX mix, MB2 engages a sub-octave in the chorder of OSC1. |

| Pads | Comments / Controller Assignments |
|---|---|
| Granular Vocal Pad<br><br>shown in this video (when the patch wasn't ready yet)<br><br>used in this audio demo | Sample of a processed vocal synth texture running in granular mode, forward in OSC1, reversed and tuned up an octave in OSC2. VEL shifts sample start/grain position in OSC1, AT detunes the grains, MW adds tempo-synced, re-triggering amplitude modulation via LFO 3/4. M1 controls unison mix, M2 reduces grain position randomization, decreases grain speed and LP cutoff in F2, MB1 engages filter resonance modulation via MODENV 1 in the notch-filter in F1. |
| Hollow Organ Pad<br><br>used in this audio demo | A shape extracted from a flageolet chord (acoustic guitar) with overtone modulation (FFT), run through a free-modulation and velocity sensitive LP filter and rotary FX. M1 adds formant modulation (re-triggering LFO2), M2 controls rotary mix (speed modulation via ModENV1), M3 adds tempo-synced, re-triggering amplitude modulation (LFO 3/4). MW increases unison mix/detune and adds FM, AT adds vibrato. MB1 engages rotary drive/boost, MB2 controls delay/reverb FX mix. |
| Instable Pad FM | Wavetable with beating waveforms in OSC1 frequency modulated by the same wavetable plying reversed in OSC2, a multi-sampled pad sound made from bell resonances in OSC3 modulated by a cello wavetable in OSC4, add an octave in OSC3 via MB1. AT increases unison detune/pan spread in OSC1, VEL modulates LP filter cutoff in F1, MW increases cross-FM amount in both oscillators and increases volume of OSC3. M1 introduces filter modulation in F1/2 (Notch/LP) via LFO 1/2 and re-triggering pan modulation (per voice) via LFO3. M2 adds tempo-synced, re-triggering modulation of amplitude (via LFO4) and formant in OSC1 (via MODENV 1), M3 controls chorus FX mix, MB2 controls delay/reverb FX mix. |
| Pure Pad<br><br>used in this audio demo | Wave-tabled accordion in OSC1 run through a tuned BP filter in F1 meets single cycle waveform extracted from on of my hardware synths routed to F2, VEL increases LP cutoff (also modulated via free-running LFO3) in F2, modulates amount of formant modulation via MODENV 1 in OSC2 and decreases attack time, AT adds vibrato (independent per unison voice). MW increases cutoff in F1 (overtone melodies) and modulates SYNC in OSC2. M1 introduces tempo-synced, square-shaped pitch modulation via MODENV2, +/-12 semitones in OSC1/2, M2/3 control phaser/delay FX mix, MB1 controls reverb mix, MB2 increases release time. |
| Sax Formant Pad | Wave-tabled saxophone trill, VEL increases amount of formant modulation via re-triggering, tempo-synced LFO1 (MB1 sets speed from 8/1 to 4/1), decreases attack time, shifts WT index and increases WT scanning speed. Unison mix is modulated by LFO1, AT increases detune and adds vibrato (independent, per unison voice).<br>MW adds FM, M1 adds free-running LP filter modulation via LFO2, M2 introduces tempo-synced, re-triggering modulation of X-Cite (via MODENV 1), amplitude (LFO3) and panning (LFO4), M3 controls chorus FX mix (FX1).<br>MB2 controls delay/reverb FX mix. |
| Talking Duduk Pad<br><br>featured in this audio demo<br>used in this audio demo | Multi-sampled granular pad made from re-synthesized/spectralized duduk samples processed by vocal filters and other things. Each OSC plays one multi-sample with zone crossfade (check the Zones-page). AT adds tempo-synced, re-triggering amplitude modulation via MODENV 1/LFO4, VEL M1 decreases grain size and increases grain speed, MW detunes the grains and randomizes grain position. M2 adds dual filter modulation (HP/LP) via LFO 1/2, M3 adds wave-shaper distortion with frequency band modulation via LFO3. MB1 controls phaser mix, MB2 controls delay/ reverb FX mix. |
| Upper Class<br><br>used in this audio demo | Multi-sampled unison pad, 6 pitches sampled between C0–C6, long samples, looped. VEL decreases attack time and increases LP filter cutoff, M1 adds free-running LP filter modulation via LFO1, AT increases LFO1 speed. M2 increases filter resonance, M3 controls unison mix with re-triggering detune modulation via LFO2. MW adds FM, MB1 adds wave-shaper distortion, MB2 controls delay/reverb FX mix. |

| Pads | Comments / Controller Assignments |
|---|---|
| Vowel Pad | Wave-tabled vocal tone in OSC1 with detune/vibrato modulation via LFO 3 run through a vocal filter in F1 (cutoff modulation via LFO1) meets multi-sampled analog pad in OSC2 (control volume with M2) routed to LP filter F2, cutoff modulation via MODENV 2. MW adds FM in OSC1 and increases cutoff in F2, AT increases/adds vibrato in both oscillators. M1 adds tempo-synced, re-triggering formant/amplitude modulation (LFO4/MODENV 1), M3 adds flanger FX (MULTIMOD in FX1) decreases LP cutoff/adds free-running LFO modulation in the master filter. |
| Voxosphere<br><br>used in this audio demo | Vocal wavetable in OSC1 (routed to F1) meets granular vocal texture with an embedded interval recorded at two pitches in OSC2/3 (routed to tuned HP filter in F2) with zone crossfade between F3–C4 (F2–C3 in Avenger). Tee granular samples don't restart from the beginning when playing overlapping legato notes. AT adds vibrato, detunes the grains and randomizes grain position, VEL modulates formant in OSC1 and LP cutoff in F1, MW adds FM in OSC1 and filter drive in both filters.<br>M1 adds re-triggering HP filter modulation in F1, M2 introduces noise with modulated noise color (LFO2), adds phaser FX (in FX1) and introduces re-triggering pan modulation via LFO3 (per mote played). M3 engages tempo-synced, triplet-based volume gating via STP SQ1, MB1/2 control delay/reverb FX mix. |

| Plucked | Comments / Controller Assignments |
|---|---|
| Face Punch | Punchy pluck synth combining an accordion shape in OSC1 (routed to AMP1, FM/SYNC modulation via Increment 6 in the matrix) frequency-modulated by a sine wave in OSC2 and a WT synth in OSC3 (AMP2, control volume with M1) using an accordion WT, WT index modulated by Increment 12 in the matrix.<br>VEL modulates amount of punch (Spike), decay time in the amplitude/filter envelopes, amount of filter envelope modulation. MW controls volume of the sub-oscillator in OSC3, decreases LP cutoff, increases filter resonance and adds wave-shaper distortion (frequency band modulation via LFO1). M2 controls delay mix, Ghost-Q feedback modulation via tempo-synced, free-running LFO3 when MB1 is engaged, delay filter cutoff modulated via free-running LFO3. M3 controls chorus mix, MB2 controls reverb mix. |
| FM Velocity Puncher<br><br>featured in this video demo | FM synth pluck with seven unison voices, VEL modulates FM amount/Rate, X-Cite, formant, LP cutoff (when M3 is engaged) and detune amount modulation via MODENV1. MW increases FM amount and introduces SYNC modulation via VEL.<br>M1 controls volume of the sub-oscillator/sub-octave in the chorder, M2 adds a perfect fifth, M3 adds wave-shaper distortion and LP cutoff modulation via VEL.<br>MB1 controls ensemble FX mix, MB2 controls delay mix, delay sync is triplet based. |
| Kalimba FM | Kalimba samples embedded in the preset - two pitches, two velocity layers with crossfading pitch/velocity zones (check Zones-page) in OSC1-4, OSC5/6 (routed to AMP2) add a cross-FM synth. MW controls unison mix in OSC 1-4, M1 controls amount of FM in OSC1-4 (FM Rate modulated via Increment 4 in the matrix), M2 controls volume of OSC5, M3 introduces LP filter modulation via velocity sensitive filter envelope. MB1 engages a fast glissando (in PITCH1), MB2 controls delay/reverb mix. |

| Sequencer | Comments / Controller Assignments |
|---|---|
| Bass FM<br><br>used in this audio demo | Bass sequence (ARP1 in poly mode) modulating a thick unison pad with an accordion wavetable via crossFM (set amount with M1). WT index is modulated via re-triggering, random-square LFO1, with M2 dialed in, LFO1 also modulates LP cutoff/resonance and wave-shaper amount. MW controls volume of the additional voices in the chorder-section (+7/+12 semitone). M3 controls flanger mix, MB1/2 control delay/gated reverb mix. |

| Sequencer | Comments / Controller Assignments |
|---|---|
| Double Bass Seq | Bass sequence (ARP1 in poly mode) using a modified saw-wave in unison mode (6 voices) with X-Cite/formant modulation via LFO1/2, wave-shaper gain modulation via LFO3. MW adds FM/AM and bit-crushing, M1 introduces a volume gate sequence (STP SQ1), sharpen the gate contour by engaging MB1. M2 adds Peak-filter modulation via tempo-synced LFO4, M3 controls delay mix (in Master FX). MB2 sets sustain level to zero resulting in a pluck-like envelope triggered by the arpeggiator. |
| FM DrumQuencer (Full)<br><br>used in this audio demo | Electronic drum sequencer with three components: the main sine drum sound in OSC1 with cross-FM (OSC2), sequenced in ARP1, routed to FX1 – a noise sequencer in OSC3 (tempo-synced amplitude modulation via LFO2, synced random BP filter modulation in F2 via LFO3) and a tune-able granular drone in OSC4 (routed to F3, synced amplitude modulation via LFO4). OSC3/4 are routed to FX2.<br>VEL modulates FM amount in OSC1/2, wave-shaper EQ frequency and cutoff in F1/2. M1 controls volume of the noise sequencer, M2 controls drone volume, M3 tunes the drone in semi-tone steps. MB1 engages multi-band limiter, MB2 engages the effects in FX2 |
| FM DrumQuencer (Redux) | Reduced version of the above patch without the drone in OSC4, using less CPU.<br>M2 controls reverb of the drum sequence in OSC1 (FX1), M3 adds pan spread for the main drum in AMP1. |
| Harmonator<br><br>featured in this video demo<br>used in this audio demo | Dual WT sequencer, using two WTs extracted from saxophone tones. LFO1 modulates unison mix/detune in opposite directions in both oscillators and X-Cite in OSC1. With M1 engaged, re-triggering MODENV 1 modulates SYNC in OSC1 and formant in OSC2. M1 also adds FM in OSC2 with Rate modulation via MODENV 3 and adds re-triggering pan modulation (per note) via LFO2. M2 adds tempo-synced, re-triggering amplitude modulation via MODENV 4 and adds wave-shaper distortion with frequency band modulated via LFO3. M3 introduces free-running LP filter modulation in F1 and tempo-synced, re-triggering modulation of the Trash FM-filter in F2 via MODENV 1/3 and LFO3. MB1/2 control delay/reverb mix.<br>VEL decreases attack time, AT adds vibrato (independent, per unison voice). |
| Metal Vowels | Triplet-based sequencer with quirky noises using a wave-quencer in OSC1 and a synth shape in OSC2, filter routing is F1 (Talkbox) -> F2 (LP 24).<br>WT-index/formant in OSC1 is modulated via tempo-synced, re-triggering, random LFO4, rate distortion via LFO1, in OSC2 X-Cite/Formant/Rate-distortion are modulated via LFO 2/1/4 (all tempo-synced and re-triggering), M3 controls volume of OSC2. The Talkbox-filter cutoff in F1 is modulated via LFO3, the vowel parameter via LFO2. M1 adds LP filter modulation in F2 via MODENV 3, M2 adds wave-shaper distortion, EQ band modulated via key follow. Each oscillators is routed to it's dedicated volume gate sequencer (STP SQ 1/2), MW controls amount of volume gating and adds FM in OSC2, FM Rate modulation via LFO4.<br>MB1/2 control delay/convolution reverb mix (using a custom IR). |
| No Exit | Edgy sequencer layering a gated volume sequence with cross-FM in OSC1/2 (amount of cross-FM modulated via LFO2, FM RATE-modulation in OSC2 via LFO3) - a tenor sax WT frequency-modulated by an Angkelung shape - with a pitch sequence (ARP1 - poly mode) using a vocal WT in OSC3 (routed to AMP2).<br>MW introduces tempo-synced, random LP filter modulation (F1) and adds wave-shaper distortion, M1 controls volume of OSC3, MB1 engages an octave sequence via MODENV2), M2 introduces Notch-filter modulation (cutoff/resonance) in F2 and controls flanger FX mix (FX1). Me controls delay mix, MB2 controls reverb mix. |
| Sax Gater Ambience<br><br>featured in this video demo | Two processed alto phrases with various rhythmical modulation and other effects, playing in synced granular mode, 16 Beats in OSC1 (routed to F1), 32 beats in OSC2 (F2), both looping back and forth. MW modulates grain spread pan, randomizes grain pitch, increases grain position randomization/grain size, reverses the grains and increases attack/release time.<br>M1/2 add tempo-synced, re-triggering wave-shaper/amplitude modulation via MODENV1. M3 introduces tempo-synced, re-triggering LP filter modulation in F1 (via LFO3) and HP filter modulation in F2 (LFO2). MB1 adds tempo-synced, re-triggering pan modulation (per note played), MB2 controls delay/reverb mix. |

| Sequencer | Comments / Controller Assignments |
|---|---|
| Six Descend | Minimal synth arp with a descending minor scale in OSC1 (via ARP1 - poly mode) with plenty of modulations, X-Cite/Formant/Rate-distortion via Random when M1 is engaged, A/FM-AM via MODENV1. With MB2 engaged, OSC2 (routed to F2) adds the root note (using a hardware synth shape), amplitude modulation via MODENV2 and octave sequence via MODENV3, LP filter modulation in F1 via LFO2, in F2 via LFO4. M2 adds wave-shaper distortion (EQ modulated via LFO1), M3 adds pitch modulation/vibrato in both oscillators, MB1 engages the additional octave in the chorder-section of the arp in OSC1.<br>MW increases unison detune in OSC1 and adds FM in OSC2. |
| Steel Tremolo Sequence | Granular steel string tremolos, recorded at two pitches (E1/E2) with zone crossfade between A#2–E3 (A#1–E2 in Avenger). Grain position modulation via LFO1 is modulated by the granular envelopes in each OSC, tempo-synced, re-triggering amplitude modulation via LFO3. F1 has permanent LP filter cutoff/resonance modulation applied via LFO2, the tuned comb-filter in F2 has resonance modulation via LFO2 applied, cutoff is modulated via LFO3 (modulation depth via granular envelope in OSC1). MW shifts the comb-filter resonance to positive (an octave higher) and eliminates the resonance modulation. M1 adds FM, M2 introduces noise-oscillator volume modulation via tempo-synced, re-triggering LFO4.<br>M3 introduces tempo-synced, re-triggering amplitude modulation via MODENV1, MB1 controls phaser mix, MB2 controls delay/reverb mix. |
| Triangular Tale | Triplet-based overtone sequencer, overtone generation in OSC1/OSC2 via various modulations in FFT/Harmonic, tempo-synced amplitude pulsation via LFO2, FM amount/FM Rate modulation in OSC1 via LFO1/STP SQ1, SYNC-modulation in OSC2 via STP SQ2.<br>MW adds Formant/SYNC modulation in OSC1 via tempo-synced, random LFO3, adds FM in OSC2 and introduces LP filter modulation via LFO3/4, AT adds vibrato. M1 controls volume of the sub-octave in OSCA, M2 adds wave-shaper distortion (EQ modulated via LFO4), M3 increases unison detune, MB1 controls delay/reverb mix, MB2 engages a volume gate sequence via STP SQ3. |

| Soundscapes | Comments / Controller Assignments |
|---|---|
| Angel Whisper | A tonal soundscape made from processed whispering voices, two granular oscillators use the same sample with differently shaped granular envelopes (control envelope speed with M2), each OSC is routed to it's dedicated amplitude envelope, dial in re-triggering pan modulation (per note played) with M1 (opposite direction in AMP2).<br>MW decreases LP filter cutoff in the master filter, increases resonance and adds flanger FX (in FX1), AT randomizes grain pitch. M3 adds tempo-synced, triplet-based filter/amplitude modulation (via MODENV 1/2). Engage stereo phasing/notch-filtering with MB1, MB2 controls reverb mix. |
| Antipodes XFade Split | Noisy drone texture derived from speech in the lower half (OSC1 routed to F1) of the keyboard meets a granular vocal resonance-texture in the upper half (OSC2 -> F2), zone crossfade between C3–C4 (C3–C3 in Avenger), both oscillators play in granular mode, both filters have permanent cutoff modulation via free-running LFO3 applied. M1 slows down grain speed and decreases some of the permanent modulation values for various grain parameters. with MB1 engaged, AT modulates grain position, VEL decreases attack time.<br>MW adds FM, reduces Low Shelf-EQ in FX1 (applied to OSC1) and controls MULTIMOD mix (in master FX). M2 adds modulation of grain spread pitch via re-triggering MODENV 1, opposite direction in OSC2.<br>MB2 increases release time/curve. |

| Soundscapes | Comments / Controller Assignments |
|---|---|
| Awakening<br><br>featured in this audio demo | Beautiful tonal new age-soundscape, 2 pitches were sampled. granular OSC 1/2 crossfade between C4–C5 (C3–C4 in Avenger), OSC3 adds the same sounds in multi-sampling mode, use M2 for volume control of OSC3. AT randomizes grain pitch, MW adds slow, tempo-synced modulations of filter (F1+2), panning and amplitude (in AMP2), M3 decreases LP cutoff in the master filter, adds wave shaper distortion/ flanger FX (in FX1). MB1 engages tempo-synced modulation of grain speed/random position, decreases grain size and partially reverses the grains, MB2 controls delay/ reverb mix. |
| Cosmic Bed XFade Split<br><br>featured in this video | Two tonal soundscapes in granular mode split across the keyboard in OSC1/2, zone crossfade between C3–C4 (C2–C3 in Avenger), control grain speed with M1, samples do not re-trigger from the beginning when playing legato notes.<br>Each OSC is routed to it's dedicated filter, M2 engages velocity sensitive filter modulation via tempo-synced, re-triggering MODENV1/2, LP filtering for OSC1, HP filtering for OSC2. M3 controls phaser mix (FX1), MB1/2 control delay/reverb mix. MW adds tempo-synced, re-triggering amplitude modulation via LFO 2/3. |
| Divinity Scape<br><br>used in this audio demo | Tonal drone-scape sampled at two pitches, crossfading between C3–C4 (C2–C3 in Avenger), playing in granular mode (OSC1/2), M1 modulates grain speed and randomization of various granular parameters, AT controls grain position. OSC3 adds an arpeggiator in 9/8 time signature, a wavetable oscillator using an accession WT (assigned to F2 and routed to FX2). M2 is a dedicated volume control for OSC3, M3 adds HP filtering and phaser FX to OSC 1/2 (routed to FX1). MB1 controls wet mix of the reverb in Master FX, MB switches the delay for the arp on /off. MW adds a gated sequence in 5/8 and FM to the tonal soundscape. |
| Engine Grains FM<br><br>demonstrated in this video demo | Field recording: pass-by/departure of a big truck which I recorded in a Russian city, sample is running in granular mode, root note: C3 (C2 in Avenger), pitch key follow is set to 50% (quarter tones), M1 increases grain speed/reduces grain size.<br>OSC2 (use M1 for volume control) adds a drone with cross-FM using a modified triangle waveform as the carrier and the same lorry in normal sampling mode (OSC3) as modulator, OSC2 fades out towards the top end (C7).<br>M2 increases grain speed/reduces grain size in OSC1, M3 adds tuned comb-filtering to the truck, MW randomizes grain pitch and adds FM in OSC1 and adds formant modulation via fast random LFO3 in OSC3 which also modulates pitch in the modulating truck in OSC3. MB1 controls delay mix, MB2 increases release time. |
| Flight MH370<br><br>featured in this audio demo | Jet turbines of a waiting 747 I recorded at the airport of Berlin Tegel some years ago, both oscillators use the same long looped sample, OSC1 run through a tuned BP filter in F2 with resonance/band modulation via re-triggering LFO 1/2 and tempo-synced, re-triggering amplitude modulation via MODENV 2. OSC 2 is routed to a notch-filter in F1, cutoff modulated via MODENV 1, resonance via LFO2. M1 adds tempo-synced ramp up amplitude modulation via LFO4. M2 introduces tempo-synced pitch modulation in OSC2, -2 octaves when fully engaged, M3 controls delay/phaser FX mix (in FX1). MW decreases LP cutoff in the master filter and adds wave-shaper distortion in OSC2. MB1 controls reverb mix, MB2 mutes OSC1. |
| Glassharp Cloud | Processed glass harp texture in granular mode, speed modulation via random LFO1, AT modulates grain position, MW detunes the grains, randomizes grain position and decreases grain size/density, VEL modulates LP cutoff in F1. M1 engages unison mix (high CPU) with detune modulation via LFO1, M2 engages a mixture of filter modulation, LP in F1 via re-triggering, tempo-synced LFO2 and free running notch-filter modulation in FX1 via LFO3. M3 controls delay mix, MB1 controls reverb mix, MB2 increases release time. |
| Glassharp Divine<br><br>featured in this video demo | Divine tonal soundscape made from re-synthesized glass harp texture, running in granular mode with numerous modulations of granular parameters. MW randomizes grain pitch, increases grain density and adds random pitch modulation (vibrato),<br>AT adds tempo-synced amplitude modulation (via LFO4). M1 controls unison mix (6 voices), M2 introduces re-triggering HP filter modulation via MODENV 1, M3 controls phaser mix. MB1/2 control delay/reverb mix, delay shift is modulated via LFO1. |

| Soundscapes | Comments / Controller Assignments |
|---|---|
| Haithabu<br><br>featured in this video demo | Tonal granular soundscape with a major chord embedded, OSC1 plays the full sample, OSC2 (routed to AMP2 with pan modulation) only plays the tail reversed/ forward. M1 controls unison mix in OSC1 which has 4 octaves mixed in (OCTS:4 in V-Saw). M2 increases grain speed/density, decreases grain size in OSC1 and introduces grain spread pitch modulation via tempo-synced LFO3, AT detunes the grain. M3 introduces volume gate sequence via STP SQ1, tempo-synced LP filter modulation in F1. MB1 controls phaser mix, MB2 controls delay/reverb mix. |
| Majestic Cloud<br><br>used in this audio demo | OSC1 (routed to modulated LP filter in F1) plays a long tonal soundscape (lydian scale), multi-sampled at five pitches between C1–C5, OSC2 (routed to modulated HP filter in F2 and AMP2 with volume/pan modulation via MODENV1/LFO3) plays the same sample map with sample start shifted to the middle of the samples, control volume with M2. MW controls unison mix/vibrato amount, M1 introduces a volume gate sequence (STP SQ1 - decay parameter modulated via LFO2), M3 decreases cutoff in them master LP filter and adds filter drive). MB1/2 control delay/reverb mix. |
| Oriental Resonances<br><br>featured in this audio demo | OSC1 (mapped from C1–C6 with zone x-fade, routed to F1) plays a granular tonal soundscape derived from duduk sounds and is layered with a drone in OSC2 (routed to F2 -> F1) using a waveform extracted from a duduk tone, OSC2 has cross-FM applied, the modulating OSC4 is playing the same sample as used in OSC1.<br>OSC3 (mapped from C-1–C3 with zone x-fade, routed to F1) plays a granular texture derived from bell resonances. VEL modulates LP cutoff in F2, MW adds FM/cross-FM, AT detunes the grains. M1 introduces LP filter modulation in F1 via tempo-synced, re-triggering MODENV1/LFO2, M2 adds tempo-synced, re-triggering pitch modulation via LFO3, M3 controls grain speed in OSC1/3.<br>MB1/2 control reverb/delay mix. |
| Resonating Water Split<br><br>featured in this video demo<br>used in this audio demo | Lower half in OSC1: processed field recording/seashore drone in granular mode, root note: G1 (G0 in Avenger), routed to F1.<br>Upper half in OSC2: processed field recording/water texture, root note: D6 (D5 in Avenger), routed to F2. Zone crossfade between C3–C4 (C2–C3).<br>Grain speed/size modulation in both oscillators via random, re-triggering LFO2.<br>AT detunes grain pitch in OSC2, OSC1 has vibrato amount modulation applied via LFO1/vibrato speed via MODENV1. M1 controls flanger FX mix, M2 controls delay/ reverb mix, M3 modulates grain spread pitch (opposite directions in OSC1/2).<br>MB1 engages tempo-synced amplitude modulation via LFO4, LFO speed modulated via MODENV2, MB2 increases release time. VEL decreases attack time. |
| Scape Of Hope | Tonal soundscape sampled at two pitches, running in granular mode in OSC1/2, zone crossfade between C3–C4 (C3–C3 in Avenger). Permanent modulation of grain spread pan via re-triggering LFO1, AT detunes the grains, VEL decreases attack time, M1 increases grain speed/decreases grain size, M2 controls grain position. MW randomizes grain position, decreases grain density, increases the probability of grain reversal and introduces tempo-synced LP filter modulation via random LFO2. |
| Sky Texture | Tonal soundscape sampled at two pitches, running in granular mode in OSC1/2, zone crossfade between C3–C4 (C2–C3 in Avenger). M1 increases grain speed/ decreases grain size, M2 introduces re-triggering LP filter modulation via MODENV1/ LFO2, M3 adds a tempo-synced volume gate sequence (STP SQ1), adds FM amount modulation via STP SQ2, MB1 controls reverb/delay mix, MB2 controls phaser FX mix (Master FX).<br>MW randomizes grain pitch, AT adds random-glide vibrato. |

| Soundscapes | Comments / Controller Assignments |
|---|---|
| Space Doves<br><br>Featured in this audio demo | Ambient soundscape layering a long tonal granular soundscape with bird-like elements sampled at two pitches (OSC1/2, zone crossfade between A#3–F#4) with the same soundscapes in multi-sampling mode (OSC3) and a WT-drone in OSC5 (routed to tuned BP filter in F2 and then to F1) with cross-FM, frequency-modulated by OSC4 which also uses these samples in multi-sampling mode. AT detunes the grains in OSC1/2, M1 increases grain speed/decreases grain size in OSC1/2,<br>M2 introduces a tempo-synced, re-triggering LP filter envelope (MODENV3). MW adds tempo-synced, re-triggering amplitude modulation in OSC1-3 (various LFOs with different sync speeds), FM in OSC3 and BP modulation in F2 (processing OSC5). MB1 controls reverb mix, MB2 engages a low shelf EQ reducing frequencies below 100 Hz. |

| Synth | Comments / Controller Assignments |
|---|---|
| Alien Resynth | A wavetable combining several exotic waveforms, WT index is modulated by random, tempo-synced, re-triggering LFO1. MW adds vibrato (independent per unison voice) and adds tempo-synced, re-triggering amplitude modulation via LFO 3, modulation depth modulated via MODENV 1. M1 adds formant and cutoff modulation of the ring-modulating filter in F1 via square-shaped, tempo-synced, re-triggering LFO2. M2 engages tempo-synced, re-triggering modulation of LP filter cutoff/resonance and amount of wave-shaper distortion via MODENV 1, frequency band modulation via MODENV 1. M3 controls ensemble mix (FX1), MB1/2 control delay/reverb mix. |
| Crystal Synth | Wavetable synth in unison mode (5 voices) using a WT extracted from a crystal bowl in OSC1 and a single cycle waveform extracted from a guitar flageolet tone in OSC2. VEL modulates amount of formant/detune modulation via tempo-synced, looped MODENV1 in both oscillators and volume/vibrato amount in OSC2. MW introduces tempo-synced, re-triggering modulation of X-Cite in both oscillators and SYNC-modulation in OSC2 via LFO2, AT adds vibrato.<br>M1 adds velocity sensitive modulation of LP cutoff in F1, M2 controls chorus FX mix (and cuts some high frequencies via LP filter in FX1), M3 controls reverb/delay mix. MB1 engages sub-oscillator in OSC2, MB2 increases release time. |
| Dragon Fly | Noisy FM synth with cross-FM layering a WT-oscillator in OSC1 (routed to AMP1) using a WT extracted from an e-bow slide, frequency-modulated by OSC2 using a modulated saw-waveform. OSC3 - routed to AMP2 with pan modulation via LFO2, transpose up an octave with MB1 - adds a WT extracted from a sizzling e-bow tone, formant/detune modulation via re-triggering, tempo-synced, unipolar LFO1.<br>Set amount of crossFM/FM with M1, M2 introduces tempo-synced modulation of LP filter cutoff/resonance/drive via MODENV1. M3 controls Multimod mix (FX1),<br>MB2 controls delay/reverb mix. MW introduces tempo-synced, re-triggering amplitude modulation via MODENV2 and X-Cite modulation via LFO4. |
| FM Monster | A wavetable extracted from male overtone/throat singing in OSC2 frequency-modulated by a wavetable oscillator using a WT extracted from a water-phone texture in OSC1, control amount of cross-FM with M1. VEL modulates amount of LP filter modulation in F1, MW increases unison detune/mix and adds vibrato (independent - per unison voice). M2 adds fast random modulation of formant/pitch (LFO2), M3 adds tempo-synced pitch modulation via envelope in PITCH1.<br>MB1/2 control delay/reverb mix. Try all ranges please! |
| FM Transistor | Re-synthesized/wave-tabled singing bowls in OSC1 with two cross-FM modulators in OSC 2/3, activate the detune voices in the chorder-section with MB1. The modulating oscillators 2/3 have tempo-synced, re-triggering volume modulation applied via LFO1/2, synced pitch/SYNC modulation in OSC2 via MODENV1/2. M1 adds wave-shaper distortion, cuts harmonics in the FFT of OSC1 and introduces harmonic partial modulation.<br>MW introduces tempo-synced, re-triggering LP filter modulation/amplitude modulation via LFO 3/4, M2 controls delay mix (feedback/filter modulation via MODENV3), M3 adds reverb, MB2 increases attack/release time. |

| Synth | Comments / Controller Assignments |
|---|---|
| Robot Synth<br><br>featured in this video demo | Obscure wavetable-synth in unison mode (6 voices - detune modulation vie MODENV1) using a WT extracted from one of my hardware synth patches, control WT-scanning speed with M2. M2 introduces tempo-synced, re-triggering modulation of X-Cite/Formant/LP filter via LFO 1/2/4, M3 engages synced HP filter modulation in F2 via LFO3. MB1 cuts some high frequencies in the EQ (FX1), MB2 controls delay/ reverb mix. AT adds vibrato (independent per unison voice), MW adds wave-shaper distortion (EQ-band modulation via LFO3) and some FM. |
| Stinger Waves | Wavetables with synced phase made from re-synthesized temple blocks in three oscillators, WT-index modulation is tempo-synced in all oscillators, OSC1 (routed to FX1) is playing in unison mode with detune modulation via tempo-synced, re-triggering LFO1, OSC3 (AMP3 - panned right) reverses the WT which is also used in OSC2 (AMP2 panned left).<br>M1 adds an interval in OSC1 (+19 semi-tones), M2 controls volume of OSC2/3,<br>M3 adds tempo-synced, re-triggering LP filter modulation via LFO3. MW introduces tempo-synced, re-triggering amplitude modulation via MODENV1. MB1 controls delay (in FX1/2), MB2 controls reverb mix (in Master FX). |
| Triple Shape Synth | Three oscillators, each one using a different hardware synth shape, permanent X-Cite/Formant modulation via various re-triggering LFOs in all three oscillators.<br>MW adds FM with FM Rate-modulation via tempo-synced, square-shaped LFO4,<br>AT adds vibrato. M1 adds velocity sensitive modulation of LP filter cutoff/resonance/ drive via tempo-synced, looped MODENV1, M2 controls chorus mix, M3 controls delay mix, MB1 engages reverb FX. MB2 increases attack/release time so you can also use this patch as a pad sound. |

| Textural | Comments / Controller Assignments |
|---|---|
| Nervous Resonances<br><br>featured in this video demo<br>used in this audio demo | Granular soundscape with full randomization of grain pitch, very low grain density and small grain size routed through a tuned comb-filter with high resonance in F1, then routed to a LP filter with velocity sensitive cutoff modulation via LFO2 - dial in modulation with M1. The HP filter in F3 cuts some of the low frequency artifacts when playing high notes. MW modulates the polarity of the comb resonances, fully engaged the sound shifts to an octave below. M2 adds wave-shaper distortion,<br>M3 controls chorus FX mix. MB1/2 control delay/reverb mix. |
| Penta Jumper | Tonal electronic texture with pentatonic tuning, two pitches were sampled, crossfade between granular OSC1/2 between C3–C4 (C2–C3 in Avenger), modulation of grain size/density via LFO3/2 . Each OSC has it's dedicated cross-FM wave-table oscillator, using a WT extracted from a singing bowl texture. M1 controls amount of cross-FM, M2 increases grain length/density/release time, decreases attack time/ sustain level and speed in LFO1-3 and adds free-running LP filter modulation in F1.<br>M3 controls convolution reverb mix, using a custom impulse response. MB1 controls delay FX mix, MB2 decreases feedback amount. MW randomizes grain pitch. |
| Raining Texture<br><br>featured in this audio demo | Multi-sampled stochastic FM synth texture with a pentatonic tuning, sampled at 4 pitches between C1–C4, OSC1 (routed to F1/AMP1) uses the multi-samples, OSC 2-5 (routed to F2 -> F1/AMP2) use the individual multi-samples in granular mode, zone crossfade is applied (check the Zones-page). M2 sets the balance between OSC1 and OSC 2-5. With M1 dialed hard left, tempo-synced, random, re-triggering, unipolar LFO1 modulates grain position, dialing in M1 will eliminate that modulation, engage the granular envelope, increase grain size and reduce the probability of grain reversal, dialing in M1 also eliminates the tempo-synced HP filter modulation in F2 via MODENV1/LFO4 (applied to the granular oscillators only).<br>AT adds vibrato in OSC1 and detunes the grains in OSC2-5, MW adds FM with FM Rate modulation via tempo-synced, random, re-triggering LFO3. M3 adds LP filter modulation in F1 (per note played) via MODENV1. MB1 controls phaser FX mix, MB2 controls delay/reverb mix. |

| Textural | Comments / Controller Assignments |
|---|---|
| Steel Tremolo Scape | Sample of tremolating on a steel string (acoustic guitar) with a wrench, playing in granular mode, VEL modulates amount of grain density modulation via MODENV1, AT detunes the grains. When playing legato notes, the granular envelope does not re-start from the beginning. AT detunes the grains, MW controls unison mix (+ 2 additional octaves) with detune modulation via LFO1, M1 adds a combination of Notch-filter modulation in F1 via free-running LFO1 and re-triggering pan modulation (per note) via LFO2 (slightly randomized speed with each new note played), M2 adds free-running LP filter modulation in F2, M3 controls delay mix (Shift/Bit-Rate modulated via LFO2). MB1 controls reverb mix, MB2 increases attack/release time. |
| String Scrape Combs<br><br>featured in this video demo | A granular texture using a sample of scraping a steel string (acoustic guitar) with a coin, run through a tuned comb-filter and a wave-shaper in Avenger. MW increases comb-filter resonance/detune and randomizes grain position/grain pitch. M1 adds wave-shaper distortion and HP filter modulation (F2). M2 controls grain speed, M3 adds FM with modulated harmonics (LFO2). MB1 controls chorus mix, MB2 controls convolution reverb/delay mix. |

| Vocal Synth | Comments / Controller Assignments |
|---|---|
| Table Vox Pad (Full)<br><br>featured in this audio demo | Warm vocal pad using two WT-oscillators using a WT extracted from a female vocal tone playing reverse/forward in OSC2, VEL slightly shifts WT-index - both oscillators are routed to the tuned BP filter in F1, each has it's dedicated amplifier (AMP1/2) panned L-R (49%) . OSC3 (routed to FX2 with notch-filtering via LFO1) adds a waveform extracted from a whisper-texture, mixed with the noise oscillator, routed to a tuned comb-filter in F2 and then to F1, control volume of OC3 with M1. MW increases BP cutoff and shifts formants in OSC 1/2, AT adds vibrato (independent - per unison voice in OSC1/2). Portamento is engaged, increase glide time with M2, M3 adds tempo-synced, re-triggering amplitude modulation via LFO 2-4.<br>MB1/2 control delay/reverb mix. |
| Table Vox Pad (Redux) | Reduced version of the above patch using less CPU, without the 3rd oscillator/FX2. |
| Tuva Table Choir<br><br>used in this audio demo | Two WT oscillators using two WTs extracted from Tuva throat singing each routed to it's dedicated amplifier slightly panned L-R. The WTs do not re-trigger from the beginning when playing legato notes. VEL slightly increases WT scanning speed, modulates LP cutoff and modulation depth of LP cutoff modulation via MODENV1 when M1 is engaged. Unison detune modulation via random LFO1 which also modulates amount of vibrato. AT introduces tempo-synced, re-triggering amplitude modulation via LFO2/3 (2 against 3) and pan modulation (per note) via LFO4. M2/3 control chorus/delay FX mix, MB1 controls reverb mix, MB2 increases release time. Sounds pretty realistic below C3… |
| Vocal Organ Synth | Dual WT synth using a WT extracted from a vocal interval, OSC2 (filter routing F2 -> F1) has formant shift applied which disables the audible interval. With M1 engaged, VEL modulates the speed of spectral harmonics (FFT) modulation via MODENV1, M1 also introduces re-triggering pan modulation via LFO1, speed also modulated via MODENV1. M2 introduces free-running LP filter mod in both filters (negative in F1, positive in F2) and also modulated formants in OSC2. MW adds tempo-synced, re-triggering amplitude modulation via LFO3/4, X-Cite modulation via LFO4, SYNC-modulation in OSC1 via MODENV1 and FM in both oscillators.<br>MB1 activates glide (poly legato), MB2 controls delay/reverb mix. |

Please enjoy the sounds!
Simon Stockhausen, Berlin - January 27th - 2018