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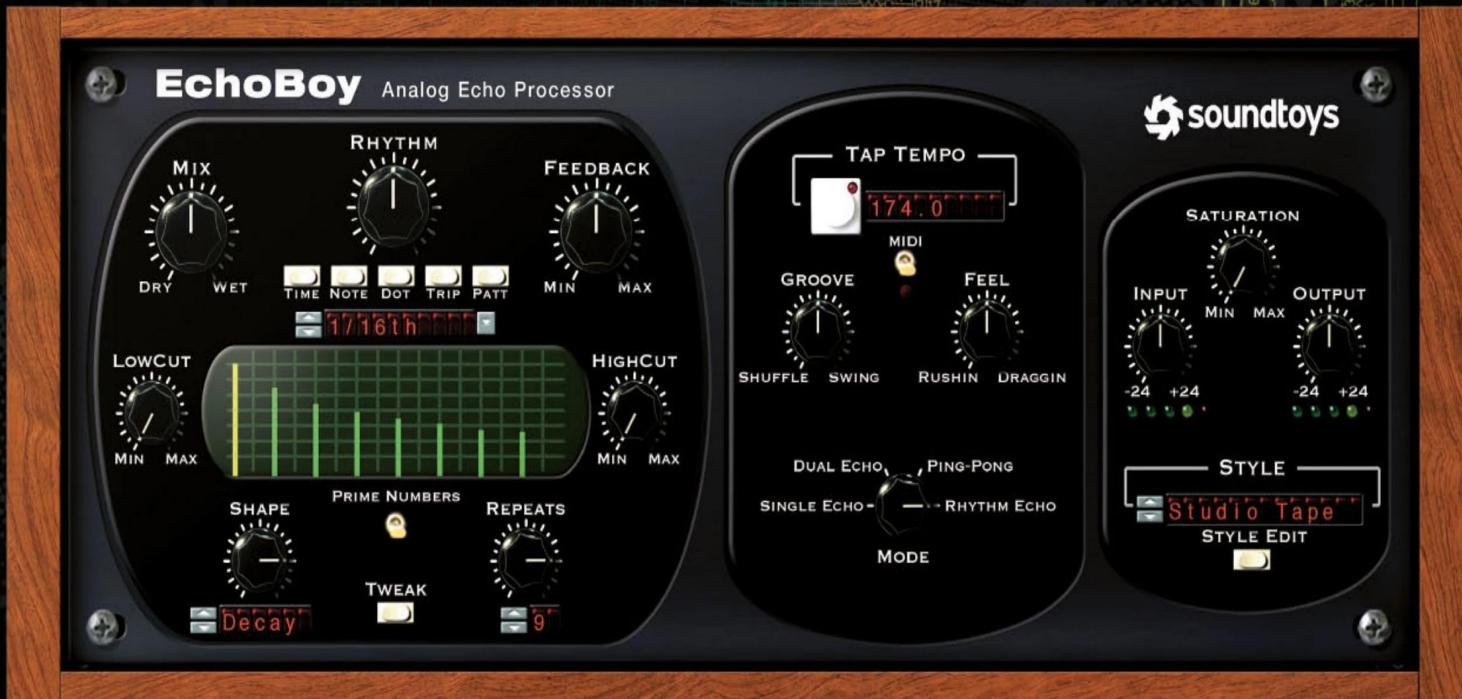
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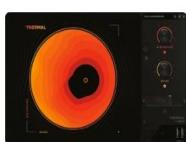
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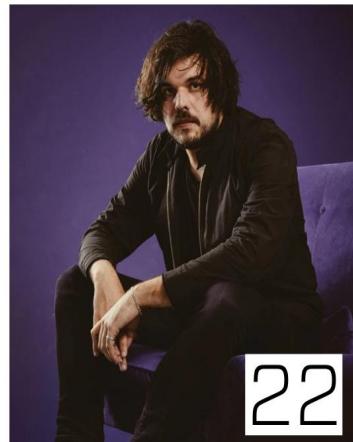
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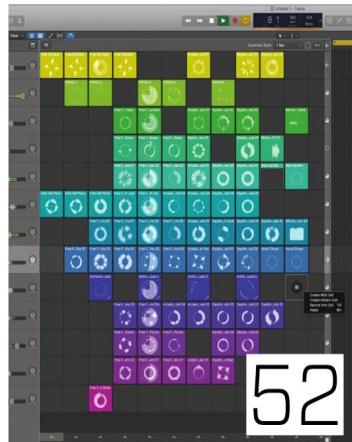
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Editor's Note

Core principles

I'm a big advocate of the idea that, in order to create unique and ambitious music, it's first important to study the basic principles that music is based on. It's something certainly true for anybody learning an instrument – a guitarist will always learn basic picking before attempting a lightning-fast tapping solo, and a pianist will get to grips with simple triads before tackling more complex jazz chords. In electronic music making, it's a principle that can sometimes get overlooked though. Since we have access to so many ready resources – sample packs, synth presets, project templates – it's perfectly possible to construct and even mix full tracks without really understanding the core elements behind your ideas.

As useful and democratizing as all these resources can be, there's still certainly something to be said for going back-to-basics and learning

how your synthesizers and effects work, or the theory behind how your favorite tracks are structured. For one thing, it makes it so much easier to put your own stamp on common sounds and ideas. With a bit of know-how about classic drum rhythms, or how what goes into creating your favorite synth patch, it quickly becomes much easier to push and expand on those elements in order to create something new.

This issue's cover feature hopefully ties into this. We're taking a back-to-basics approach to examining some classic synth sounds, in the hope we can offer a refresher on some of the core ideas and principles. With any luck it will inspire ways to adapt and develop those simple sounds into fresh ideas!

We hope you enjoy this latest issue of EM as much as we've enjoyed making it! Stay safe.



Si TRUSS
EDITOR

electronic **MUSICIAN**

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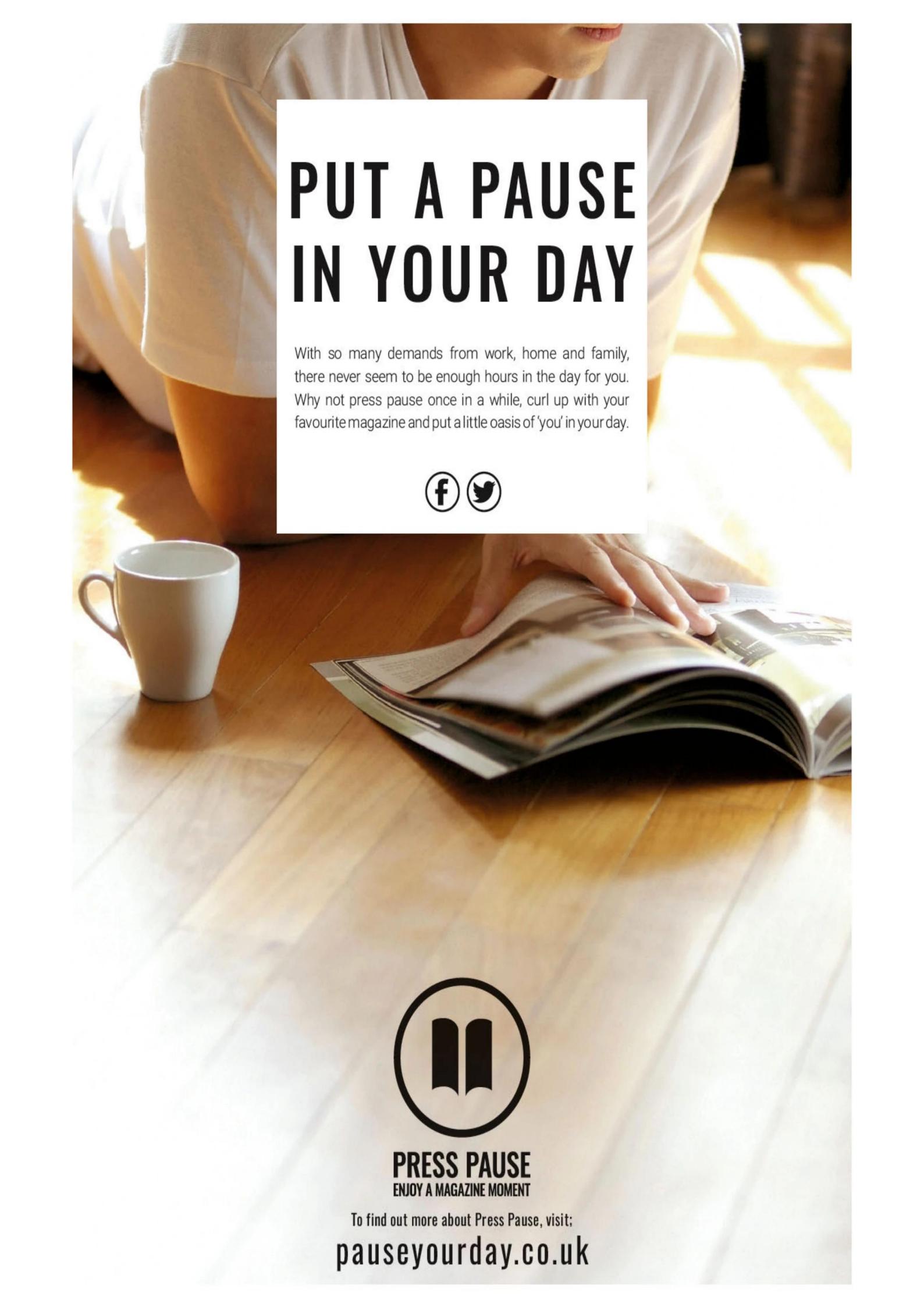
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NEW GEAR



Dreadbox and Sinevibes release super-cute Typhon analog synth

Greek hardware brand Dreadbox and plugin specialist Sinevibes have teamed up to launch Typhon, a new portable and compact analog synth.

Typhon contains two Dreadbox analog oscillators, a 4-pole low-pass filter and three modulators with four different modes. A 32-step sequencer is also onboard; as well as being able to sequence notes in the usual way, this can also be used as a modulation source.

For their part, Sinevibes have contributed 12 DSP stereo effects, including Distortion, Bit crusher, Chorus, Ensemble, Flanger, Delay and Reverb.

This looks like a pretty hands-on synth with a straightforward workflow. All analogue elements have their own controls on the left, while the sliders, buttons and encoder on the right can be used to control the amp and filter envelopes, sequencer, modulators and effects.

Other features include an external audio input so that Typhon can be used as an effects processor, USB powering and full MIDI and CC implementation. There's also a 254-preset memory. Typhon should be available now, priced at \$379.

Do you need a \$200 plastic bag for your Teenage Engineering synths? Well, you're in luck...

Whatever your take on the company, it's fair to say that it's difficult to second-guess what Teenage Engineering is going to come up with next. As such, the release of its new splash modular bag – a roll-up water resistant case for your OP-1, OP-Z and Pocket Operator synths – might cause an eyebrow to be raised but probably won't come as a total surprise. It's made of transparent "thermoplastic polyurethane" (or, 'plastic', to you and me).

Whether you really need the water resistance is open to debate – maybe you want to play with your gear by the pool or on your, um, canoe? – but, at \$200, the bag certainly isn't cheap, so you probably need to consider if it's really necessary. You can, if you wish, buy each pocket separately – hence the modular moniker – starting at around \$40 for a PO case.



Zoom's heavy-duty H8 is a multitrack recorder, podcasting studio and more

You might call Zoom's new H8 a handheld recorder, but it's actually rather more than that. Offering an app-based workflow, it can be used not only for making field recordings, but also as a multitrack recording device and podcasting studio.

With a heavy-duty sci-fi style look, the H8 offers 12 simultaneous recording tracks, interchangeable mic capsules and a touchscreen interface, which enables you to select the app you want to use. Open the Music app and you've got an on-the-go multitrack recording studio that enables you to mix, overdub and add EQ and compression. You can also connect Zoom's Guitar Lab via USB to access a multitude of amps and effects.

The Field app, meanwhile, can be used for location recording, sound design and more. There's individual metering for each track, and you can adjust the input type, lo-cut, compression, limiter, noise gate and other settings.

Over in the Podcast app, meanwhile, you can use the dedicated Sound Pads to trigger sound effects, music beds and more. 13 are included and you can add your own via SD card.

The H8 comes with Zoom's XYH-6 microphone, which provides two matched unidirectional mics for capturing signal directly in front of the recorder. However, the modular system means that you can easily switch this out for a different capsule. There's the XAH-8, which is suitable for making stereo recordings, and the VRH-8, which has four condenser microphones and can be used to make 360 degree recordings.

Alternatively, you can plug in the EXH-8 expander capsule. This adds a further four XLR inputs, bringing the total number up to 10. Each one has its own dedicated gain knob and power switch.

Other features include optional remote control from your iOS device (an additional dongle, sold separately, is required), and the option to use the H8 as a computer audio interface. Multiple audio formats and resolutions are supported, and we're promised more than 15 hours of operation from four AA alkaline batteries.

Available in August, the H8 will cost \$399.



IK's iRig Keys 2 Mini is a super-portable MIDI keyboard for mobile and desktop

The iRig Keys 2 Mini is the latest and smallest addition to IK Multimedia's iRig Keys 2 range, offering 25 mini keys and direct connection to your iOS, Android, Windows or macOS device.

Other useful connectivity options include a dedicated audio output - which should be particularly useful if you don't have one on your phone or tablet - and MIDI I/O so that the iRig Keys 2 Mini can be used as a standalone controller. Power can be drawn from your device, a USB power supply or a USB battery pack.

As well as the keys, you also of course get volume and octave up/down controls, plus a push encoder and various other function buttons. A further four assignable knobs are included, too, and your preferred settings can be saved and recalled. Shipping with a bundle of software for PC/Mac and mobile devices, iRig Keys 2 Mini is priced at \$100.



THIS MONTH IN SOFTWARE

While a 300-year-old violin is modeled in exquisite detail, we also see plugins move into the web browser and the marketplace too

Output turns up the heat with Thermal, an 'interactive' multi-stage distortion plugin

Output is confident that it's gone beyond the usual "incremental advances" in saturation and distortion technology with Thermal, its 'interactive' new plugin.

This offers a multi-stage engine that promises greater capabilities than traditional multiband distortions, but with ease of use pushed very much to the fore. A circular XY control is linked to the distortion parameters, and you get 250 presets.

If you want to go beyond the basic controls you can dig into the Advanced page, which enables you to interact with the distortion on the waveform display, tweak modulation envelopes and add effects. You can choose from 19 analog and digitally-modelled distortion algorithms and add mid/side and time-based width.

"If you're familiar with Output, you know we like to take traditional ideas and flip them on their heads," said Output CEO, Gregg Lehrman. "Finding and using distortion should be less mechanical and more creative. It should inspire sound design."

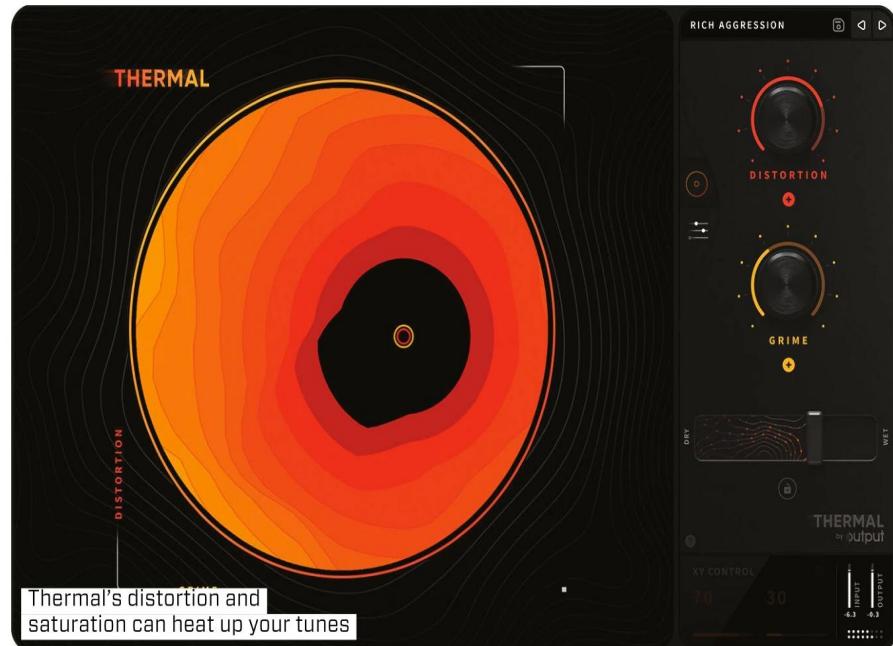
Thermal is available now for PC and Mac in VST/AU/AAX formats. It's priced at \$149 and can be purchased from the Output website.

MusicRadar

Amped Studio becomes the first online DAW to support VST plugins

One of the biggest limitations of online DAWs has been their inability to support standard VST plugins, but that could be about to change. Amped Studio, the web-based music production platform, has just announced VST/Remote, a supposedly "groundbreaking experimental application" that adds support for standard plugins. This, as far as we know, is the first fully online DAW to offer this feature.

Amped Studio already has WAMs – Web Audio Modules – but the addition of VST support could give



it the edge over its rivals. VST/Remote is currently in beta, which means that functionality is limited and you may experience bugs. As things stand, it'll only run 64-bit VST2 plugins (no other formats are supported) and only one plugin can be active in a project at any given time. Automation of VST parameters isn't possible, either.

VST/Remote runs on PC and Mac. The beta can be downloaded from the Amped Studio website.

MusicRadar

There's nothing artificial about Sample Logic's new Symphonic AI orchestral and synthesis plugin instrument

Sample Logic has announced its latest Kontakt-based instrument, called Symphonic AI, but we're not talking about artificial intelligence here – it's all about animated intelligence.

So what is animated intelligence, we hear you cry? Well, symphonic AI is the combination of a symphonic orchestra, courtesy of 13GB of samples powered by Red Room Audio, with wavetable synthesis that results in an intelligent performance engine based around motion.

Included in the sampled content are male and female choir sections, piano, mallet instruments, extended techniques and effects

alongside orchestral solo and ensemble samples of woodwinds, brass and strings.

The samples are then combined with wavetables to form an organic yet electronic soundscape that can be controlled by an automatable XY mixer, tempo-synced effects animators, LFOs and sequencing arpeggiator.

There's plenty of control on offer, affording you the ability to dive deep into the instrument, but if you're stuck and need a quick start, Symphonic AI also features an intelligent randomizer function that will generate new sonic combinations at the click of a button, drawing on over a dozen randomisation filters within the interface.

Symphonic AI runs standalone, as a VST/AAX/AU plugin on both Mac and PC, requiring a full version of Kontakt, version 5.8.1 or higher and is available now for \$499.99. Check out the Sample Logic website for more info.

MusicRadar

Knobcloud lets you buy and sell your plugin and music software licences for free

Billed as "the first dedicated marketplace for audio software licences", Knobcloud is a new website that enables you to buy and sell plugins, DAWs and other similar products.

If you're buying, you can search the site by developer, product name or category. Sellers are



responsible for ensuring that the licence they're trying to get rid of is transferable – if in doubt, you should check with the relevant developer – and to make it clear what kind of personal information is required from the buyer.

It may have an unfortunate name, but Knobcloud usefully includes a database of requirements for a license transfer – if the developer is included in here, the relevant information is filled out automatically, but this information should always be checked. Financial transactions are handled by PayPal, which Knobcloud says offers protection to both the buyer and seller.

Knobcloud is free to use – it looks like the developer hopes to fund it through ads – though you'll need to create an account before you buy or sell.

MusicRadar

ElectroNylon puts an acoustic guitar and electric piano in one VST plugin, and you can morph between them

Something a little different from Sampleson: an instrument plugin that offers realtime spectral transformation from a nylon guitar to an electric piano. It's called ElectroNylon, and is the first in Sampleson's Luthier-Series, which is designed "to bring to life crazy and impossible ideas".

The interface for ElectroNylon is pretty self-explanatory. A slider enables you to gradually morph from the guitar to the electric piano – spectral models of both are included – with harmonics and formants being blended mathematically. There's no CPU usage increase or disruption to the sound as the transformation takes place. You can turn on key click, finger noise, slide and release strum sounds, and there are ambient, chorus, drive and reverb effects.

At just 35MB, ElectroNylon is a mere slip of a thing, and can currently be purchased for the introductory price of \$29 (regular price is \$49). It runs on PC and Mac in VST/AU formats and you can find out more on the Sampleson website.

MusicRadar

iZotope Stutter Edit 2 lets you create BT-style glitch effects with one button

More than nine years after the release of version 1, iZotope has taken the wraps off Stutter Edit 2, a new version of the acclaimed glitch plugin that was created in collaboration with acclaimed electronic musician and stutter sage BT (Brian Transeau).

The big news here is a simplified workflow, with a single button press slicing your audio into small fragments and sequencing the pieces to create "razor-sharp" rhythmic effects. There are also multiple rhythmic 'gestures', designed by BT, that can be triggered from your MIDI keyboard to "build tension and create dynamics".

"Stutter Edit 2 is unique in that it offers world-class effects and complex rhythmic parameter sequencing in

a form that is playable by anyone," said BT. "We are excited for this updated version to launch as its predecessor has already found its way into the studios of some of the greatest sound designers and artists, and the effect can be heard all over blockbuster films, hit songs, commercials and trailers."

There are new effects modules, too – Comb, Chorus, Distort and a Reverb – while the Curve Editor enables you to sweep filters, pump reverbs and more.

Stutter Edit is available now for PC

and Mac priced at \$199. It runs in VST/AU/AAX formats.

MusicRadar

NI's Stradivari Violin is a solo string instrument that's been "almost 300 years in the making"

The chances of you ever owning a real Stradivarius violin are pretty slim, but Native Instruments is promising the next best thing in its new Kontakt instrument. Stradivari Violin samples the rare 'Vesuvius' violin built in 1727 by Antonio Stradivari, in painstaking detail.

The sampling took place in the Auditorium Giovanni Arvedi in Cremona, Italy – the town where the instrument was built. Traffic was blocked off around the hall and townspeople were asked to keep the noise down during recordings to ensure the best possible results.

Features include chromatically sampled notes, phase-aligned velocity crossfades, performance-captured vibrato, 20 articulations and mixable mic positions, the aim being to create something that will let you create truly realistic solo violin parts.

As well as the multi-mic version, Stradivari Violin also includes a stereo-only mix that's lighter on CPU and RAM. Created in collaboration with e-instruments and the Museo del Violino in Cremona, Stradivari Violin is available now for \$199. It runs in both the full

version of Kontakt and the free Kontakt Player (version 6.2.2 or later) on PC and Mac.

MusicRadar

ChordPotion 2 is a MIDI effect plugin that can magic up something new out of your chord progressions

FeelYourSound has released ChordPotion 2, a MIDI effect plugin that can turn any chord progression into a



new riff, bassline or melody at the drop of a hat. The workflow is pretty straightforward: feed ChordPotion some chords and its four parallel sequencers will generate new notes that are musically compatible and can be played back on your choice of plugin synth or other MIDI instrument. Generated notes can also be exported as standard MIDI files so that they can be used and edited elsewhere.

ChordPotion 2 comes with plenty of presets, and you can also create and edit your own. New features in this version include step effects, which enable you to randomize single steps, a wider range of octave pitches for single steps and 21 new factory presets. There are also three free new preset packs.

ChordPotion 2 is available now for PC and Mac in VST/AU formats priced at \$49. Find out more and download a demo on the FeelYourSound website.

MusicRadar



Serial COMPRESSION

Serial compression is a technique that doesn't get nearly enough coverage.

While the parallel compression technique runs a compressor in parallel with an original signal, serial compression runs two or more compressors over a signal in series. You might assume that result is the same as throwing a single compressor at a

signal, but in practice, serial compression can give you a hugely more transparent tone while still compressing the living daylights out of a signal if you want to.

We'll explore serial compression and its nuances in the tutorial below, and we'll do so using the excellent Venomode Complexer 2 compressor. This software effect plays host to

three compressor stages, which can be routed in three ways: as a multiband setup with each affecting a different frequency band; as a stereo setup with each compressor affecting left, right or both channels; and as a serial setup, with each compressor's output signal running into the input of the next. Time to do some serial offending...



1. Standard compression

The audio waveforms we're working with on the left-hand side are piano, voice and drums. They've got one thing in common: they're very dynamic, and they're very broad-band. Just throwing a compressor over this kind of signal (as on the right) can serve you well, but it's likely that these signals are so dynamic that some artefacts or distortion will be introduced. If that's the sort of thing you're looking for, there's no problem; if you're after transparency, the signal will often feel incompressible, untameable.



2. Serial compression

Working with serial compression techniques, we insert multiple compressors on this untameable audio track (we'll start with just two, don't worry), and set them up to fulfill different functions in their set order. Venomode's Complexer plugin is a dynamics device that allows you to set up multiple compressors in series using its Chain setting. There's also Mid/Side, Stereo and Multiband options for the signal flow through the plugin's three compressor units.



3. Setting

The first compressor acts with fast timing, high threshold and ratio, almost like a limiter to curtail the harshest, highest peaks of the audio. Here, the Ratio is 25:1, the Threshold -7dB, the Attack and Release are both 2ms. The goal with the settings is 'High and Fast' to take only the highest peaks beyond your threshold. The second compressor, meanwhile brings some more recognisable compression at lower Threshold and Ratio values, and slower timings, to give more a characterful result.

4. A more transparent sound

The point here is that the most extreme peaks have been removed from the signal first, allowing the second stage to be smoother and more reliable. The result is a very drastic reduction in dynamic range at times, while the whole signal remains transparent in general. We can add more than two compressors, interpolating the settings of the ratio and timings to have intermediate stages between the two we've set up so far. Each compressor fulfills only its particular function in the setup.



5. Bend the Knee

Serial compression is in some ways like the Knee control on your compressor. As the knee is widened (or softened), louder signals are compressed more and quieter ones less. What the knee control lacks, though, is a varied attack or release time for those louder or quieter parts of the audio. Another similarity in a single compressor is a Peak / RMS detection selection, which helps you tell a compressor to respond more or less to peaks. Depending on your audio, these two features may mean you don't need to reach for multiple stages of compression.



6. Multiband formulations

Of course, another way to tame an ‘untameable’ signal by compression is to use one of the frequency-conscious solutions: multiband compression or dynamic EQ. Setting the multiple compressors to react to the particular problem frequencies in your audio can be extra-useful, but serial serial-compressor fanatics may even start to follow a spot treatment like this up with a second stage of standard compression.



7. Using different comps

Some like to experiment with the orders of their hard and soft compressors, but in theory, scalping a signal's highest peaks first should work best. You can also choose to tailor your compression stages to the compressor that best suits this style. What about a FET-style ultra-fast processor to get your peaks under control, and then a calmer, opto-style compressor to give more character and lift to the easier-to-manage signal you've just smoothed out with it? Technically, master limiting and bus compression techniques mean serial compression won't actually be new to most.



CLASSIC SYNTH PATCH FOUNDATIONS

Exploring the fundamentals of classic sounds can inspire patches of your own

When you think of your favourite electronic music do you hear a consistent sound in a particular part of the spectrum? The timbre may vary from track to track but we bet you can nail down specific parts. That's due to the nature of how we experience music and will be similar no matter what creation methods are used, or genre of music is being produced. Think of a standard rock band. Although there are exceptions, you will most likely find a vocalist, drums, bass and guitar. This basic formation has been settled on as each instrument sits in its own place in a mix, without overwhelming each other. It's all too tempting to start plugging in patch cables and twiddling knobs to get the biggest, fattest tones but think a little more carefully if this isn't an experimental session. Ask yourself where the sound you are working on will sit. Imagine working on a bass patch that fights the lead synth in the mix. You'll spend a lot of time trying to compensate for that when you come to mixing and although you might be able to remedy some of the issues with big doses of EQ you are better off getting the sound right before you even record.

So, over the next few pages we'll be giving you a good idea of how to create some of those classic synthesizer sounds, creating sounds which will both fit in a mix nicely, playing well with others but also paying homage to what's gone before.

There's a reason synthesizers like the Juno have long been so popular. They can be tweaked easily and intuitively, have an instantly recognizable sound and invoke a predictable response from the listener (and artist).

À LA CARTE

We'll deal with these patches using a mix of hardware and software synths but the process is pretty similar, so don't worry if you don't have the gear we're using. Every synth has a slightly different sound and feel but they can, for the most part, fulfil the same roles as each other. The biggest differences will be between polysynths and monosynths. You can coax a nice pad out of mono but it's a bit easier with polyphony, where you can create some more sophisticated and emotive chord voicings.

While these pages aren't really about using effects, there are some examples where a sound can really benefit from a touch of phaser, delay or similar. Just try building an ambient patch without liberal amounts of long-tailed reverb! Similarly a bass patch with a little compression will have more punch and impact, as well as cut through the low end of your mix more easily... Where there is a clear need for an effect we'll say so. For the most part, at the end of this you'll know how to set up a collection of sounds that will complement each other, allowing you to concentrate on writing and less time needlessly fixing issues.



Step by step 1. Analog bass patches



01 A good starting point and an easy place to begin is with a nice solid, versatile bass, so load up a synth plugin or warm up your favourite hardware and find the default setting, or an initialized patch.

02 We'll create an aggressive two-oscillator bass, so set your waveforms to square, maybe with a little pulse width blended in if your synth allows. Also, for added breadth and 'phatness' drop Osc 2 an octave. Use your mixer to select the very best balance.

03 Some synths offer a sub oscillator which can add some smooth depth. Logic's Retro synth has this by way of the 'sine' control in the amp section. Add to taste, but subtle is usually best for this, as it can detract from the punchiness.



04 Synths often sound better with modulation, driven by the mod wheel/LFO. Here we've set the mod source to LFO, then in the LFO section, set the rate and depth, wave to triangle and input to both aftertouch and mod wheel, for versatility.

05 Next, add some classic pulse. In the filter section, choose an 18dB low pass. The big control here is the LFO. Set this for some 'wow' and crank up the static/vs ENV control. Move the attack of the filter envelope so it's softened slightly.

06 Your bass tone is pretty much done but if it's not as thick as you'd like, add some chorus, with a slow rate. Or for added movement, a phaser or flanger work well. Subtle is usually better. That leaves the amp envelope, left at default.

Step by step 2. Creating creamy pads



01 Pads can be varied in sound and tone but a sensible place to start is a soft, creamy pad. A polysynth works best (we're using the Juno plugout on the System 8). Find a blank patch and balance two oscillators, with a little sub to taste.

02 Next up, reduce the cutoff to remove some of the harshness. Setting the cutoff to around 700-900Hz at 24dB is a good place to start. A triangle wave for the oscillators helps soften the edges here too.



03 Up next is the amp envelope. This is all about smoothing transitions between envelope sections. A slow attack, decay in the 60-70% range and a slow release works well. The sustain can be adjusted for performance, depending on style.

04 As mentioned before, synths benefit a great deal from movement. This can be from any source, but for this we like a slow wide chorus, or a reverb with long shimmering tails. Either way you can be quite heavy-handed.

Understanding the envelope generator and how it shapes your sound

Most of us think of an envelope generator as the way our synth presents our sound, but they can also modify tones. Let's break down what the envelope is: essentially a way to visualise a curve, broken down into Attack, Decay, Sustain, then finally Release. Some synths have more controls, others less. Simple attack and release are found on many, while others have more than one envelope generator. These can be used to control the loudness over time of a note that's been triggered but also can affect things like the cutoff, so you have a note that starts softly, builds to be harsher, with more high end, then those highs fade again. Synths that have multiple generators offer the benefit of having separate curves for different events, whereas many synths use a single envelope to control multiple attributes. That sounds bad but it can be a blessing if you build sounds with tight synchronization.

Step by step 3. Making a simple lead



01 This is all about presence, so use all available oscillators and if that means driving your mixer, do it. A little grit can help here. A triangle and a square synced and an octave apart is a very good place to start. 8' and 4' feels right.

02 For the envelope use an instant attack, with around 20% decay, sustain can be pushed to 100% and the release very low. For a monosynth a little extra release can help kill any blippiness in the sound, especially if you like to hold your root note.

03 All that's left now is to modulate the filter. Doing this with an LFO is the easiest way, using the mod wheel to control the amount. We set ours to sine wave, driving both filter cutoff but also a little pulse width modulation.

Effects - internal or external?

It's rare to hear a completely dry synth sound in a finished track. Whether it's a touch of reverb on a lead line, compression on an analog kick or chorus on a pad, almost all classic synth sounds can benefit from a little processing of some kind. The question, then, is whether to reach external effects or find a synth with everything you need onboard. There's no real right or wrong here. On the one hand, dedicated effect processors are often more capable than those found onboard synths. However, effects contained in synths are often designed to work well with that instrument. Particularly with modern 'super synth' plugins, onboard



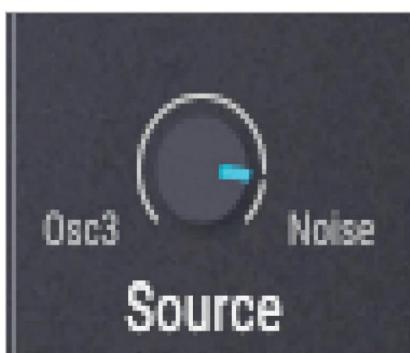
effects often let you modulate them using the synth's existing envelopes or LFOs, or apply the effect at points in the signal path – all of which can help your patch sound alive. In some cases, vintage synths house specific

effects that are a major part of that instrument's iconic sound, Roland Juno synths' two-mode chorus. While you can replicate it, for real authenticity you'll want the real thing, or a specific emulation of it.

Step by step 4. Wind machine



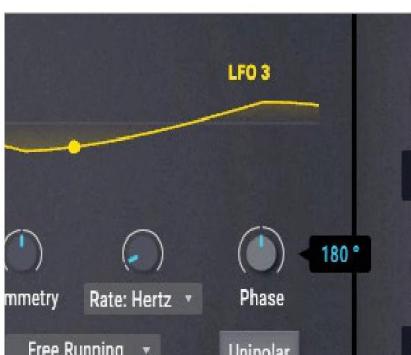
01 Most synths have at least one type of noise generator, which can lend character to your patches or be used in creating effects of their own. Wind is the obvious choice – it can help add texture to ambient pieces.



02 We're using Arturia Pigments. We start with the analog engine, the noise option turned up and the standard osc turned off. Go for a pitchless sound for now, to concentrate on the airiness. In Pigments turn the mod control to noise to achieve this.



03 Modulation here is vital to the sound. To slowly blend between the noise types, use a sine wave LFO (LFO 2 in the image), set quite slow. This way you'll get something that sounds like heavy wind and gusts of rain.



04 You can use another LFO (assuming your synth has one) to create extra modulation, which runs even slower and out of phase. This LFO controls the amount of modulation on the noise generator. It's subtle and that's good.



05 Next up is to add some space. Reverb is your friend here. Pigments has its own but use what you have to hand. If you can, try setting your LFO to modulate the wet/dry to make gusts appear to move closer, then further away.



06 Finally a touch of phaser, low and slow, helps prevent the rain/wind sound being too static. If you sync the rate to your lfo it can give you predictable movement, if you want it. Then set your filter to mod wheel control to perform with the wind!

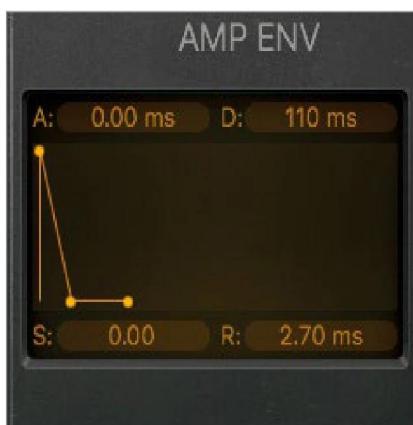
Step by step 5. Build a plucky synth sound to take a rhythmic lead, or backseat position



01 For this one we're aiming to build a sound that fills the roll of a plucky guitar but one that can be adapted easily to fill more space, with an almost brassy quality. To start, load up a nice analog synth. Logic's Retro, or a Moog Grandmother are perfect.



04 As with almost all synth sounds, this one will have more life with a little modulation. Be a bit more restrained here though. This is a balancing act between the shape's LFO amount, the LFO's rate and control amount and the filter's LFO knob.



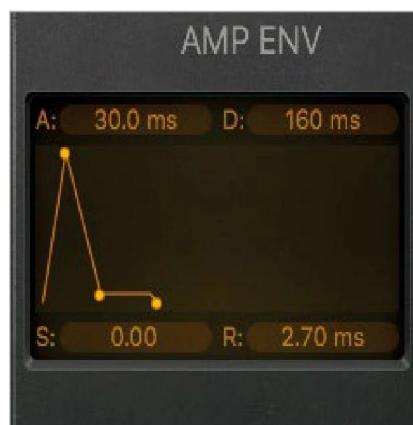
04 Now you'll need something similar for the amp envelope, if you have a separate one. The biggest difference here is that you want a touch more decay and release, which keeps the notes from being throttled. Now when you use aftertouch you'll see it's more restrained and natural sounding.



02 Set both oscillators to a saw wave, one at 8' and the other at 16' for a thickish lower end. If your synth (like Retro) doesn't have footage indicators, aim for something that isn't too bassy but retains that fullness at middle C.



05 We usually like to leave effects until last but in this case a little chorus before you tweak envelopes is wise. Thicken the sound and give it breadth. Not too much depth or speed. You want this slower and quite subtle. It's about thickening what you have, not making it warble.



05 As mentioned, this plucky sound is a good base for a brassier sound. To adapt for that, simply lengthen the decay on both envelopes to allow the highs to ring out longer. It's not a true brass sound but has that quality while staying plucky. A touch of sustain lets you play a longer note.



03 Use the cent control in Retro, or the fine tune on your hardware synth, to slightly alter the tuning of the second oscillator. We opt for plus 23 cent, to give an audible but not too extreme detuning, which adds a little texture to the sound.



06 Step 1 of making the actual pluck part of the filter envelope. You want a fast attack, a quick-ish decay, no sustain (so the note doesn't hold with the key press) and a fast release. Experiment here a little, to suit your own synth but the screen shot is a guide. Crank the Env setting in the filter.

Power tip!

Layer up!
For richer, denser sounds that don't fight each other, record the track using different synths, just like double-tracking a guitar. Pan them apart and you'll get more interest and width.

THREE OF THE BEST



Moog Model D free

1 Moog is arguably the best known synth company, often with suitably large price tags. However their Model D iPad version is currently free, giving you a chance to enjoy the classic sounds on the move.

moogmusic.com



Arturia Analog Lab \$250

2 Arturia make great hardware synths and their VSTs are well loved too. The Analog Lab is a great choice for experimenting with different core sounds, that can intuitively be adapted. It also pays homage to some of the best synths from the last 40 years.

arturia.com



Roland System 8 \$1500

3 This makes the list purely for its versatility. It lacks aftertouch but otherwise has all you need, including vocoder, arp, sequencer and authentic versions of classic Rolands from yesteryear like the Jupiter 8, Juno 106 and SH-101. Bargain!

roland.com

Avoid tool choice elitism. It really doesn't matter!

We admit, that title might be just a little misleading, as some tools are definitely better suited than others to certain tasks. What we really mean, though, is try to avoid the hype that surrounds some synths. Sometimes we have to work within limitations, be that space, budget or something else, but that doesn't mean you can't get a tool that does the job. Many of our featured artists are lucky enough to have studios full of lovely hardware but in all honesty, they are the final few percent. Most of what you do as a musician or producer can

be done with software and not many people will be able to tell the difference. Our caveat to that though: get a controller. If you have a limited budget, spend it on a good quality controller keyboard, which will aid your playing no end. And if you have a bit more to spend get a hardware synth that can double as a controller. We often use a Prophet for that. If we had to choose just one synth it would be a Prophet or the System 8, simply because they offer the most versatility and polyphony. You can take notes away but you can't add them!

Step by step 6. Create the essential kick drum



01 For all the 808-like hardware options, samples and others, you can't beat making your own with an analog synth. Let's try the Moog Grandmother with both oscs set to triangle. One at 32' and the other at 8', plus a touch of noise added in the mixer.



02 Skip the filter section now and head over to the envelope. Set a very fast attack, decay at about 15 - 20%, a low sustain, if any and set the release to around 30%. This gets you most of the way there.



03 Now head back to the filter, which should be a low pass. The cutoff can vary to taste but start with it set about 80Hz, which might sound a bit low. That's okay though, as adding some resonance a bit higher will counter that.



04 Now set the filter so that it's controlled by the envelope by around 60-70% and if you have keyboard tracking, set it to 1:2 and you can play darker kicks lower down, bringing in some high end progressively further up the keyboard.



BJ Burton

By Danny Turner

Los Angeles-based producer and mix engineer BJ Burton is best known for working with Bon Iver and Sylvan Esso, plus fruitful collaborations with Eminem and Kanye West.

Danny Turner discusses his career to date

As a member of several punk and indie rock bands, producer, songwriter and mix engineer BJ Burton began recording bands during his teenage years. More intrigued by a career in production than a life on the road, he went to engineering school and branched into voiceover work while interning at a music studio. As a member of North Carolina-based indie pop band The Love Language, Burton moved into the producer's chair for albums *Libraries* and *Ruby Red*, propelling him towards an astonishing five-time Grammy award-winning vocation.

Despite purchasing a studio in Minneapolis, he currently resides in LA and advocates an experimental, push/pull approach to music-making. The somewhat reclusive Burton has worked extensively with Bon Iver's Justin Vernon and Sylvan Esso, most notably on respective studio albums *22, A Million* and *What Now*. His fast-growing reputation would later lead to collaborations with industry titans such as Chance the Rapper, Miley Cyrus, Kanye West and Eminem – the latter sparked by songwriting sessions with renowned producer Mike WiLL Made-It.

Did you always have an interest in how music was made from a production viewpoint?

My parents were really into The Beatles and my grandfather loved bluegrass, but I rebelled. I was into punk and metal – the loudest, craziest shit I could listen to. I was trying to make music myself, so was trying to read as much as I could about my favourite records and had an interest in how producers or engineers like Rick Rubin and Rich Costey were doing it. But this was when you only had AOL or instant messenger, so it was hard to really find out what was really going on.

What did the word 'producer' mean to you?

I'm 33 now but it's only been over the last few years that I've realized the definition of what a producer is. My whole thing is about pushing the process forward to get the art as far along as it can be without getting myself too excited. I'm challenging myself or whoever I'm in the room with and I guess that can be really intense for some people, but that's what makes me a

producer because I'm producing something that wouldn't be in the room if I wasn't there.

Somewhere along the line everyone that made music became labeled a 'producer'?

Now everyone has a laptop with Logic, Ableton, Pro Tools or Fruity Loops, but I consider them as musicians not producers. They're not making records with live musicians in a room and tracking to tape; it's just a bunch of guys with laptops plugging an aux cable into a console and jamming. They're all quote, unquote 'producers', but when I'm producing I'm the one pulling and pushing to get the information I need. I think there's a balance to be had because you have producers like Mike Ronson who will lend you this overall vibe, but that's a slippery slope because guys like him are very disposable to the people they work with. I'm more hands on and like to get close to everything I do.

Do you have to be ahead of the game in terms of the technology you use?

I'm definitely always up to date with the technology – that's my advantage. My

"I'm definitely always up to date with the technology – that's my advantage."

grandfather worked at IBM so I would go over there and play on these big computers, borrow his guitars and mesh all that into one thing, so technology's always been on my side. Pro Tools is my main thing and I really got into tracking down to tape when I was in indie rock bands where it's common to track songs to a 16-track reel-to-reel. I've also made a couple of records with no computers at all using pure micing techniques and tape cutting because that's really fun to do and I like to change things up.

So when did you start getting seriously into the technical aspect of recording bands?

Throughout high school in North Carolina I was in punk bands recording my friends, then I started making money by going into studios and recording other people's bands. I got asked to go on tour, so I did that for a couple of years with bands like The Love Language and Telekinesis on Merge Records, but it got to a point where I thought that being in a band was kind of embarrassing. I didn't want to drive around polluting the world and getting drunk every night, there was a higher purpose and I just wanted to make stuff. That's when I moved out to the mid-west and hunkered down.

You went to engineering school?

I wanted to get certified for Pro Tools Version 5, whatever year that was [laughs]. Since then, I've stuck with the software and tried to keep myself up to date. Right after high school I moved to the coast and got a job in a studio doing voiceover ADR. They'd send me away and I'd set up a studio recording artists on set then send it to a producer in LA via ISDN. At the weekends I was interning at a music studio.

One of your first productions was the Lonnie Walker track 'Inside Factories'. How did you get that role?

Lonnie Walker is a band from North Carolina. I was working at a studio in Raleigh, saw them live and brought them in to work with me. I did that with a lot bands at the time – some of it worked and some of it didn't.

Were you testing your own parameters?

It was all about making connections. I liked partying and forging relationships with people. I wasn't interested in what they were doing now, but what they wanted to do. I want to do the unimaginable rather than something arty or set in stone. When ambition's driving the conversation it's something I want to do because we're both being challenged and don't know what the fuck we're doing – if that makes sense?

Did you have your own studio at that point?

I rented a spot with a friend of mine in downtown Raleigh and built a studio from the ground up, which is how I met the whole Merge Records crew. I was also in a band with a couple

of members from the Annuals, who were quite popular for a while. There was a really nice community in Raleigh. I worked with Nick Sanborn, the bass player in The Love Language, for a couple of tours and he ended up moving there to form Sylvan Esso.

Your involvement on the Sylvan Esso album was a little different as it was more of an electronic album?

Yes it was – I was putting out indie rock on those types of labels but I was also making rap beats and doing all types of other stuff. Sylvan Esso's definitely that middle ground between loud beats and indie-organic sounds, so when Nick decided to do the project he asked me to help. We've actually just wrapped up recording their third album.

How far does the producer/artist relationship go beyond the studio?

Having a connection is important. At the end of a day, even if someone's super-talented at their instrument I can only do so much with that. Today, a lot of music is stale. Pop music's in a weird place where everything sounds the same and I can't even comprehend a lot of that. I had a guy who works for a record label come to my house saying he's looking for music for TikTok because that's the next cool medium. I almost vomited dude, don't come in here with that! There's so much of that in LA that it's really numbing, but there's good and bad.

Is production also about helping artists to evolve as people?

By default, yes, but I never go into a project

thinking that because I don't know how good a person I am. I don't want to be someone else's therapist, but at the end of the day we're trying to be the best we can be at any given time. That's why I have close relationships with everyone I work with. I'm really passionate about what I do and don't get too excited or pat myself on the back, unless it's really fucking good!

After 70 years, does pop music need to find a new vocabulary?

I think there are infinite areas it can go into, but pop music has a lot to do with the platforms it's presented on and the people who inhabit them. They need to be willing to take a risk and push things that don't meet an algorithm that says something could or should be popular. People are willing to push the envelope, but will they be



allowed on those platforms? That said, certain things have become popular without that, like Bon Iver. It might not be pop as we know it, but he got his way without doing the whole algorithm song and dance. That's why I like working with Justin [Vernon]; he gives me hope that something can be pushed in a certain direction. Artists like Billy Eilish are also very important because their character is positive, weird or unique and that weighs more than the music these days.

With Sylvan Esso's debut record you didn't just mix it but mastered it too?

I just do whatever it takes to get the job done – not by rushing things but by being aggressive in a good way. Sometimes I'll say, let's make a decision and not look back on it for now – it's

just music so we can always decide to change it. When it was time to master that album it sounded great so we just kept going. I've mastered a lot of albums actually.

Some artists are obviously very conscious of the lane in which their career is cruising. Can it be hard to convince them to consider taking a new direction?

I have worked with artists like that. I don't want to name them but there have been some albums where the manager's in the room saying "we've got to put the vocals in the first 20 seconds otherwise Spotify isn't going to put it on a playlist!" The artist was like, "yeah, we need to listen to my manager" and I'm like, "fuck this, you don't get it, man." Because of that I'm much more wary about the people I work with, but

but as full co-writer and instrumentalist.

Was that a step change?

I definitely produced it; Justin and I came up with all those sounds from scratch. He was going through a really crazy time and had a big problem with crediting people correctly, but then he overcompensated on his last album by crediting tons of people. Basically, Justin, Chris Messina and I traveled around making that album and I'm really proud of it because we're trying to create sounds we'd never heard before.

What sort of techniques would you use to achieve that?

I remember the first sound we made for *22, A Million* came from a tape machine I'd brought over from North Carolina to Wisconsin. I hooked it up and there was a kick mic on a kick

"I remember the first sound we made for *22, A Million* came from a tape machine I'd brought over from North Carolina to Wisconsin "

maybe I needed to go through that for a couple of years to be where I am now.

Do you research artists you haven't worked with before or is the past best left there?

Honestly, I won't study an artist's past and think about what they can do differently. That doesn't seem fun to me, it feels like homework that might color the whole situation. Most of the artists I work with end up lying on the studio floor playing me their back catalog because they want me to hear it so bad, but I just don't think I can get to know someone that way. I'd rather get to know the person in the present and maintain a trajectory from there.

Are there exceptions? For instance, bands you're highly motivated to work with because of their back catalog?

Have you heard of the band Low? They've never written a bad song. They put out an acoustic album and I had this vision of pushing them to make the most beautiful, distorted, post-apocalyptic record – the sort of thing you'd find 2,000 years ago if you dug the earth up. We made that record and it's one of the favorite albums I've ever made.

You began working with Bon Iver in 2006 on the album *22, A Million* – not as a producer

drum and Justin was testing the mic and it started clicking out my tape machine and making this crazy distortion. I recorded it, ran it through a vocoder and that was the sound of the song 'Deathbreast'. That was the first song and we finished it in an hour. When Justin and I lock in we can write a song that quickly.

Your collaborations have led you to work with lots of other artists including Ye...

Yeah, working on the Kanye West album *Yeezus* was a big deal for me. I think the album is incredible and being in a room with Mike Dean writing a song on a Moog from scratch and watching how he processes drums by cranking the Pultech on the kick and not being scared really inspired me. Seeing how Kanye talked about music, songs and speaking in metaphors was another turning point for sure.

Is Kanye a visionary?

At one point, yeah, but I don't think there's ever a clear vision. When people of that stature speak, they're talking out their situation and trying to figure stuff out in real-time to get your reaction. It's never, 'this is what I want' or 'I know what I want' – that's boring. People like that make bad art. I prefer the people that are trying to figure stuff out with other people in the room. Certain artists go on rants and are





constantly talking about what's on their mind, and that's where collaboration comes in – that's what makes the unimaginable imaginable.

You also worked with Eminem on the track 'Fall' a couple years ago. Were you similarly inspired by him?

Like I said, I was making rap beats before I knew how to plug in a guitar amp, but I never actually met Eminem. I did a session with Mike WiLL Made-It who's one of my favourite rap producers. We went to a studio in North Hollywood and made 40 beats per day, which was crazy. I took all that stuff home, chopped it up and Mike said, "Yo, I've got Eminem on this". It happened just like that. Justin Vernon sang the hook on the Eminem track, which was an ad lib, but once we knew Eminem was in on it we worked on the hook and just tried to get the vocals sounding right so he could rap over it.

Who would be your dream artist to capture in audio?

My dream was DJ Quik and that happened last year. It was like, "fuck man, who am I at this point?" I think he's one of the best producers that ever lived. I was listening to metal and punk and when I heard DJ Quik it was so cool – West

Coast party music with Moog synths and funk guitars. At that point I thought, damn, it's okay to have fun listening to music.

They sometimes say that it's better not to meet your heroes let alone work with them, so did you approach that collaboration with any trepidation?

I was so nervous. We were shooting the shit, smoking a little bit and he played me a bunch of stuff. Then he said, right, plug the hard drive in and play me some stuff. My hand was shaking and I didn't know where I was, but as soon as I hit play we started vibing and it was the best.

Do you have any abiding principles to your production approach?

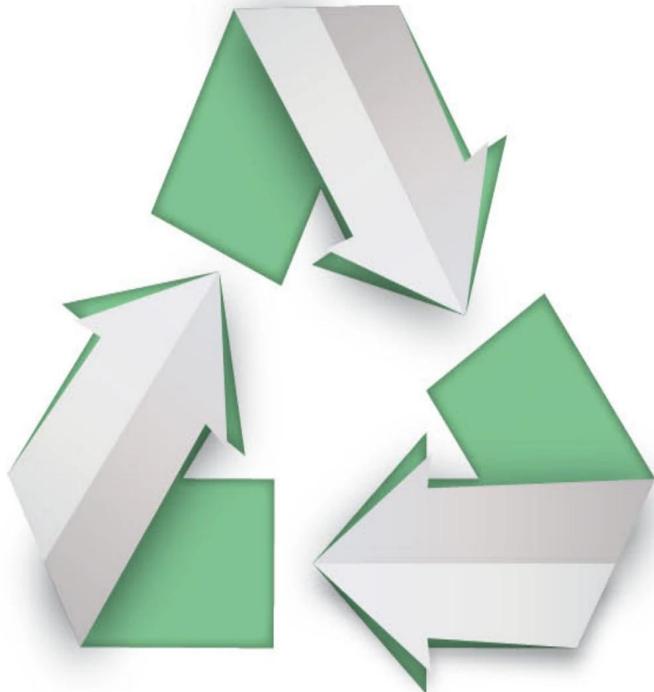
I'm a bit of a psychopath. I'll use a lot of outboard equipment and throw things into a weird box and distort it to learn what's happening with sound in general. I love interesting signal paths and things like that. I don't know what's going to happen or what it's going to sound like, I just deal with it and try to turn it into something to listen to. I guess I'm always learning technicalities, like mixing, analog summing and digital conversion – it's never ending.

We read that you built your own studio from scratch a couple years ago, somewhere out in Minneapolis?

I'm really proud of the studio because I built it up to be really cool. My goal is for it to be an auxiliary studio but it's still under construction. That's what made me get out of Minneapolis for a little bit and come to LA. Now I'm renting a really great place here – it's like a glass house on a hill and my whole studio from Minneapolis has been moved into it.

What's the setup comprised of?

It's like having a really cool hot rod in your car and made up of tons of pieces depending on how fast I want to go or how comfortable I want to be. I've got all my mixing outboard gear here and I'm always changing the mix setup depending on the album I'm working on. For songwriting, I bring my Roland TR-8S everywhere. For listening, my ATC and Adams speakers are very important, and for tracking I have a pair of Neve 1066 preamps – the original vintage ones. Software-wise, I go all in on Pro Tools and really crack it open. I do a lot crazy processing with hardware but I'll also do the same kind of routing inside Pro Tools when it comes to side-chaining, compression and gating. ■



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THE ART OF SYNTH SOLOING

Five More Favorite Synth Solos

Here are a few more of my favorite synth soloists, and this time they are some of the more advanced players. Buckle up!

By Jerry Kovarsky

Learning licks, and even whole solos from our favorite players is a sure-fire way to develop your soloing vocabulary. But it's important that you understand how the notes relate to the chords so you can take these licks and phrases and use them and on others tunes, and in all keys. The following players and examples are more advanced than last month's choices, so take your time and work on these slowly and carefully.

Rick Wakeman

Is there a bigger star in all of prog-rock than Rick Wakeman? Fleet fingered, flamboyant, funny, and given to excess (he virtually invented the "who has more keyboards" arm race), Mr. Wakeman has created a body of work that has influenced so many of us keyboardists.

To showcase him my first example comes from the live album *Yessongs* released in 1973, from a concert in December 1972. "Starship Trooper" was part of the classic Yes Album,

Ex. 1. Rick Wakeman's arpeggiated solo on a live version of "Starship Trooper" from 1973's *Yessongs*.

The musical notation for Example 1 shows a solo in G major. The tempo is indicated as quarter note = 155. The solo begins at 7:28. The first measure shows a series of eighth-note arpeggiations. The second measure starts with a G chord, followed by an Eb chord. The third measure shows another arpeggiated pattern. The fourth measure starts with a C chord. The fifth measure continues with arpeggiated notes. The sixth measure starts with an Eb chord. The seventh measure starts with a C chord. The eighth measure ends with a fermata over the final note.

Ex. 2. A highly melodic phrase from Jan Hammer, emphasizing more colorful tones on an E dominant-seventh chord. Taken from "Blue Wind" on Jeff Beck's *Wired* album.

The musical notation for Example 2 shows a melodic phrase on an E dominant-seventh chord. The tempo is indicated as quarter note = 180. The solo begins at 2:38. The first measure shows a single note followed by a sixteenth-note pattern. The second measure shows a sixteenth-note pattern. The third measure shows a sixteenth-note pattern. The fourth measure shows a sixteenth-note pattern. The fifth measure shows a sixteenth-note pattern. The sixth measure shows a sixteenth-note pattern. The seventh measure shows a sixteenth-note pattern. The eighth measure shows a sixteenth-note pattern.

released in 1971. Live, Rick takes a short Minimoog solo and he filled the space with his typical flourish of fleet-fingered gymnastics. Example 1 shows that solo, and while the arpeggiated notes are not that hard to analyze against the harmony, I dare you to equal his articulate chops given the tempo, and remembering how difficult it was to play so fast and clean on a Minimoog.

Jan Hammer

Jan Hammer defined the art of using the synthesizer as a expressive instrument, and he stood toe to toe with many of the guitar greats of the last few decades and gave as good as he got. Jan's unique attributes include his signature lead synth tone(s), his varied and always perfect pitch-bend technique, and his unique scales and note choices over chords.

Jan often superimposed scales that were different from the key center to give his solos a more colorful sound. Take this phrase from his solo on "Blue Wind" from Jeff Beck's legendary *Wired* album (see Example 2). He sounds like he is using a D major pentatonic scale, with the added C-sharp note (or think a D Major Seventh chord over the E root), so his lines sound more suspended, never touching the G-sharp, which is the third of the chord. Notice how he creates a cogent idea and then keeps working with it: thoughtful development of an idea. The bends in bars 7 and 8 are a minor third, not the easier whole-step, and seem more like he's playing on an A chord, but it's all E Dominant seventh.

Repeating a phrase and changing one or two notes is a common technique for Jan, and in Example 3 I showcase part of his burning opening duet with Billy Cobham on "Quadrant 4" from Cobham's classic 1973 album *Spectrum* to show this. His first lick seems to be in G minor, using the G minor pentatonic scale. On the next iteration (bar 3) he moves the C and D up to D and E for a more exotic flavor. And then over the next few bars he keeps developing the same line, always shifting a note or two as he goes.

T Lavitz

T came out of the University of Miami jazz department (we were classmates together) and

Ex. 3. A great example of how Jan Hammer developed his melodic ideas by shifting one or two notes on each repetition. From the tune "Quadrant 4" from *Spectrum* – the classic Billy Cobham album.

The musical notation consists of four staves of music. The tempo is indicated as 240 BPM. The first staff starts at measure 15. The second staff begins at measure 4. The third staff begins at measure 8. The fourth staff begins at measure 11. The notation uses a variety of note heads and stems, with some notes having small 'wavy' markings above them. Measure numbers are placed below the staves.

Ex. 4. A fleet-fingered bluesy lick from T Lavitz, as played on "Cruise Control", from the 1993 Dregs reunion album *Bring 'Em Back Alive*.

The musical notation shows a single staff of music in G major (indicated by a 'G7' above the staff). The time signature is 4/4. The tempo is 13:00. The notation features a continuous series of sixteenth-note patterns, primarily using eighth-note chords (G, B, D, E, G, B). Measure numbers 1 and 2 are indicated at the beginning of the staff.

Ex. 5. A chops busting solo phrase from T's trading with the guitar and violin on "Free Fall", from *California Screaming* (1999).

The musical notation shows two staves of music. The top staff starts at 2:34 and ends at 3:00. It features a complex sixteenth-note pattern with various slurs and grace notes. Chord symbols 'G7', 'F', and 'C' are placed above the staff. The bottom staff continues the pattern starting at 3:00. Measure numbers 1 through 6 are indicated. The notation includes various slurs and grace notes to indicate the fast tempo and rhythmic intricacy.

joined the (Dixie) Dregs, sharing their most successful years as a band, and their subsequent reunions. The Dregs had a unique mix of styles, blending the Allman Brothers and the Mahavishnu Orchestra with ease. A common element derived from the MO was the trading of short solo lines, often at breakneck tempos. Example 4 shows one of his lines played on "Cruise Control" a Dregs classic, as performed on their 1993 reunion release *Bring 'Em Back Alive*. The phrase blends his country and blues expertise, using the chromatic area from the flat third, natural third, fourth, flat fifth and natural fifth. I can't emphasize enough how strong T's chops were, and how articulate he executed at fast tempos such as this.

Example 5 is from another live Dregs album, *California Screaming*, from their 1999 reunion tour, on the tune "Free Fall". Bar 1 into 2 employs the "Jan Hammer" scale (1, 3, 4, 5 and flat 7) often used by Jan and Jeff Beck, moving into an advanced blues lick that is classic T. Bar 3 rephrases that same lick and then moves into a major blues scale lick, emphasizing the tri-tone interval of E and Bb (the sixth and flat third of the scale). Bar 4 outlines the two chord changes simply, but effectively. Bar 5 is back to the major blues, moving into an arpeggiated Dm7 to give a jazz flavor followed by a resolution into the G triad in bar 6. Then he "takes it out" using his favorite E major over G7 (think of it as a major triad or major pentatonic based on the sixth step of the scale/key center). ■

EASY GUIDE

Bassline theory

This month's Easy Guide is designed to help you carve out more effective basslines

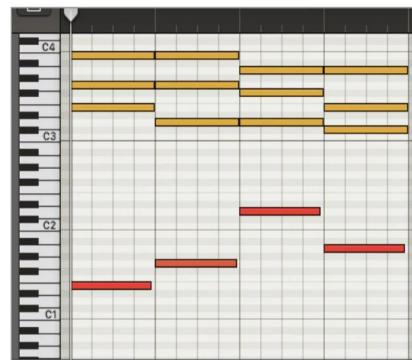
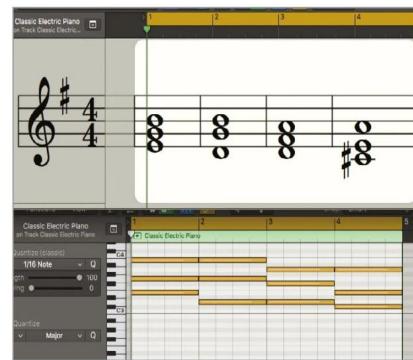
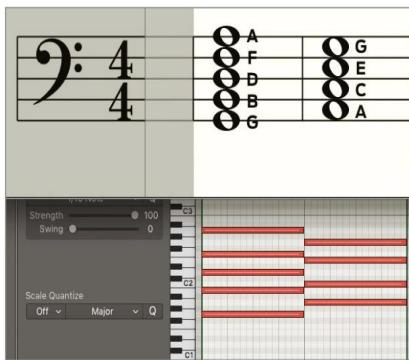
As an essential part of the rhythm section, together with the drums, your track's bassline is the component that forms the crucial link between the rhythmic and musical elements of the tune, yet it's often the thing that gets the least attention when it comes to choosing the actual notes it plays.

An awesome bassline can easily be identified by whether or not it makes you do a 'bass face' – if you simply can't stop yourself from pursing

your lips and thrusting your chin back and forth like a chicken, then you know you've got a winning bassline on your hands. From the simple, rootsy funk plodding of Daft Punk's *Da Funk* to the almost baroque, distorted flailings of Muse's *Hysteria*, a great bassline can be the making of your track, and although a lot of bass part creation is largely instinctive, there are a few theory-based tricks that can help you out along the way.

There are loads of different types of bassline you can adopt, depending on the style or genre of music you're going for, but from an electronic musician's perspective, things will mainly fall into two camps: using bass guitar samples to emulate the playing of a real bass player, or working with a punchy synth sound to produce a synth bassline. So over these two pages, I've gathered together a few tips on how to create an effective bassline using both approaches.

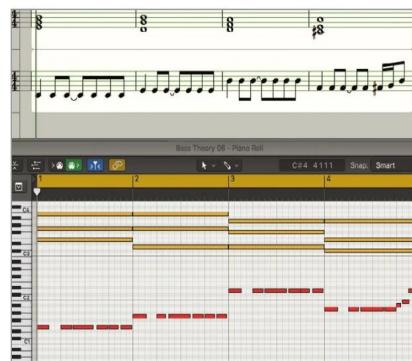
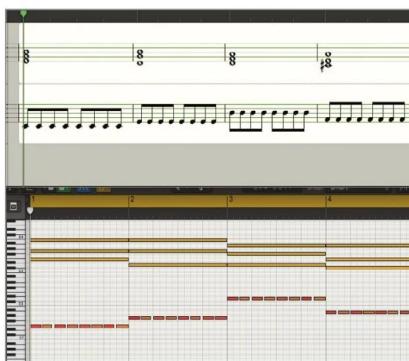
Step by step Choosing the right notes for your bassline



01 First, I want to introduce you to the bass clef. It exists so that bass parts on the stave are easier to read, with fewer ledger lines. The blob in the center rests on a line that represents the F below middle C, so from this we can tell that the notes on the five lines, from the bottom up, will be G, B, D, F and A. The notes in the spaces, meanwhile, will be A, C, E and G.

02 Now that's out of the way, we can get down to chiseling out some funky grooves. We're going to start with a basic, rock-influenced idea using bass guitar samples. The key component to an effective bassline is figuring out how it works with the rhythm of the drums. Here's a short four-bar groove for us to work with.

03 The most basic bassline technique is simply to pin down the root notes of the chord every time the chord changes. We've got a simple electric piano part playing a progression with a new chord every bar – Em - G - D - A. So to start with, our bassline could just follow this, holding down the notes E, G, D, and A on the downbeat of each bar.



04 Next, let's explore some more interesting options. Try laying down some straight eighths with our sampled bass guitar sound. This approach might work well for a driving rock tune, for instance – simple eighth-notes holding down the root notes of the chord.

05 Let's now break the rhythm up a little by focusing on one particular element of the drum track: the kick drum. This time, we're still playing the root note of each chord, but we're only playing in sync with the kick drum beats. If your kick drum and bass are perfectly in sync, it provides a solid and foolproof foundation to build the rest of your tune on.

06 Now we can start to fill in some of the gaps, using some extra notes that coincide with other rhythmic elements from the drums, chiefly the snares. This example dials us back a little further towards our original eighth-notes idea, but with a bit more rhythmic variation, matching the overall beat of the drum track more closely.

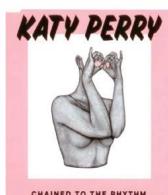
Recommended listening



CHARLIE PUTH, ATTENTION

Great use of octaves, neighbor notes and chromaticism in a contender for my 'bassline of the year' award.

bit.ly/CPattention



KATY PERRY, Chained To The Rhythm

A simple stomp-clap drum groove complemented by a brilliant minimal bass part relying on stopped notes, offbeat accents and dominant sevenths. You know already.

bit.ly/KPchainedto

Pro tips

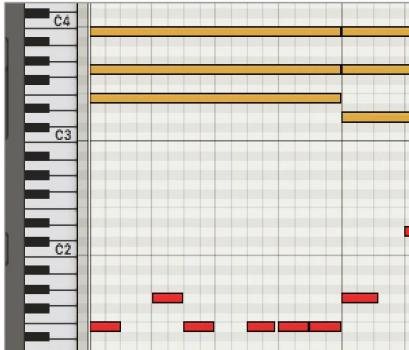
Stopped notes

In the example shown in the last two steps below, I've used a technique that employs 'stopped' notes – extremely short notes that don't really last long enough to convey any pitch information as such; they're just rhythmic devices that emulate a bass player slapping a string with their thumb bone.

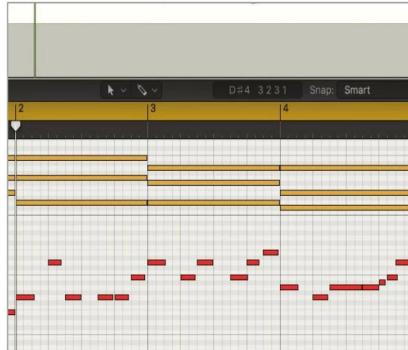


By Dave Clews

Over the course of his 25-year career, Dave has engineered, programmed and played keyboards for numerous artists including George Michael and Tina Turner



07 We can make a more melodic line by shifting some of the repeated notes to adjacent scale tones. The tonal centre of the piece is E minor, so most of our extra notes will be from the E minor pentatonic scale – E G A B D. In bar 1, all I've done is change the snare drum accent to a minor third, G. I've also shortened the third note to allow a space for the hi-hat.



08 The chord in bar 2 is G major (G-B-D), so this time, I've used a fifth away from the root note of the chord to coincide with the snare beat, D. For the last note that leads into the next bar of D, I've used a B, which sets up the movement from D down to B and up again that alternates in bar 3. Bar 4 dips down to the flat seventh of the A major chord (G).



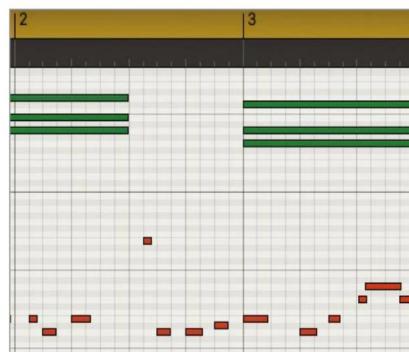
09 Next up, here's a subby, sine wave synth bass sound supporting some big synth chords in a section that could be a bridge or middle 8 of a pop track: Em - D - G - Am - G - C. In this example, we're holding down the roots of the chords once again, which would contrast well with a more rhythmic part in a verse or chorus section.



10 This time, the keyboards are playing the same chords in the same inversions, but we've shifted some of the bass notes to other 'chord tones' (notes that occur in the accompanying chords). This is a good trick for building tension, whatever rhythm you're playing – whether it's sustained notes like this, or a more rhythmic groove.



11 In this next example, I've gone all retro with a Stevie Wonder-inspired Em - A7 pop-funk track. This line accentuates the downbeat of each chord change every two bars with a heavy root note, then riffs on the E minor scale over the next two bars. The first long E note has been pitch-bent down an octave, and there's another flashy E minor run to round things off.



12 In another version of the same track, the bass synth doesn't shift to play the A note when the A7 chord arrives on the downbeat of bar 3 – it carries on rooted on E. When you continue a bass note beneath changing chords like this, it changes the effective tonal centre of the chord, making things a lot more tense. I've used a passing note, D#, to link the two sections.

BLAST FROM THE PAST

Vox Continental

The sharp, svelte answer to the heavyweight Hammond, this transistor organ has helped to shape more than one era of popular music

Like the antagonist from a horror movie franchise, this classic transistor-based organ refuses to die. Released in 1962 and designed as a more portable solution than Hammond's B3, Vox's Continental was everything the Hammond was not. The Hammond was a throwback to an era when organs were meant to be a part of one's living room furniture, and frankly looked like something your granny would play in Sunday school. By contrast, the Vox Continental was thoroughly modern with its deep red top, Z-shaped chrome-plated stand and reverse-colored keys – an instrument perfectly suited to the fashion-conscious mods of the swinging '60s, then. More significantly, where the B3 weighed in at 425lbs with bench and pedals, the dual-manual Vox Continental might as well have been shaped from gossamer at just over 70lbs. The single-manual version was lighter still.

Alas, the sound of the Vox was equally anaemic compared to that of a Hammond. Wheezy, weedy, nasal at times, it was produced by transistor-based circuits. The Vox simply wasn't capable of the stage-shaking rumble produced by a B3's spinning metal tonewheels. And yet this proved to be one of its strengths. That thinner, more

focused sound could cut through a raucous rock & roll clatter without taking over the mix. Rather than replacing the mighty Hammond, the Continental carved out its own niche, finding favour with plenty of legendary acts and gracing many a classic cut.

It fueled The Animals' *House of the Rising Sun* as well as *Question Mark* and the Mysterians' *96 Tears*, before becoming the sound of The Doors' *Light My Fire* and, perhaps most (in)famously, Iron Butterfly's indulgent epic *In-A-Gadda-Da-Vida*.

The Vox Continental fell out of fashion as the 1960s came to a close – it just didn't fit in with the burgeoning heavy rock scene. Then, more than half a decade later, something strange happened: the Vox came back. Perhaps because it had become unfashionable, the Continental and its offspring (Jaguar, Corinthian) became the go-to organ for punk and new wave musicians. It perfectly suited the rowdy recordings of bands like Elvis Costello's Attractions and the hyperkinetic ska stylings of Madness and The Specials.



Yet when the smoke cleared, and all of that rebellion had been co-opted by the mainstream music machine, the Vox was nowhere to be seen. Again, rumors of its demise were unfounded, and it would reappear 35 years on, thanks to bands like Arctic Monkeys and The Horrors.

Quite a few of them were made and, if you're lucky, you can still get one that works. However, thanks to their obsolete germanium transistors, they can be a chore to maintain. Needless to say, collectors love them and are willing to pay top prices, so that one in good nick will set you back many times its original price.

Fortunately, we can recreate the Vox sound quite easily, thanks to a number of excellent virtual emulations and soundware for popular samplers. Just make sure you have your wraparound Ray-Bans handy... ■

Three great transistor organ plugins



Arturia Vox Continental V \$99

The developer behind some of the world's best synth emulations have turned their attention towards the Continental and haven't missed a detail, with this stunning clone. If you're looking to add a bit of psychedelia or soul to your tracks, you'll be hard-pressed to find a better option than this.

www.arturia.com



NuSofting ComboSister \$45

NuSofting's cross-platform ComboSister is, like Arturia's recreation, the product of physical modelling. That means it's a mathematical recreation rather than one that depends on samples. NuSofting are masters of modeling and it shows in the gritty, detailed sound on offer here. Overlooked and underrated.

nusofting.liqjhsynth.com



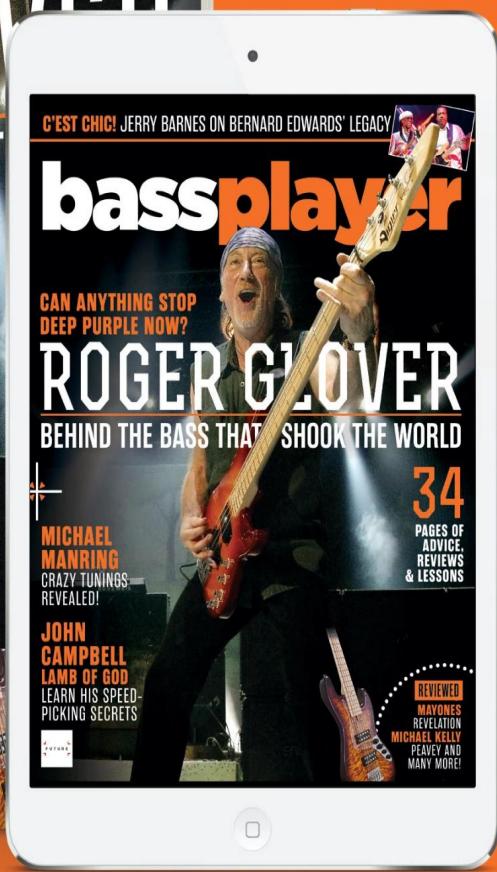
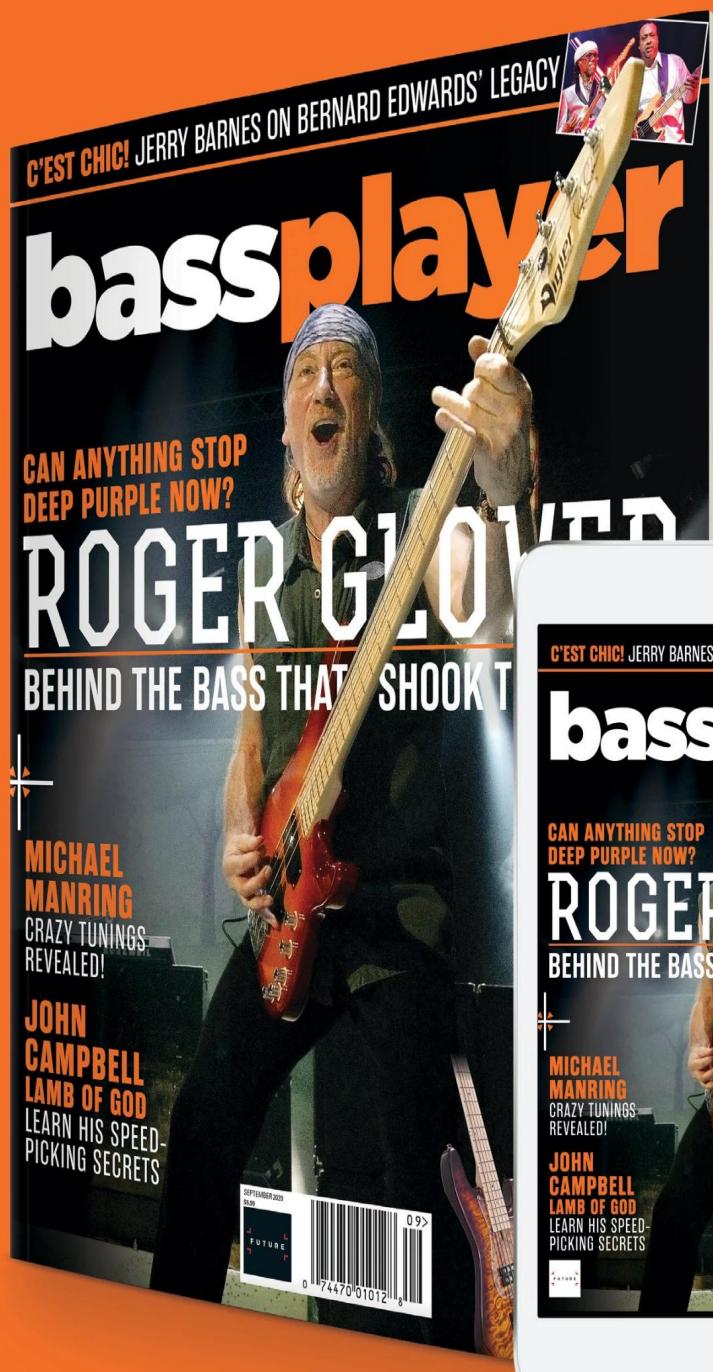
Martinic Combo Model V free

If you're strapped for cash and willing to do a bit of digging, you can avail yourself of Martinic's Combo Model V. With a four-octave keyboard, six drawbars and vibrato, this one is also based on physical modelling. As of this writing, it's no longer available on Martinic's site, but we did find it at...

bit.ly/MartinicModelV

ALL ABOUT THE BASS

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Moog
Subharmonicon
\$699
moogmusic.com



By Rob Redman

Strengths

- + Versatile sounds
- + Perfectly suited to ambient generative music projects and for adding evolving textures to songs
- + Typical solid Moog build quality, with case specs in line with Mother 32 and DFAM, making it Eurorack compatible

Limitations

- If you're looking for melodic control, you are better off with some other solution
- Sequencer controls are a little small

Moog brings polyrhythmic sequencing to the masses. Rob Redman shares the joys of four-step sequencing

Although this is a brand new synth from Moog, the name might be familiar. The Subharmonicon was available for a very short time at Moogfest 2018 and you had to build it yourself as part of the VIP engineering pass. The following two years have seen many calls for a production run of this synth but no news arrived... until now.

The Subharmonicon is clearly designed as part of the Mother family of products, as it shares the same dimensions, aesthetics and even case design, so no surprises there, as a similar look was followed by the popular DFAM percussion synth. There are some differences, however, as this is the first in the family to use a new button style. In this application, they are used in place of toggle switches for sequence related options, where the previously seen toggles are elsewhere. The tiny rotary knobs from the DFAM are back, here to allow for control of sequence pitch and polyrhythm (more on that later). While they're usable, users may want to change these for a larger style, to ease precision setting. Other controls use familiar Moog knobs, with clear indicators for position.

Other similarities to the Mother family are the black faceplate and wooden end cheeks, as well as the expected 32-point 3.5mm patch bay. The big difference here is that the midi in is also a 3.5mm socket, necessitating a jack to DIN converter. This was probably to provide space for other elements of the interface and Moog supplies the adapter, along with a number of patch cables.

Before we explore the actual synth it's worth noting that if you are a packaging enthusiast you will not be disappointed. Likewise we approve of the 'preset' overlays that help you navigate the first few sounds, which are clearly marked with settings and locations for patch cables. These are to be appreciated, as this synth is a little different to most others.

On to the important stuff then. What makes this a useful addition to the Mother family? Well it's based on the work of electronic synthesist Friedrich Trautwein who was working in the 1920s. It's all about the subharmonics of a waveform and it takes a little readjusting of what you normally think of with subtractive synthesis, as it is really about adding detail to a waveform.

I'll explain this by way of talking through a simple setup process:

There are two VCOs, each with that Moog sound and each with two sub oscillators. Rather than playing octaves below the main voice, these can be tuned in intervals, meaning you can trigger three-note chords. Set up appropriately, the SubH, using both VCOs can play six-note chords, something not to be sniffed at.

These oscs share two AD envelope generators, one each for the filter and amp and there's that lovely Moog filter with resonance and a control for setting filter envelope amount. The mixer section is simple, with rotary controls for each of the six voice's volume and, while that may sound basic, once you start adjusting the mix during sequencing it becomes very powerful.



The sequencers are where the real power of the SubH lies. There are two four-step sequencers which might sound underwhelming – though concluding that would be to miss the point. Each of the three voices in a set can be individually assigned to either of the sequencers, so you have two sets of three, with a button to set the global octave range and a further button to set global quantisation, with five different settings.

Once you set this up, you can hit play and listen to the sequence. At first it will appear less than interesting – but this is where the fun begins. The polyrhythm knobs come into play now and with a twist of the admittedly undersized knobs, you can begin to experiment with the individual tempos of the two sequencers. You have four of these sub rhythms and each can be assigned to either, none, or both sequencers. Start to do the maths and this equates to an almost limitless number of rhythmic options. If you were to try to set up this kind of thing with another method it would be either very difficult, or hugely expensive. Eurorack is probably the only realistic way to do it and even then doing it with the classic Moog tones would be tricky. That said, the SubH will fit into a Eurorack setup, so you could work it into whichever is your preferred workflow.

When you start to patch the SubH things take on a whole new world. With I/Os for most controls you really are spoiled for choice. Imagine taking a Moog VCO and using its frequency to trigger one sequencer, while the second is kicked off by the Envelope generator. Add to that effect by hitting the button that activates the EG restarting with each sequence step and you can see how complex and musical this thing is.

And that's the rough crux of what the Subharmonicon is all about. Musicality, expression and playful experimentation. It's nice to see a company with the beloved history of Moog taking such steps into newer 21st century territory, where it could have easily stuck with the known formats. I'm hoping more of this shows up in future products, as it makes for a fantastic extra capability for the sound designer and musician.

I, for one, love the triple threat of a Moog stack where the Mother 32, DFAM and the SubH all patched into each other. Think of the voices and control available and try to find anything comparable for the money! ■

So, for a great-sounding synthesizer, with all the classic Moog trimmings plus a lot more, put the Subharmonicon on your short list. It's more than deserving. ■

THE ALTERNATIVES



MOFFENZEEF

Mito

\$277

Mito by Moffenzeef is a great module for Eurorack. It's essentially a gate generator but has the advantage of six gates, each with its own clock division. It also has options for CV control, making it nicely patchable.

moffenzeefmodular.com



MUTABLE INSTRUMENTS

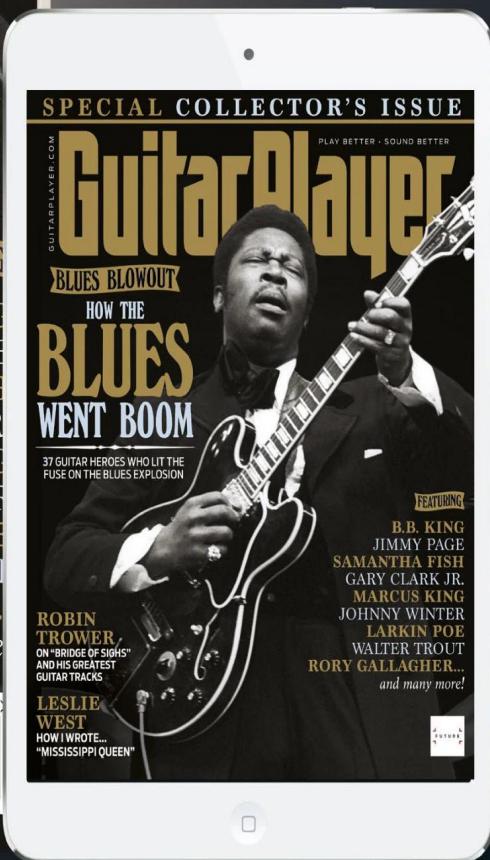
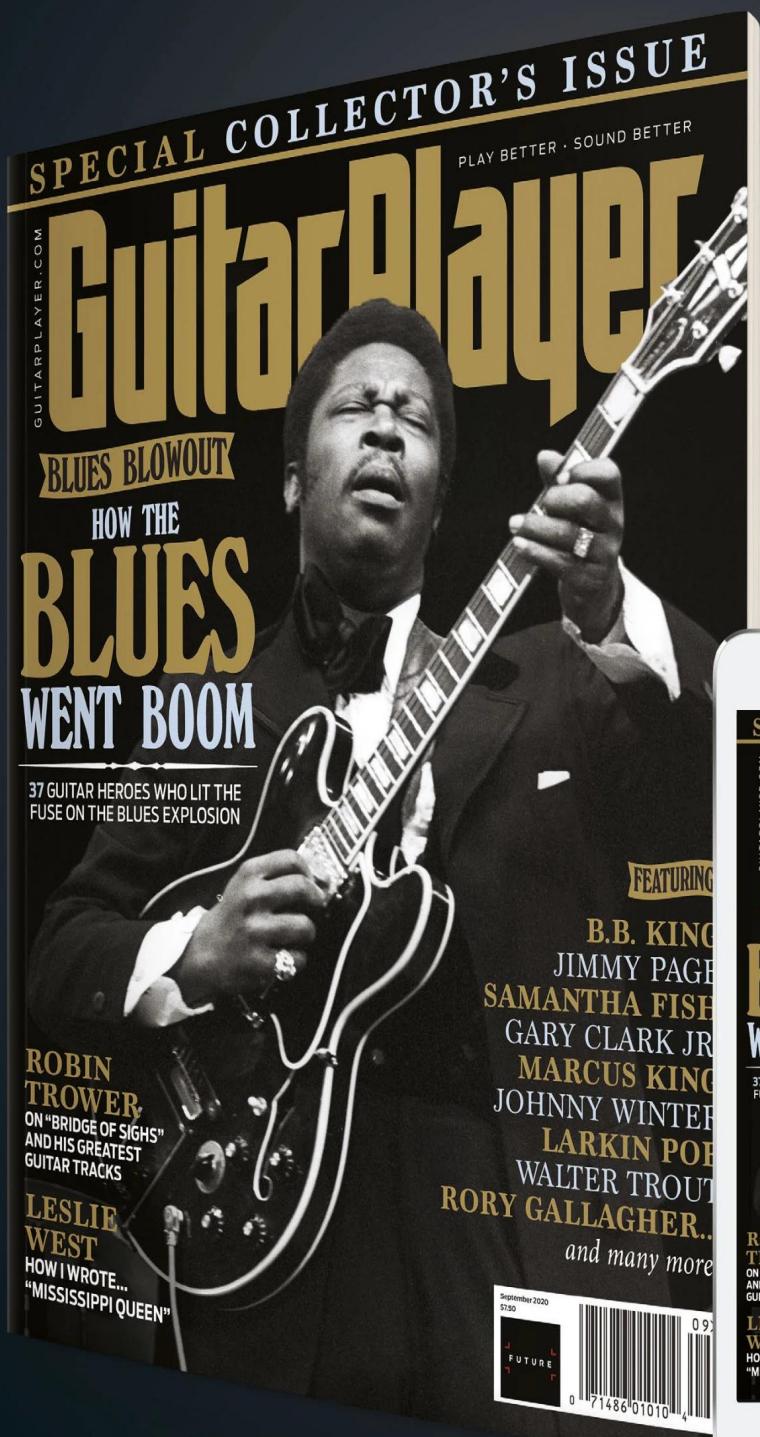
FRAMES

\$277

Mutable Instruments Frames is a popular option but would need the third party Parasite firmware to do it properly. Luckily this is well supported and Frames is well built.

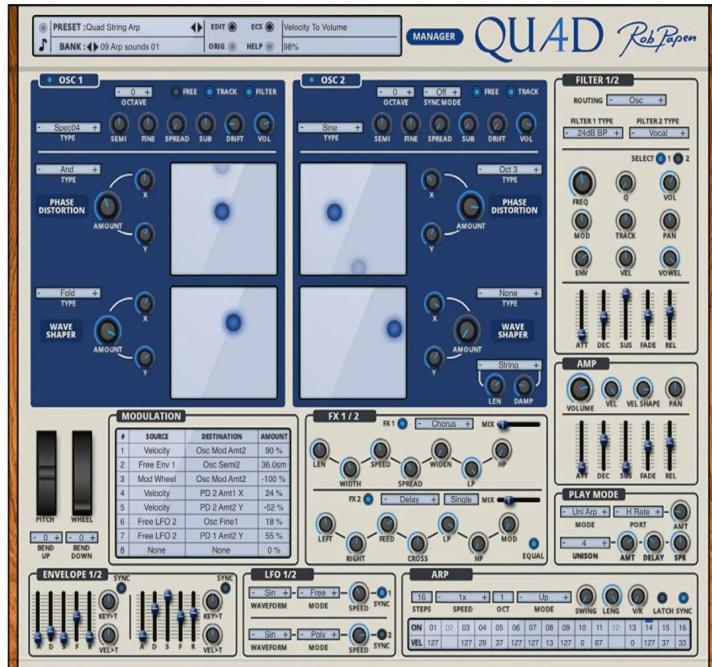
mutable-instruments.net

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Rob Papen
Quad
\$112
robpapen.com



By Jon
Musgrave

Strengths

- + Flexible core sound generation
- + Easy to use XY pad configuration
- + Modulation matrix with an extensive range of options
- + Oscillator cross-modulation options
- + Many and varied presets
- + Easy to use single window interface

Limitations

- Some features such as effects and arpeggiator are quite basic

We're always up for a synth that does things slightly differently from the norm. Let's see what innovations Rob Papen has to offer in Quad

Quad was originally designed as a rack extension instrument for Propellerhead Reason and has now been relaunched for VST, AU and AAX users. Like many Rob Papen synths, most of the functionality is found in one jam packed window, and it's fair to say this contributes to a functional rather than designer layout. However, if you've used Rob Papen synths before you'll appreciate that the directness and efficiency are accompanied by incredible depth of features, a plethora of presets and an awesome sound that you'll keep coming back to.

Quad Core

Quad features two core oscillators each with their own sub oscillator and 4 XY pads – two per oscillator. This four-fold 'quad' arrangement dominates the interface, forming the backbone of the synth. It works as follows: each oscillator can choose from 128 analog modeled, additive and spectral waves with tuning, detuned Spread and analog Drift. The sub oscillators are fixed at one octave below and can be either sine or square wave and oscillator 2 can be synced to oscillator 1. Further interaction is available

between the oscillators (see right). However, the big ticket feature and the one that dominates the interface, is the XY pad system and these provide phase distortion and wave shaper distortion for each oscillator. The phase distortion influences how the oscillator is actually generated; meanwhile the wave shaper provides further manipulation of that waveform. Each process has 21 different distortion types and each of these has two adjustable parameters, which are assigned to the X and Y axes. So, you have incredible power to manipulate the sound of each oscillator at the most fundamental level and starting with a sine wave we quickly created a harmonically rich oscillator simply by selecting distortion types and manipulating the XY pads. Factor in the 21 distortion types and 128 core oscillators and the potential for tone creation is immense.

However, where things get really interesting is when we add in modulation, as each axis can be modulated via the 8-slot modulation matrix using either onboard sources (LFOs, envelopes and so on) or via MIDI CCs. A cursory delve into this revealed we could quickly conjure up some very dynamic sounds.

“The big ticket feature and the one that dominates the interface, is the XY pad system”

Deeper

Quad is supported by a full gamut of synth extras. There are two analog modeled filters with serial, parallel and single oscillator split routing. Each filter gets its own envelope and the choice of filter types is extensive. For sound design we particularly liked the comb filters and vocal style filters (Vocal, Form2 and Form4). There are two effects engines. FX1 handles modulation: you choose one from chorus, ensemble, phaser, flanger and widener. FX2 handles reverb and delay and you can opt to use both together in series if you wish. At the bottom of the interface you'll find two freely assignable envelopes and two free LFOs. All can be tempo synced and the envelopes include adjustable velocity and pitch modifiers. As mentioned there's an 8-slot modulation matrix, and we counted 25 internal sources and well over 100 targets including all of the FX1 and FX2 parameters. You can also use the matrix to assign MIDI controllers. Rounding things off is a global amplifier envelope, arpeggiator and playback mode (Poly, Mono, Legato and Arp). This last option includes various unison settings, a quick route for fattening up your sounds.

A wealth of sounds

So, what does all this mean for the sounds? As noted, we found turning a basic waveform into something more interesting was quick and simple. However, Rob Papen synths usually deliver big time on the presets, and Quad is no different, with more than 750 presets to choose from. Patches can be loaded either via the Bank and Preset menus in the top left, or via the Manager page, and



Quad's preset manager provides excellent category and search options

Oscillator Modulation

Quad includes various ways for oscillator 1 to control osc 2 and vice versa. In the dropdown box at the bottom right of oscillator 2's XY pad, you'll find a choice of 16 modulation types accompanied by two amount controls. Modulation types include typical options such as ring modulation, phase modulation and four types of frequency modulation.

However, each type has quite specific features and to that end the function of the amount controls is specific to each modulation type. If you really want to know what's happening, the manual includes a detailed description of each type, but, as an example, frequency modulation 2 (FM2) is a sample and hold algorithm with oscillator 1 as the sample source and oscillator 2 as the target. The adjustable parameters are frequency modulation amount and sample and hold interval.

There are some less obvious algorithms that create dynamic blends of the two oscs or use one to change the polarity of the other. Rounding things off is a string option that turns oscillator 2 into a string model with adjustable length and damping. This creates fantastic plucky sounds, particularly coupled with some phase distortion – Bit of Rimba and Quad String Arp are a couple of good examples.



include both a core categorized set and further artist contributions.

Within the library, pads are particularly well represented, with evolving sounds (Harsh Planet and Quad Sweep) joining traditional rich sounds (Like Jupiter Pad 01) and more unusual ones (Submerged Space). There are also some pretty edgy sounds such as Twin Rain 1 and 2 (which use pulse

modulation of Osc1 by Osc2) and also some biting leads (Uni Q-Syntho and RP Quad Lead).

Modulating the XY pads can create very dynamic outcomes and this is absolutely ideal for tempo synced dubstep sounds. Quad includes 35 very playable dubstep presets, many of which patch tempo to the pitchwheel and timbre (via the XY pads) to the modwheel. Quad also has some great arpeggiator patches such as the Kraftwerkesque Chord & PitchWheel. The

synth's sound really lends itself to short precise arps. That said, the arpeggiator is a bit basic compared to some RP synths. Furthermore, although there were a few basses we really liked (MidTone Bass and Tof Bass for example), we couldn't get quite enough attack for a really thumping bass.

Overall, Quad is a sonically interesting design and though not exactly a one-stop synth to please everyone, it covers a lot of ground. It would benefit from a better arpeggiator, additional onboard processing, and more extras such as chord memory mode, but as a whole it's easy to program and delivers many awesome sounds ■

THE ALTERNATIVES

NATIVE INSTRUMENTS Massive

\$162

If dubstep's your thing, Massive conjures suitable sounds with ease

PLUGIN BOUTIQUE Virtual CZ

\$75

For retro phase distortion synthesis this Casio emulation is great

Erica

Synths Bassline DB-01

\$520
ericsynths.lv

By Si Truss
Si Truss is the
Editor of Electronic
Musician and Future
Music magazines

Strengths

- + Meaty, punchy sound with lots of grit!
- + Surprisingly deep sequencer
- + Built-in pattern memory

Limitations

- Master volume is hidden amongst settings menus
- We would have loved an audio in



Latvian brand Erica Synths' new Bassline is more than just another 303-alike...

Latvian company Erica Synths has proven quite prolific in recent years, delivering modules, systems and standalone hardware at a pace that's tough to keep up with at times. What's impressive, though, is that despite the volume, the quality has remained high. What Erica does especially well is analog grit – from Polivoks-inspired filters to the tube-equipped Fusion modules and last year's impressive Ninja Tune collab Zen Delay, Erica is responsible for some of our favourite go-to tools for raw, edgy sounds. Naturally, the idea of a standalone Erica-branded bass synth has got us rather hot under the collar.

At first glance, you'd be forgiven for thinking the Bassline DB-01 was another 303 clone. It does certainly bear many of the hallmarks of its near-namesake; the single oscillator, resonant filter and simplistic envelope controls are pure acid-machine. But beyond this there's a lot of unique stuff going on that makes the DB-01 very much its own instrument.

On the oscillator front, the DB-01's single VCO is switchable between square, saw and triangle waveshapes. This comes paired with a sub oscillator, fixed at tracking one octave below, and a noise generator, both of which have their own level controls. The oscillator section also has a Detune control that emulates the unison effect of multiple detuned VCOs by using a pair of BBD lines as

frequency shifters. The effect is pretty convincing, adding a nice thickness to sounds that I particularly like when using the DB-01 as a drone machine (more on this later).

The oscillator has a frequency modulation control too, which dials in modulation from the LFO. The LFO itself has a broad frequency range and a selection of five waveshapes, meaning the effect can range from subtle pitch drift through vibrato and into audio-rate pitch modulation.

The DB-01's filter, meanwhile, is the same Polivoks-inspired VCF found in Erica's excellent Acidbox effect units. It's switchable between two modes, 12db low-pass and 6db band-pass, with a resonance control capable of going into self-oscillation. It's gritty and can sound nicely aggressive – with a resonant LPF rolled down low over a sub bass sound, the DB-01 can create some serious low-end weight for you.

Modulation

Modulation of the amp and filter is provided by a pair of simple envelope generators. The amp envelope is sustain-release design with just a single control for adjusting the decay time of the release stage. Turn it fully open and the release becomes infinite, letting the DB-01 act as a drone synth, which it's surprisingly adept at, particularly once you throw in some slow modulation from the LFO and BBD detune effect. The filter envelope,

meanwhile, is just a decay stage, with attack and sustain fixed at zero. Limited though they may be – and there were times, when using the DB-01, that I did miss having some direct control over the attack stage of the sound – these simple, punchy envelopes certainly suit the DB-01's USP. This is a great source of percussive, hard-hitting bass and lead sounds designed to cut through a mix and add maximum impact.

The LFO can also be used to modulate the filter cutoff, and being syncable to the sequencer tempo offers an interesting tool to offset those punchy envelopes.

The final element to the sound engine is an analog drive circuit, with a chunky front panel rotary acting as a dry/wet control, blending the driven output with the clean signal. As you'd expect from Erica Synths, it's a nicely gritty effect and, when coupled with the already aggressive filter resonance, this can result in the creation of some brilliantly rough-edged sounds.

Sequencer

The sound engine itself is only one half of the whole story here though, as much of the DB-01's distinctive character comes from its sequencer. Programming is handled via the 16 buttons along the unit's lower edge, with a pair of bar selection buttons allowing 16-step patterns to be easily copied across 32, 48 or 64-steps. Notes can be recorded live, making use of the sequencer as a keyboard, or input step-by-step, using the two central selection rotaries to adjust pitch and gate length. The sequencer can do a lot more than just note-sequencing though, with individual channels for programming slides, accents, pitch envelope sweeps and filter modulation.

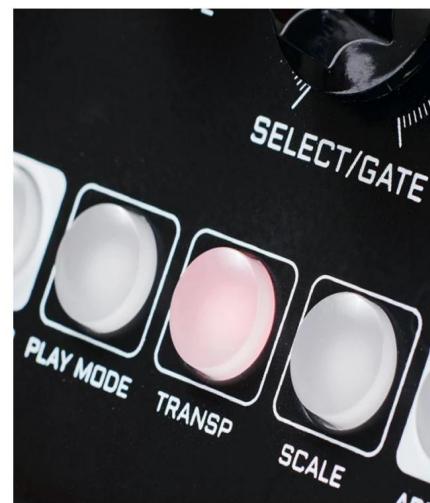
Accents and slides work as you would expect them to, offering up nice tools to add a little emphasis and movement to spice up simple bass patterns. Pitch envelope sequencing is possibly the most interesting sequencer feature. This uses the two central rotaries to adjust the level and length of a

pitch sweep for each step, which is a really handy tool for programming percussive sounds, as we shall see overleaf.

The modulation track lets users program CV changes to the cutoff position for each step. Like with sequencing notes, this can either be input step-by-step or recorded live by hitting record and tweaking the cutoff knob. Any sequenced modulation works in conjunction with the other modulation inputs and in relation to the current position of the cutoff rotary, meaning it's possible to, for example, program a modulated cutoff pattern, while also slowly modulating the overall cutoff level with the LFO, or manually. An overall modulation depth rotary affects the cutoff modulation coming from all sources.

The sequencer also features an arpeggiator, with options to adjust the pattern, range gate length and direction of arpeggios. What's particularly cool about it is the ability to program arpeggios within a sequence, ie engage the arpeggiator for a few steps on top

“The marriage of analog oscillators, Polivoks filter and gritty detune and drive make this an absolute beast”



MORE THAN BASS

While it might clearly say Bassline along the top of the synth, there's more to Erica's latest instrument than just bass. Much like Moog's Mother instruments, there are handy tools here for sequencing percussive parts as well as bass sounds. As well as the punchy envelope generators, the really handy tool here is the sequencer's pitch envelope track. This allows users to program and fine-tune pitch sweeps on specific sequence steps, which is great for creating patterns that alternate between punchy kick drum sounds and more

traditional bass notes. Throw in some white noise and modulation of the filter cutoff, and the DB-01 can do a decent line in electro-style snares and hi-hats too. The DB-01 is a lot of fun to use as a drone machine as well. Fully opening up the amp decay creates an endless sustained note, and engaging detune, plus LFO modulation of the cutoff and pitch is a great tool for experimental tones.



of a pre-programmed pattern. This is a really nice little tool for adding complexity to riffs and basslines. It also has a secondary Step Roll feature whereby users can repeat selected steps within a sequences as the pattern plays back, which is a nice little performance tool.

The DB-01 has a selection of scales onboard, allowing users to create patterns around one of eight preset scale types. There are also 16 user scale slots for defining your own scales, which can be programmed with microtonal scales removed from the usual chromatic scale. A transpose function allows users to change the root pitch of sequences on the fly too.

Randomization

The final tool in the sequencing arsenal is a well-equipped randomization tool. This allows users to randomize elements of their pattern based around set conditions – ie, just note, just modulation – and, in some cases within a preset range. It's another string to the DB-01's bow that makes it a deceptively deep and flexible creative tool.

Hardware-wise, along with its primary 1/4 inch audio output, the DB-01 has multiple CV ins and outs. There are inputs for pitch, gate, modulation and clock, as well as outputs from the clock and sequencer pitch/gate. There are also standard MIDI in and out ports rounding things off nicely.

Overall, the Bassline DB-01 is an excellent little bass machine that more than lives up to our expectations. Sound engine-wise, the marriage of analog oscillators, Polivoks filter and gritty detune and drive make this an absolute beast when it comes to full, gritty bass and lead sounds.

If we're being extremely picky we do have just a few minor gripes: for one thing, the master volume is hidden in the settings menu, which is a bit fiddly, particularly since the drive and resonance can make levels ramp up pretty quickly. I would have liked to be able to set different sequence lengths for the note and modulation tracks too, to achieve polyrhythmic filter movement. As it stands, the Last Step tool lets users change sequence lengths on the fly, but the modulation and note track lengths are always linked.

Finally on the negative side, it's a bit of a shame there's no audio input included too, since it would really add to the instrument's appeal if you could run external sounds through that excellent filter and drive circuit.

However, these are pretty minor complaints and feature requests, none of which detract from the fact that this is one of the best specialist bass synths going. It doesn't come cheap, relatively speaking, but the deceptively deep sequencer and top-notch sound should more than justify the purchase for you. ■

THE ALTERNATIVES



BEHRINGER TD-3

\$165

For a more straightforward analog 303 emulation, it's pretty tough to beat Behringer's wallet-friendly version.

behringer.com



KORG Monologue

\$277

A simpler mono synth than the DB-01, Korg's Monologue also packs a sequencer with microtonal capabilities.

korg.com



MOOG DFAM

\$680

Like the DB-01, the DFAM features percussive envelopes and some handy tools for creating both percussive and bass sounds.

moogmusic.com

Baby Audio
Comeback Kid
\$50
babyaud.io

Strengths

- + Great and varied sound
- + Particularly like the Shaper sections and Ducker option
- + Easy controls and no hidden menus
- + Good range of presets

Limitations

- Flavor options can be a little subtle and indistinct from one another



How does Baby Audio's slick new budget-friendly delay shape up?

US developer Baby Audio is a relatively new company that has impressed in recent years with a run of slick, easy-to-use plugins including the I Heart NY parallel compressor and Super VHS lo-fi effect. The latest release added to their stable is Comeback Kid, Baby Audio's new delay, which offers a decent amount of echo-power for not such a big outlay.

We kid you not

There's a lot to love about this stylish delay plugin. Comeback Kid has three BPM-synced modes – Straight, Dotted and Triplet – to offer different timed delays, while the main Time dial allows you to select intervals down to 1/64th note. Those pretty cool Flavor options are also included again, which add a lot of character to the sound. However, this time you get to dial in the actual amounts of Tape effect (for saturation), Swirl (for phasing) and Sauce (for a shimmery reverb), while a Cheap button gives you a kind of low bit-rate distortion, but quite a subtle one. These are great effects overall, if sometimes a little indistinct from one another.

Over on the opposite bottom left corner you get a set of Stereo options to bring width to the delays, either with a Pan control, Wider or Richer, which uses a pitch-shifting algorithm for a more dramatic widening effect. A Shaper on the top left offers two

quite dramatic filtering options, while the Attack and Sustain dials introduce some transient designing so you can emphasize certain elements to be delayed – we had some terrific results on pretty simple sounds, homing in on specific frequencies and then emphasizing the effect with the Sustain dial. You can also hear it in full effect on some of the presets – such as one they call Pick Up The Telephone.

Needless to say, things get pretty dramatic when you start dialing in different times and increase the feedback with the main dials and the output mix, but a useful Ducker control also cleans things up a little as it ducks the delay when the dry signal plays. In all, these are handy tools for extreme delay creativity.

Conclusion

We've been fans of all of Baby Audio's output to date. As a company they always seem to be totally on the ball with our own audio needs... so perhaps it's almost inevitable that Comeback Kid was going to get a thumbs up from us. But it really does deserve all the accolades, especially for the price. We particularly love messing around with the envelope and filter options and that Ducker dial adds a touch of class, all meaning that Comeback Kid really can deliver a varied, quality sound that is right up there with that from much pricier options. ■

CEntrance MixerFace R4
MOBILE RECORDING INTERFACE



CEntrance
Mixerface
R4B
\$755
centrance.com



By Simon
Arblaster

Strengths

- + Removable XY microphones
- + Micro SD card recording
- + Great battery life

Limitations

- Tiny counter-sunk switches require a tool to operate
- No MIDI I/O

This new R4 mobile interface from CEntrance ticks boxes for producers, videographers and broadcasters alike

Touted as a mobile interface, the MixerFace R4 was a great solution for anyone wanting to have a studio-quality audio interface that could fit in their pocket and worked well with both iOS and Android devices. CEntrance has since taken the logical step of adding onboard recording capabilities and even better still, added the PodMic PM1 removable XY mics for a truly all-in-one recording solution.

At its heart, the interface is still the same four-channel R4 as originally released, with two Neutrik combo XLR jack inputs, 3.5mm stereo input and output. Individual balanced outputs for channels one and two (3.5mm) and a headphone output. The unit features separate gain controls for channels one and two and combined gain control for channels three/four. And you're still afforded flexible monitoring options of both the analog and digital incoming signals via individual dials and an overall monitor mix rotary.

The chassis is still the same black aluminum case, which feels solid unlike some plastic-encased counterparts. The PodMics also feel robust with the same aluminum construction and CEntrance has kept size/weight minimal.

The addition of onboard recording comes courtesy of a MicroSD slot which can handle card sizes of up to 256GB and records at 24-bit/48kHz. However, when recording over USB you can get resolutions of up to 24-bit/192kHz.

In use, the R4B is relatively easy to navigate. There are some hidden features in the formatting

and with the MicroSD card in disc drive mode some multiple keypresses are required, but nothing too taxing. There's no screen; what you see is what you get. A minor gripe with the controls is the hidden switches, which require a special tool to operate.

The PodMics fit very snugly, though we noticed that shaking caused noise to be picked up during recording. Possibly the best feature, though, is the battery life. CEntrance say you can get eight hours of use, via the rechargeable Li-Polymer battery – and it's spot on. You can connect to a power brick and mobile device via the two micro USB ports.

One thing missing is flexible signal routing. An option to record a mono file while using one of the inputs would be handy; if recording directly to Micro SD, you'll be presented with a one-sided stereo file. A switch to monitor in stereo or mono is available but doesn't apply to the recording.

There are plenty of accessories available, including a weather shield, which we would've liked to see included. You can buy the Reporter kit which features the R4B, Cerene dB headphones and a hard case.

The MixerFace fulfills its mobile recording/broadcasting/streaming remit where so many fall slightly short. The Jasmine preamps are clean and VelvetSound A-D conversion allows for plenty of headroom. Coupled with the battery life and flexible I/O options, this a must-have for all producers, videographers and broadcasters. ■



Mastering The Mix Mixroom

\$62
masteringthemix.com

By Jon
Musgrave

Strengths

- + Both manual and intelligent EQ curves with a fresh interface
- + Excellent choice of mastering presets
- + Analyze your own audio files
- + Mid-side processing
- + Band specific solo

Limitations

- No frequencies below 320Hz
- Needs more instrument presets

Intelligent plugins make mixing a quicker and more reliable process. Let's see how this latest EQ can help with your mixing and mastering

Mastering The Mix first got our attention with the easy-to-use Levels metering plugin. Since then, the company has delivered some excellent plugins aimed at making your mixing and mastering tasks quicker and the outcomes so much better. Last year's Bassroom EQ was a perfect example of this, delivering bass-focused EQ via their innovative 3D style vertical layout. Their latest plugin, Mixroom (VST, VST3, AU, AAX) employs the same layout, but this time the EQ handles frequencies from 320Hz to 20kHz. The plugin combines manual and intelligent operation, incorporating both presets and the option to analyze your own audio files. Let's take a good look at what's on offer.

Layout

Mixroom is an 8-band configurable EQ that uses a vertical layout with high frequencies at the top of the window and low frequencies at the bottom. Each band is represented by a colored box which you can move and adjust. The height of the box is the bandwidth and the vertical position defines its frequency. The graphic sits in a 3D space and gain adjustments change the box size to give the

impression it's nearer for gain boost and further away for cut.

Each band includes solo, bypass and the option to rebalance the mid and sides components. You can also process just the mid or just the sides component alone, though not both independently using the same band. Bands can overlap completely, so you could use two bands to achieve this outcome or simply as a way to achieve more gain at a specific frequency. Bands up to 1.6kHz are peak shape and above this can be set to either peak or shelving. However, there's no low shelf option or high and low pass filters.

The overall EQ mode can be set to either linear or minimum phase, and there's an additional global option to set the EQ to either mixing or mastering mode. This influences the overall gain and Q bandwidth available, with the mastering setting offering a maximum of +/-4dB and mixing +/-12dB. Note that neither setting offers massive cut and boost or super narrow bandwidths. Rounding things off is global bypass and output level, and this incorporates a suggested trim to help you match pre and post EQ levels.

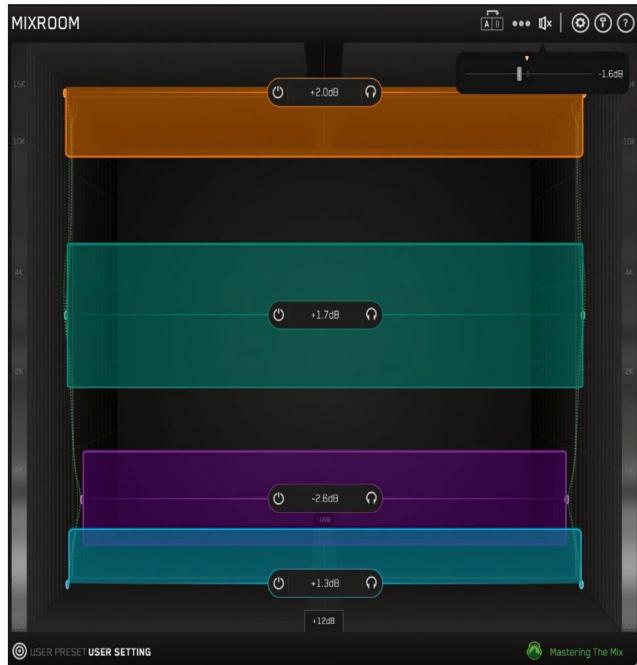
“Mixroom’s true power lies in its intelligent EQing capability, done by target and analysis”

Intelligent mixing

If you're confident enough at EQing then Mixroom makes for a pretty decent experience. The plugin opens as a blank canvas to which you can add bands individually or collectively. That being said, the vertical layout makes more sense – although it does take a bit of getting used to, as does the fact that the EQ doesn't handle the bass frequencies.

However, Mixroom's true power lies in its intelligent EQing capability and this has two aspects. The first part is a target curve, sourced from more than 100 instrument and mastering presets or by loading up a reference audio file (see boxout). The second part is the analysis of your audio, which takes a few seconds when you start playback. This generates a green target EQ curve visible down the sides. You can then try to match the EQ curve, which is grey, either manually or intelligently by selecting the Add Smart Bands option, which creates the required bands with suitable frequency, bandwidth and gain settings.

So, does it work? We tried Mixroom on a number of individual tracks, submixes and mixes and for the most part the results were very good. Understandably, you need to select a representative section of audio to analyze, and this is particularly true if you're processing a full mix, as the frequency content may change considerably from section to section. In use the analyzed target is easy to reset if you need to try a different



The triangle on the output slider provides a target output level to help compensate for the EQ applied

Create a target

In addition to the included presets, Mixroom can create a target curve from an audio file, allowing you to match your current audio to an existing track or mix. To access this feature you click on the target icon next to the preset browser. This opens an additional panel from which you can load and manage up to 20 source files. By setting the respective DAW track to input monitor, source files can be auditioned within the plugin and this helps you choose which sections to use to create the target EQ curve. Multiple sections of the source audio can be highlighted, and once you've done this you simply hit the Create Targets tab below. Closing out the panel gets you back into the main window and from here you proceed just as if you'd loaded a regular target preset. Should you want to go back to the source audio or select a different source file simply reopen the window, and if you want to choose a different section from an existing source audio file, simply highlight that section and rerun the Create Targets option.



section. So, as a mix tweaking processor it's great, providing a quick way for a novice to get a handle on how their overall mix EQ stacks up.

Similarly, for the more experienced engineers out there, the presets provide insight into the overall tonality of different genres, and we particularly liked using the handful of Star Engineer presets.

On individual instruments the results were more varied and although we had great results with piano, strings and individual drums sounds, the overall drum kit settings were less successful.

Furthermore, on sounds that needed very heavy EQ, Mixroom didn't always prove itself able to deliver enough boost to match the target curve.

On balance we felt that having a bigger choice of instrument presets would certainly help.

Smart value

Overall, Mixroom provides a fresh approach to EQing that is both informative and can save you time. The interface makes sense conceptually and after the initial learning curve it's easy to use. What's more, the analysis and accompanying presets can be very educational. It's important to note that the plugin isn't really suitable for surgical EQing and by design doesn't handle bass frequencies. That said, with such an attractive price you could justify buying Bassroom as well. ■

THE ALTERNATIVES

NATIVE INSTRUMENTS

IZOTYPE Neutron 3

from \$129

Includes an excellent analysis and EQ curve generation feature

SOUNDTHEORY

Gullfoss

\$189

Audio analysis and simple controls for wonderfully intelligent EQing

Arturia
KeyStep
Pro
\$699
moogmusic.com



By Si Truss

Si Truss is the
Editor of Electronic
Musician and Future
Music magazines

Strengths

- + Handy mix of analog and digital I/O
- + Lots of creative sequencing tools
- + Arp and drum modes are lots of fun

Limitations

- Mini keys unlikely to appeal to serious players
- Mod and pitch touchstrips are a little small for us

The French brand rounds out its 'Step' range with a multifaceted keyboard/sequencer

Between the 'Step' and 'Lab' devices, Arturia has a pretty broad range of controllers these days, ranging from the simple, budget-friendly MicroLab MIDI keyboard to the multi-format sequencing tools of the BeatStep Pro. Now the KeyStep Pro arrives to fill one of the few remaining gaps in that line-up; combining the cross-format analog and digital sequencing of the BeatStep with a 37-note keyboard making it that bit better suited to melodic work.

As with the BeatStep Pro, the feature highlight here is the comprehensive range of ins-and-outs on display. On the MIDI front, the controller comes equipped with two outputs and one input, along with a USB port for two-way MIDI and DAW control. These are also joined by a quartet of CV voices, each with pitch, gate and velocity/modulation outputs. On the analog side, the KeyStep Pro features eight drum trigger outputs, along with analog clock in, out and reset out ports. The back panel connections are additionally rounded out by a metronome output and a sustain pedal input.

It's a pretty comprehensive range of control options, particularly given that the KeyStep Pro is relatively compact – with a length of just under 60cm and depth around 20cm, the controller is small enough to transport easily and doesn't hog too much desk space. Of course, the flipside to that convenience is that there's obviously not enough space to cram a

full-sized 37-note keyboard in. While the KeyStep Pro's mini keys feel nice enough in use, and are equipped with velocity and aftertouch sensitivity, they're still likely to be too compact to please serious players.

In reality, the KeyStep Pro leans more toward the 'step' part of its name than the 'key' part. While the keyboard is naturally better at inputting melodies and chords than the pads of its BeatStep counterpart, this is still more of a sequencers' device than a players' one, which is likely by design. I suspect Arturia knows its audience here; the KeyStep Pro is unlikely to replace your stage piano any time soon, but the workflow feels tailor-made for modular and hardware synth fans. As a device for playing a single synth/plugin it's fine, but when used to program and play melodic patterns routed to multiple instruments or synth voices simultaneously, it really comes into its own.

64-step programme

Workflow-wise, the KeyStep Pro makes use of four sequencing channels, each of which can record a sequence of up to 64 steps. Each of these is polyphonic, up to 16 notes per step. Tracks 2, 3 and 4 are each equipped with an arpeggiator, while track 1 doubles up as a 24-part drum sequencer [see Drum Programming]. There's plenty of flexibility as to how these four tracks can be routed; each can be assigned any MIDI channel, and one or more of the CV voices can be assigned to any



channel, meaning it's possible to use the four CV outputs to independently create four mono sequences, a single four-voice poly sequence, or any combo in between.

Along with the keyboard itself, patterns are created using a 16-button step sequencer – identical to that on the BeatStep and DrumBrutes – and five parameter rotaries.

These can be used to adjust pitch, gate length, velocity, 'time shift' – nudging steps slightly off grid – and randomness, or probability level, for each individual step or all steps in a sequence simultaneously.

There are a variety of other creative tools included to enhance the sequencing workflow too. As with previous Arturia sequencers, a

simple 'extend' tool makes it quick and easy to copy 16-step patterns across 32, 48 or 64 steps. There are three choices of sequence playback pattern too – forward, fully randomized, and the semi-randomized Walk mode, whereby the KeyStep Pro introduces a chance the sequence may replay the same step or take a step backwards before moving on to the next step.



DRUM PROGRAMMING

The KeyStep Pro features eight analog drum trigger outputs along its rear, which can be controlled from track one when used in Drum mode. While there are only eight outputs, the drum track actually features a total of 24 parts, so it's possible to sequence larger drum setups digitally. Workflow-wise, the drum setup is fairly similar to the standard sequencing modes, making use of the KeyStep's sequencer buttons to program notes onto each step. The drum sequencer also features a cool Poly mode, allowing each of its 24 tracks to have a different length, which is a whole ocean of fun for creating polyrhythms.



There's also a selection of preset scales and a chord mode, whereby the controller can store a single user-defined chord to be triggered across the keyboard.

Both of these features are handy for live playing, but also pair well with the sequencer and arpeggiator, particularly since they allow sequences, chord progressions and arp patterns to be transposed on the fly.

The Key to success?

The arpeggiator has a few handy features of its own, including a variety of octave range and pattern options, including a user-defined Order mode, plus a hold function. What's more, the parameter rotaries can be used to edit arpeggios as they play, shifting gate length, timing and even introducing random notes into patterns. Some of the most fun you can have with the KeyStep Pro comes from

running three or four arps or sequences simultaneously and playing around with subtle rhythmic or timing shifts.

On top of this, the controller also packs in randomization tools, a beat repeater, and independent timing/sequence length options that make it easy to generate polyrhythms. There's an onboard memory too, which allows each track to save and chain up to 16 sequences, all captured in up to 16 overarching projects. It does a decent job of generic DAW, plugin and CC control too, thanks to the customizable Control mode.

This is easily one of the best do-it-all controllers out there right now. Its compact size may deter serious 'players' – Novation's SL Mk3 remains the best CV-equipped device on that front – but modular and hardware-loving musicians will likely lap this one up. ■

THE ALTERNATIVES



ARTURIA BeatStep Pro

\$246

The KeyStep Pro's pad-equipped sibling is slightly less feature-packed, but is still very capable.

arturia.com



NOVATION SL Mk3

From \$580

With a full-sized keyboard, plus faders, Novation's flagship controller will appeal more to traditional players and studio musicians, while still keeping the CV outs.

novationmusic.com



KORG SQ-1

\$113

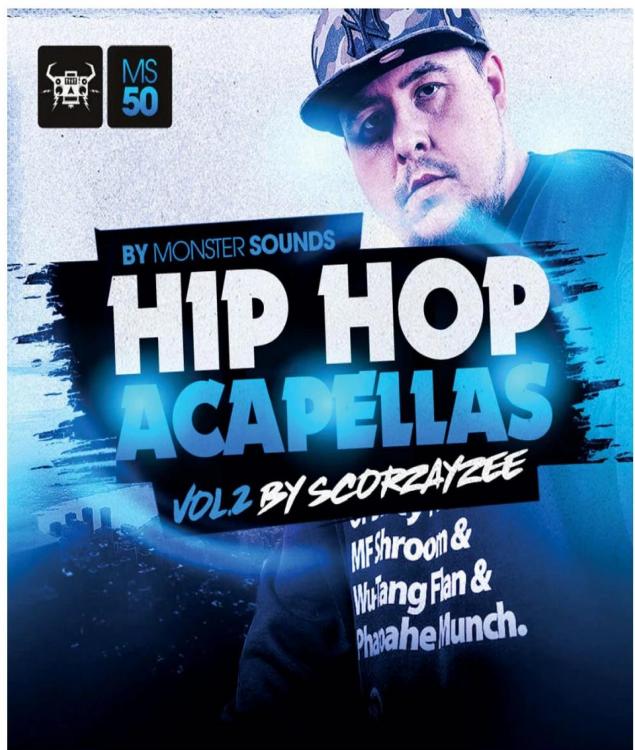
Looking for CV programming on the cheap? Korg's SQ-1 is fairly basic, but it's a lot of fun – and very affordable too.

korg.com

Monster Sounds

Hip Hop Acapellas Vol.2

\$44



Fans of this English MC's crisp delivery and stinging punchlines will be eager to get their hands on this mammoth 2GB+ pack of acapella goodness. It's another round of heavyweight rap nuggets from the UK stalwart, ready to be chopped, scratched, and messed up, with his blessings.

There's a gang of intros, shouts, hooks, fills, stems, adlibs, one shots, and double-tracked vocals on offer. Each one delivered in the Out Da Ville villain's unmistakable flow.

The lyrical content has been pulled direct from the hip-hopper's personal archives, with huge chunks prized out of his latest ILLA SCORZ EP, taking center stage.

Great stuff, top to bottom, that can serve as anything from background flavours, to full hooks and verses for your beats.

Roy Spencer

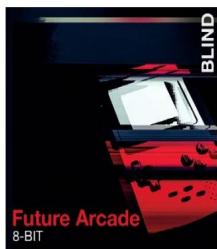


**Sample Magic - Rolling D&B
\$19**

A 'what it says on the tin' collection of deep and rich sample ammo for the discerning Junglist who likes to shake the odd speaker cone. Loops, hits, pads, and MIDI pearlers make up this 324-piece set, repping the old and new schools of drum & bass. Vintage de-tuned 808 basslines fight for your attention, as taut and engaging Neurofunk synth lines emerge from the darkness. The drums, from custom kits, keep the energy levels where they need to be. Fizzing hats and percussion loops will drive new transitions in your drum programming forward, as the snares reign down like freshly struck coffin nails on any beat you drop them on. Plenty of bits for your next banger, then.

Roy Spencer

samplemagic.com



**Blind Audio - Future Arcade:
8-Bit \$19**

A great crate of nostalgic bleeps and bloopes from the retro gaming era here. All built up from the same circuitry that made vintage home consoles and arcade cabinets sing back in the day.

Once inside you get a synthy set of '80s-inspired loops and one-shots that will give chip tuners and electro heads cause to celebrate. It's an easy-to-work-with collection, too, with all the loops set at a standard house tempo, and rendered in the dance and pop music key of choice, C minor. This means all the classic sounds work a treat with each other, aiding experimentation and maximizing the fun. If you only spend your pocket money on one 8-bit computer pack of noises this month, make it this.

Roy Spencer

loopmasters.com



Audiotent - Resistance \$21

Edgy techno loops and licks are the order of the day in this budget-conscious sample pack. The 107 dirty and daring sequences, wrought entirely from Eurorack synth modules and analog sequencers, are up there with many an iconic track's lead lines from over the years. These original WAV files, all set to a pounding 128bpm, are charged with an instantly recognizable potency and power that is sure to pull you in. In fact, resistance is futile, as the rich and familiar tones fill your beats out in classic fashion. Weave them into your ongoing arrangements to instantly add raw and urgent character to your 4/4 stompers. Bringing a splash of the Berlin underground to your DAW.

Roy Spencer

audiotent.com



Sample Magic - Deep House Soul \$19

Many a house classic has been built around a choice soul loop. That old school era had its share of deep grooves and distinct vocalists, which has always made it a perfect crate to go loop hunting in. The Sample Magic crew honor that vibe today, and bring y'all a whole mess of deep and jackin' grooves, dripping with soul, to have your fun with. The 367 WAV, and 76 MIDI files, pay homage to the US East Coast pioneers who made this sound their stock-in-trade. It's all dusty and crusty melodies, crisp drum machine beats and percussion, and basslines and top lines that have the whole club shaking. Who'd have thought a round trip ticket to Chicago, Detroit and NY would give you change from a 20?

Roy Spencer

samplemagic.com

REVIEW



Logic Goes Live

Logic Pro's 10.5 update is massive, bringing Ableton-inspired ideas and new tools. Let's take a look...

For once you can agree with the hype. Apple has claimed that the latest Logic 10.5 update is the biggest since Pro X, but you could argue it's the most important update ever. Heck, if you're an Apple fanperson, this update might even have got you frothing that this is the most important update for music production – period! Of course it isn't quite that, but 10.5 is one heck of an update which, Logic user or not, you do need to know about. It might just tempt you over to the Mac, or even the iPad if those rumors are true.

First the non rumors; the cold, hard facts. Logic 10.5 is massive news. The update throws in a grown up version of the Live Loops found in GarageBand that instantly puts Logic on a

non conventional compositional par with – yes we're going to say it – Ableton Live. But not just that. The new Step Sequencer throws in yet another alternative to putting notes and beats together that will be a familiar tempter for other sequencer users (both hard and soft). iOS users will love the fact that Logic Control has also been updated to take charge of all the best new bits. Oh, and Apple has only gone and updated EXS24 with not one but two new sampling options. (For some of the more desperate EXS users who have been crying out for this overhaul, an update to '24 is almost worth a point update in itself.) Then there's Drum Synth, a new live Remix FX plugin and more. Like we said, this is big. Logic XI big.

Not half hearted

When we had a chat with Apple just as the 10.5 announcement was made, we had a chance to ask them about some of the key questions, but first here's the company's take on 10.5. While Apple doesn't like being quoted directly – as you know, Apple can be mysterious to say the least – they are in agreement about this definitely being the biggest update since X (at least). But, they say, it is not just about the individual additions listed above, but how they integrate with one another. For example, you can instantly create a Drum Machine Designer kit using Quick Sampler, and then instantly use that kit to program a beat with Step Sequencer, and then create and perform different variations of that beat with Live Loops. Everything is designed to work together, simple as that.

So why didn't Apple simply jump from 10.4 to v11 rather than just 10.5? That's a numbering scheme thing, they say, and every time Apple do a 'dot' release it's about feature additions not major overhauls.

So that clears that one up, what about... (whisper) the other thing?

Let's get the elephant in the room out of the way first of all

Yes, Live Loops is all about triggering different cells of loops and then whole rows of these cells and, of course, that has been around for years, albeit 90-degrees shifted around in Ableton Live. Well, Apple argues, the idea of laying sounds on a grid that you can trigger does go right back to the '80s, with hardware like the infamous Akai MPC, so it's not a new idea, it's more about the implementation.

They also point out that Live Loops has been in GarageBand for quite a few years now, and 10.5 is all about bringing a pro version of that into Logic and to support everything in Logic that is already there. With this in mind, then, Live Loops can live right next to the traditional Logic track area, and any content that works in Logic can be dragged into it. Again, Apple says, it's all about the integration.

There are also one or two additions in 10.5 which take Logic's version of Live Loops away from Ableton's, including the Remix FX real-time automation effect plugin which can be used with Logic Remote and with which complete performance effects can be created by mouse or finger. The results can be then easily recorded into the Logic timeline to be worked on later.

Live Loops in detail

Boot the new version of Logic 10.5 up (and we had it running well in Mojave if you're worried about needing to upgrade to Catalina) and you'll not immediately see any differences. Two new icons to the right of the View menu allow you to switch on both the new Live Loops window and the traditional Tracks area. Press Opt>V to toggle between them or Opt>B to show both environments simultaneously – one key difference over Ableton Live.

You can trigger each of the Cells in Live Loops simply by pressing each; as many as you like in a vertical line, only one per track in a horizontal (like we said it's Ableton Live shifted on its side but don't worry, that's enough Live comparisons until next month). Hitting the space bar stops playback while CMD>Return resets Cells. Entire vertical lines of Cells (Scenes) can be triggered with the arrow icons at the bottom of each.

10.5 comes with a library of 2,500 new loops (and 17 Live Loops templates) ready to load in but you can import any type of loops you like – audio or MIDI – and the tempo, not key, will be adjusted to fit that of the project. New Cells can be created by right-clicking on an empty Cell. You can find and load in an audio loop (on an audio track), record a MIDI part (with a software instrument track), add a Pattern Cell

(via the new Step Sequencer) or add both audio and MIDI with Record Into Cell.

Not all about Live Loops

While Live Loops grabs headlines, there's a lot more going on in 10.5 that's worthy of note. First let's turn to the Step Sequencer. This is quite simply a sequencer that you'll all know and love, the kind that developed on early electronic hardware. You can delve into both beat and melody loop creation and it's easy to get both going and plenty of editing options within them.

Then, of course, you can use those sequences as Live Loops and drag them back into that new environment for some arranging and live performance fun.

EXS Extras

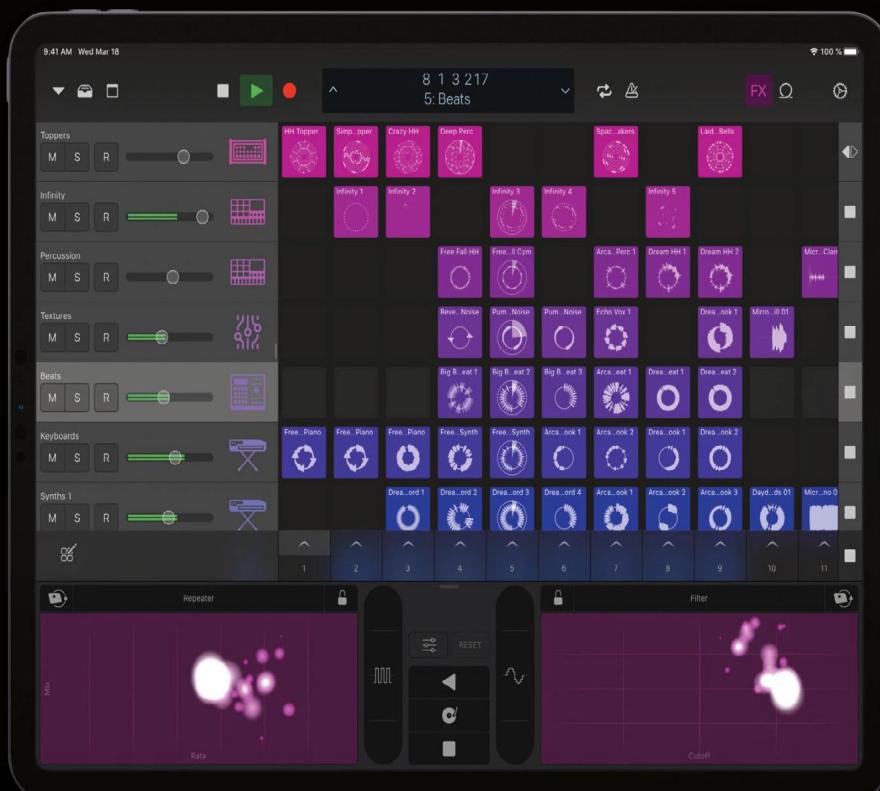
The sampling side of Logic has been greatly enhanced – 'at last', EXS24 fans will be saying – with the addition of Sampler and Quick Sampler. Without wishing to dwell too much on how EXS24 was falling behind, suffice to say Apple has addressed most if not all of the concerns with these additions. Both make working with audio very, very easy and Sampler comes packed with modules aplenty to add synth and modulation options to an incredibly, well, logical way to organise and map your audio.

We have a step-by-step guide to Sampler ahead, but not for Quick Sampler as this little beauty is so easy to use it doesn't really require one! Quick Sampler is now a main feeder for Drum Machine Designer which is completely refreshed – that's more than enough to be getting on with. Just what will Pro XI bring?

plugin Ultrabeat). It is, then, great for drums and loops, with an ease of slicing the latter into individual hits for retriggering/programming.

Even simpler, just load in any single sampled sound from any instrument and it's ready to play across the keyboard. Aside from that it features cut down modules from Sampler, still with plenty of parameters to twist and turn.

Drum Synth is also a main supplier for Drum Synth Designer and seems simple in looks, but that simplicity is its strength when it comes to quickly coming up with different drum hits. You can synthesize sounds with up to eight different parameters for all the main kit components. You get to twist dials like Tone, Pitch, Body, Noise and Decay for your hits which means your core sounds are easy to come up with. You then simply load multiple instances of these into Drum Machine Designer to come up with a kit, mixing synthetic drum sounds with sampled sounds from Quick Sampler, and you then have a beautiful new kit to make beats with. Do that in Step Sequencer, load it in as a Live Loop and, hey presto. Let's go close up on Live Loops and some of the plugins, and share some quick guides on the more complex (although not very) Step Sequencer and Sampler options. There's more to Logic 10.5, like the additional Logic Control functionality, and we'll look at that more next issue. However, with Live Loops, Sampler, Quick Sampler and Drum Synth – the latter two feeding Drum Machine Designer which is completely refreshed – that's more than enough to be getting on with. Just what will Pro XI bring?



New Additions

Here's what Live Loops, Quick Sampler, Remix FX and Drum Synth look like up close. Turn over for more on the Step Sequencer and Sampler options

You're just two icons away...

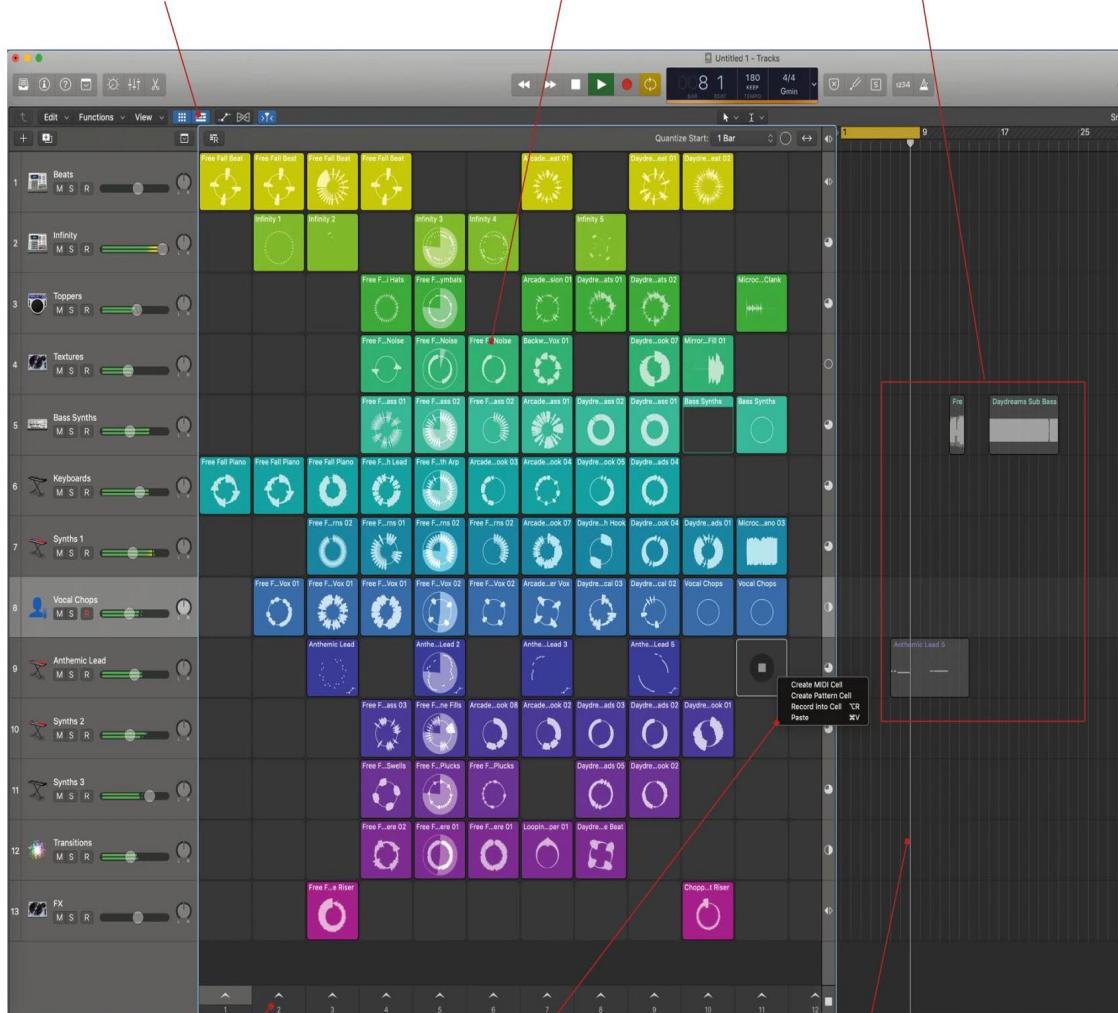
Just these tiny icons stand between old Logic and new Live Logic. The one on the left calls up Live Loops; the right-hand one, the traditional track area. Both can be toggled

Cells

Cells can be created on both MIDI and audio tracks and trigger when clicked, starting a clock-like rotation. Space bar stops; CMD>RTN resets

Drag content to tracks

Both MIDI and audio-based Cells will create standard parts on tracks when dragged to the track area



Change of scene

Hit each of these arrow icons to start an entire column of Cells as a Scene

New cell contents

Created by right-clicking an empty Cell and filled with pretty much anything you like, including MIDI, audio and Patterns by way of the Step Sequencer

Side-by-side

A big plus in Logic 10.5 is that your traditional track view can be side-by-side with Live Loops for easy transfer between the two

Quick Sampler

A cut-down easy Sampler

Main options

Record audio directly in, display Classic or One Shot and slice and dice your drum loop for individual beat playback here

Main window

To drag or load your sample in. You can easily make basic start and end point edits plus fade in and out

Go loopy

Set your root key, loop forwards, backwards or alternate here



Modules

Some of the functionality of Sampler in cut-down modules, but with a decent number of parameters to edit

Envelopes

Edit how your samples play and fade (which you can also do with the pencil tools in the main window)

Drum Synth

Any drum sound in an analog-style way

Don't want to fiddle?

Dozens of presets to load in here

Synthesize Any drum hit sound

With four main categories and 24 sub categories you can choose many varied drums sounds to start editing



Simple but very effective

You get up to eight parameters to tweak your drum sounds to perfection

Audition

Hit this and hear!

Remix FX

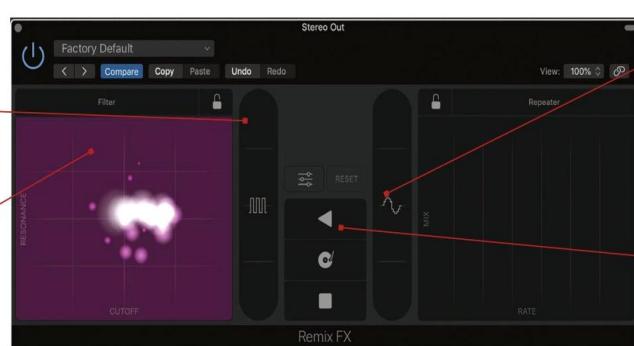
Real-time effects by mouse or finger

R=Repeats

Stutter-type editing here that increases as you move the slider vertically upwards

Real time control

Control your X-Y parameters here by moving around the mouse, or fingers via the iOS Logic Control app



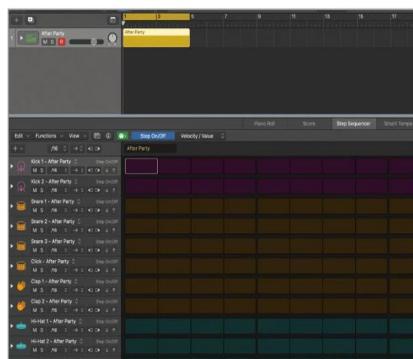
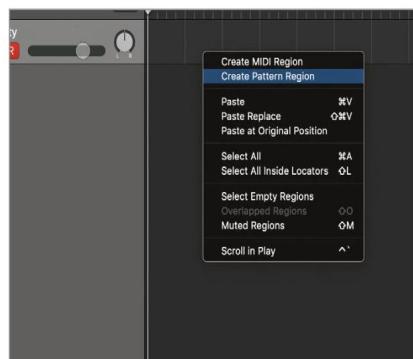
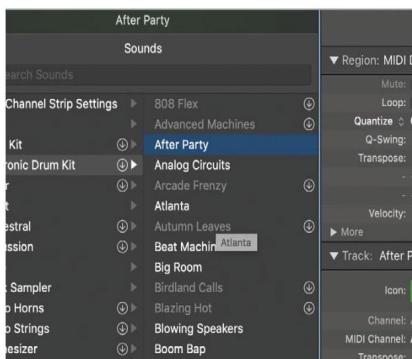
Crushing

A bitcrushing-type effect that increases as you dial up

Stop/start effects

Slow down, vinyl stop, reverse and scratch effects here

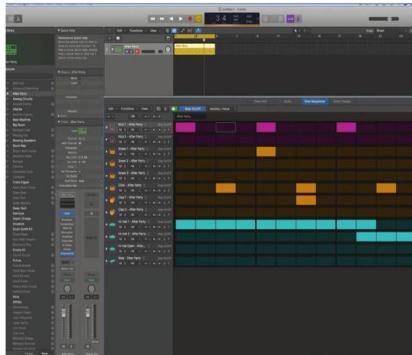
Step by step 1. Best use of the Step Sequencer



01 There are many different ways to incorporate the new Logic Step Sequencer, but here's one of the quickest ways to explore it. Select a preset sound – we're opting for some of the new electronic drum kits (which, as you can see, we're still in the middle of downloading). Drag this to a track.

02 Now right-click on the track and select Create Pattern Region from the resulting drop-down menu. This will create a Step Sequencer Pattern within your looped area which defaults to 16 parts. We're looping over four bars so each one responds to a beat.

03 Now the main Step Sequencer grid will appear with the 16 parts from left to right. Press E to toggle this grid on and off. Audition the sounds by hitting their icons running down the left-hand side of the screen (or anywhere around the name). Now it's simply a matter of filling in your beats as the pattern cycles around.

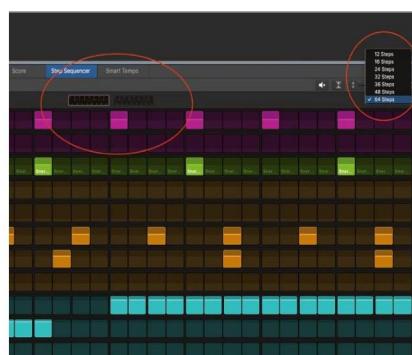


04 Don't want to hear the beat when you hit a step? Hit the green MIDI icon (or Opt+0). We've also put some hi-hats in over the first two and a half bars. Press Shift and drag when you click a step and want to fill a row, to ensure that you don't move the contents over to another track by accident.

05 You can also change the timing of each track by clicking the drop-down menu (here on the 1/16 part of the track) to select different intervals. Select 1/8, for example and just the hats will play half time, although the graphics don't necessarily show this as you might expect (but you will hear what you expect!).



06 Now explore the menus. Velocity/Value lets you alter parameters including the actual sound (using the Note option, which lets you select a different kit sound on each track). Note Repeat is a great one as it allows you to drag up from the bottom of each cell for repeat effects and you can very quickly get some great stutters going.



07 Want to increase the number of steps? Easy. Click the drop-down Steps menu to choose up to 64 steps. Go all the way up to the maximum and it splits it into 32 divisions on two tabbed pages so you don't have to squint. You have this 'two-tab' option for other step sizes as well.

08 Of course it's not just beats you can use Step Sequencer with. Here we've repeated the steps above to very quickly add a bass sequencer from Synthmaster to our beats. You get a number of key and melody options and, quite simply, this is one of the quickest ways to get a tune.



09 It doesn't end there. With Logic 10.5, as Apple told us, everything is compatible so you can very quickly drag your new sequences into Live Loops for all the live performance and arranging fun that will give you. Great stuff.

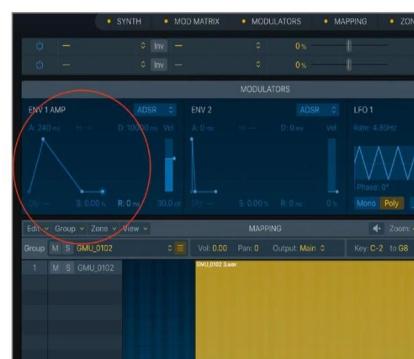
Step by step 2. An introduction to Sampler



01 We're now going to take a tour of another of the great new features that comes with Logic 10.5: Sampler. This is a bigger and more feature-packed version of Quick Sampler, although they share many of the same characteristics. Learn this and you should be good to go with Quick Sampler. Open a software instrument track and select Sampler.

02 Now we're going to load some audio into Sampler. There are several ways to do this but for demo purposes, we're going to drag a guitar sound we have on an audio track into the Zone area as shown. You may need to open the Mapping module and here you will see your sample on note C1 which is the key on your keyboard that will activate it.

03 You can edit the audio in the Zone window or spread the sample across the keyboard range so that more keys play it (polyphonically if you wish). In order to have the sound play the correct time, rather than faster up the keyboard or slower down, press the Follow Tempo button as indicated.



04 So now we have the audio file in and mapped across several keys. However the root note is currently C1, but we're not quite sure if that's correct. We can get Logic to analyze the original sample and map it into the correct position on the keyboard by selecting the Automap Using Pitch Detection option from the Zone drop-down menu.

05 Now you can see that Logic has identified the root sample as really being E1 rather than C1 and mapped it accordingly. (We've zoomed in and cropped the range). This is one of the best Sampler features as you can take a simple sample – say a classic synth sound – and easily make an entire ‘instrument’ out of it by mapping it across your keyboard.

06 Now you might want to edit how your sample fades in and out. You can do this via the pencil icons which default to the sample start and end points. Drag them either way to fade in or out. Alternatively use the Modulators section and the Env Amp 1 option to adjust the attack and decay times as shown.



07 Looping is just as easy. Select the Mode drop-down menu at the bottom of the screen which will say ‘No Loop’ and select Forward. You will then get a loop start and end icon which you can adjust. This will loop the contents forwards. Reverse does it backwards, while Alternate bounces between the two.

08 There's so much more you can do in Sampler, like exploring the Synth section. Here, for example, we've applied Filter 1 to our guitar sample, and are now modulating the filter frequency with a random value to get a dynamic squelchy sound with lots of movement. Lots to experiment with here!

Power tip

Use the presets

Not so much a power tip here, but a handy reminder to make sure you know of and use the presets that come with Sampler. It comes with many preset sounds in a dozen categories including Acoustic Pianos and Pop Strings and there are some great ones to audition, if only to see how samples can be mapped and to learn about best practice when using Sampler.

Enjoy Logic 10.5 and do send us your tips to share with other subscribers!

A dark, moody photograph of vintage electronic music equipment, including a keyboard, a sequencer, and a modular synthesizer, all interconnected by patch cords.

By Francis Preve

Francis Preve is one of the industry's most prolific sound designers. Find out more at francispreve.com

SOUND DESIGN: VINTAGE STRINGS

Recreating '70s era string machines

There's something truly special about the sound of a vintage string machine. Their sound has defined countless R&B, disco, and synthpop tracks over the years. For disco and R&B, that list is absolutely endless, with the sound of the ARP Solina String Ensemble dominating songs from the Ohio Players, Rick James, and Prince. As for UK pop in the '80s, nearly every one of Duran Duran's early hits was based on the Crumar Performer string machine – usually through a phaser – while Joy Division's 'Love Will Tear Us Apart' was based on the ARP Omni (or was it the Omni II?).

The sound is so distinctive that modern manufacturers have released gear dedicated to reproducing string machines with varying degrees of authenticity. Waldorf's Streichfett, Roland's Boutique VP-03, and others served to reintroduce the sound to a new generation of producers.

For technology historians, it helps to understand that the sound of these instruments is based on frequency dividers, which can generate

tones by dividing down from a single top octave of oscillators. These were originally found in home organs, and their waveforms were largely based on square and pulse waves – the latter waveform is where the secret sauce of strings is created. While many contemporary string presets use sawtooth waves, it's possible to perfectly recreate the vintage sound just a few elements: A narrow pulse wave, a pad-like amplifier, and a thick chorus/ensemble effect that can be replicated via stacking two or more choruses in series. For extra polish, you can add a high- and low-pass filter duo to more precisely dial in the limited frequency bandwidth of the originals.

In this column, we'll look at resynthesizing this iconic sound using Serum and Phase Plant, along with simple macros that will let you treat the patch like a dedicated softsynth. Each has slightly different strengths, but the end result is so close that you can probably save a few dollars if you're coveting one of the original, vintage units.

QUICK TIPS

1 Each vintage string synth used its own specific pulse-width to define its sound. Keep this in mind as you scale your width between 70 and 95%.

2 The same customization applies to the type of chorus/ensemble circuit in the originals. Here, the ARP Solina reigns supreme with its triple-chorus controlled by two LFOs..

3 Stacking two choruses will help you approximate both ensemble and vibrato effects. Here, use your ears as you compare your sound to classic hits.

4 Pairing a high-pass and low-pass filter in series (with zero resonance) will help narrow the range of the string sound. Notably, these were often quite bass deficient.

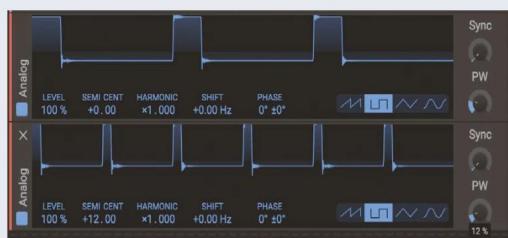
5 For a dash of flair, put a phaser at the end of your effects chain. Nick Rhodes used this technique, which originated in the disco era - notably in Giorgio Moroder's production.

Kilohearts Phase Plant

Set to stun...

01 Pulse Waves

Start with an analog oscillator and select the pulse waveform. Since each vintage string machine had its own specific pulse width, experiment in the 5-20% range. Once you have a thin reedy pulse, drag-copy the oscillator to the position below and raise its tuning by +12 semitones to create both "cellos" and "violins".



02 Filter and Envelope

Vintage string synths had very little low and high frequency content, so you'll want to add two filters after the oscillators. Set one to lowpass and increase cutoff to 6 kHz. For the highpass cutoff, start at around 200 Hz.

From there, create a pad volume envelope with full sustain, soft attack, and long release.



03 Ensemble

While pulse waves and pad envelope serve as the basis for the sound, it doesn't come to life until you add a proper ensemble effect. While a single 3-tap chorus will do, you can get even closer to the true vintage sound by adding a second chorus after it, with slightly different settings.



04 Macros

Once you've got the oscillators and chorus dialed in as a foundation, you can create a fully customizable string synth by adding separate macros for the following parameters: Osc 1 volume (cellos), Osc 2 volume (violins), Attack, Release, and Ensemble mix. For added tonal versatility, you can also add a macro to control pulse width.



Xfer Records Serum

Let the strings swell...

01 Pulse Waves

Start by setting Osc A to the Basic Shapes wavetable and select the square wave index. Then, change the Warp mode to PWM and set it between 10-30%. Once you have a width you like, use the Copy Osc A->B option in the main menu, then raise its tuning to +1 octave.



02 Filter and Envelope

Make sure both oscillators are routed to the filter, then select LH 12 from the Multi folder. The main cutoff knob controls the lowpass, so set it to around 6000 Hz, then set the highpass cutoff via the second Freq knob. Set up the amp envelope with a soft attack, long release, and full sustain.



03 Octave and Envelope Macros

To facilitate easy edits, map Macros 1 and 2 to the levels of the oscillators, then map Macros 3 and 4 to further adjust the attack and release settings of the amp envelope. With these mappings you can quickly dial in the character of a wide variety of vintage string machines.



04 Ensemble

While Serum only offers one Chorus processor, you can approximate a vintage ensemble by stacking the Hyper effect before it. The default settings for Hyper are generally useful, though you may want to adjust its rate and detune as you add Chorusing. For the Chorus, make sure the LPF is at maximum to impart shimmering.



05 Phaser

Disco string machines (and Duran Duran) often included a Phaser effect on the output, so add one after the choruses and adjust the rate, depth, and frequency to tailor the sound. For a rather more modern feel, sync the rate to BPM and use a very long value, like 4 or 8 bars.



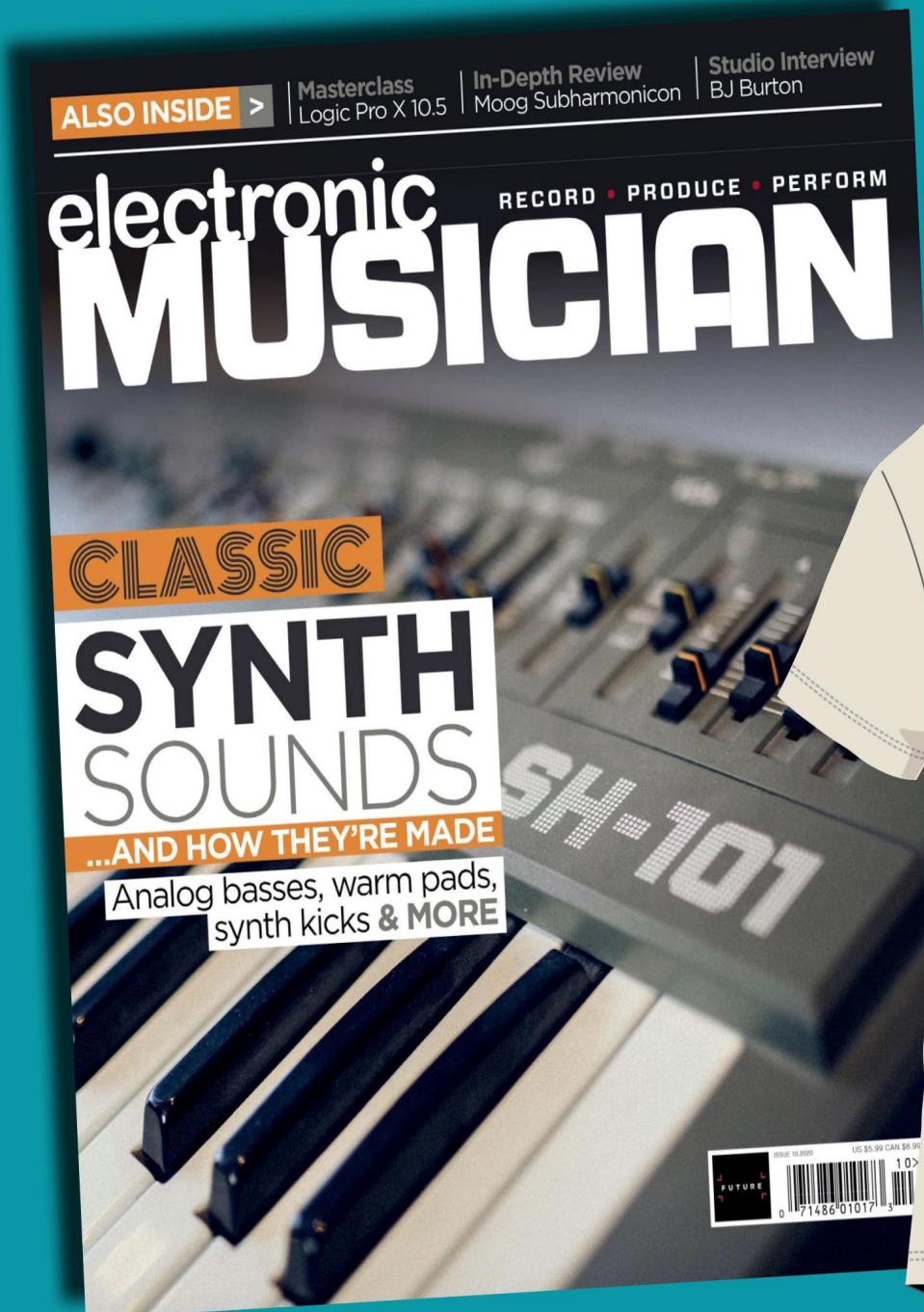
06 Reverb

Finally, for a really lush sound, place a Reverb effect at the end of the chain. Here, settings are a matter of personal taste. For a more vintage feel, select the Plate mode. Halls are equally useful and include spin and spin depth parameters for enhancing the overall animation of the sound.



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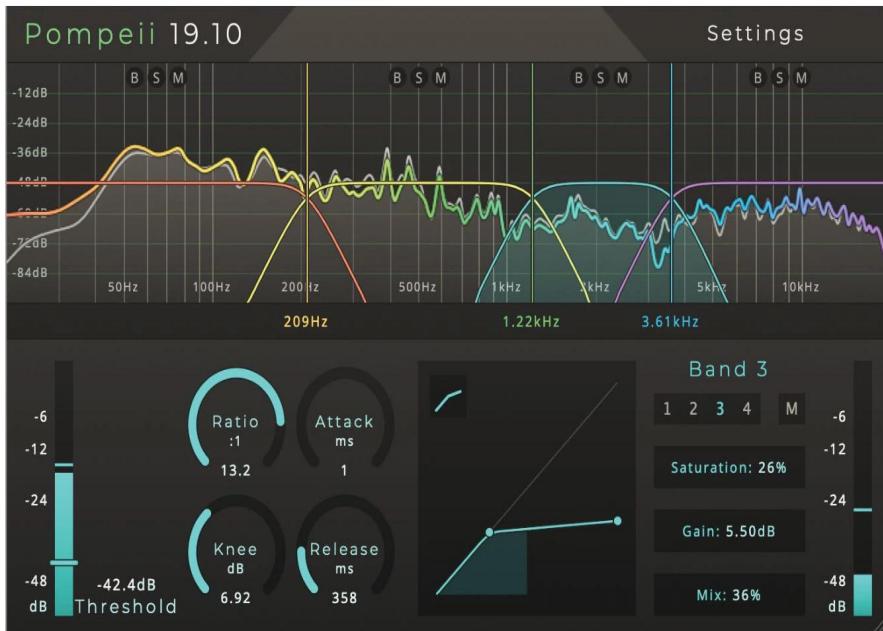
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Multiband compressors

Seeking to get that extra bit of control over your frequencies? Look no further than this motley band of multiband heroes



Gramotech Pompeii \$37

A satisfyingly small multiband dynamics tool that keeps things simple but manages to remain unique, Pompeii offers four bands of compression and expansion – not quite to the extent of gating, which would be a great addition. There's also a per-band Saturation control, which is great for warming up bands that need extra oomph elsewhere in the frequency spectrum.

Each band is equipped with Bypass, Solo and Mute controls, and while there's no classic metered gain reduction, the spectrogram does show the difference between the input/output signals in a slow fashion.

That's it – Pompeii is very simple but also very solid, satisfying everything you crave in a multiband compressor/expander, and working like a dream, for less than \$40.

gramotech.co.uk



Acon Digital Multiband Dynamics \$139

Available as part of Acon's Mastering Suite with four additional plugins, this four-band network has all the compression mainstays per band: Threshold, Ratio, Knee, Attack and Release, with Gain In replacing the expected Make-up control (it is a mastering processor, after all).

Oscilloscope-style metering is present for each band, as well as an overall spectrogram along the top, and there are global controls over input/output levels, crossover type, and Channel Linking.

You get to audition bands' sounds on their own, although there's no way to bypass a band's processing to compare the whole signal with or without, which is quite crucial when testing whether you're making any real progress to a particular band. There's also some clicking when adjusting controls with a signal running through the plugin. On the whole, though, Multiband Dynamics is a capable, professional multiband compressor at a decent price if you want the rest of the Mastering Suite.

acondigital.com



Venomode Complexer 2 \$39

Each of Complexer's bands can be set to up/down compression, up/down expansion, limiting or gating, with Analog or Digital response styles, and a choice of Peak Detection methods. But here's the unique part: the three processors – Blue, Red and Pink – can

be set to operate in Chain (series), Mid/Side (plus overall), Stereo (Left/Right plus overall) or Multiband modes. This makes Complexer a great dynamics tool with tons of creativity and control, but since we're covering Multiband Compressors, we'll dock that mode points for only having access to three rather than the standard four.

We'd also appreciate auditioning per band, and more visualization across the knee graph.

Complexer is a great tool to have in your dynamics arsenal, but it's not a cure-all for every multiband compression task – add a fourth band and you get a capable and truly unique multiband compressor that's capable of so much more besides.

venomode.com



WA Production The King \$139

Five bands, each with a gain control and a slider, are the main features you'll spend your time on with The King. Pull a band's slider down to engage more downward compression; push it up to engage more upward compression, with the amount of each type (Up and Down) set globally on the left. Basically, you choose the amount to pull the band towards or away from the slider level you've set. Interestingly, there's a single Time setting for the whole plugin (low to high attack/release), a weird thing to give global control over.

There's Mix control over the entire signal, Input and Output Gain, Limiting, and a 'Magic EQ', whose 0-100 setting, with three types, works in mysterious ways – none of which we've ever found make any signal sound distinctly better. If anything, this plugin's 'easy' approach just leads to more headscratching about how to use it to make things sound better.

waproduction.com



FabFilter Pro-MB \$199

Up to six bands of compression or expansion (in down/up modes), Pro-MB is the one to beat for any multiband dynamics task – both its feature set and its intuitive operation make it more than capable in any situation.

Pro-MB's way of working is still quite unique, engaging Range and Threshold controls, in connection with a Compress or Expand selector, in order to choose between upward/downward compression/expansion. Once you've got your head around it, though, practically any frequency-conscious dynamic feat can be achieved, with Attack, Release, Ratio, Knee, Lookahead and Output controls for each band, as well as individual sidechaining options (although all running from a single source). One overlooked feature is the ability to run each band 'Free', customizing exactly where it operates in the frequency spectrum, overlapping with other bands rather than being constrained within a crossover network.

Although it's pricey, Pro-MB will be worth the cash for those prepared to properly learn its functions, turning its hand to practically any audio task.

fabfilter.com

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EarthQuaker Devices Data Corrupter

The guitar synthesizer has had a fraught relationship with players. and tracking issues and sonic fashion have both limited interest in the past. Today, the sheer number of products on the market dedicated to making your guitar sound like a synthesizer is a firm indicator that this is changing. In this series, I will cover some of the new effects pedals designed to simulate synthesizers.

By Michael Ross

For our last synth pedal of this series we will look at the mouthful that is the EarthQuaker Devices Data Corrupter Modulated Monophonic Harmonizing PLL. As we shall see, this type of synthesis runs counter to the smooth sounds sought by the majority of the previously featured pedals.

For those into the technical side of PPL synthesis, the Data Corrupter is based around a CMOS Phase Locked Loop (PLL) IC. A PLL compares the input signal's phase and frequency against an oscillator, generates an output proportional to their difference, and feeds it back to the oscillator. This causes the oscillator to lock onto the input signal and generate a synthesized frequency. This synthesized frequency is referred to as the Master Oscillator on the Data Corrupter.

This monophonic analog PLL harmonizer with modulation amplifies the input signal from the guitar and turns it into a square wave fuzz tone. That tone is then multiplied, divided and modulated. The Data Corrupter's Master Oscillator feeds the input to the pedal's signal harvester either as its original octave (Unison), one octave or two octaves down. The pedal takes that input octave, performs its calculations, and emits an analog synthesized frequency. The Frequency Modulator section then provides pitch-

bending for portamento or vibrato sounds. You can blend in one of eight Subharmonic intervals up to three octaves below the input, and mix in a square wave fuzz tone for further data corruption.

If you have no idea what most of this means, no problem. All you need to know is that this pedal's name is no accident. It offers a walk on the sonic wild side. When you initially plug in don't be surprised if your first reaction is WTF? With the Data Corrupter, notes tend to sputter and get lost in a sea of diverse distortion and flailing frequencies. But it only takes a few minutes of knob fiddling to find some rich, usable tones.

One tip for taming this aggressive pedal is to use your guitar's neck pickup and roll off the tone, much as if you were using an octave fuzz. Trust me, there is still plenty of high end to be had.

Much of the uncontrolled burbling comes up as a note fades away. There are two ways to control this. One is to keep playing, as long as the pedal keeps seeing signal the sound remains relatively stable. The other way is to



slap a noise gate after it, or use that ever-popular manual noise gate — the volume pedal. And do be careful with volume if you are running some of the pedal's lower octave options through a guitar amplifier cabinet — speakers can get expensive.

But perhaps taming the Data Corrupter is not the point. There are any number of smooth, polite, sophisticated, perfectly tracking synth pedals available these days. EarthQuaker's pedal is one of the few that can add a delightful dose of chaos when you want or need it. ■

“One tip for taming this aggressive pedal is to use your guitar’s neck pickup and roll off the tone, much as if you were using an octave fuzz”

Selective Response

Since his 2019 debut, Californian producer Selective Response has caught the ears of modern techno luminaries like Perc and I Hate Models with his hardware-driven takes on techno and EBM. Having launched his own Crisis Of Man label last year, we found out more about the creative process behind his latest releases.

When did you start making music?

I've been writing and making music in some form since I was about 12, having come from being in hardcore and punk bands growing up, as where I'm from has a very rich musical history in that. As an actual producer though, it will be a decade this October since I officially started my journey at a music school in LA called Icon Collective.

For the longest time, all I had was a small speaker setup, a laptop, and a MIDI keyboard because I couldn't afford studio monitors. Eventually, I got some decent monitors, and bought my old teacher's Access Virus TI. It sounded great but only worked half the time, so I eventually ended up selling it.

When I first started making music, I was fully invested in uplifting trance music and didn't care about anything else. Eventually, I started exploring other genres and started making progressive house and drum & bass, then psytrance, from which a friend introduced me to techno. Techno then started to take over, which led to me creating Selective Response in 2018. And here we are. It's pretty amazing to think about all that's happened in two and a half years.

Tell us about your studio/setup...

My studio is in my new apartment that I moved into about six months ago. The location is

excellent. I've yet to have someone tell me they ever heard me making music. My current setup is pretty solid, but I don't know if I'll ever be truly satisfied until I move into a proper studio.

I use predominately all hardware with a handful of plugins. I'm involved in some other parts of the industry and have new hardware coming in and out all the time. As for what is actually mine, I have Ableton Push 2, Arturia KeyStep, Behringer MS-1, TD-3, Pro-1 and K2, Elektron RYTM Mk2, Digitakt, Digitone, Octatrack, ESP LTD TED-600, Fractal Audio Axe-Fx 2 XL, Korg Minilogue XD and PreSonus StudioLive 16R. I control everything via MIDI out of Ableton via the KeyStep, and surprisingly haven't had any latency issues, although I'd like to get a MIDI hub eventually. I run all my synths

into the StudioLive 16R and mostly use effect plugins, but I do run my TD-3 through a Source Audio Ventris reverb pedal that I love. For plugins, I use mostly Ableton-native plugins, but also FabFilter Pro Q 3, Sonalksis EQ MK2 and Output's Portal.

What DAW do you use, and why?

I've been using Ableton Live 10 since day one, but originally learned it and Logic at school. My mentor used it, and I saw how fast it was, paired with how frequently Logic 9 used to crash. Fast-forward ten years and it's now one of those things where there's no need to switch.

What's your dream bit of gear?

Big question. The Erica Synths Techno System is insane. I'm also super keen on the UDO Super 6. Seriously next level – so lush and full even without any effects. Of course, I'd love all the big classics, Jupiter 8 and 6, 909, etc, but I'm rather content with my setup. Maybe a sick pair of big boy Genelecs or the like would be cool though.

Where do you start a new track?

Here's something funny for you: I have no idea how I make the music I do. Like, I can tell you how I made it, but sometimes I listen back and think, 'where did I even come up with that sound or idea?' I enjoy pressing play and making things happen as I go. I must record a rough draft when jamming, even if I don't do anything with it.

What are you currently working on?

I've got a few different aliases but for Selective, I've done a few edits of tracks I like from Justice and Nero. And I have a new EP out now: the next step in the evolution of my sound and label. ■

Selective Response's essential tips

Less is more

The more you have, the harder it is to make everything work. One great tip I read about ages ago was that if you have a sound playing, but can't hear it, get rid of it. If you're layering sounds, make sure you're getting the most out of each layer. A simple way to test this is to save a version of the mix, silence the sound, and come back later and see if you even notice it's gone. If you don't, there's your answer.

And listen to your music less. This is perhaps the most difficult thing to do, if you're super excited about your current project. How many times have you listened to something over and over, and by the time you're done, you're sick of it? Don't kill the energy.

Step back

Have you ever had a track that just came together like magic? This is a skill you can develop. I'm still guilty of replaying my track billions of times, but I've learned to step back, and it's made a massive difference in the quality of my work. Spread your session out...

Always press record

I've lost countless great tracks because I either simply forgot to press record or didn't think that what I was doing was worth recording. Remember, happy accidents happen all the time, and can be extremely hard to recreate. So save yourself the head and heartache and press record!

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