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FutureMusic®

Issue 355
Making the future since 1992

Technique and technology for making music

THE SECRETS OF

ANALOGUE WARMTH

That elusive 'mix glue' magic demystified
– and how to fake it on the cheap!



IN THE STUDIO WITH

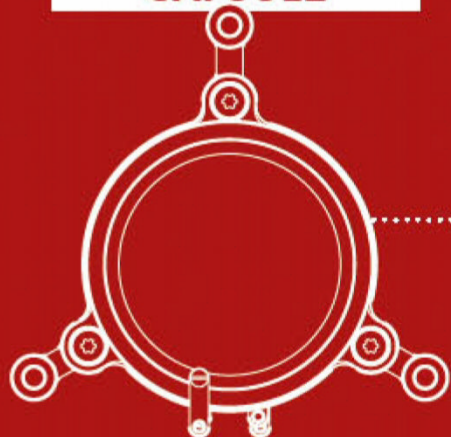
CARIBOU

Dan Snaith on the
ideas and techniques
behind *Suddenly*

HANDCRAFTED HERITAGE

MODERN CONTROL

CKR12 CERAMIC CAPSULE



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A First!

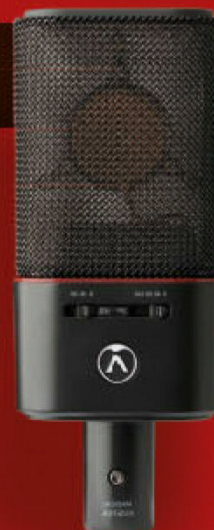
Remote control over polar patterns, high pass filtering and pad settings via free iOS and Android Apps. Also features 1-minute monitoring window of internal mic clipping. Save & recall favorite polar patterns and full mic settings.



NEW!

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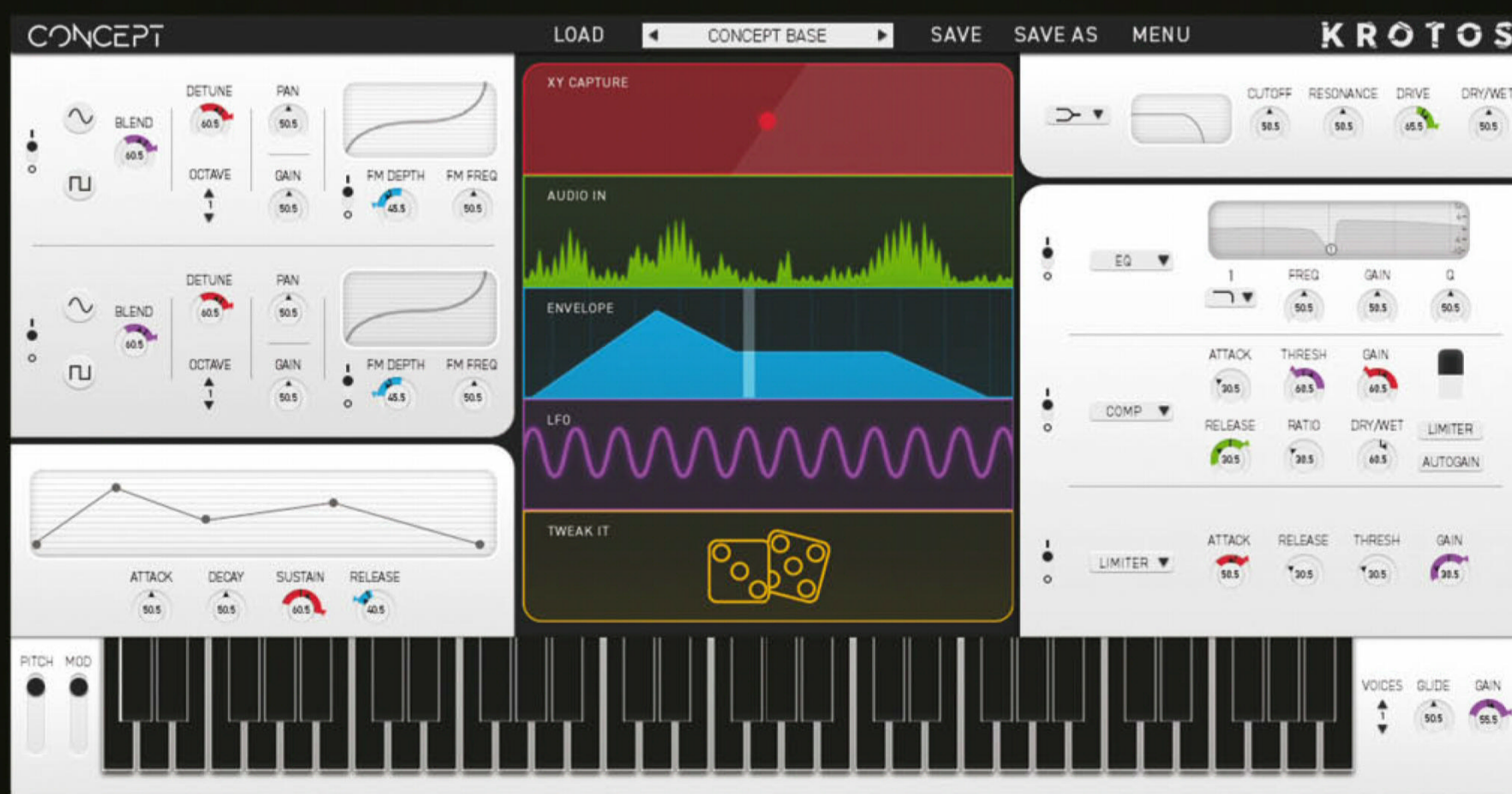
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FutureMusic

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Printed in the UK by: William Gibbons & Sons Ltd on behalf of Future

Distributed in the UK by: Marketforce (UK), 2nd Floor, 5 Churchill Place,
Canary Wharf, London, E14 5HU Tel: +44 (0) 203 787 9001

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London Stock Exchange
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FM | WELCOME



Mixing magic

Music production can be a subject riddled with vague descriptors – from terms like ‘muddiness’, ‘fizz’ or ‘bloat’ to the elusively obtuse but much sought-after qualities of ‘warmth’ and ‘mix glue’. It’s these latter two we’re tackling in this issue’s cover feature. We’re on the hunt for that sonic magic imparted by vintage desks and outboard in order to help the disparate elements of our tracks sit together. It turns out it’s more than simply a case of slapping an emulated effect onto all your busses – if you want to really ‘glue’ your mixes, an understanding of reverb, send effects, saturation and more will help you along. Head for page 28 to learn more.

We hope you enjoy this issue of FM!

Si Truss, Editor

simon.truss@futurenet.com



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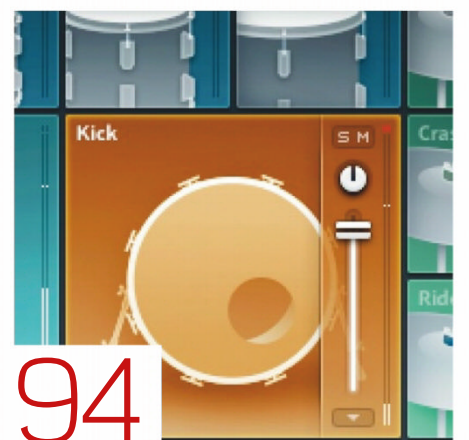
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THE TRACK

Lia Mice – *Which Memories Will Make It?*

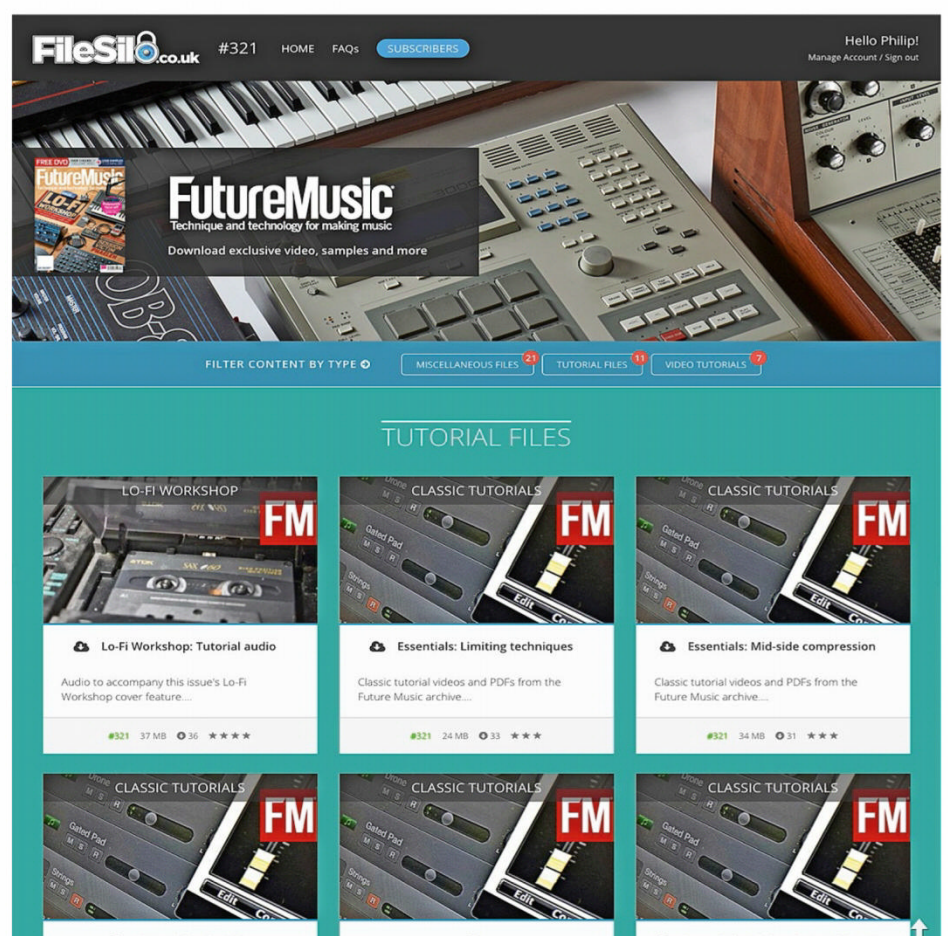
INCLUDES VIDEO

Multidisciplinary artist talks us through the making of *Which Memories Will Make It?*

ACCESSING YOUR BONUS DIGITAL CONTENT

FILESILO.CO.UK

This issue's bonus samples, videos, audio and bonus archive samples are all available to access via FileSilo. At the link above, log in or register, then unlock over 12GB of goodies!



ARCHIVE

FM's Sample Archive gives you over 10GB of carefully-curated, royalty free sounds to use in your music. Here's what's inside...

AMBIENT SOUNDS PT.1

- > '90s Ambient (562 samples)
- > Ambient Dawn (490 samples)

AMBIENT SOUNDS PT.2

- > Majestic Bells & Mallets (444 samples)
- > Spring Reverb & Tape Delay (533 samples)

ATMOSPHERES & BACKGROUNDS

- > Atmospheric Beds (369 samples)
- > Noise, Crackle & Hiss (512 samples)
- > Sounds of the City (371 samples)

CLASSIC SYNTHS PT.1

- > Analogue Polys (625 samples)
- > SH Collection (500 samples)

CLASSIC SYNTHS PT.2

- > Analogue Poly Chord Hits (342 samples)
- > Classic Synths: '80s, '90s, '00s (678 samples)
- > Hardware Arps (511 samples)

CREATIVE DRUMS

- > Cyborg Beats (514 samples)
- > Lo-Fi Sampling (555 samples)
- > Obscure Drum Machines (517 samples)
- > Overloaded Beats (889 samples)

ESSENTIAL DRUMS

- > 808 and 909 (39 samples)
- > Ultimate Cymbals (503 samples)
- > Ultimate Kick Bundle (505 samples)
- > Ultimate Snares & Claps (676 samples)
- > Vintage Drum Machine Hits (548 samples)

FX & TRANSITIONS PT.1

- > Filter Fun (496 samples)
- > Gates 'N' Sidechains (287 samples)
- > Total Transitions (260 samples)

FX & TRANSITIONS PT.2

- > Destroyed synths (519 samples)
- > Sci-Fi FX (501 samples)

HIP-HOP, FUNK & SOUL

- > Cosmic Soul (386 samples)
- > Funk Keys (279 samples)
- > Hip-Hop Drum Machines (387 samples)
- > Minimal Hip-Hop (540 samples)

HOUSE & TECHNO

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- > House & Techno Stabs (213 samples)
- > Jacking House (518 samples)
- > Warehouse Techno (575 samples)

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- > Modular Percussion (510 samples)
- > Shakers, Tams & Toplines (503 samples)
- > Sticks, Knocks & Rims (502 samples)

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- > Classic Breakbeats (371 samples)
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Analogue Warmth

INCLUDES VIDEO

Do you need to scour eBay for relics that imbue your work with their much-extolled 'warmth' and 'glue'? We translate the lingo – and offer some new era solutions

EXCLUSIVE SAMPLE PACKS

'80s Pop Drums

CYCLICK SAMPLES PRESENT...

Get the big, brash sound of classic pop tracks with this pack of hard-hitting, arena-ready beat loops and one-shots.

Sound From The Ether

GROOVE CRIMINALS PRESENT...

Tap into mysterious transmissions with this pack of warped radio signals, electrical noises and otherworldly tones.



INCLUDES VIDEO

Producer's Guide: Behringer Pro-1



Album Reviews: This month's releases



Retrospective: Tech house

SOCIAL

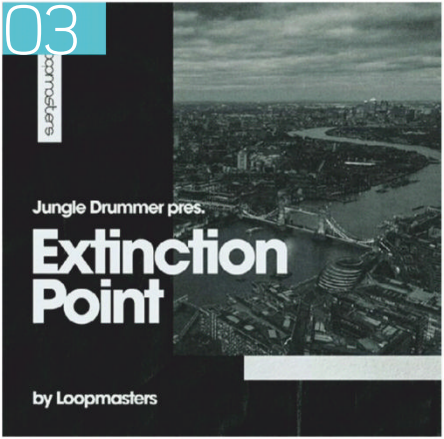
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loopmasters
loopmasters.com

- 01 Loopmasters pres. Pop House Vocals
- 02 Loopmasters pres. Nu Cumbia 2
- 03 Loopmasters Jungle Drummer pres. Extinction Point
- 04 Sample Diggers Lock Stock Media Progressive Psytrance
- 05 rv_samplepacks Modern Pop and RNB Instrumentals
- 06 rv_samplepacks Simeon Presents Black Mamba Breaks
- 07 Loopmasters Evocative Underscores
- 08 Frontline Producer Soul Funk 3





PRODUCE AND PERFORM

UR24C

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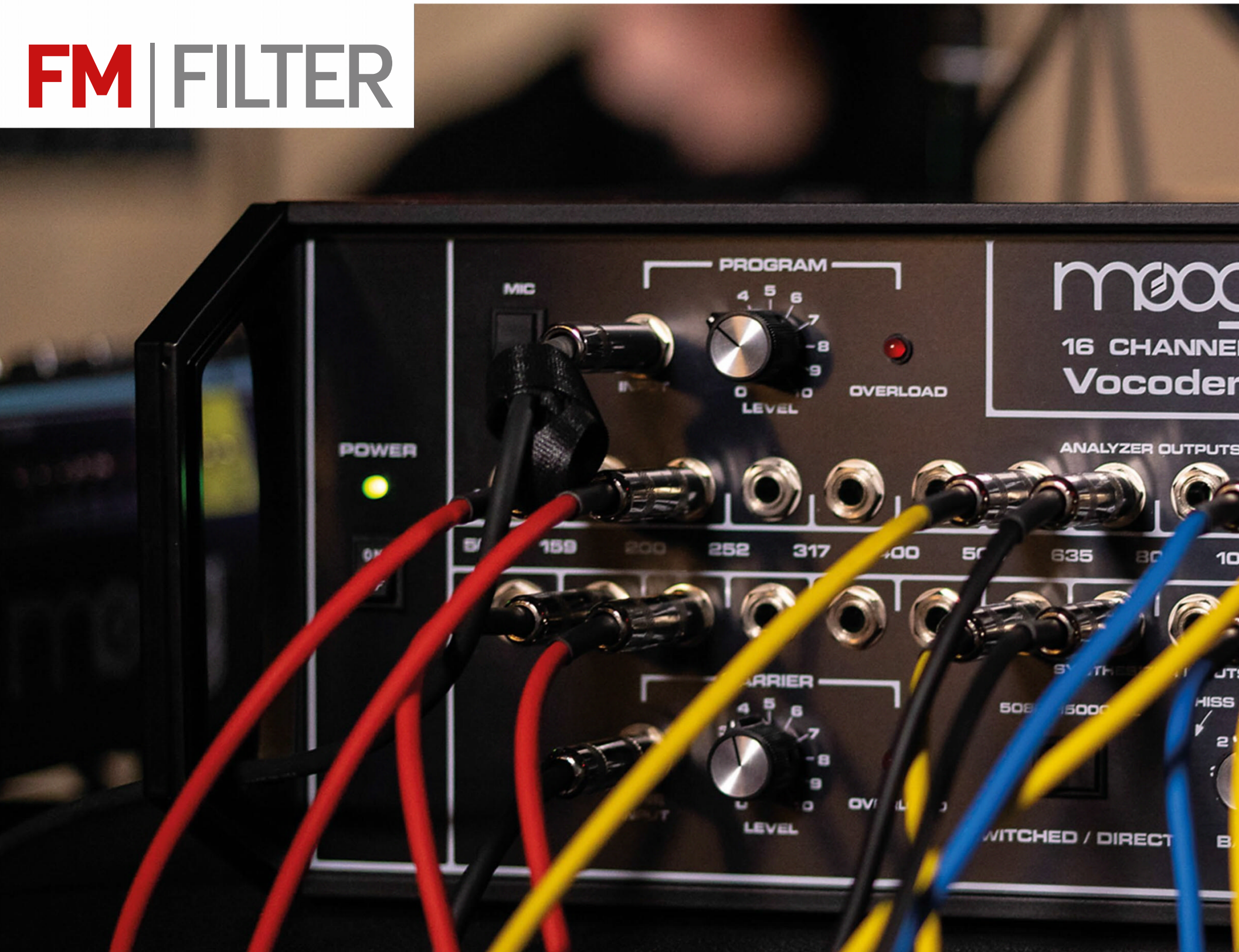
Dedicated monitor modes for production and performance



steinberg.net/ur24c

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Creativity First

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After 40 years, Moog are back with a \$5,000 reboot of the 16 Channel Vocoder

Luxury vocoding with a price tag to match



Vocoders aren't hard to come by in modern studios. Many synths these days come with vocoders built in, and, of course, there are countless plugins out there that'll do the job too. But if you want the ultimate in vocoder luxury, and a price tag to match, Moog may have the answer.

After 40 years, the company is resuming production of the classic Moog 16 Channel Vocoder. Introduced in 1978 – and as heard on Giorgio Moroder's *E=MC2* – this enabled musicians to create not only the famous vocoded vocal effect, but also to process synths and other instruments.

The new version is cut from the same cloth; in fact, it's based on the original schematic and features hand-soldered analogue voice circuits to ensure the sound is as authentic as possible. There are some improvements too though, including updated mechanical connectors and a modern power supply.

Moog's vocoder features 16 patchable bands, each with a range of 50 to 5,080Hz. Plus, a Direct mode passes an additional high-frequency channel (above 5,080Hz) for greater vocal intelligibility. The response time is described as 'ultra-fast', which Moog claim makes the 16 a great tool for processing percussive sounds.

There's also a sample/hold function for creating sustained phrases, which can be controlled via a footswitch.

The vocoder's patchable design allows for extensive integration with other hardware instruments or modular systems, as well as the ability to cross patch between frequency bands in order to create weird and unusual effects. The 16 packs selectable Hiss (sibilance), Buzz (plosive), and Balance controls too, for deep control over the qualities of the carrier voice.

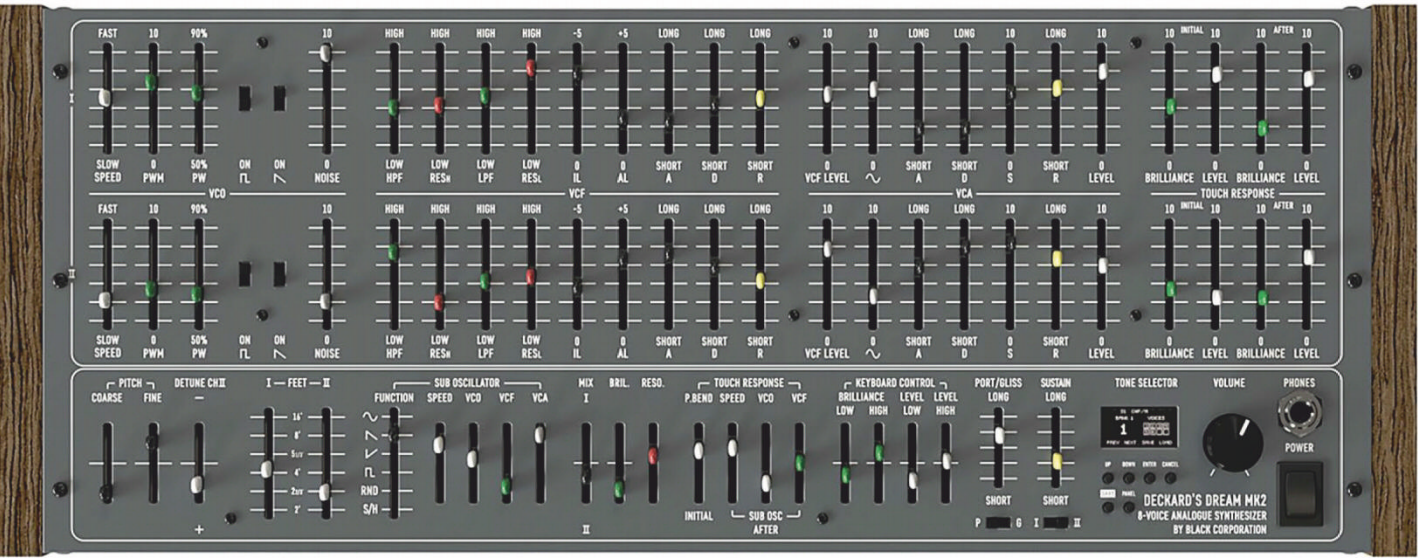
The Moog 16 Channel Vocoder is available for pre-order now, though with a price tag of \$5,000, you're going to need deep pockets if you're going to buy one.

Deckard's Dream Mk2 is like a CS-80 synth for your desktop

Promising to provide everything that was good about the original rack model, Black Corporation's Deckard's Dream Mk2 is an updated version of the Yamaha CS-80-inspired synth that's designed to sit on your desktop.

Said to come in a "thin and light tabletop format," this new revision ships with both wooden end panels and rack ears, also offering additional control over the sustain modes and timing. Otherwise, things look pretty similar to its predecessor: you get eight voices, each with two identical parts comprising an analogue voltage-controller oscillator, low-pass and high-pass filters, noise generator, filter envelope and VCA plus ADSR envelope.

There's also a performance section that gives you additional global controls, plus support for MPE-based control of certain features. There's full MIDI control and the option to store 128 presets in each of the three available banks.

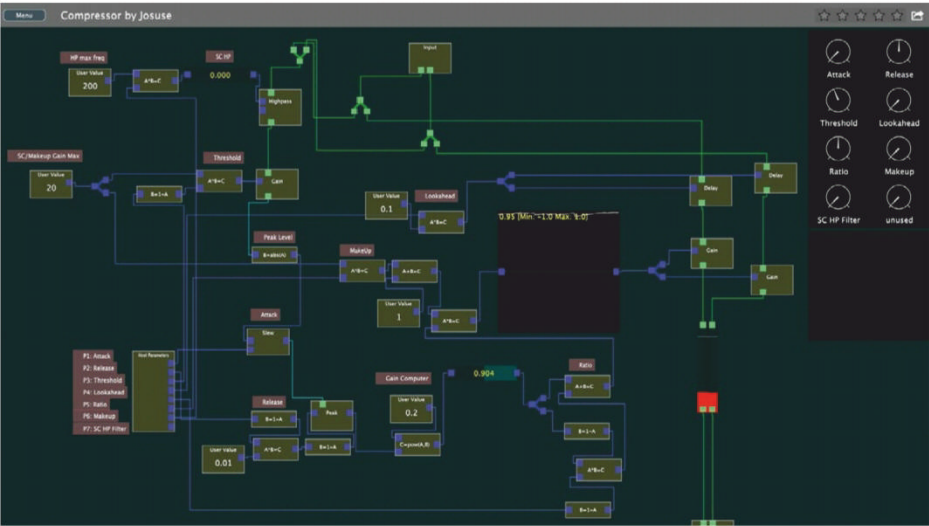


Deckard's Dream Mk2 costs \$3,749, although it looks like pre-orders have already sold out for the built version. The kit version is still available at the time of writing, though.

Klevgrand Krets is a free modular environment

> Klevgrand are known for knocking out audio effects at a pretty swift rate, and now they are giving you the chance to create your own by releasing a free modular environment known as Krets. Before you get too excited, we should point out that it is at the early alpha stage of development, so is far from the finished article. Apparently, Krets was originally designed to be used internally by Klevgrand for prototyping plugins and testing DSP ideas, but they have now decided to release it to the wider world with the aim of turning it into an official product.

Krets deals in low-level audio DSP processing, which means that there aren't really any ready-made effects. The modules you can use are mathematical expressions and functions, which can be combined to create all kinds of different algorithms. The software does come with a warning, though: "When working with signal generators and complex signal paths, there is always risk for unintentional high level audio signals," say Klevgrand. "It may very well damage your hearing if things go wrong. Make sure to turn



down the volume if you're unsure about what an interaction may result in." That said, there's the potential for some happy accidents; Klevgrand have revealed that an "accidental algorithm" is actually the reason it started making plugins in the first place. If you fancy taking a deep dive into the world of DSP, download Krets from the Klevgrand website (you'll need an account). It runs on PC and Mac in VST/AU formats.



Is the Genesis Pro too good to be true?

They say that, if something sounds too good to be true, it probably is, but in the case of Genesis Pro, we find ourselves wondering what the catch is. Created

by DJ/producer Ummet Ozcan under the Oz-Soft banner, this is a new hybrid softsynth plugin that's going to be sold for just 1 euro. If this low price makes you worry that Genesis

Pro is lacking in style and sophistication then fear not, because this looks every inch the contemporary electronic instrument. It offers subtractive, FM, phase distortion, multiwave and ROM synthesis, and comes with three oscillators that can be used independently or simultaneously. We're told that Genesis Pro can concoct a wide variety of sounds – you can stack the oscillators for massive patches or create split instruments that can be played on different sections of the keyboard – and you can use an 'intelligent' mode to play complex chords with a single finger. There are 14 built-in effects, while two LFOs and two matrix slots with multiple outputs enable modulation possibilities

aplenty. In fact, there are more than 100 modulation destinations. There are four envelopes, too – again, assignable to more than 100 destinations. What else? How about eight analogue-style filters, master effects, and the option to use external audio to modulate the Genesis. You can keep track of all your tweaking on the multi-display, while up to 22 actions can be assigned to a single hotkey, of which there are eight. Based on what we know so far, Genesis Pro sounds like a bit of a no-brainer. Ummet says that he decided on the symbolic 1 euro price because he wants everyone to be able to try it – but we'll find out soon enough if it's worth investing your time in. It's due for release March 12.



Soundweaver searches your sample library and designs new sounds

Boom Library's Soundweaver is a new standalone audio application designed to speed up the sound design process. Once you've started a new project, you can tell Soundweaver to search your existing sample library based on the keywords of your choosing –

'whoosh' is the example given in the intro video – and specify how many layers you'd like. Note that, because the searching is all keyword-based, Soundweaver relies on your samples being properly tagged, but assuming they are, it can pull together and align a set of suitable sounds that'll meet

your brief. You can then tweak this sound using the pitch, offset and gain controls, or switch out layers you're not happy with. You also have the option of re-randomising the project. It's possible to take snapshots of your favourite combinations and settings as you work, so that you can

return to them later. Finished projects can be dragged and dropped into your DAW, or you can export a mixed down file. Soundweaver runs on PC and Mac and is out now for the introductory price of \$159.20. You can also download a 7-day trial version.

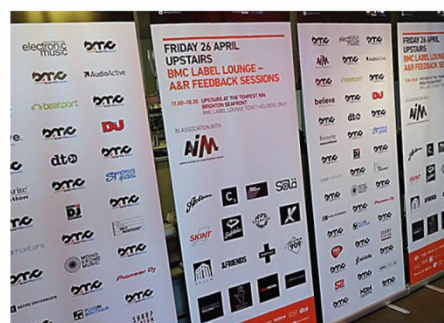
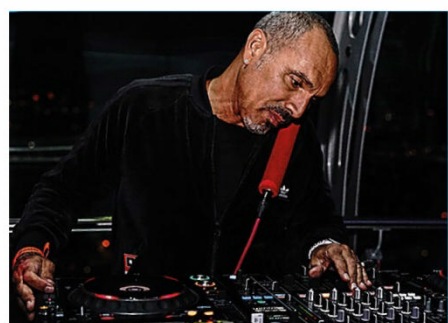
Brighton Music Conference returns, with talks from Fatboy Slim, Carl Cox, Derrick May... and *Future Music*

Brighton Music Conference, the UK's largest electronic music-making and networking event, returns to Brighton's British Airways i360 venue this April 22 to 25. The event will host over 65 talks, seminars and workshops, including contributions from Orbital, Fatboy Slim, Carl Cox, Derrick May, My Nu Leng, Judge Jules, Flava D, Danny Howard, Timo Maas, Darius Syrossian and many more.

This year's edition will also see the return of BMC's Label Lounge, taking place on Friday 24 at the The Tempest Inn nearby, where a host of major electronic music labels will be accepting demos and taking part in one-to-one A&R feedback sessions. Following last year's event, 18 tracks were signed to labels including Cr2, Elrow, Audio Rehab, Shanghaied and Daylight Robbery.

The *Future Music* team will be among the speakers and brands represented at this year's event – stay tuned for full info on a special live panel brought to you by the *FM* team.

As with previous years, there are two ticket levels available for the event – the all-encompassing Pro Pass, priced at £129, and the affordable Academy Pass, priced at £34.50. For details on each, all the currently announced sessions and more, head to brightonmusicconference.co.uk





Arturia's FX Collection gives you 15 plugin effects "You'll Actually Use"



Arturia have spent the past couple of years putting together a pretty comprehensive line-up of what they cheekily refer to as plugins 'You'll Actually Use'.

Now, for the sake of simplicity and value for money, they've put

them all together in a single bundle. Offering both emulations of classic hardware and all-new designs, FX Collection covers reverbs, delays, preamps, filters and compressors.

The plugins were created using what we've been told are "circuit-accurate modelling" techniques, in

order to help capture every nuance and detail.

Each plugin offers the likes of lookahead tracking, envelope followers, sidechaining and pre-post EQ for plenty of creative control, and you get presets based on the settings used by pro studio

engineers. There are in-app tutorials, too, so you can learn the plugins as you use them.

The FX Collection is available now for PC and Mac in VST/AU/AAX formats priced at \$399/399 euros. There are also crossgrade prices (starting at \$49).

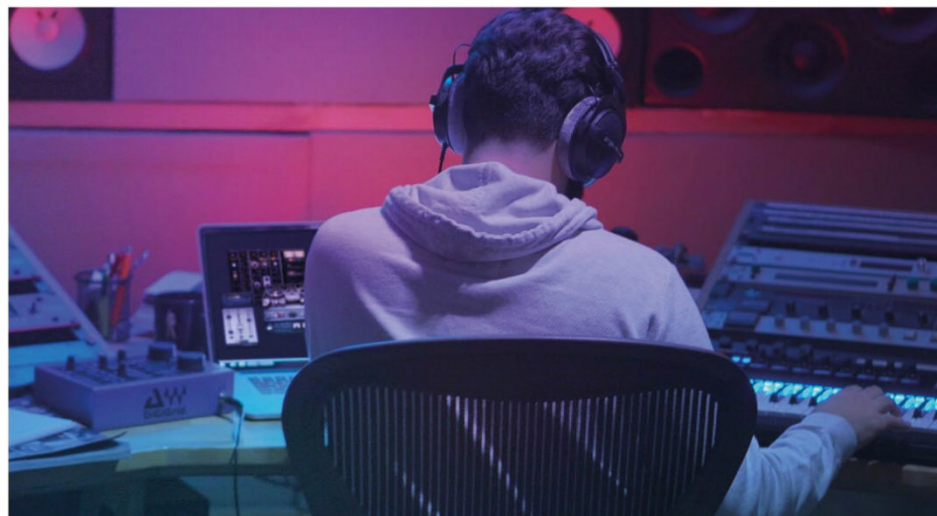
Waves' "affordable" plugin subscription plans, starting at \$6.99 a month

Waves have become the latest music software developer to hop aboard the plugin subscription train, announcing the Waves Music Maker Access platform. This enables you to choose monthly or annual subscriptions to the company's Silver, Gold and Platinum bundles, with prices starting at \$6.99 per month.

Whichever plan you choose, you can start with a free one month trial, with subscribers receiving unlimited updates and "premium customer service". You can cancel and restart at any point. The \$6.99 per month

price applies to the Silver bundle (also available for \$69.99 a year), which contains 16 plugins, while the Gold bundle gives you 42 plugins for \$9.99 per month or \$99.99 a year. If you want to max out you can go for the \$19.99 a month/\$199.99 a year Platinum bundle, which contains 57 plugins.

Those who sign up to a Gold or Platinum plan also have the option of becoming a Custom 5-Pack subscriber. For an additional \$7.99 a month or \$79.99 a year, you can choose a further five plugins from the Waves catalogue.





“The Polyend Perc is my ‘robot arm’. It brought me new live possibilities”

Niklas Paschburg

It's fair to say that Hamburg-based performer Niklas Paschburg has so far drawn maritime influence for his neo classical-strained ambient releases, from the stormy seas of 2018's *Oceanic* to the icy climes of new release *Svalbard*. It was in the latter Norwegian archipelago that the Ólafur Arnalds-influenced artist holed up with just a piano and his thoughts to compose his newest work, before relaying the whole thing to Brighton's Andy Barlow (formerly of Lamb and the producer behind hits for U2 and Willie Nelson) for recording and mixing. But is his studio environment equally tempestuous? We found out...

When did you start making music?

“I started to play the piano aged five. My grandparents had a piano at home and I started to play some keys and tried to find sounds which fit together. My parents then asked me if I wanted have piano lessons. That's how it all started. In the beginning I was mainly playing classical music but later I moved to jazz and pop.”

Tell us about your studio/setup?

“I just moved into a new studio space last week. The new studio has enough space for rehearsing my live set and even more for future gear. I try to use as much hardware as I can. I have nothing against plugins – I use them, but I'm more inspired if I have the instrument or gear in my hands. You can feel the sound in your whole body and you're free to touch the strings and create unique sounds. I would love to buy some hardware effects like delays or other modulation effects.”

What DAW (or DAWs) do you prefer to use, and why?

“For songwriting and recordings, I'm using Cubase. When I was 15 years old, I started with Cubase LE and ten years later I'm using Cubase 9. I'm so used to that software that I can't really imagine using a different DAW anymore. When I'm playing a show, I use Ableton Live in my setup. Since I tend to loop most of my instruments live, I find that Ableton comes with the easiest workflow and flexibility to play with loops.”

What one piece of gear in your studio could you not do without?

“Probably my analogue synth OB6 from Dave Smith. I fell in love with that sound from the first second. It has a huge warm sound which plays perfectly with other acoustic instruments like the piano.”

What was the latest addition to your studio collection?

“The Perc from Polyend. It's a hardware trigger which can play acoustic drums. I also call it my robot arm. It brought me new possibilities when playing live. I got really inspired when I first tried it, and immediately included it on old and also new songs in my live set.”

What's your dream bit of gear?

“My dream synth is the eight-voice from Tom Oberheim. It's a beast. There is a sound demo on YouTube where you can hear the oscillators in unison mode. That sound just blow my mind. It was built in the '70s and is very rare. And also expensive.”

When approaching a new track or project, where do you start?

“I usually start on my piano and see if some melodies or harmonies inspire me. But it depends on the day and mood – whether I feel more into acoustic or electronic instruments. Sometimes I start with the OB6 and go later to the piano. I try to have every instrument ready to record so I can quickly jump to the synth or percussion instruments.”

What are you currently working on?

“I'm working on several different projects but can't tell you about all of them. One is to rework some songs from my second album with different singers and musicians. Also my tour with my new album starts in March and I have to prepare the whole live set for that!” **FM**

MAKE ARRANGEMENTS

“When I was working with Andy Barlow, I learned that a good mix starts with the arrangement of the song. So don't layer too many instruments in the same frequency range. It will not only help mixing the track, it makes also the sound of the song way more defined.”

Low-cut kick drum

“I've always had a problem getting punch from my kick drum in the mix. A friend told me to set a very sharp low cut on a kick drum. I was surprised what big difference it

makes in the sound, because you define the range where all the power of your speaker should go.”

Forget about all my tips and everything else you have learned

“Do what feels right to you, even if it seems ‘wrong’ and you have five different compressors on one channel. Most of the time these ‘wrong’ ways are the best source to find unique sounds.”

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Bob Power
Record Producer & Mix Engineer

A Tribe Called Quest, Erykah Badu,
Citizen Cope, D'Angelo, De La Soul



The Presets Apocalypso

Modular Recordings, 2008

For Julian Hamilton and Kim Moyes, life in The Presets was bonkers. Back-to-back tours of the world supporting The Rapture, Ladytron, and Soulwax saw them hitting the stage. Life on the road was hard. There was barely enough time to send a postcard back home to their folks in Oz, let alone make a new album.

"We were working our arses off," says Julian. "We had a very clear idea of the music we wanted to make, but the life we were living meant everything was too hectic to find time to do it."

A plan was hatched – get back to Australia, and decamp to the sleepy town of Bangalow, tucked away in New South Wales.

"We set up our studio on a farm," says Kim. "It was the calm we needed. And that's when *Apocalypso* began."

This would be The Presets' second album. A monster smash hit, clocking up triple platinum sales down-under, propelled by its mix of fierce electronica, politicised lyrics, and earworm melodies.

In their idyllic Australian farmstead 'bubble' they pushed themselves, and then channelled their broadest influences. Inspirations veered from the vocal cut-up techniques of pop merchants like Stock, Aitken & Waterman, to classy French house. Then they pinged from the electro boogie of Prince, to the vocal delivery of Joy Division and PiL.

"We didn't worry too hard about whether or not things were 'cool'," says Julian. "We were just having fun and enjoying it. And if it felt good, we did it."

Their rural retreat was brief, but it set that album in motion. Life back on the road beckoned, and *Apocalypso* would be completed in any spare moment they could find.

"It was finished, literally, on tour again," says Kim. "We were putting together bits and pieces for songs in bedrooms in Berlin apartments, in between playing nightclubs over there, and then travelling over to Barcelona to play festivals."

"It was crazy, but you can hear that energy in the album we were making. It was a soundtrack to those times."

Track by track with The Presets

Kicking & Screaming

Julian Hamilton: “This was one that definitely started life on the road because we were in Los Angeles on the US leg of The Rapture tour.

“We were on stage, sound-checking, and then I remember just finding a cool sound in the [Korg] MS-20 and I just started playing this fiddly melody [starts miming it] ‘duh-do-duh-dah-duh-do-duh-dah’, and just started jamming this riff.

“Kim kinda got into it, and I think he might have started playing drums over it. We both quite liked it, and looked at each other and said, ‘We better remember that one!’. Then when we got home we went and made it into an actual song [laughs].”

Kim Moyes: “A lot of the time when you’re making music you’re just in the studio as much as you can, working. The ideas don’t just come magically, out of nowhere. But, occasionally, sometimes, they do.”

My People

Julian: “We never thought this track would be so big! [27 weeks in the ARIA Top 50, and Platinum sales].

“We were mixing it in the studio, and it wasn’t quite there. We were all settling and going, ‘Oh. It’ll do.’ Meanwhile the label were really excited about *This Boy’s In Love*, which was gonna be the next single.

“They’d got this hot LA engineer [John Fields] to mix *This Boy’s In Love*. We were getting ready to send *My People* to all the radio people, and all systems were go. Then I remember calling our manager late one night and asking if there was still time to send it to John for a ‘pop mix’. We did, and it ended up sounding great. It came out, and changed the world for us.”

A New Sky

Kim: “This one was a beat we really developed when we were on tour in Berlin. We had a few days off between festivals and we were fleshing out a lot of the ideas that came from Bangalow.

“It felt like it had a bit of attitude to it. It was a relatively simple beat



The Presets will be performing at The Drop Festival in plenty of locations across Australia and New Zealand this March and April. Worth getting the glow sticks out for, if you’re in that hemisphere. Elsewhere on the bill you’ll find further Aussies Boy & Bear, Allday, Ball Park Music, DZ Deathrays, GRAACE, and Kita Alexander. Click around thedroplive.com for more info, brah.

with a simple bassline, and a guitar sample that was cut up. At some point, when we got back and were thinking more seriously about the album, this was something we threw in the pot.

“Jules then put some lyrics on it, and there was some more back and forth, trying to flesh it out. It was one of those ones that was never really pegged as a single, but was just fun to work on. And the arrangement was intuitive and... free.”

This Boy’s In Love

Julian: “This was one of the ones we started in Bangalow, on the farm, with a [Studio Electronics] Omega 8 synth. We programmed this Giorgio Moroder-style bassline sequence, grooving along.

“We always liked this jam. We went out of our minds with the percussion and beats, though, trying to make them feel good... I don’t know if we ever did [laughs].

“I added some Joy Division-type vocal chords. It wasn’t working. Then



Julian Hamilton: “Lyrically, I’d be doing stuff on that album I’d never do today. Just throwing crazy ideas at the tracks. Seeing what fun textures and characters I could create. Although I was singing all the songs, we were always trying to think of ways to make different characters live on the album, with different vocal styles and attitudes. So, you might have this weird robotic choir at the start of *A New Sky*. Or you might have this little Ewok, chirping away, in *Kicking & Screaming*. I just threw weird styles down on tracks to see what stuck.”

I did these angelic ‘Ahhhs’ to make it sound a bit more romantic. Then I thought, ‘What if I just lose the shit, Joy Division wannabe-type stuff, and use the angelic stuff?’. I just changed the words and kept the ‘Ahhhs’, and that became the chorus.

“We might throw heaps at a track then mute a bunch of stuff until you go, ‘Oh. That really works!’ You’ve always gotta trust yourself.”

Yippiyo-Ay

Kim: “This is our Prince copy, or something, isn’t it? It’s like a funk track... or future funk. I dunno. I guess we always had that influence.

“We’d just be jamming on synths on the farm and our stuff started to feel good. At that preliminary stage you don’t really know what style you’re channelling.

“Then, once Jules had a crack at it vocally, it turned into a bit of an electro-funk jam. When I heard this one come back with the words on it, I just thought it was hilarious. It was so silly and funny, you know?

“We were having genuine laugh out loud moments, which is always good... or maybe not! [laughs].

“It was a lot of fun to make and a really good light-hearted moment on the record. And it connected with a lot of different people.”

Talk Like That

Julian: “I don’t know where those opening chords came from. I guess I was trying to come up with a ‘classic build up’, before the drop... before they were called ‘drops’ [laughs].

“I just had this interesting bassline going. Then I started to play that rising pattern underneath. Then I put these weird, kinda Baroque chords on.

“It sounds like music from The Muppets, with The Count, you know? It had a Dracula feel. It was so silly. We really went there with the ridiculousness of it.”

Kim: “This, *Anywhere* and *Eucalyptus* were the last three tracks we wrote for the record. There was a general consensus that there could be more...

energy across the album. They were all written and finished within a week. Some of these tracks are rough around the edges, but have that distilled furiousness to them. That really leaps off the page.”

Eucalyptus

Julian: “This had a faster, breakneck kind of energy to it. We were looking to fill that hole on the album.”

Kim: “I was going through all the tracks with the Omega, recording like 25 different sounds and then cutting them up in different ways, to create a funny, swirling stereo image with a hypnotic and psychedelic effect. I did that on the chorus here.

“Then we had the most basic 909 beat that we re-recorded through a bunch of distortion pedals, just to get something happening.

“It certainly evolved into a much more vicious beat after we started playing it live. It took on a whole different attitude and energy with a drum kit on it.”

Julian: “It’s a bit of a brother or sister track to *My People*. It’s another of those ‘angry young man, fuck the world’ things *[laughs]*.”

If I Know You

Julian: “This came from the early farm sessions, built around the Omega 8 – that damn Omega 8 again! *[laughs]*.”

“We were really into the music of Fred Falke and that ‘French touch’ sound. We tried to make this French house thing.

“I wrote some lyrics, then it became this big New Romantic/Human League thing, meets French house, and a big, weird synth opera *[laughs]*.”

“Kim heard it and said, ‘I don’t know if it’s working’. Deep down, I felt the same way.

“We tore it all apart, and built it into this deeper, techno thing – much more minimal. It worked really well.

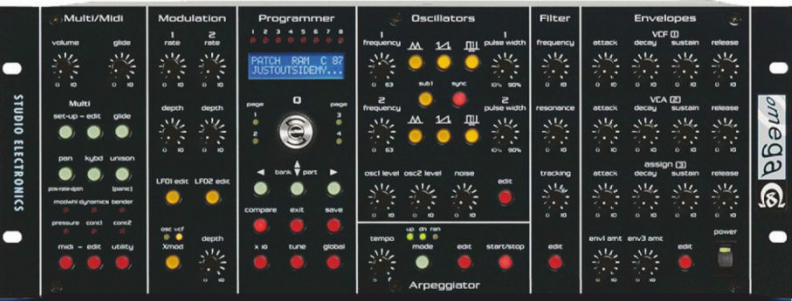
“Although the big boomy operatic vocals remained. It always felt like a miss-match. I should have re-recorded them. Anyway, that’s how it ended up. And that’s probably why it works. It’s weird. *[laughs]*.”

Together

Kim: “It’s a bit dorky, but I always loved that Stock, Aitken & Waterman ’80s pop music sound, where the vocals were all cut up and played across a keyboard.

“That was a real vibe, and it wasn’t really being done a lot back in 2008. So we did it. Did it a lot *[laughs]*. You can really hear it at the start of this track. It was really fun.

“I don’t think that we did it first, or started a trend, or anything – I’m not trying to suggest that... but it is actually everywhere now. That choppy



In the studio with The Presets

Julian: “The main sessions started on the farm in Bangalow. We set up our drumkit there, and then had an MPC-60 and an SP-1200, and Pro Tools.

“Then we ordered a Studio Electronics Omega 8 synth from America, and it arrived at the town post office. The Omega 8 was huge when it arrived. When we pulled it out of the box and plugged it in, it pretty much went on every track, too.”

Kim: “That arrived halfway through the sessions, and once we switched it on, it really changed everything we were making. We had a couple of compressors like the dbx 160SL, too, and a pair of Neve preamps.”

Julian: “Then a Korg MS-20, which is kind of like our Stratocaster *[laughs]*. That’s where we get our main sounds – on every record, it’s on most songs, through the years. So we had that up there.”

Kim: “Most of the stuff we made in Bangalow ended up on the record, as is. Then we worked on ideas on the road, and in our own studios, and spots in Sydney like BJB.”

vocal style is a big thing. It must have been in everyone’s heads at the same time *[laughs]*.

“We just thought it’d be something cool and retro in electro, you know?”

Aeons

Kim: “I remember this track always having a legit emotional feeling. I don’t think we thought too much about it. It was just making this thing into what it needed to be.

“It was made like *Eucalyptus*, where I took this basic chord progression, then turned it into something very colourful.

“Then it was a case of recording layers of synth sounds and cutting them up at different times.

“There was something in there that was reminding me of the *Blade Runner* soundtrack by Vangelis.

“Then it was just, ‘Maybe this’ll work? Maybe that’ll work?’ We probably had an hour spare in the studio to throw some stuff on it and see whether or not it felt good.

“It was never something that felt very laboured. It was just what to do with this great chord progression that we loved.”

Anywhere

Julian: “This came together at the end, when we were mixing. We had the 303 going.”

Kim: “I think it was the last thing that we did. It’s pretty poetic that it’s the last track on the album.

“I remember it was Christmas Eve, 2007, and we were recording passes of the Omega at BJB *[Studios, Sydney]*, and passes of the 303, and Jules had these beautiful layered melodies for the vocals. We were in the studio feeling that it was done.”

Julian: “There’s a lyric, ‘Put on that dress you like/The one with birds on it’. That was a dress my girlfriend owned, and she tried to put it in a garage sale the other day. I said, ‘You can’t sell that! It’s in a song!’ I’ve stuck it in the attic now *[laughs]*.”

Kim: “Dude! We should turn it into a merch item! *[laughs]* Ten dollars!” **FM**

WANT TO KNOW MORE?

For all the breaking news on Australia’s biggest ever dance act you could want, visit: thepresets.com



Various French Touch Anthology

That filtered disco house sound can be heard in Presets tracks like *If I Know You*. Check this primer for the OG flavour.

ADD THESE TO YOUR PLAYLIST:
Alan Braxe & Fred Falke – Intro, Cheek – Venus (Sunshine People) (DJ Gregory Radio Edit), Bob Sinclar – I Feel For You (Radio Edit)



Mel & Kim F.L.M.

The vocal sample stuttering techniques on this album provided a respectable influence on the *Apocalypso* track, *Together*.

Everybody: “Tay, tay, tay, tay, t-t-t-tay-tay, tay, tay!”
ADD THESE TO YOUR PLAYLIST:
Respectable, Showing Out, F.L.M.



The Presets Beams

The gritty 2005 debut that set out the stall for the boys after some strong singles and EPs. Filthy electro punk all the way.

ADD THESE TO YOUR PLAYLIST:
Girl (You Chew My Mind Up), I Go Hard, I Go Home, Steamworks



Vangelis Blade Runner OST

This dystopian gumshoe saga’s ambient synth score inspired so many electronic producers. Just check Julian and Kim’s *Aeons* for proof.

ADD THESE TO YOUR PLAYLIST:
Main Titles, Rachel’s Song, Tears In Rain



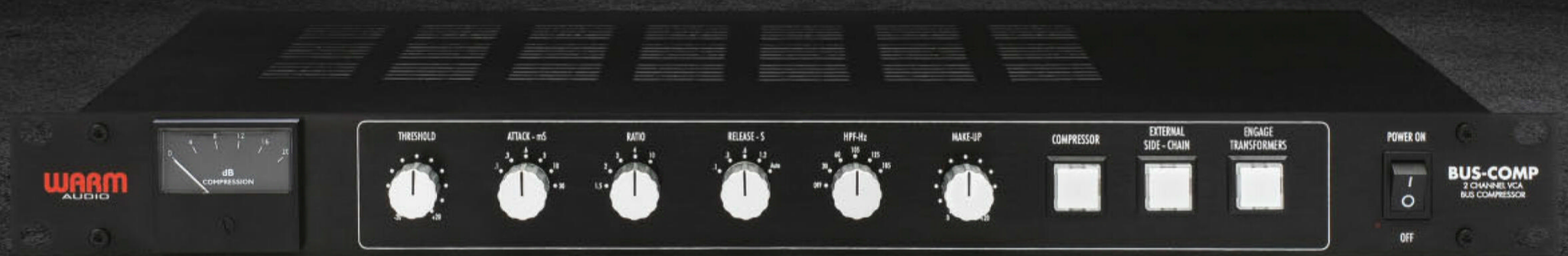
Golden Features x The Presets Raka

The Presets closed out the last year with this huge new four-tracker. Proof that they still got that fire. More of this soon, please!

ADD THESE TO YOUR PLAYLIST:
Raka, Paradise, The End

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Mentrix My Enemy, My Love

House of Strength

My Enemy, My Love is the wonderfully distinctive and powerful debut album from Iranian born, Berlin-based multi-instrumentalist, composer and Sufi-inspired singer Samar Rad, aka Mentrix. A heady, intoxicating clash of eastern and western cultures, the record explores Rad's experiences of growing up in Iran before being forced to flee war to France and then moving back home as a teenager. Reflecting her relationship with the contrasting worlds that she has lived in and been pulled towards and away from, Rad fuses elements of traditional music with distinctly modern aesthetics. Drawing on traditional Persian poetry, but dealing with issues around womanhood and resilience, Rad uses traditional Iranian instruments including a tombak (goblet drum), kamancheh (bowed string instrument), ney (flute) and a daf (large frame drum.) These sounds slam wildly against potent drum machines, deep bass and modern sensibilities. Her lyrical vocals skip across highly rhythmical Sufi instruments, through manipulated sounds and ethereal atmospheres to create an ever-evolving soundscape that feels shrouded in mystery. Stretched-out compositions become almost trance-like, others seethe with ferocity, defiance and attitude and some soar with intensity and passion. Power surges throughout the entire record as Rad signals a show of strength for women around the world. A highly ambitious project, executed with confidence and authenticity, *My Enemy, My Love* is a mesmerising journey across continents and centuries. It marks the arrival of a highly distinctive, bold and exciting new talent who has a lot to say. **Tom Jones**

ADD THESE TO YOUR PLAYLIST:

Nature, Loyalty, If

9/10

ALBUM OF THE MONTH



Real Estate The Main Thing

Domino Records

Brooklyn-based indie-rockers Real Estate are back with their first album since 2017's *In Mind*. Despite the high-profile changes in personnel, their trademark sound has stayed very much the same. Infectious indie-rock with sanguine pop sensibilities are once more the order of the day for a band who sound as comfortable and serene as ever. Breezy guitar lines

sketch over jangling melodies, shimmering strings, fluid basslines and layers of cosy fuzz. Drenched in warmth and nostalgic haze, the album is inviting and full of positivity. Intelligent, whimsical lyrics fit the dream-like soundscape to perfection. Every Real Estate album is like being wrapped up in light, fluffy clouds filled with precious memories and taken on a long, meandering journey and *The Main*

Thing is no different. Ten years into their journey as a band, Real Estate continue to retain a boyish charm whilst also having that maturity and clarity of vision that makes them so appealing. *The Main Thing* is nothing new, but it is exactly what they do best. Keep it coming. **Tom Jones**

ADD THESE TO YOUR PLAYLIST:

Friday, Paper Cup,

Shallow Sun

8/10



Little Dragon New Me, Same Us

Ninja Tune

Almost three years on from 2017's *Season High*, Swedish left-of-centre pop outfit, Little Dragon return to basics with their impressive new album, *New Me, Same Us*. The four-piece have stripped things back and tightened up the collaborative process between themselves. Drums, bass, keyboards, harp, guitar and voice do all the work and the result is a bold and confident record that has bags of

personality and spirit. *New Me, Same Us* finds a band who sound energised and who are enjoying themselves. Warm synths, funky drums and deep, live-sounding bass reverberate throughout the entire album. There is an authenticity and intimacy to the whole record. Enigmatic vocalist Yukimi Nagano brings a reflective mood as her distinctive vocals cover transitions, longing and saying goodbyes. Brimming

with positivity and a forward-looking love of live, the record traverses pop, hip-hop, funk, house, breakbeat, garage and R&B. Seamlessly blending together a mishmash of styles, genres, tempos and moods, the Gothenburg natives defy categorisation whilst sounding exactly like Little Dragon.

Tom Jones

ADD THESE TO YOUR PLAYLIST:

Hold On, New Fiction, Water

8/10

RECOMMENDED



Kazuya Nagaya Dream Interpretation

Sci+Tec

Dream Interpretation is the beautiful and highly atmospheric new album from contemporary Japanese percussionist and ambient producer, Kazuya Nagaya. Before he was a musician, Nagaya was a writer who focused on elements of Japanese society that were being lost to modern life. This sentiment spilled over into the music that he creates, with him manipulating sacred sounds of bronze bells, gongs and singing bowls that draw on Buddhist folklores and Zen philosophy. *Dream Interpretation* is no different, unfurling a slowed down, deep and meditative journey of inner peace. The record is highly atmospheric, calming and deeply intimate. Stretched-out sounds search for eternity as gentle melodies and light, jangling tones drift over the top, creating a timeless, weightless feel that almost detaches your consciousness from your body completely. In Zen Buddhism, bells are believed to wash away the cares of the mortal world, as the listener follows the resonance of the bell into the silence and stillness within all beings, and here Nagaya is at the helm of this incredible journey into the soul. Combining traditional sounds and structures with modern synthesisers, keyboards and guitars, Nagaya bridges the ancient and the contemporary. A masterclass of patience, subtlety and simplicity, *Dream Interpretation* is a stunning and emotionally affecting record that lingers on long after it has finished playing. **Tom Jones**

ADD THESE TO YOUR PLAYLIST:

Mother Wading in the River, Tibetan Philosopher, The Book of Sunken Memory

9/10

THE SECRETS OF ANALOGUE WARMTH

Vintage desks and outboard are celebrated for their ability to ‘glue’ a mix and impart ‘warmth’. But what do these vague terms really mean, and how can we recreate the effect?



A good mix is so much more than the sum of its parts. And yet sometimes, no matter how carefully sourced our sounds, we just can't get them to stick together in a way that is musically pleasing. 'Mix glue' is a term you'll hear frequently and it's self-explanatory; a 'glued' mix is one which holds together beautifully, where every part works in perfect harmony with every other.

Exactly how this is achieved is not immediately obvious, so through the next few pages, we're going to explore some of the ways in which we can bring that much-coveted glue to our mixes. In particular, we're going to focus on an understanding

of why dynamics and space (compression and reverb) should be particular considerations. But we're also going to go further to explore another commonly used phrase – mix warmth – and discover how we can bring this to our mixes too. For all of its practical limitations, tape-based recording rarely failed to add its own sonic personality and character to tracks, whereas we have to work a little harder to bring these sought-after qualities to our digital mixes. So in the spirit of mix enhancement and hot on the heels of mix warmth, let's go exploring.

What is mix glue?

For most people interested in sound, the discovery that music is recorded

'Mix glue' is all about creating the illusion that your track's individual elements were recorded as one



one instrument at a time is revelatory. If you're reading this, you'll probably have discovered this a long time ago and so the impact of realising that the drums and the guitars and the bass and the vocals and the synths are all tracked one part at a time may have diluted somewhat. But in case your memory is hazy, this is a mind-expanding moment for most young producers/composers/artists and particularly those who are multi-instrumentalists, who suddenly realise it might be possible to be 'the whole band', not just one instrumentalist within it.

Of course, the reason that this discovery is made at all is because, in most everyday circumstances where sound is encountered, it isn't

performed one part at a time. Go and see a symphony orchestra and you won't find the first part of the concert is 'just the strings' and that the second is 'just the brass'; everyone onstage plays together. Similarly, go and see your favourite band live and it's the sound and the chemistry of those musicians joining forces which is so electric. So why don't we do this in the studio? Why do we split everyone up and record one part at a time?

Well, for the simple reason that it provides us with choice later on in the process. If you record the vocals at the same time as the piano, for instance, if you suddenly want to change the tone or the reverb or the dynamics of the vocal, those

decisions will have implications for the piano captured simultaneously. Separate them and you have all the flexibility you need. This is even more true if you've recorded in a 'dry', acoustically-controlled environment, where your choices won't be compromised by a sub-optimal recording space when it comes to the mix stage.

So there you are with beautifully captured audio, one track at a time, with – in all probability – a slight sterility pervading your project. It's no surprise to discover that your mix lacks cohesion, togetherness or what we often refer to as 'glue'. What is the stuff that sticks a mix together and makes it sound 'as one', even when it's been constructed from

layered individual performances? What are the parameters at our disposal which allow us to give the impression that each performance was carried out to be part of a 'whole', rather than to stick out like a sore thumb on its own?

Through the following walk-throughs and examples, we're going to find out that there are a number of ways that you can glue your mix together, to bring a cohesion which will significantly improve the quality of the tracks you make. Once upon a time, you understandably assumed that the records you heard were made by a group of musicians in the same room at the same time. Why? Because of the techniques we're about to explore.



All about harmonics

What is it that sounds so sonically rounded about listening to a drum kit? The volume of a live drummer is certainly an impressive thing. But there's something 'complete' about the sonics of hearing the assorted pieces of a drum kit which isn't quite true of a solo lead guitar or bass, either of which could be just as loud. Interestingly, the moment a drummer limits herself to only playing the kick, or a kick in combination with a hi-hat pattern, a temporary 'incompleteness' occurs, which is only addressed when she builds back up to a full pattern once more. The same thing is true of going to hear

an orchestra – the delicate start on horns or strings giving way to everyone playing together can be musically transformative. In both instances, the 'sonic completeness' is offered by the combination and number of harmonics we're exposed to as we listen.

The science bit

Take the drum kit as an example; the kick drum provides low and low mid-range frequencies, the snare offers solid mid-range and the hi-hat and cymbals provide sizzling treble. Whilst it's possible to overload a mix in a particular frequency area so

that it lacks balance and focus, it's also true that it's not quite possible for a mix to feel sufficiently glued together without each of these frequency bands working well in combination. To understand this, we need to break down how sound works, so we can use its science to help when it comes to issues surrounding 'mix glue'.

Whenever an acoustic sound plays, alongside the 'triggered' note's core frequency (called the 'fundamental'), a series of harmonics or overtones sound as well. These are related, mathematically, to the fundamental frequency, so almost

always the loudest harmonic you'll hear is the first one, which is a doubling of the fundamental frequency. Let's suppose your fundamental frequency is at 100Hz – its first harmonic will be at 200Hz, which is an octave above the fundamental. Ever wondered why the notes in a musical scale cycle back round to the same letters? It's because all of the C notes are related to each other, as are all of the Ds and all of the Es etc. Every time we jump an octave, the frequency doubles. So, in other words, you'll hear an octave at the first harmonic (200Hz in our example), at 400Hz (the following octave), at 800Hz (the next one), 1.6kHz and so on. However, 300Hz is also a multiplication of our fundamental frequency, but it clearly can't be at an octave – it must be somewhere between the first harmonic (200Hz) and the third (400Hz). Indeed it is – exactly halfway between – which makes it an octave and six semitones above the fundamental frequency.

These harmonics are the very essence of sound. In fact, the combinations of harmonics in every sound entirely define their character. If you were able to take any two acoustic sounds playing the same pitch, leaving only the fundamental and strip them completely of all of their harmonics, they'd sound exactly the same. What makes a violin different from a trumpet or one synth oscillator waveform different from another is the arrangement of harmonics on top of the fundamental. This matters hugely when you're searching for warmth and glue in your mixes.

Adding harmonics

Warmth is often a term attributed to analogue equipment and, in particular, to the golden age of tape recording where it was possible to 'saturate' a tape with volume so that it started to gently and musically 'distort'. Guess what happens, in mathematical terms, when tape does that? That's right, harmonics are added, which have the potential to enrich a mix considerably. And if those harmonics are added carefully and from every sound in the mix, perhaps because you're working with a tape saturation plugin at the output stage, 'glue' is provided since every sound is working together to generate those new harmonics.

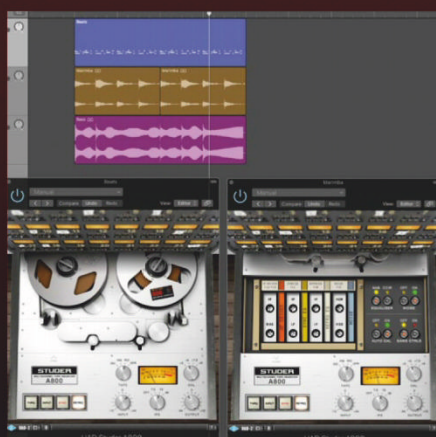
TAPE SATURATION ACROSS THE MIX

In a mix, how do instrument groups compare with and without tape emulation plug-ins? Let's find out...

The sound of tape is about a whole lot more than hiss, wow, flutter and hum. The reason why tape emulation effects are popular, that tape-looping is back in vogue and that a whole ecosystem around integrating all things tape into the 21st century studio is flourishing, is mostly due to what happens when you increase the input level to tape itself. Tape saturation is the term given to input levels being gently driven into semi-distortion. Whereas digital distortion is, quite literally, an input level step from one side (safe) to the other side (overload), tape saturation is a more blurred line, where gentle overload can yield creamy, warm, fat, enriched sounds, courtesy of a larger harmonic footprint. Here we're adding tape saturation to three instrument groups.



➤ We start with a basic track featuring three elements. The first is a programmed drum loop from Battery 4's 'Mad Flavor' kit. The other two are Apple Loops – a Marimba and a Bassline. We've added a little 'reversing' to the Marimba using SoundToys' Crystallizer plugin and there's some compression on the beats.



➤ We insert the UAD Studer A800 plugin on each channel. We switch off Hum and Hiss and select the '900' tape option at 15ips. We boost Input volume to provide saturation but turn down the Output level to match the dry, unprocessed signal. Here is each sound individually, dry and then processed.



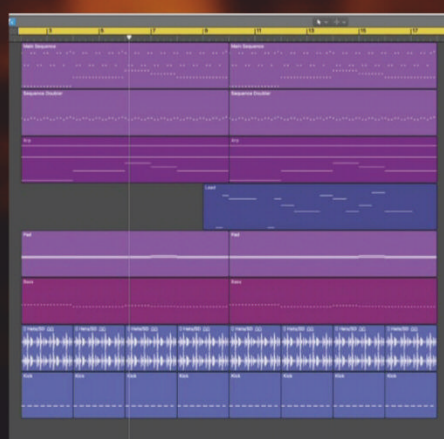
➤ You can hear how the increased saturation equates to a substantial boost in harmonics, meaning that each sound is richer and lushier. The beats benefit from being glued together by a common processor, whilst the bass is perhaps most altered, with lots of new overtones. Here's the full mix.

Reverb: your mix glue friend

The sounds we use in our tracks come from all over the place. No wonder they'll need a shared acoustic 'space' to feel glued

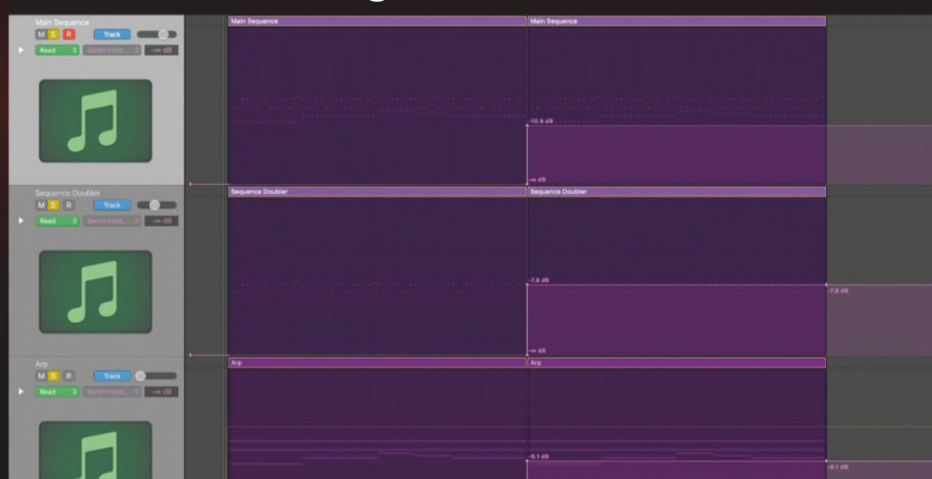
01 >

We've written a shamelessly '80s influenced nostalgic track for a number of synths, including a pad, arps, sequences, an 1/8th-note bassline and a lead synth which enters in the second half. Alongside this we've got a dusty kick and a drum loop providing hats and snare.



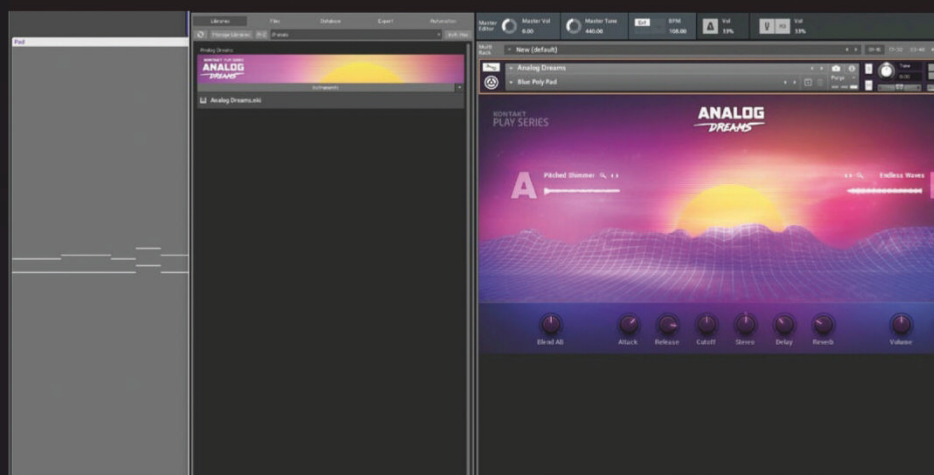
04 >

We send the other two 'synth motor' parts to the same reverb and set levels for each. The 'Main Sequence' features a left-hand part which is deeper. This sounds too woolly with too much reverb, so we add a gentler amount to this sound. By contrast the 'Sequence Doubler', which is brighter, can take more reverb level.



02 >

The only sound really glueing the mix together at the moment is the pad. Its long release time smudges the edges of each chord move, giving the illusion of reverb. Without it, you can hear that everything sounds much more 'stark' and less knitted together.



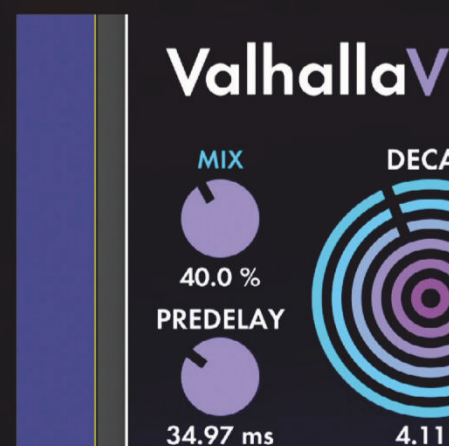
03 >

We solo the arp part and create an auxiliary reverb channel, which features Valhalla's VintageVerb plugin. We select the 1980s Concert Hall algorithm. We use the EQ on its right-hand side to set frequency range between 360Hz and 8kHz, and reduce the BassMult amount in the damping section. The reverb is introduced second time around.



05 >

With the lead synth, we want to set the whole part back in the mix, rather than add a reverb channel to the dry sound. So we copy the auxiliary reverb settings to an inserted instance of the VintageVerb Reverb on the lead channel. We set a wet mix of 40% and tweak EQ to taste.



06

It's a common misconception that you can't add reverb to bass sounds. A careful, subtle treatment can help 'mix glue'. We add VintageVerb as a bass insert effect, reduce reverb time considerably and set wet mix at just 12%. Here, you can hear the bass going into the full 'wet' mix. Compare this to step 1.



Insert or auxiliary reverb

Examples of both insert and auxiliary reverb treatments have been used in our walk-throughs but it's worth shining a more focused light on this topic; it's a crucial one in any discussion about glueing mixes together. We all know that there are two ways of adding reverberation to a sound within your mix. First, you can add your effect to the insert channel of a sound and adjust its parameters. The advantage here is a dedicated, bespoke spatial treatment entirely contoured to the 'needs' of that one sound. Alternatively, you can set up a reverb effect on an auxiliary track. The advantage of this approach is that many sounds can 'feed into' that same space, creating a single, shared acoustic from which many sounds can benefit.

So which is the better approach, if you're trying to 'glue' your mix together? There is no one-size-fits-all answer to that question, as each mix is different, as are the acoustic properties of each sound you work with. However, it is worth considering this; if you go and hear a solo violinist playing in a concert hall, the sound which reaches your ears isn't a dry sound plus an entirely reverberant 'second' signal. The space is interacting with the source sound from the moment the room begins to vibrate in sympathy with the sound bouncing from its floor, walls and ceiling. In this

context, 'live sound' is always a balance between the instruments playing and the space in which they're played. Because adding an insert reverb onto a channel when a mix has already started often has implications for the volume level of that part (it will almost always get quieter), it's usually more time-efficient to set up an auxiliary and add effects that way. But consider whether you want to 'set a sound back' into a reverberant space or create a space 'on top' of a dry sound. The answer to that – in the context of your mix – should help you decide whether to use insert or auxiliary effects. We've devoted one of our videos to this topic, so you can compare and contrast the two approaches.

The sonic difference between adding effects via insert slots, or dedicated auxiliary channels can be significant





Mind Flux is a London-based sound design and production studio that aims to bring the best tools for underground house and techno production to consumers at affordable prices. The Mind Flux production team is composed of a group of sound designers, producers and remixers who have released music through some of the biggest labels in underground house and techno.

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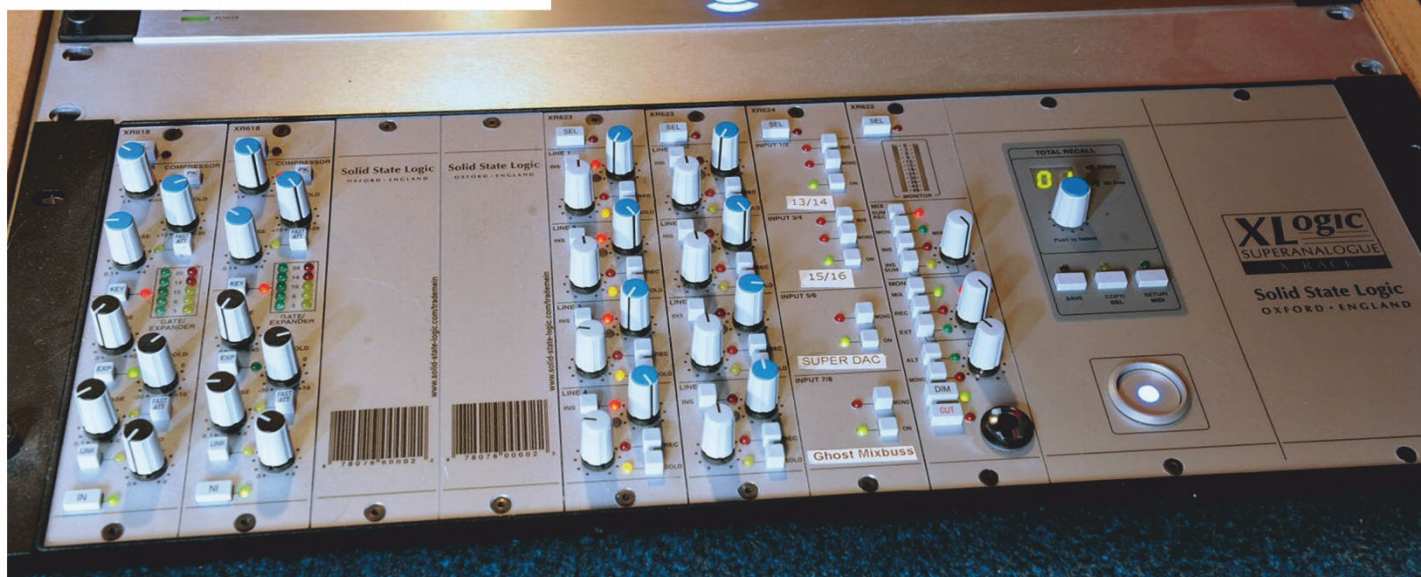
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Does bus compression provide mix glue?

One of the most commonly asked questions by producers learning their trade is 'should I put a compressor across the output mix?'. First, let's find out what bus compression is... The mix bus is another name for the final output channel through which all individual parts of your mix pass. Any processing here affects the whole mix, rather than a single channel or a group of specific instruments. If you place a compressor on an insert across the output, that dynamics

controller will respond to every bit of signal and every frequency band. So, if a section of your track features an arp and a kick drum playing in isolation, the compressor's settings will respond to both sounds. If the kick is loud and the arp is quiet, the compressor will 'duck' every time the kick plays, which will produce a 'pumping' effect on the arp. Now imagine you're compressing a mix made up from ten, 20 or even a 100 elements and you'll see how

complex the subject of mix bus compression can become. Which is why there's no one set answer to the question above. Mix bus compression can help glue a mix together. But the wrong settings can do more damage to mix cohesion than working without a compressor. As always, use your ears. Start with gentle settings – high threshold, very low ratio and switch off output gain compensation – and keep listening carefully as you start to work the compressor harder.

DOs & DON'Ts

> DON'T: Assume it will be possible to 'glue' a sub-optimal mix together at the mastering stage. It's a common misconception that a loudness maximizer slapped across the output bus can atone for a poor mix. Don't be lazy and allow yourself to believe this is true. Make your mix great. And then, afterwards, think about mastering.

> DO: Think carefully about reverb lengths. Reverb is a great tool for glueing mixes, but it's also easy to fill a mix with unnecessary waft. Sometimes we just need an initial short 'cloud' of space around a sound, rather than the four seconds of decay afterwards.

> DON'T: Overload your mix with overblown saturation and distortion. In one walk-through, we've added a treatment to nearly every sound in our mix. But this works because our track is minimal, uses sounds with small harmonic footprints and because we've been careful with mix levels. Don't bloat your mix unnecessarily.

DRUM GLUE VIA PARALLEL COMPRESSION

It's not just a shared sense of 'space' which glues sounds in your mix together. A shared dynamic controller can work wonders on drums...

Parallel compression is a term used to describe a dynamics processor which works in addition to a dry signal, rather than replacing one. Just as setting up an auxiliary reverb channel provides you with a 'dry' signal (the original source sound) and a 'wet' signal (the auxiliary reverb), so a parallel compressor provides a dynamically-processed, second channel of sound. If you're working with drum samples mined from different sources, there's a good chance they'll need some work if they're going to sound as though they belong together. Adding a shared reverb can be one way to do that, but parallel compression can be very effective too, as it gets the source sounds 'playing off against one another' dynamically.



> Each of our three drum parts comes from Battery 4, but the kick, snare and hats are all from different kits and there's little to join them together, apart from volume balance. These parts are joined by a synth stab and a square wave bassline. Both synth parts feature a little 1/8-note delay.



> We set up FabFilter's Pro-C 2 on an auxiliary bus and send the kick, snare and hats channels to it. We set a low threshold and high ratio to compress the sound hard and tweak attack and release times to taste. In the clip, you can hear the 'dry' drums for four bars, followed by the parallel compressed drums.



> In this clip, you can hear the parallel compression in the second clip, after the 'dry' version first. The drums are louder now but as they're interacting with each other dynamically, they're glued together much more, giving the mix a fuller, more rounded quality.

Let's all ride the tube



If you seek warmth from the outset of the creative process, rather than looking to add it later, you'll no doubt be tempted by any technology which promises the sound of classic analogue warmth, particularly when accompanied by vacuum tubes. The Korg Volca Nubass is a case in point – a synth designed to produce the startling, acidic basslines of yesteryear, courtesy of a vacuum tube. Again, the reason for this warmth comes from the harmonic combinations produced by tube amplifiers – when pushed hard, there's a musicality from tube distortion which is seductive. Those of us who work in all-digital domains have to seek out ways to bring this quality to our mixes retrospectively but tubes have long been present in microphones, preamps and guitar amps, which is why in non-electronic forms of music, the warmth of tubes often makes its presence felt long before the mix stage.

THE RULES OF PAN

➤ No discussion about space, glue and an overall sense of satisfaction in a balanced mix is complete without a discussion about pan. The ability to place sounds in a mix is often overlooked as pan changes on headphones often sound so dramatic. However, pairing 'similar' sounds and panning them in partnership can often help the overall mix picture. It pays to understand the different pan options available too; whereas the 'standard' pan dial will bias a sound to the left or right, stereo pan will take the whole of a stereo sound and allow you to narrow that stereo image around two points. Experiment to hear what works best.

EXTREME DISTORTION WITHOUT TOTAL OVERLOAD

➤ We all know that distortion and saturation effects can become overwhelming but we also know that if we back drive or input levels down to ensure this doesn't happen, we can lose the essence of what is making the unwieldy sound so good. Familiarise yourself with your plugin's mix dial/slider. This sets the balance between the dry original sound and the wet, treated sound. Sometimes, a wet balance of 10% (or less!) is enough. If your plugin doesn't feature this option, put your distortion treatment on a parallel auxiliary bus and use its volume fader to tease in a little mayhem under your untouched original sound.

THE 'OTHER' SIDECCHAIN FILTER TECHNIQUE

➤ As we've explained, a compressor inserted across the output bus responds to every sound in the mix. If your track is bass-heavy, this can have an adverse effect, producing an effect which reduces power from elsewhere in the frequency spectrum. If the biggest volume 'spike' in your track comes from the kick or bass, the compressor will duck and every other frequency band could feel the cost. If this is problematic, engage the compressor's sidechain filter. This acts as a high-pass filter (or a low shelf), reducing the level at which the bottom end is analysed, so it plays a less significant role in the bus compression process.

LATE MIX GLUE CONSIDERATIONS

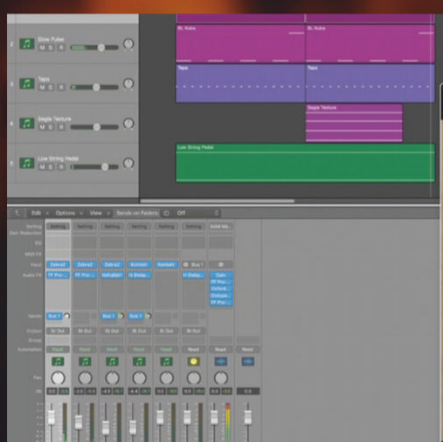
➤ If your mix is nearly completed but just needs that one extra sound, be sure to give this new element the same care and 'mix glue' attention as you've given to the older elements in your mix. It can be easy to recognise that a particular section needs an extra lifter, riser, pad or even shaker to make it sound complete, yet merely finding that part and dumping it atop your mix is unlikely to sound great. By this stage, your mix will have careful volume balances, a nuanced sense of space and a pulse, meter and rhythmic architecture, all of which this new part will benefit from 'tracking'. See more in one of this feature's videos.

Distortion and saturation in the mix

Add glue and power to a mix with the 'increased harmonic footprint' given by saturation and distortion

01 >

We start with a tense, underscore track made from five elements. The first is a modified bass sequence from Zebra 2. A second Zebra sequence provides slow, pulsing movement, whilst a third provides a pitched, background tap. We're also using two sounds from Spitfire Audio's Albion Neo – a low pedal string part and a Segla synth texture.



02 >

We start with the bass sequence. We want some overtones to glue this sound to the rest of the mix. We add SoundToys' Decapitator, roll out low end and set the tone balance a little towards 'Bright', before setting drive to taste. The mix dial is automated to introduce a balance between the dry and wet signals after four bars.



03 >

For the slow pulse, we create a parallel distortion treatment by adding FXpansion's Maul to an auxiliary bus. We find a Dirty Bass Distortion preset which works well, but tweak the low band to avoid overloading the bottom end. We automate the auxiliary return level so the volume of the distortion musically follows the track.



04 >

To the pitched taps, we add SoundToys' Devil-Loc Audio Level Destroyer plugin. We dial in a lot of Crush and a little Crunch and automate the mix dial so that the amount varies throughout. This gives the taps a 'screaming' quality which helps give the track edge and creates more enriching overtones too.



05 >

Low strings always respond well to saturation and, with extreme settings, can almost be reimaged as new instruments. We add an extreme Decapitator setting, with huge amounts of drive, before using mix dial automation to ride the amount of this throughout. At times, we hear a sound more like a distorted guitar.



06

The synth 'cloud' which appears in the second half is getting lost. We want it to 'bloom' out of the low string part, so we find and modify a preset called Tigress from iZotope's Trash 2 plugin. This provides fizzy, high-end distortion, to which we add delay. The whole mix is so much thicker now.





Has 'mix glue' always been a sticky issue?

Have mixes always required 'glueing together'? Has it always been the case that the sounds in a mix have been so 'foreign' to one another that they've required such significant intervention? The short answer to both questions is 'no'. Here's a slightly longer explanation...

Suppose you're lucky enough to own a classic console made by SSL, or Neve, or API. Each component of every channel of those consoles has been individually designed or sourced by the manufacturers of those desks and is consistent from one channel to the next. So, those desks are coveted because they have 'a sound'; rather than offering a clean, slightly sterile audio experience, each console is bold enough to imprint its highly desirable audio qualities into your mix. If the gain, tone, dynamics and filtering options on a console offer a homogenous sound from one channel to the next, any mix passed through it will sound more 'glued' than one summed inside your audio interface, where a different combination of instruments and plugins adorns every channel of your mix.

If recording sounds (rather than working with software plugin instruments) is a significant part of your workflow, you'll know that some of this logic can be applied at the tracking stage too. The same microphone used on every sound source might sound like an extreme way to work, but the result is that there will be a consistency from one sound to the next, helping knit your mix together. Whilst most engineers don't adopt a 'one microphone for everything' approach, it is certainly true that there'll be a consistency in

their choices and in the preamps they use to make those recordings, again ensuring that individual tracks or larger bodies of work have a sonic consistency.

Issues of cost, physical space and convenience have all rendered the mixing console an irrelevance for the vast majority of us but it is definitely worth keeping the advantages of working with one part of your mental workflow. One simple way to try this is to use the same EQ and compression plugins on every

channel of your mix. Different settings should be used from one sound to the next, of course, but see whether the consistency that comes from working this way appeals to you. Ideally, put a 'flat' EQ and a 1:1 ratio compressor (without make-up gain) on sounds you don't want to adjust as well; passing the sound of a channel through plugins can make a difference to their sonic quality even when they're not doing anything significant. If your computer's CPU is limited, you could opt to render

stems of your project, tackling the mixing stage on six to ten discrete audio tracks, each one containing a specific instrument group.

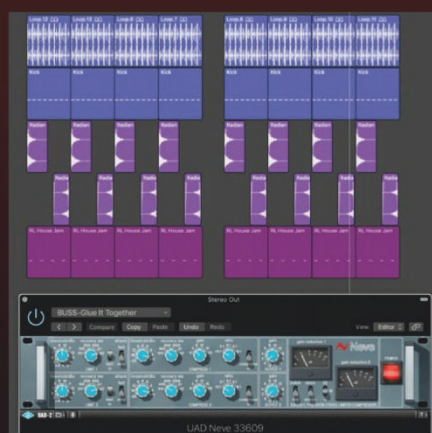
As we've seen in the walk-throughs, limiting yourself to one reverb plugin can also help. Again, long before the days of multi-instance plugin convolution reverbs, only medium-to-large facility studios could afford multiple reverb units, so setting up one hardware unit on an auxiliary bus which could be accessed from several sound sources was commonplace. These days, using one or two reverbs across a mix will certainly help it sound more 'together' or, if you prefer working with reverbs on inserts, sticking with one plugin on each sound of your mix, rather than instantiating different types from one channel to the next, may well help too.

Of course, such a draconian approach – working with the same EQs, compressors and reverbs – isn't mandatory. But by doing this on a couple of tracks, you'll start to notice some nuances which will definitely make your tracks feel consistent. Take what you hear and continue to apply these sonic benefits, even if you spread the net to incorporate more plugins moving forwards. **FM**

STEREO BUS COMPRESSOR SHOOTOUT

A dedicated stereo bus compressor can go a long way towards glueing your mix together. Let's put three of the best up against one another

In the following clips, we're setting three UAD stereo bus compressor emulations head-to-head. Bus compressors sit across the output channel of a mix, so every sound passes through them before reaching your speakers. As every sound contributes to the compressor's dynamic behaviour, the result sounds more cohesive than an uncompressed signal. That said, not all compressors are alike and we've deliberately picked three with glowing reputations in the area of bus compression. Crucially, we're not adding anything else to the output channel – no EQ, no limiting, nothing. Also, we've matched levels as closely as possible. The volume of the dry, uncompressed signal is matched to the three compressed examples. This means you can pick over the subtle differences between each compressor.



In this first clip, you'll hear the original, unprocessed track for eight bars, then a bar's gap and then the UAD Neve 33609 compressor is engaged across the output. We've bypassed the limiter section and we're using low ratio and a 400ms release time. Threshold is set to produce roughly 4dB of gain reduction.



In this second clip, we're substituting the Neve 33609 for UAD's SSL G Bus Compressor. Listen carefully and closely to the difference. The G Bus Compressor is famed in mixing circles for its capacity to glue a mix together. Is that what you hear when you listen to this clip?



It's often said that the Manley Variable Mu gives your mix a warm hug. Here we've bypassed the other compressors in favour of UAD's emulation of this classic device. We're not hitting the compressor hard, and 'Recovery' time (Manley-speak for release) is set to respond quickly. Which of the three do you like best?

MUSIC TRUMP(ET)'S WAR

Once upon a time, there was a man with a trumpet. And when he was a soldier in the US Army landing on the beaches of Normandy, he kept it by his side. Once, when he was standing guard at night, his captain told him: "Don't play tonight, there's a sharpshooter out there." But our

man thought: "That guy out there is just as scared and lonely as me. I'll play a piece for him." The next day, a POW was brought into the camp, and he asked: "Who is the trumpeter that played 'Lili Marleen' last night? When I heard that song, the war was over for me - I just

couldn't use my gun any more." The man with the trumpet was called Jack Leroy Tueller. And though it may sound like a fairy tale, this is a true story. A story only music can write.

**THE POWER
OF MUSIC!**

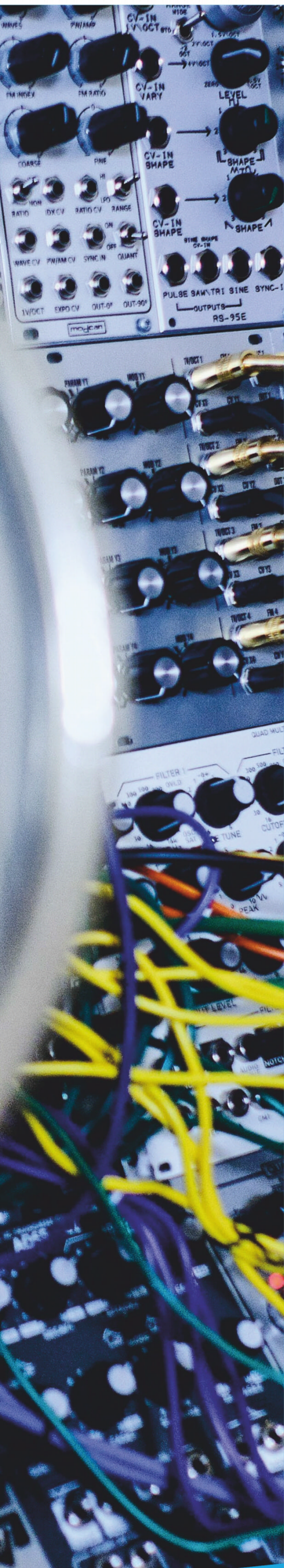




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MUSIC IS OUR PASSION

Caribou

Dan Snaith returns with *Suddenly*, the first Caribou album in five years. **Si Truss** meets him in his North London studio to talk bespoke synths, his resistance to gear fetishism and the importance of combining home life and music



The phrase ‘home studio’ can sometimes sound a little derogatory, implying a certain amateurishness about the space in which a musician creates their music. For Canadian-born, London-based musician Dan Snaith, however, the ability to

place his music-making at the heart of his home and family life is a core part of his creative output.

Snaith first discovered his love of production while growing up in a small town outside Toronto, but it was after settling in the UK in the early 2000s that his musical output really took shape. Over the years, the city’s electronic music culture has slowly become an integral part of the Caribou sound. While early releases – first under the name Manitoba, then as Caribou – blended electronic sampling with influences from progressive and psychedelic rock, it was breakthrough record *Swim* in 2010 that saw Snaith nail his own distinctive sound, underpinning those ‘band’ elements with a throbbing club pulse. In recent years, Snaith has delved further still into the world of dance music with extended DJ sets and a second, club-focused alias Daphni – resulting in two full length albums and an excellent FabricLive release.

In 2020, he returns with *Suddenly*, his first Caribou album since 2014’s *Our Love*. It’s a record that combines a myriad of influences, blending modular synths with soul loops, shredding guitar parts and pop radio vocal edits. As with previous albums, the sound of *Suddenly* is deeply influenced by Snaith’s circle of family and friends, with his wife acting as a constant sounding-board and the likes of Four Tet, Floating Points and James Holden providing gear loans, inspiration and arrangement advice. We met up with Snaith in his North London home – complete with basement studio – to find out how it came together.

In terms of its production, how did *Suddenly* differ from previous Caribou albums?

“I guess on a macroscopic level I always have the same process which is, I’m down there [in the studio] writing every day. I really enjoy the first step, which is like generating an idea from nothing. I’ll make two or three 30-second long loops and they just accumulate – every day I make a couple of ideas and then they pile up, and I kind of sieve through them to find the ones that turn into tracks. On that level it’s getting worse and worse each time. I can show you that there’s over 900 sketches this time. It’s getting so stupid. I never really understood the people who can just make ten tracks...”

You can’t imagine just making a handful of tracks start-to-finish?

“It requires some kind of crazy foresight and also, I just figure, if I make another track and choose the best of those two, the result is going to be better than

if I had just made the one. It seems like a no-brainer and I enjoy that part, you know? I enjoy the feeling of, ten minutes ago there was no track, and now there’s this ‘thing’. It’s like it’s a kind of alchemy or something. Normally it makes, to continue that metaphor, crap base metal or whatever, but occasionally you get that thing where it’s just like, ‘oh my God, something’s coming out of here’. Sometimes that sticks.”

So the process was broadly similar to your last few records?

“I’ve always worked from home, so in that respect, it is the same as the last album. This album, for sure, comes much more directly, lyrically and thematically, out of the stuff going on in my life the last few years. As you can probably tell, music is so integrated into our family life. The kids will come home and be banging on the door and there is no separation sometimes. Lots of people would hate that, but I like it. There were a couple of weeks when I went into Sam’s [Floating Points] studio. He was away on a DJ trip and he said, ‘Dan just come in and use all this stuff, it’s just sitting there.’ That was actually really productive, maybe because it was a bunch of new equipment and sounds and things. I can see the appeal of having a separate space, but there’s something about what I want the music to be that just works with my setup. I want it to, kind of, represent me.”

Do you think each album ends up as a snapshot of your home life then?

“Oh absolutely. It’s like a photo album or a diary in some ways. When I look back it will be a good document for me. I know people get different things from music that they listen to, but for me – even though I won’t listen to the album again for a long time – if I were to listen to those old records, it would just snap me back to those things I was going through at the time.”

How conscious are you of creating that snapshot as you’re writing each album?

“It just happens really. For example, Keiran [Four Tet], when he makes an album he has an idea and title at the beginning of the process. He’s like, ‘the idea is grime, radio samples and new age music’ – that was his album *Beautiful Rewind* – and he can just go ahead and make it. For me, it’s completely the opposite. I sit down and get little hints and ideas along the way. The only way I can do it is just by thrashing through it. There’s always this magical moment for me where I get to listen to the album for the first time, which sounds ridiculous. I’ve heard these tracks thousands and thousands of times, but I put them all together in an order and I listen through it and I’m like, ‘OK, this is an album’. It always surprises me, because there’s no intention, it happens as part of the process.”

How far along in the writing process does that usually happen?

“Not until the day when the album is totally done. Before that point, I’m scrambling away and I don’t



“Every day I make ideas and they pile up... there are more than 900 this time”

have time to be spending 45 minutes listening to the whole thing. Obviously, there's a kind of tipping point when it feels like it's coming together. But for four out of the five years it just felt like this album was never going to be done. It always feels like that though. I bet, if they're honest, that's the case for most people.

“All of a sudden, I'll listen back to a project and know it's definitely going to be on the album. And then another one. And then I'll have this kind of snowballing moment. This is a really weird thing that's happened the last few times I've made an album. There has always been one night where things just start clicking – I'll work on something

and then go to bed, but I can't go to sleep because another thing pops into my head. I just have to go down and I work on it. I mean, that's one good thing about working from home, right?”

You can just duck in and out of the studio...

“I'm literally tiptoeing down the stairs and going back to it. So there is that one moment where I finally know there's going to be an album. At that point it's just a case of working out what else it needs. Like the last thing I made for this album, for example, was the first track. I knew I had everything else but it needed an opening track. Sometimes it's just, like, I need a little entry route to link these two

bits together. From knowing the music I have a sense of what's needed.”

The album title, *Suddenly*, ties into events in your personal life...

“My wife came up with the title, actually. Because our daughter had just added that word to her vocabulary and she was saying it all the time, which is cute; it was often in slightly the wrong context. Then my wife suggested calling the album *Suddenly*, because it's this word that's just appearing everywhere. I went and played the intro track to Sam [Floating Points] – and a couple of other tracks that I had just finished – and he was describing music and kept using the word ‘suddenly’. In terms of the personal stuff, there are a few huge things that have happened that have been the kind of news that you get where the phone rings, you pick it up and then something completely changes in your life. And so, again, it made so much sense; it fit with that, but also with the sonic aspect of these weird left turns that are in the music.”

In terms of synths and gear used, does *Suddenly* differ much from *Our Love*?

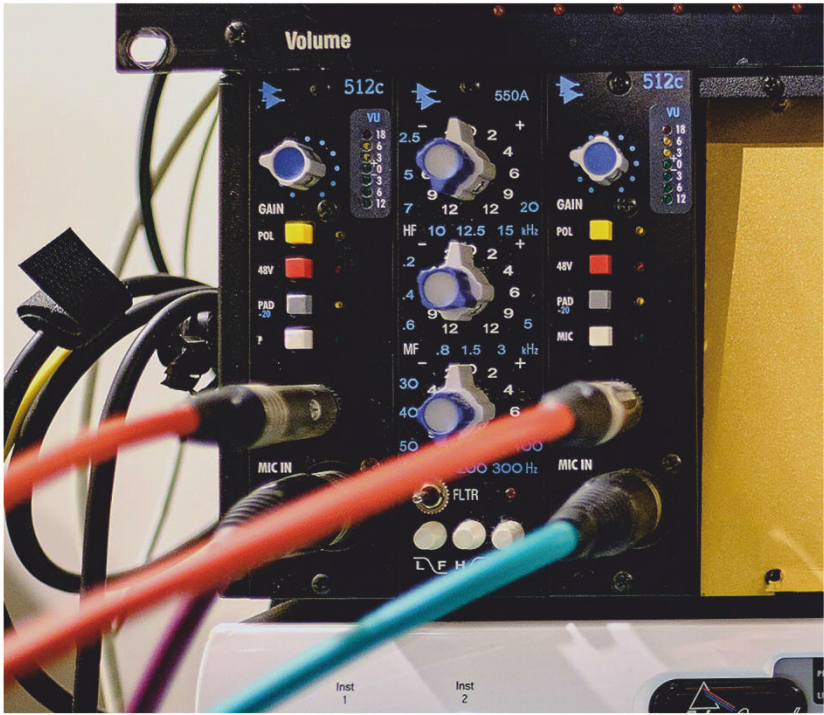
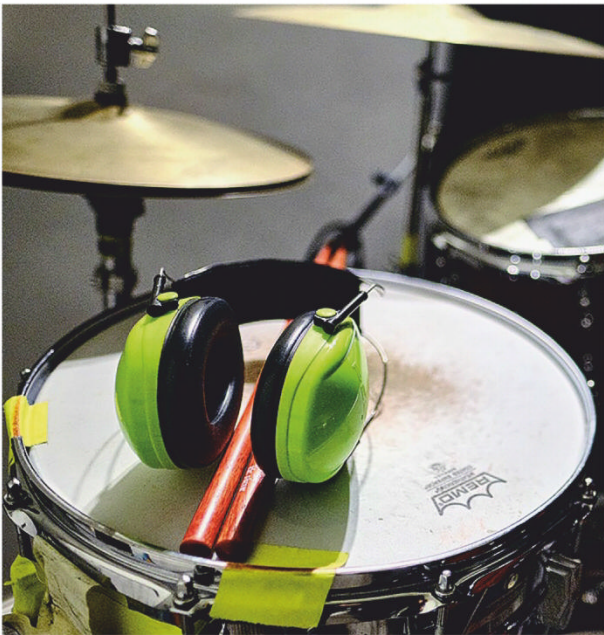
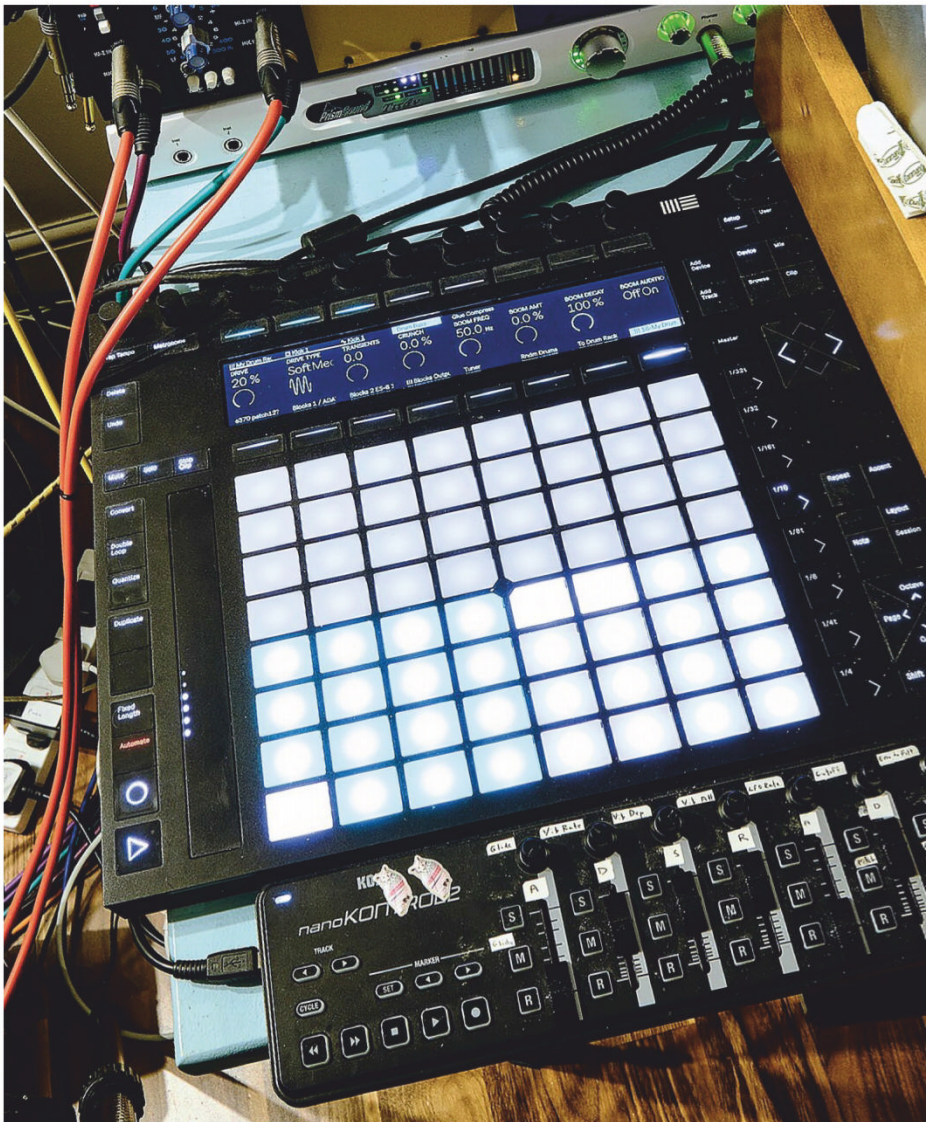
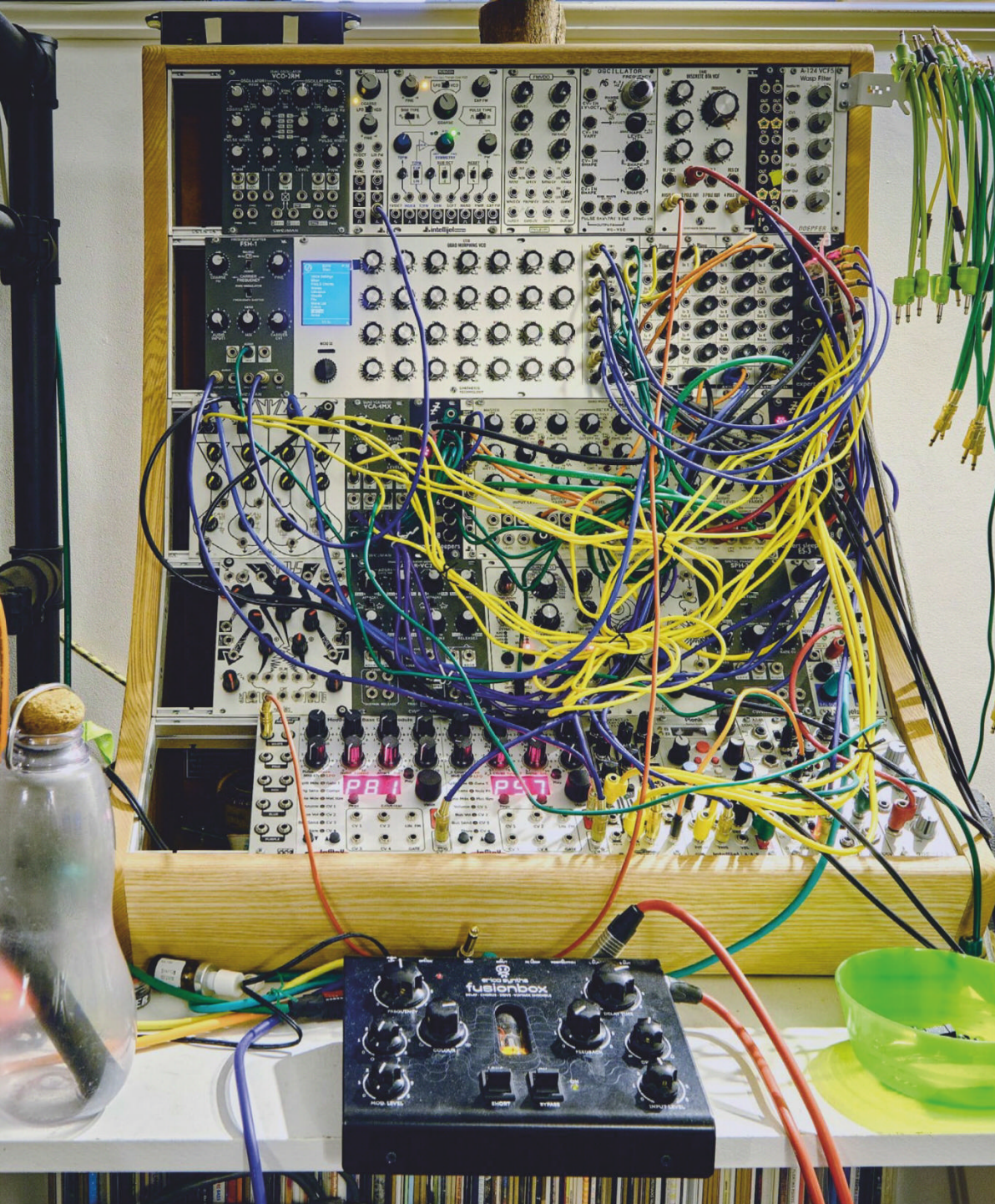
“*Our Love* was, from my perspective, very polished and shiny sounding; lots of rich polysynths. The world is awash with synthesis right now, it's inescapable, everywhere you look somebody's announced a new synth that will have a sound like the *Bladerunner* soundtrack, or whatever. I was conscious of pulling back from that a little bit, just as a reaction to not wanting to sound like everybody else. There was more sampling this time, there's a lot of Omnisphere too. A lot of the guitars on the album are Omnisphere, and the piano as well. As for sampling, there's a lot of individual sampled hits but also, as you can hear, there are tracks that have whole loops of other tracks within them.

“The one big synth on the record is actually something I made. It's exactly what you shouldn't do with a modular synth – try and make a polysynth out of it. I used my modular gear and Reaktor Blocks and I designed this software/hardware hybrid thing. I don't know if you know the [Synthesis Technology] E370? It has four wavetable oscillators and those route into four filters. I've then designed all the CV and control to work in the computer. That appealed to me because you can open a project and still have it remember all those parameters.

“I kind of did it as just as an exercise. The thing that I ended up getting out of it is that its four voices can be doing independent things. For example, if you send a Quadrature LFO that's modulating the wavetable position of each of the four oscillators, you can hold down a chord with four voices, and they'll all be at different points in the wavetable. That isn't something that a hardware polysynth can do, as far as I know. That ended up being used for the synth on the first and last tracks on the album.”

You can get extra movement from the wavetable voices then?

“It just sounds a bit odd, and you can do dramatic stuff, like really detune one of the voices in the





chord. It has these capabilities and possibilities, and all those ingredients sound nice. It was just a way into something that I could latch on to, you know? That stimulates all these chords and ideas.”

Do you generally let the gear inspire the sound?

“Yeah, I guess it’s a case of making the track based around an instance of an idea. Similarly, there’s a track called *Like I Love You* that has got what sounds like a guitar on it. It’s actually an Omnisphere bass played in a guitar register on a keyboard, with pitchbend and weird stuff going on. It sounds good because they’ve done everything they can to make it sound like a real instrument, then I’m using it in a way that that instrument could never be used.”

You like using sounds out of context like that?

“Exactly, that’s a lot of the history of electronic music, like the 303 used in a wrong way or with low batteries or, whatever. That was appealing to try whenever I could. Like, with the piano songs, it sounds like a grand piano and then it has these weird pitchbends that you don’t get, obviously, with a real piano. For another example, there are a bunch of tracks with that fake guitar sound, but then I also had an actual guitar player on one of the same tracks. It’s subtle but I want it to disorient people. Any guitar players who hear the record would be like, ‘What is going on? You couldn’t play that part on a guitar...’”

Do you work with hardware or software for sampling? You don’t sound like you’re that precious about using one or the other...

“No, I’m not. Magazines like yours – with all due

respect – can lead people to the impression that the gear is paramount. I’m sure you as journalists don’t promote that idea but the fanbase who reads this magazine could think, ‘Oh God, if I don’t have this new thing, then I’m never going to make a new track that sounds like whoever’. I’m not like that.

“Some of my friends, notably Sam [Floating Points], is the kind of person who will dive deeply into something and understand it completely. James Holden even more so, perhaps. Like, really wring all the possibilities out of an instrument. I’m pretty lazy though. Making this hardware-software-polysynth thing was pretty out of character – me putting that much work into something that hasn’t made a sound yet. It took hours and hours before it was musically productive. Even if a hardware sampler has a slightly different sound, it’s too much of a faff. Even outboard is the same. I had a UREI 1176 outboard compressor at one point, but I got sick of having to wire stuff into it and out of it, then compensate for the latency. Fuck all that. I just figure it out with the stuff that’s in the box.

“The first four albums, even most of *Swim* as well, were all entirely in the box. I had no gear, zero. Like, a computer, a microphone designed for a telemarketer or something, and I would sample stuff off records and use maybe one or two basic crappy synths. But then friends of mine, again James Holden in particular, were doing all this stuff with modular and I was inspired to check that out. I’m still resistant to going too far down that path. I’ve also recognised that, something like an OB-8 does not sound the same in plugin form; there is some magic there that can’t be ported across yet. Although, the gap’s getting closer and closer all the time.

“What record would I have made if I hadn’t had this polysynth thing that I cobbled together hardware and software? What if I didn’t have an OB-8? It just would have been a different record. It wouldn’t have been a better or worse record I don’t think. I just incorporate hardware to the degree to which I enjoy it. For example there is a small Buchla rack down there, because, man, how many records do I love that have been made on Buchlas? I can get a sound out of it, but it just seems like too much work. I haven’t used it, and that’s embarrassing; it’s just sitting there but it’s not on the record at all.”

How long have you had the Buchla?

“Three or four years. I can get sounds out of it but they just sound like everybody else’s Buchla sounds. Whereas Sam can do something and get...”

Isn’t his recent album based around his Buchla rig?

“Exactly. He’s dedicated the time to it, he’s understood it, and he’s come out with something unique. Whereas I’m generally not that diligent. I haven’t got anything new from it, there’s no potential for something different. Whereas an Omnisphere guitar with pitchbend is something that I haven’t heard on other people’s records, and was easier to get to. I’m a bit of a magpie in that way. I’m like, ‘Ooh shiny thing that is easily accessible.’”

Is it fair to say, then, that you prefer to find sounds and re-contextualise them, rather than dig deep into the synthesis side of things?

“Yes, and also the juxtaposition thing is a big one for me. That’s how I’ve got things that I feel are uniquely mine. Listening to Sam’s record and my record, his is far more consistent, he uses the same ingredients over and over again in ingeniously rearranged ways, whereas I might make a track that uses a ’70s stadium drum sound with a shred guitar solo on the end, mixed with my normal kind of Caribou ingredients. I know that’s going to sound different; it’s not going to sound like something I’ve made before because those ingredients are novel to my approach. I think that’s reflected in the albums that I’ve made and how they’re moving around all of the time. They don’t really sound like each other.”

On each album you seem to be incorporating some new influence into your sound, whether it’s psych rock or dance music...

“Some albums that I made in the past, looking back at them now, maybe went too far into this. *Andorra* from 2007 is a psych rock-sounding record, focused around songwriting and this idea of ‘can I make a psych rock record but on a computer?’. I look back at it now and it’s not that I’m not proud of it, but it feels too close to its references. Whereas *Swim*, the next record, I felt took a bunch of influences – but then crucially it sounds like me. That’s been a big thing for these last few records, that they have to somehow engage with contemporary music. Otherwise, you know, do we need more people making a ’60s psych rock record when there are plenty of good ones already?”



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How does the divide between your Caribou and Daphni records work? When you sit down to produce a track, are you making a decision to work on one thing or the other?

“The main difference is intention. If I make a new Daphni track, it’s usually because I’ve got a DJ gig. For the most part, apart from the tracks that I made for the Fabriclive mix that I did, it’s just that I want to have something new to play. It’s always made to fit in that world of dance music and the circle of friends that I’m imagining – somebody like Ben UFO, or whoever. That’s the intention there, whereas Caribou can contain all that stuff, but it is more like a diary of all of my music tastes and what’s gone on in my personal life. Definitely in the last five years I’ve almost always been sitting down to make music with an attitude of, ‘I’m working on the Caribou album.’ Occasionally I would make the odd Daphni thing – I put out a Daphni EP earlier this year – but those were all really quick things I did because I was playing a specific gig.

“There’s nothing on this record that could have gone either way. On the last record there was a track called *Mars*, which could have been Daphni, but in the end it fit the narrative of *Our Love*. I’m not super precious when it comes to dividing the two things, it just naturally happens because of the intention. And, obviously, on a basic level, if it sounds like a song and I sing on it, then it’s not a Daphni track.”

Your Caribou records have a distinctive vocal sound. How do you go about capturing them?

“The predominant thing about my singing is that my voice is really limited. I can only sing in a small range. Most of that range I can only sing softly in a falsetto. I’m not a natural singer; I never, ever thought I was going to be a singer in a band. It’s absurd that I’ve ended up doing that. But it is something I’m proud of – having found a way of making my voice work with the music that I’m making. That’s part of the reason that it’s consistent, that it’s just prescribed by the limitations of my voice in a lot of ways.

“I’ve got a nicer microphone than I used to have and a better way of recording, but my process is mostly the same as it always has been. The way I record my vocals, I’ll loop two bars and the first thing I do is I sing a vocal with, ‘la la la’, some kind of nonsense syllables. Then, by the point that I’ve written the lyrics, I’ll take a two-bar loop with one phrase and sing it 100 times over and over again. If you do that, it just improves. You can tell if you listen to the first time you’re singing and the 80th time.

“After that I have this laborious process of lining them all up, going through and chopping. It’s a Frankenstein job, chopping these three words from one take with that word from another. They might all be OK but some of them naturally just have more ‘something’ to them. I do that through the whole song, so recording vocals is one of the things right at the end and it’s something that I kind of dread. I feel comfortable on a keyboard instrument; I feel like I can generate ideas, but with singing I’m constantly banging up against my limitations. But that is part of what makes it sound the way that it does and lets





CARIBOU'S GO-TO GEAR

Roland Juno-106

"With software, you're always trying to massage it to do what you want it to do. Then you get a Minimoog or Juno-106 and you turn it on and you're, like, 'Oh, it just does that'."

Fender Rhodes

"The Rhodes is on every single one of my records quite prominently. I bought this one when I first moved to London."

Ableton Live 10

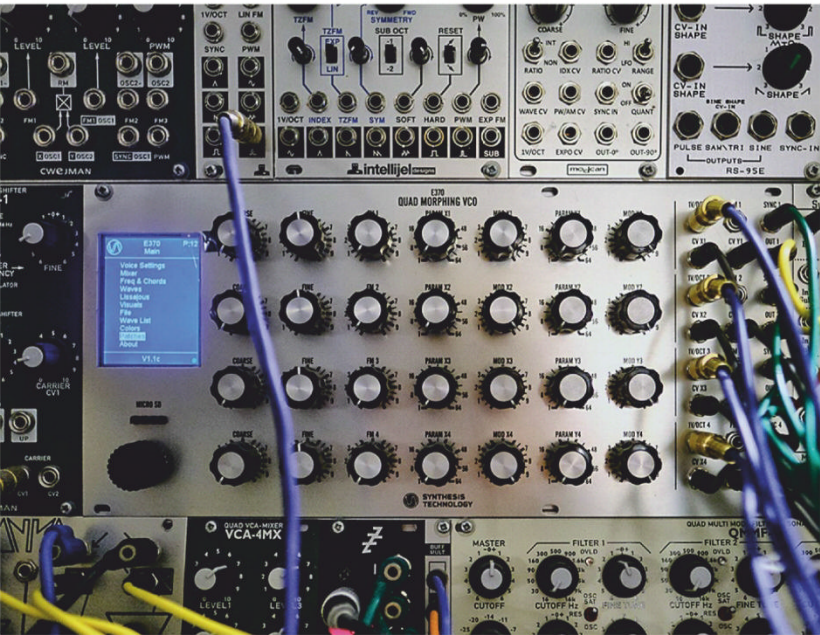
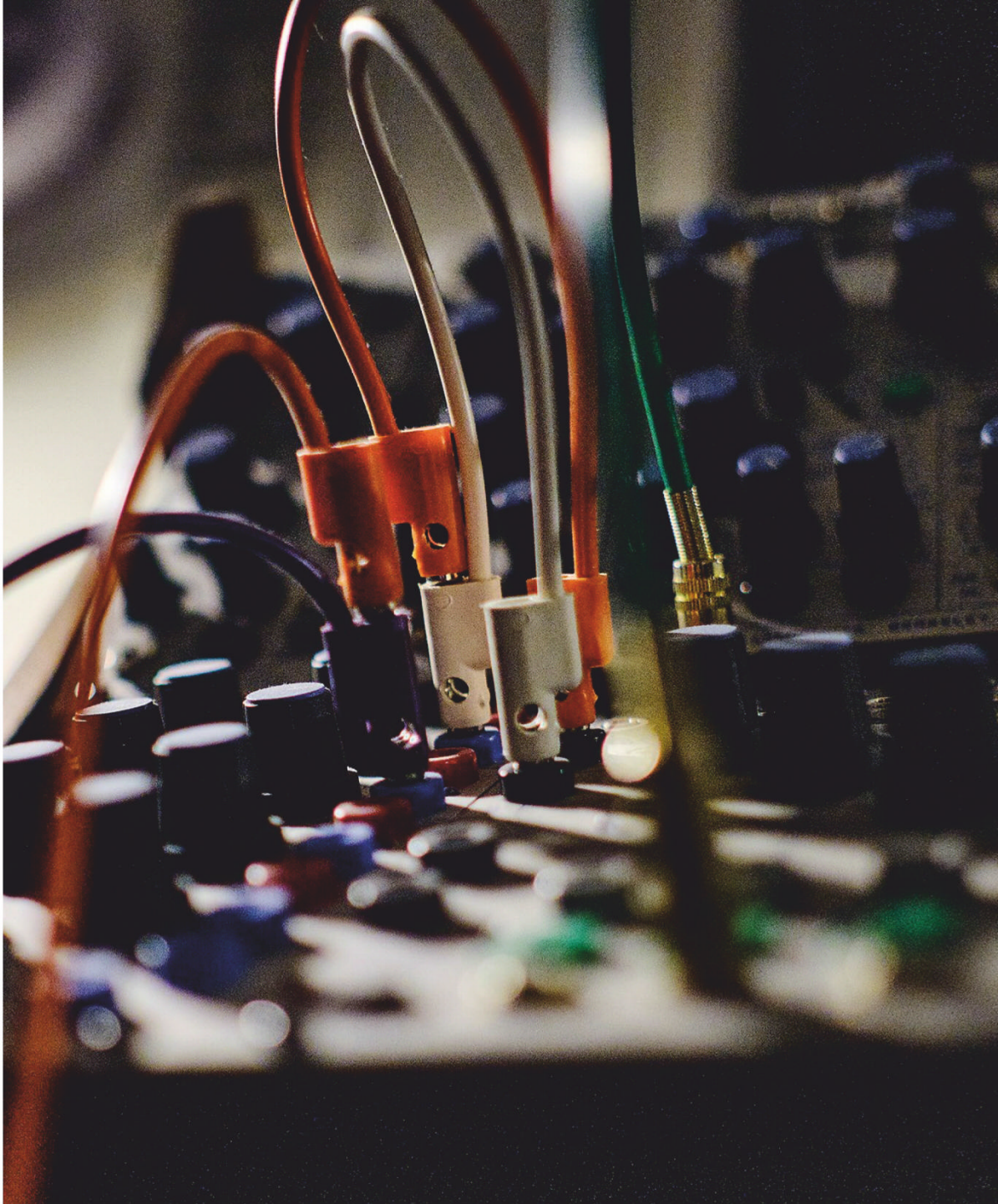
"I always use Ableton Convolution Reverb Pro. Ableton Echo and the Drum Buss are really good too. Those additions happened halfway through making the album – Wavetable, Echo and Drum Buss – they just filled in gaps in what I wanted in the software."

Moog Minimoog

"It's the remake, which sounds gorgeous to me. I use it in a very workman-like way, to double up basslines, or whatever. It's also my main MIDI controller."

Oberheim OB-8

"I have two of them because one of them was just broken forever. One voice will crap out and the other one has another weird fault, so it's more like an OB-6.5."





me get the emotion into it that I do. That battle, trying to make it happen, is an important part of it for me. Saying that, this time around, I actually ended up really enjoying it; that process of just dialling my attention into what's going on in my voice."

Do you ever find it's difficult to be objective, as a producer, when dealing with your own vocals, compared to a synth or drum line?

"It goes away. To some degree it's gone away over the years because I just get used to what my voice sounds like on record. But also, by the time I've worked on a song for months and the vocal's been there for months, it's almost like I'm listening with an engineer's ears rather than a producer's ears."

So you're able to get that separation?

"Yes, I can listen pretty objectively I think. There are definitely points on this record where either Keiran and I or, particularly, my wife and I, have disagreed. She's like, 'definitely do those vocals over again', and I'll say, 'I think it's OK that it's not perfect'. That's part of the character."

You mentioned you use Keiran Hebden [Four Tet] as a sounding board. He contributed to the arrangement of lead single *Home* too. Is that the first time he's done that for you?

"That's the only time that's ever happened. There's a section with a breakbeat at the beginning, then when the vocals come in it's this much more mellow version of the same thing. Originally, I'd made a version that had the breakbeat banging away the whole way through, and I'd made a version that was

super mellow the whole way through. I'd done those months apart, but Keiran kept all of these things that I've sent him and came up with this version that went back and forth, more of a verse-chorus, which in retrospect is an obvious thing. I'd lost perspective on it. In his email he'd already attached something; he was like, 'it was just easy for me to splice together exactly what I'm hearing in my head'. So, he'd cut the two into one track."

He did the edit himself then?

"Exactly. Also, some of the little, weird Madlib-style stuff is his. Where [the breakbeat] drops in for a bar, or half a bar, or it comes in a bar before you expect it to. He's so insightful with that kind of stuff. I then went back into the project and replicated what he'd done by splicing things together, so that I could work on it and change it further. That's the only time he's ever been hands-on like that; normally he just describes what he thinks something needs."

How much does performing live as a band influence your decision-making in the studio?

"I refuse to let it – that was a decision I made a long time ago. We [Caribou] started touring as a band in 2003 and before that point I hadn't thought that that would be something that we would do at all. I made a decision that I wouldn't make or not make any track just because it would be impossible to play live. The records are their own things and if there's some tracks that we can't play because they were put together in a way that won't translate live, that's fine, we just won't play those tracks. Saying that though, when making *Can't Do Without You*, or *Never Come Back* on this album, it's definitely impossible not to

think, 'this one is going to be fun to play at a festival'. But you can hear from the record, it's clearly not the primary driver."

It's obviously not an album built for a 'band'...

"It's not built for a band; it's not built for big rooms or festival stages. But, having said that from years of making music there are now enough tracks that I've made that we can play in lots of different contexts. We can play at a dance music festival, we can play at Glastonbury, we can play a small club and play more intimate music. I feel like that's really lucky. My decision to not let that dictate everything has meant that we aren't really pigeon-holed in the way that our live show will work. We can play next to a folk singer-songwriter, but we've also played in Ibiza and in clubs where people like Loco Dice are after us. I enjoy that – being able to have a wide range of things that we can do."

What's your role personally, when you're up on stage with the live band?

"I'm singing most of the songs, obviously, and I'm playing lots of synthesiser parts. I also play drums. Sometimes we're all triggering samples or one of us will be modulating parameters on an instrument that somebody else is playing. We don't have fixed roles but, I guess, most of the time I'm playing a keyboard."

Has the make-up of the live band remained fairly consistent over the years?

"It's all of the same people. Ryan who plays guitar and synths in the band was in my first band that I was in in high school. He was the one who first said we should start playing [Caribou] songs as a band. He's been in it forever. Brad, who plays drums, was in an opening band that played for us in 2000, he joined the band in 2007. And John, who plays bass and sings, joined in 2009."

"Those guys don't appear on the records. It's kind of like that is a dividing line – I make the records myself, but the live show is very, very much a collaborative thing. We live in very different places – Toronto, San Francisco, LA, here in London – so right now there are a million different Ableton projects being sent around. Then we have a month of rehearsals coming up."

You're collaborating remotely on how the set is going to come together before you get together?

"Yes. And it's not me telling them, 'you do this'. I trust them because we've played together so long and we've had this experience of reverse engineering studio things for live, which is not that hard these days. Live electronic music performance was, when we started, next to impossible but now the capabilities make it much easier." **FM**

WANT TO KNOW MORE?

Suddenly is out now via Merge records. For news and tour dates head to caribou.fm



Lia Mice Which Memories Will Make It?

Optimo Music, 2018



Multidisciplinary artist and instrument designer Lia Mice has a unique take on techno that appeals to both the electronic music underground and the art world. Her résumé includes such diverse highlights as supporting Objekt live and having her work exhibited at the Tate Modern, Barbican and V&A. We find out how she created the track *Which Memories Will Make It?* from her conceptual album *The Sampler As A Time Machine*.

What inspired your album's time travel concept?

"I bought the Octatrack sampler so I could perform live without a computer. It was the only one that did what I really wanted it to do,

which was record live into it and then be able to flex time to match with the drums. So, I can change tempo live and the sample will change tempo too. It was the first hardware sampler I felt to be a really deep instrument that you could become... virtuosic with I guess? It offers so many opportunities for more personalised performance. It just really made me think more about samplers and what they are. Then I started reading some related books and I saw a DJ Spooky quote that was, 'Sampling is like sending a fax to yourself from the sonic debris of a possible future'. It made me think about sampling as a way to move beyond the here and now, forwards and backwards in time. That's time travel, so the machine that allows you to do that is a time machine. I thought, 'how far can I push this idea of the sampler being a time machine? Can I think of other ways of time travel and try to make the sampler conduct those?' I like to be in the moment, and I like to use the sampler as a performative tool in the moment. It allows me to do more live because I'm not physically playing on those things, but I'm not reliant on a 20 person ensemble either. So it allows me to be more present in the moment rather than saving things for the future."

The track's main theme is degradation of memory, which we tend to think of as a tragic thing. Is that not the case for you?

"The impermanence of things makes you appreciate the present



“I think there is an element of beauty in degraded things – ruins and things becoming degraded, and maybe they don’t work anymore in the way they were intended to, but they have become something else”

moment. There’s also something to be said about feeling like... ‘this is finished, and this is how it is now. I’m not going to go back to it and change it.’ I think there is an element of beauty in degraded things – ruins and things becoming degraded, and maybe they don’t work anymore in the way they were intended to, but they have become something else. If you’re creating it to be slightly ruined to begin with, you’re making something that will sound different to how it would have otherwise.”

The sampler is a unique instrument in that mostly it requires an external sound source. Where do your samples come from?

“I like organic sounds, so I like sounds of real instruments. I might look for a particular instrument, a really high-quality sample of that instrument. I don’t even own any synths, so I might look for an interesting synth sound and use that in a different way than it may have been intended. I download sample packs, so I’m not going to really obscure places, but I’ll have the idea in mind first – I won’t go through a sample pack and then create an idea from a sound I find; I’ll audition sounds until I find the thing that works with that idea.”

Would you say you’re going from a composition first approach rather than a sound design first approach?

“Yes. I’m not the fastest producer because I’m quite detail oriented.





So what I find is I need to draft a track really quickly, otherwise I'll just be tweaking a sound and I won't have a track at the end; I'll just have like one really great sound! So by drafting a track and telling myself, 'Okay, I'll come back to those parts and make them sound better later'. I'll have the elements in place, and then if I want to come back and tweak that sound or replace that whole thing with another idea, then I will when I'm in the mode to get more detail oriented."

You use your own vocals on your tracks. How do you record those?

"I use a Shure SM57, that's what I use live and in the studio. I try to get the cleanest vocal take that I can. I get up really close to the mic and sing very quietly and try to get that as cleanly as possible, then I'll add so many effects. I'm processing my vocals and layering them so much that I think it would be a bit overkill if I then had an extremely expensive mic!" **FM**

WANT TO KNOW MORE?

The Sampler As A Time Machine can be ordered in vinyl and digital formats from liamice.com

THE GEAR

Hardware:

- > Apple MacBook Pro
- > Zoom L-12 Live Trak
- > Mackie HR824 x2
- > Elektron Octatrack Mk1
- > Elektron Analog RYTM Mk 1
- > Ableton Push 2
- > Shure SM57
- > Fostex Model 80
- > Elektron Digitone

Software:

- > Ableton Live 10
- > Apple Logic Pro X
- > Soundtoys plugins

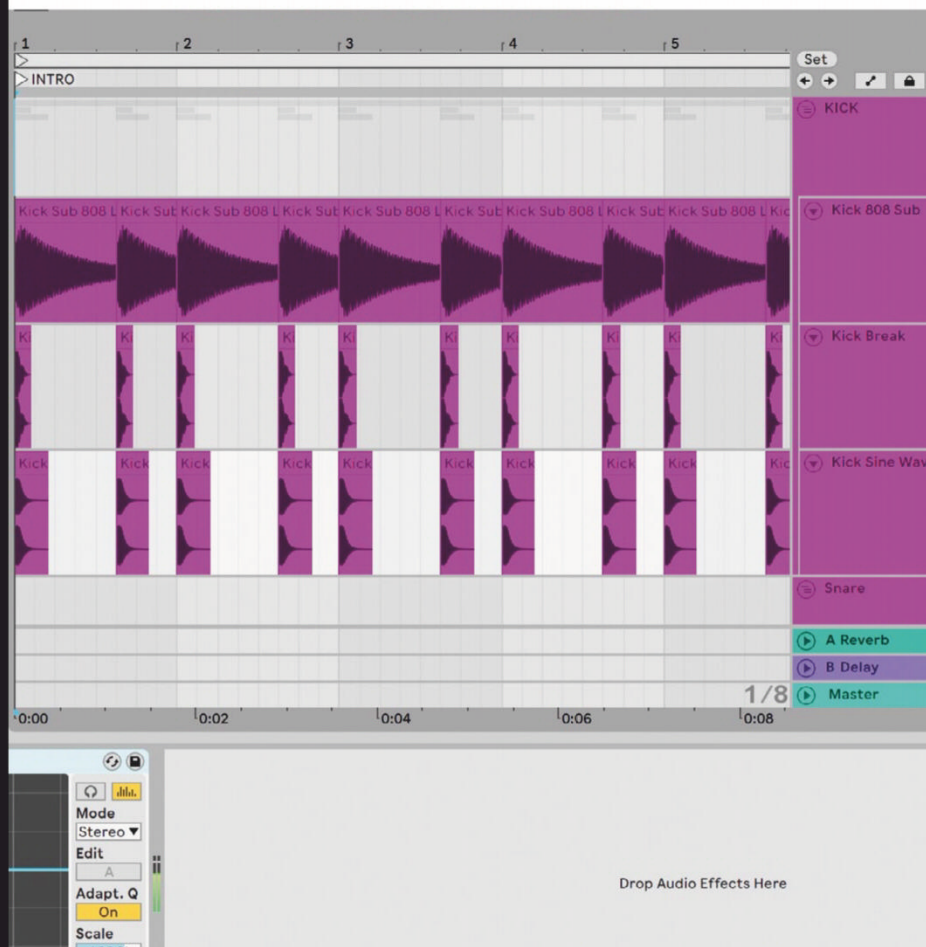


Mangling beats with Live, Logic and Elektron gear

Lia uses a multi-stage process to make her thumping techno-inspired beats

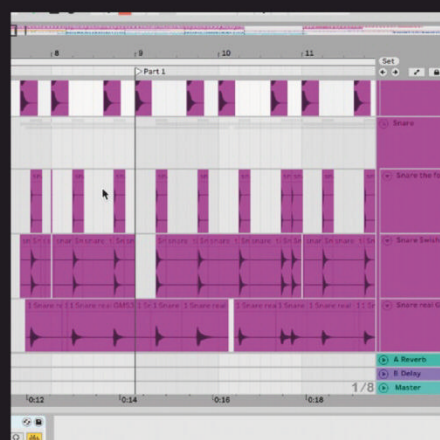
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"The kick I made out of three kicks all on top of each other to make it thicker; that's how I make it so chunky," Lia reveals. The three elements are a low subby kick, a layer with a prominent hi-hat, and a subtle extra transient.



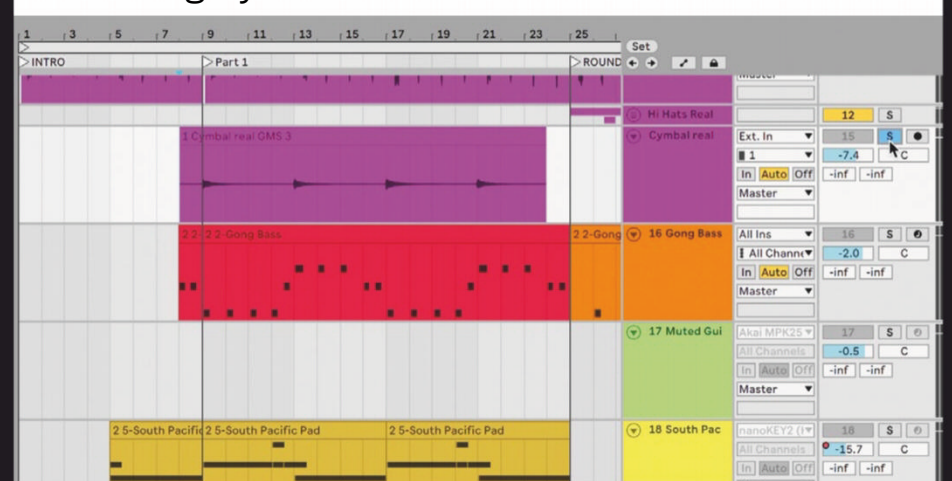
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"The snare is also made up of three snare sounds; every sound is made up of multiple samples put together, some of which I've recorded myself, and some of which are taken from sample packs. When I sample I don't sample off records; I use sample packs or my own recordings from the studio," continues Lia.



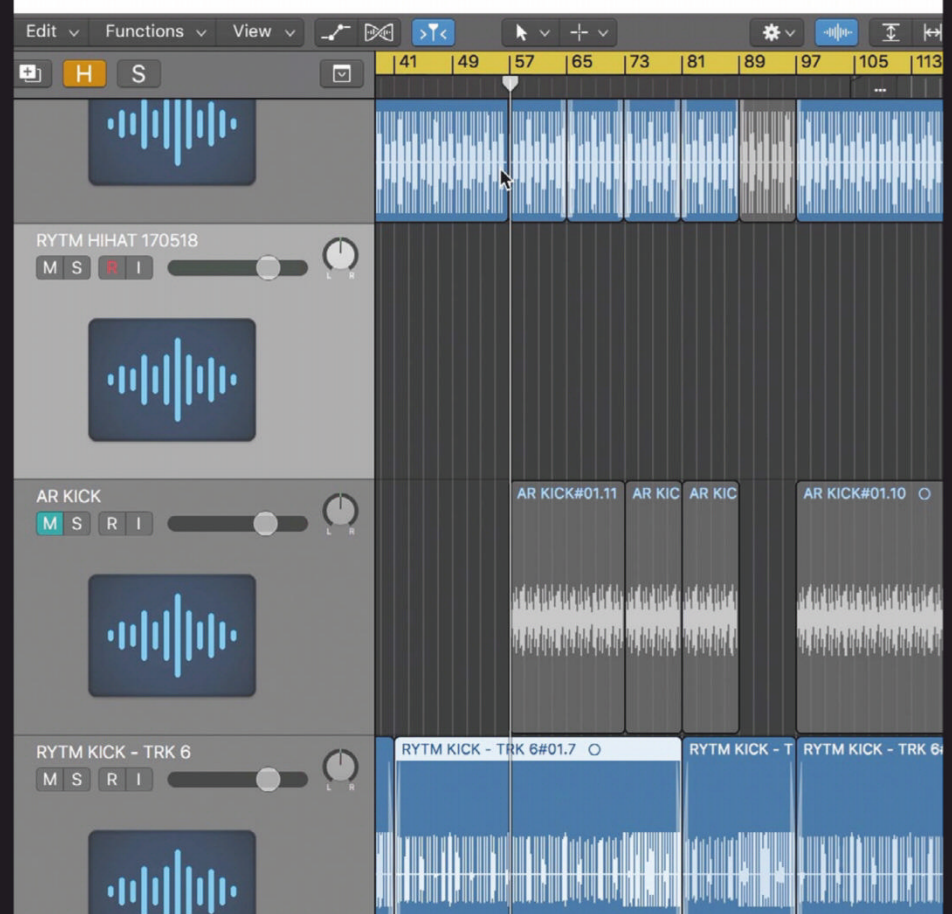
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"The cymbal in this track is a real cymbal I recorded in the studio. When it comes in it quite obviously pokes out because it's a real sound unlike the other drums," Lia notes. With the basic version of the beat complete, Lia records it into the Octatrack to mangle it, and uses the Analog Rytm to add extra sounds.



04

"I like to have a live jam with the elements, which is why I have the Zoom L-12, because it has 12 inputs," Lia explains. "I can get four outs from the Octatrack and eight outs from the Analog Rytm so I can get everything on its own track. I then cut that live jam up into the Logic file."



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THE TRACK

Leading producers go in-depth on the sounds, ideas and techniques behind their latest releases



Boston Bun, *Don't Wanna Dance*

Thibaud Noyer invites us into the studio to talk sampling, replays and how he made his latest house hit

DON'T MISS:



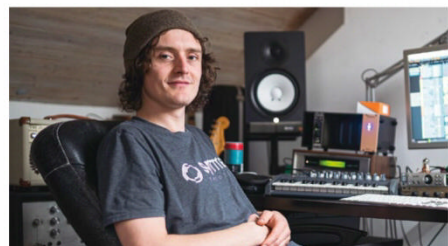
Twin Atlantic, *Barcelona*

Rock favourites Twin Atlantic explore the making of single *Barcelona*



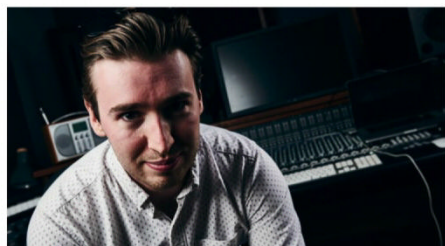
Jaded, *Pancake* ft. Ashnikko

UK-based house and remix kings talk about their bass-heavy hit



Jack Boston, *The Place*

The DnB producer breaks down his track, featuring vocalist Vanity Jay



Bensley, *Hard Times*

Peter Bennett takes us through his sax-centric track featuring Emer Dineen

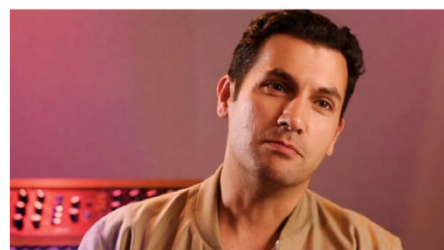
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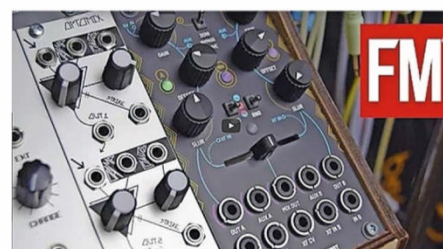


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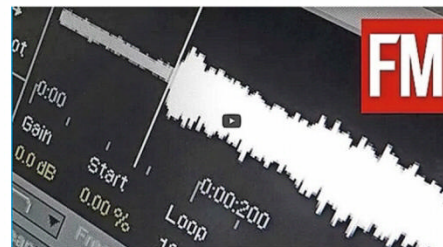
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Behringer Pro-1

The music megaliths have resurrected the classic analogue monosynth, adding Eurorack compatibility and a few extra patch points for sonic flexibility



There's a good chance you've seen a Sequential Circuits Pro One synth adorning the studio of many an FM-featured producer. Despite many of them being plagued with clacky keys and an unreliable keybed, the Dave Smith-designed instrument found an audience among techno heads and synth poppers alike.

Luckily for us, Behringer have taken the circuit of the Pro One,

added a few tweaks, and released it en masse, putting that sound within reach of a multitude of musicians who would previously have been left to scour the classified ads, virtual or otherwise. How you feel about such a move is going to be moot when you hear the sonic richness and power of the Behringer Pro-1. From rumbling, sub-shaking bass to piercing, zappy punctuations and burbling leads, the Pro-1 really does make the most out of its simple architecture.

The design of the original Pro One was largely inspired by the previously-released Sequential Circuits Prophet-5, which had become a huge hit for its flexible sound palette and rich character, paired with its ingenious use of presets. Smith took one voice from that instrument, put it into a new circuit paired with an arpeggiator and sequencer, and released it in 1981.

The Pro One found its way into the hands of people like Vince Clarke, New Order, Prodigy,

Prince, Soft Cell, Cabaret Voltaire and Nitzer Ebb. More recently it has been re-embraced by many techno producers; Juan Atkins is a notorious user, specifically in his early Model 500 material. It's also been seen in the studios of Mathew Jonson, Danny Daze, Mouse on Mars, Kevin Parker of Tame Impala, and many others.

The signal path is quite easy to figure out within a few minutes of knob twiddling if you've ever spent any time using a synth. There are two oscillators, each with several

waveform choices that can be turned on individually or combined at will. Oscillator A features both sawtooth and square waves, while Oscillator B adds a triangle wave as well. Both oscillators can be individually tuned and span a four-octave range. There are manual pulse width controls for the square waves – these can go from hollow to warm and thick.

The oscillators are joined by a noise source in the mixer section, which also doubles as an external audio volume control when something is plugged into the appropriate jack. The filter is the same classic four-pole design as the original and can self-oscillate when set to maximum resonance. Having a full ADSR for the filter

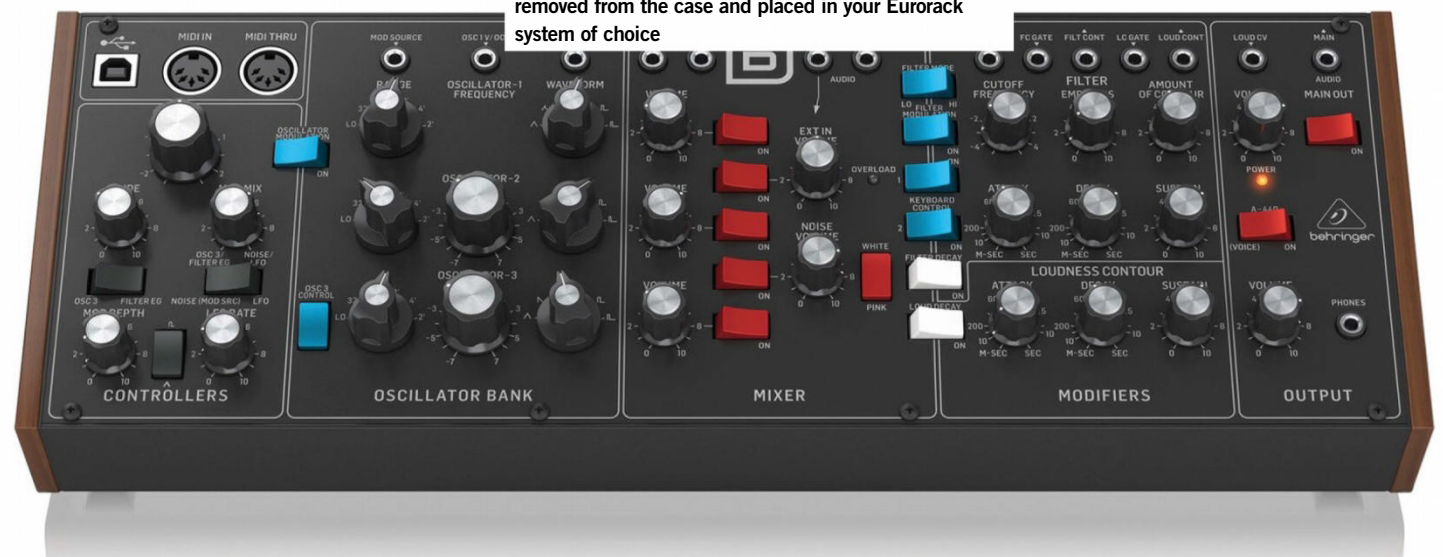
makes a lot of sounds possible that wouldn't be achievable on similar instruments like the Roland SH-101.

From there, the signal goes to the amplifier envelope, which can get very snappy – helpful for programming percussion sounds. In terms of modulation, there is

but one LFO, though it has three waveform shapes, which can be used at once or individually. The real source of wiggly is going to the modulation matrix, which we will dive into in full depth later in this feature.

Behringer's Pro-1 takes the same desktop format as their successful Model D. The synth chassis can be removed from the case and placed in your Eurorack system of choice

While you may question the need for a vintage-type monosynth in your studio, having one is actually very much worthwhile, if not just for the educational aspect of learning how to program every sound from scratch. So let's dive into programming this (updated) classic instrument...



Nailing that classic PWM bass sound



1 The sound of the original Pro One was renowned for its bass presence and throaty growl when opening up the filter, and the updated Pro-1 is no different. One sound commonly used for that is a pulse-width modulating bass sound.



2 Let's recreate that patch on the Pro-1 and make use of both oscillators and their individual pulse widths. Start by turning on the square wave for Osc A, with the pulse width set to 5. Set the octave to 0, and make sure frequency is set to 0.



3 For Oscillator B, we're going to make use of both the triangle and pulse width waves – set both switches to On. Just like for Osc A, set the octave to 0, the Frequency as close to 0 as you can get it, and the lo freq switch off.



4 Set pulse width to 6.5 and play a few notes with the filter wide open. You'll hear thick, rich overtones as the two pulse waves rub against each other; a chorus-like effect. Triangle wave adds a lower harmonic and fills out the bottom end nicely.



5 In the Mixer section, set both Oscs to 7.5. You'll notice the response of the filter is a tad more aggressive when levels are dimmed. Keeping them lower gives a mellower sound, which works with a sound that already has a lot of harmonic content.



6 As this is a bass sound, we want to tame a lot of those high frequencies with the filter. Set the cutoff to 3.5, resonance to 1, and both Env and Keyboard to 5. Playing with the Filter envelope shape, especially decay, gives timbral variation.

Get a subby kick with filter resonance



1 Unsurprisingly, the Pro-1 also excels at making meaty kick sounds, though perhaps not using the sound source you'd expect. Let's start this patch by setting both oscs off. We'll be using the filter's ability to self-oscillate to create a sine wave.



2 In the filter section, turn cutoff all the way down and resonance all the way up. Be careful with your speakers as this causes a volume jump. The envelope and keyboard amount are key to making this sound like a subby kick – just a low bass.



3 Set envelope amount to 3 and keyboard amount to 2.5. Shape the filter envelope carefully too, with attack, sustain, and release all set to 0, and decay set to just over 3. Increasing the decay time can lead to more disco tom-like sounds.

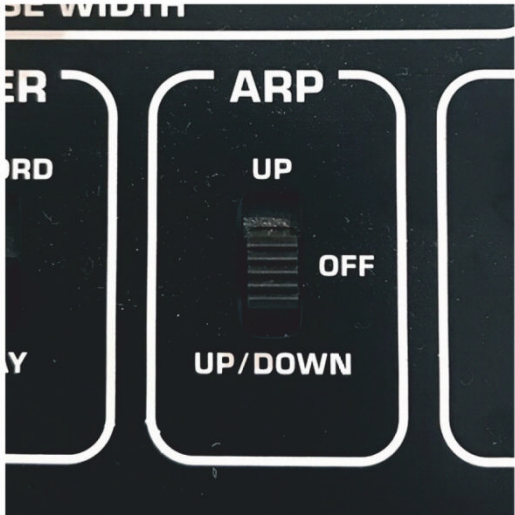


4 For the amp envelope, we mimic the filter envelope settings and keep the sound short, emulating a quick kick drum hit. Attack, sustain, and release should all be set to 0. Decay works between 4.5 – 6, depending on kick length.

Finding that long lost fourth osc

Behringer have gifted the Pro-1 with a circuit that hides a few of its most interesting features when using the built-in patch points. This is especially true if you go out of monophonic territory. Not only can the two oscillators on the Pro-1 be individually pitched, but the filter can self-oscillate and act as a third oscillator, making three note chords possible. However, the Pro-1 has one more trick up its sleeve that might not be immediately obvious when looking at the front panel. Despite the fact that it only has one measly LFO, that LFO can actually serve as a fourth oscillator when patched into the external input jack. Given the fact that the LFO can be tuned independently via its own knob, you now have a four-note chord from what was once a monosynth! Note the LFO's pitch tracking; admittedly not the tightest. However this can be used to your advantage if you'd like to explore some microtonal territory and take your Pro-1 into Aphex Twin-land.

How to access the arpeggiator's hidden latch button



1 The Pro-1's arpeggiator is a stripped-down affair. There are just two modes (Up and Up/Down) and no way to increase the octave range of the arpeggio. To be fair, this was still fairly complex when the original was born, so it's hard to complain too much.



2 However, one thing the Pro-1 could really use is a latch mode, letting you release the keys and the arpeggio continue. Luckily, there's actually a latch mode; it's just not mentioned anywhere, making it more of a hack than an official feature!



3 To access this, hold the notes you want to arpeggiate and select Up or Up/Down. While notes are held, flip the sequencer switch to the record setting, and voilà! Playing notes temporarily adds them to the arpeggio, a great way to jam.

Diving deeper into the Pro-1

> The Pro-1 has a few more tricks up its sleeve. Oscillator B can be disconnected from the keyboard by a switch on the front panel – this is handy for creating drones or sound effects. Flipping the lo freq switch to on lets the oscillator frequency sweep across a larger range of pitches, from below the audible range to way up into audio rate modulation. This is useful as Osc B can be used as a source in the modulation matrix and taken out of the mixer fully, adding yet another way to

modulate something in the Pro-1. While many modern synths boast modulation matrices with far more options, destinations, and variables, the modulation matrix on the Pro-1 is one of its most unique features. Three sources (filter envelope, Osc B, and the

LFO) can be routed to five different destinations: both frequency and pulse-width amounts for each oscillator, as well as the filter cutoff. These sources can be sent either 'directly', where the depth is

controlled by the amount knob, or through the modulation wheel on your MIDI keyboard.

What's even more useful is the fact that all of the modulation sources are also doubled via the aforementioned patch jacks on the front panel. This means it's possible to modulate parameters of the Pro-1 either using the modulation matrix or via patching with other Eurorack gear, or both at once! Integrating the Pro-1 into your pre-existing system is as easy as unscrewing four screws and disconnecting the power supply.



No presets here! Behringer stayed true to the look and feel of the front panel of the original Pro One, so what you see is what you get!

Let's get synced up, Pro-1 style



1 While the Pro-1 excels at low-end sounds like bass and kick, it's no slouch in the lead department either. Let's use the Pro-1's oscillator sync feature to create a ripping sync patch. We'll use the Mod Matrix and handy routing from the filter envelope.



2 For this patch, we use both oscs set to sawtooth waves. Turn the sync switch on; now the Osc A pitch is controlled by the frequency of Osc B. Ensure the lo freq switch is still set to Off and the Keyboard functionality for Osc B is turned on.



3 We want this lead sound to have movement, so we'll increase the glide amount to around 2-3. Setting the Auto switch to on means that when more than one note is held down, the Pro-1 will employ legato to slide into the second note.



4 In the filter section, set cutoff to 7, resonance to 0, and keyboard and env to 7.5. We want the filter open to let upper harmonics through. Filter envelope settings are important. Attack should be at 2.5, decay at 6, sustain to 7, and release to 8.



5 Now, we'll use the modulation matrix to route the filter envelope to the frequency of Oscillator A. Select 'Direct' for the filter envelope routing, and then do the same for the Osc A frequency destination. Use the amount knob to control how much of that 'syncing' sound you want.



6 Experiment with both different amounts in the modulation matrix and different filter envelope shapes. Both will have drastic effects on the timbral complexity of your sound. You can add even more movement by applying the LFO to the filter cutoff amount.

Programming a thick, buzzy drone with Pro-1's external input



1 The original Pro One was quite famously used in a slathering of industrial tracks by bands like Skinny Puppy, Cabaret Voltaire and Nitzer Ebb. The thick, cutting texture of the oscillators paired with the complex modulations possible made it quite easy to create other-worldly sounds.



2 For this sound, we're going to make use of the Pro-1's patch points on the top of the panel. This lets us do some routing that wasn't possible on the original. To start, let's turn on Osc A's square wave, with the pulse width set to around 7 and the octave switch set to 1.



3 Turn both square/triangle waves on for Osc B, with the pulse width set to 5.5. Set frequency to 0 and octave to 1. For this sound, we'll use the Pro-1's drone switch, which sets the oscs to drone on no matter what the release knob is set to. We'll also use the repeat function Play Mode; flip that on too.



4 In the filter section, set cutoff to 1.5, resonance to 0.5, envelope amount to 3.5, and keyboard amount to 5. The filter envelope settings here are particularly important – attack is set to just under 1, decay to 2.5, sustain to 2.5, and release around 6.



5 To add more harmonics and grit, we'll patch the audio out back into the external input in the mixer. Watch your overall volume as you do this, as it'll increase significantly. Start with the noise/ext knob at 0 and bring it up slowly, noticing how much overdrive is immediately introduced to the signal.



6 In the modulation matrix, let's assign the output of Osc B to directly modulate the frequency of Osc A. Set the amount to 8 and you'll hear a slow bubbling rise from the lower frequencies and rip across the frequency range. The speed at which this happens is controlled by the LFO.



7 We'll route the LFO directly to the filter cutoff to add movement to our drone. Start with the LFO at slower speeds, 1 or 2, and then experiment with raising the LFO rate to around 5 or 6. You'll notice the sound begin to fold in on itself, creating rich odd-order harmonics that approach ring modulation.



8 We've got the LFO set to the sawtooth wave and glide set to around 5 for this example. When changing notes, instead of snapping to the next patch, the entire drone slowly shifts to the next pitch, adding to the eeriness of the sound.

POWER TIP

The fact that the Pro-1 features a USB port for sending and receiving MIDI information means that the instrument can also be used as a MIDI-USB hub for other synths. Connect other MIDI gear to the MIDI thru jack, set to the appropriate channel, and voilà, you now have a USB/MIDI interface!

THREE OF THE BEST

The sequencer and arp



Model D £274

1 If you're seeking other flavours of analogue and want to find something similarly Eurorack-compatible, Behringer conveniently have quite a few other choices. The first of their desktop series was their take on the Model D, which is as good a place to start, as the Pro-1 is for jumping into programming – it's a versatile circuit that can do all manner of sounds.



Crave £140

2 While technically not informed by previous designs, Behringer's Crave is a bit of a mish-mash. It pairs the step sequencer from their MS-101 Monosynth with the same VCOs used in the Pro-1, but then feeds that signal into the ladder filter from the Model D. Similarly to both, it features a semi-modular design with a plethora of patch points.



Neutron £290

3 If you're seeking something with even more possibility, the greater sound palette from the Behringer Neutron might be exactly what you need. The Neutron features a dual-oscillator design but also includes a built-in distortion circuit as well as a delay. Each can be controlled via patch points as well.



While not feature-laden, the Pro-1 does feature an arp and sequencer, as on the original. The arp has two modes (up, and up/down) and no way to control how many octaves it's cycling between. The sequencer is equally primitive; two sequence storage slots, which retain note info after powering down. Add rest and tie info by flicking the sequencer switch briefly into play

mode and then back into record mode, though it's tricky to get right. The sequencer and arp are both automatically clocked to LFO speed; but there's an LFO CV input jack, so they can be clocked externally as well. One key addition is the ability for

each osc to play its own note, not possible on Pro Ones of yore. Do this by flicking the 'Poly/Mono' switch to Up. The lowest note triggered is played by Osc A; the higher by Osc B. Glide only affects Osc A when in Poly Mode, for nice cascading sounds. **FM**

The Pro-1 features both full-size MIDI In and Thru jacks, plus a USB port that functions as a MIDI interface



Faking a disco octave bass with the LFO



1 Want to use the Pro-1 to get that classic octave bass-jumping sound? While you can use the arpeggiator to achieve similar, you can program that sound from the front panel without the arp. We've chosen a mix of square and sawtooth waves.



2 Set the amp envelope so that a note will sustain – attack at 0, decay and sustain near 8, and release around 4. Your filter envelope can take a similar shape. Leave the cutoff set to nearly fully open, around 9.



3 We'll use the LFO set to square wave to modulate the pitch by a set interval. In the Mod Matrix, ensure the LFO's routed directly to the Filter. Now when playing a note, the pitch jumps by the amount set by the modulation matrix.



4 Using your ear (or tuner), turn the amount to 4.5, where you'll hear the pitch jumping a perfect octave. Control the mod speed with the LFO freq knob. Try playing the Pro-1 in Poly mode, and layer notes and create a dense cloud of sound.

Wajatta

Unlikely electronic duo Reggie Watts and John Tejada deliver more urban dance kinetics on their second album, *Don't Let Get You Down*. **Danny Turner** discovers how they've become more than the sum of their parts

Some of the best creative collaborations are also the most improbable. In 2017, beat-boxer, comedian and musician Reggie Watts discovered techno titan John Tejada playing a late night DJ set at an underground

warehouse party in Los Angeles. A blossoming friendship ensued and the pair entered the studio in an attempt to unify their talents and create a refreshing play on their musical influences.

Forming Wajatta, a portmanteau of their last names, the duo hit the ground running with their debut release *Casual High Technology*. Acclaimed for Watts' improvised beat-boxed rhythms and Tejada's hypnotic blend of synths and drum patterns, the duo returned to the studio to record *Don't Let Get You Down*, where they found their roles beginning to seamlessly interchange.

When did you guys first meet and decide to work together?

John Tejada: "It's been about three years now. Someone brought Reggie to one of the underground parties I was playing at – he was there quite early and I just kind of saw his hair. I was familiar with what he did and kind of figured he was more of a music head than a musician, but we inevitably decided to do something. All my collaborations over the years have come from just hanging out and growing as friends. Now we don't even need to speak to each other while doing our thing; we're all synched up and in our comfort zone."

Did you have shared ideals when it came to making music or was it more a case of opposites attracting?

JT: "I assumed that we came from the same musical upbringing, but that differed more than I expected and we didn't have any preconceived ideas. Reggie's a fan of underground dance music, so I figured that would be the first place to play around, and we're both performing musicians so it made sense to make recordings and do shows."

As mentioned, you were very much in tune with each other regarding your influences...

Reggie Watts: "We're both of the same generation, so a lot of our pop references are similar. I was part of the hip-hop culture in the '80s but fell off in the early '90s. Then I got into electronic music and DnB. We both love making compositions and sharing production methods, so we created Wajatta which is our last two names mashed together. It's so dumb and so simple that most people miss it."

You've been working with the band Maktub for many years. Primarily as a vocalist or were you heavily involved in the production side?

RW: "I was songwriting for sure, but most of the

ways we came up with stuff was through improvisation. I know a little about production but always had more ideas for vocal sounds and things of that nature. I'd say I'm more of a performer/singer songwriter – and sometimes synth player!"

John, you're quoted as saying it shouldn't be painful to have fun and make art. Do you think the world of production starts off painfully and gets easier as you get older?

JT: "I think it's the opposite. The initial sparks either happen or they don't and it's the last 10% that's kind of annoying. When Reggie and I get a couple of things going, things start to move really fast – then the danger is having too much content to finish off. The hardest part of production is when the track is nearly there and you're going over it with a fine-tooth comb. I hate that part because it's all about making final decisions."

RW: "There's a song that you might not be familiar with that had the lyric 'I'll be your firestarter'. It always reminds me that it's easy to start fires but hard to put them out. You can start a million tracks and think they're dope and cool, but in the final editing process there comes a point where you have to stop, which is weirdly harder than starting."

JT: "As technology has progressed it's done more harm than good. I was just reading today about Tom Jenkinson [Squarepusher] going back to making stuff the way he did in 1996. There's a few of us doing that because you didn't have so many options back then. Now you can look at something in a million different ways, which makes production more difficult than it needs to be."

Is that applicable to hardware as much as the proliferation of software?

RW: "I have friends like Tim Exile, Beardyman and Imogen Heap who do a lot of incredible looping and live production. They have so much gear and tech and I have three pedals. I can't handle it and often feel like if I see another error message on a rectangular screen I'm going to shoot someone. So, for me, the least amount of options produces greater creativity."

How do you feel about creativity itself? Does keeping that fire burning get progressively difficult as you get older?

RW: "This might sound like a dumb sentence, but I was in a carpool with Brian Eno and we were talking about careers, creativity and how things have progressed. He offered me this piece of advice – make as much as you can while you're able to because you don't know when that might turn off. I guess there was a period in his life where he didn't feel very creative at all – songs and lyrics used to come very easy to him and one day they didn't. I guess the lesson is not to take creativity for granted. I can't imagine ever not having that because my brain is eternally curious and I don't get in my own way. That's one of the reasons I like working with John, because I'm able to do what I love and he gets it. We don't question it too much; we just let it be what it is. I turn off once we start getting into the minutiae."

That initial surge of creativity artists have seems to be unsustainable over a long career...

JT: “Yes and I think money ruins anything and everything. We’ve not made any off of this project yet so if we get really bad we’re probably ready to start making money [laughs]. I’ve had success at a smaller scale where something got on the charts, everybody’s playing it and you start thinking ‘ooh, what else will they like?’. That’s a really dangerous place to put your mind because when you made that one tune you weren’t thinking about that. The tracks I’ve been really lucky with are also the ones I was really ashamed about, yet that was probably when I was at my most honest and original.”

It must be hard not to chase success without it feeling counterintuitive?

JT: “If you get in that mode you’ll maybe start getting pressure from the label and begin to overanalyse things – then you’re fucked and it starts to feel like a job. I’ve prided myself in not repeating those moments and turning them into manufactured sequels. At the moment Reggie and I are just exploring things we’re interested in, and because that still feels new there’s no sense of repetition.”

RW: “You have people like Diplo and his crew who have found something that works in an industry sense and they’re just pumping that stuff out. That’s commendable if that’s what they want to be doing,

but for Wajatta it’s about doing what we really dig. Sometimes we feel people will like what we do, but we’re primarily writing for ourselves and having a good time. In doing so it translates through the music and we can feel it running through the process.”

You clicked quickly to produce your first album *Casual High Technology*. Was the process different for this follow-up?

JT: “This time around we completed the tracks and did more things together from beginning to end. Reggie’s playing more keyboards on this record, doing beats and I’m singing more. The process may have slowed us down, but it’s solidified the content. It’s the same formula and not that complicated.”

Reggie is known for his improvisational lyrical approach, whereas you’re more precision-tuned. Did you have to adapt to his way of working?

JT: “It was a case of I do what I do and Reggie does what he does, so let’s see if it syncs up. When we play live it’s slightly more improvisational. Reggie uses the gear he’s used to for solo shows and so do I – we just clock them together and let it happen. It’s pretty restriction-free, but sometimes we fall upon things and try to do more of it.”

RW: “Because I’m mostly an improviser I like everything being fast and creative. That keeps me in the zone and the ideas fresh. There wasn’t a lot of adaptation because I did tons of gigs in my 20s where I was singing with DJs who were plugged into a mixer and playing with onboard effects. It’s mostly the same vibe.”

How was the transition from studio to live?

RW: “In the beginning we were trying to do the tracks as they were on the record, but now John has them loaded and is doing live production performance. Sometimes I remember all the parts and other times we just go for it.”

JT: “I feel like we’re doing covers of our own stuff. I’ll start with something skeletal that’s not meant to sound too exact and a lot of Reggie’s vocals aren’t really words – he’s doing an imitation of what was on the record. There was one show where we just used old Roland gear, played patterns and that went on for 90 minutes. Sometimes I would cue up a machine if I wasn’t brave enough to make a new pattern with everybody hearing it, and I feel that way of performing is something we’re working up to even if it’s tough to pull off in front of a big crowd.”

Is that how you worked in the studio, with Reggie performing lyrically over a skeletal demo?

RW: “On the first record it was definitely John creating structures with me performing over them and adding some light synthesiser stuff. This time I’d play around with a beat and add a bassline, which might inspire a pad sound. There’s one track on the record that was fully improvised, which was John throwing down a drum beat and programming an arpeggiator that I performed live. That way of working is a dream for me. In the ’90s, I had a live improvised drum & bass band – it wasn’t all that great, but the idea of generating a high

“We’re primarily writing for ourselves and that translates through the music”





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In The Studio With | Wajatta

production value from electronic music has always been very intriguing to me.”

Was walking into John’s studio like going into a toy shop?

RW: “It was awful – so messy, cluttered and dark. It was damp and there was so much gear everywhere that I was tripping over wires... No, it was quite the opposite. I’ve been in Dave Sitek’s studio from TV on the Radio but John’s is the complete reverse. I feel way more comfortable walking into John’s studio because it’s much more chilled and organised.”

Were you looking to perform with instruments that have an element of immediacy, rather than the modular setup for example?

JT: “I’m trying to catalogue the 30 tracks in my head. I used a few hardware things that were hands-on and gave me that immediacy but it was bit like playing golf – does this track need a driver or a three iron? On the ideas side, I’d have an idea to create some vibey sound and that would spark other sounds. I’ve been struggling to make things simple recently. If the studio exploded I’d grab the laptop because there’s so much great VST stuff these days, but also my speakers, interface, one really cool monosynth and a really cool poly.”

What gear are you most drawn to these days?

JT: “The Cwejman S1 semi-modular and the Dave Smith OB-6 for poly. We’re still using the Moog Voyager quite a bit for basslines and we got out the Deckard’s Dream polysynth a couple of times. I’ll turn to the Eurorack system once in a while, but I don’t want to plug in ten cables just to get a starting point. I’m becoming more sample-based than I have been for a while. I still use the E-mu SP-1200 and like my vintage samplers like the Akai S612 and Casio FZ-10 – things that can give me that quirky vibe. Early on, when samplers only had 25 seconds, I’d load every second up with a sound and sequence from there to see what I got. I found myself really comfortable in that place and have gone back to that. Even if I’m using the modular or a polysynth, I’ll grab those sounds, throw them in the sampler and explore that further. By reversing or tweaking the notes you get all these unnatural harmonics, and once you start transposing that around things start sounding kind of techno.”

RW: “For me it’s all accidental stuff. Sometimes I thought John left a mistake in, but he said, no, no, that’s supposed to be there [laughs].”

JT: “Thank you Reggie. That’s why it’s important for us to do this stuff in person, because these moments don’t happen when you work remotely. Unless it’s something specific, I’m not a fan of sending files.”

How do you know when to ditch an idea that’s not working – especially when one or the other might have an attachment to it?

RW: “I don’t think we’ve ever agonised over that sort of thing. If you’re working with a regular vocalist who’s sitting with a notebook and writing out lyrics there might be some resistance because you have more of an attachment to it, but because everything

JOHN’S GO-TO GEAR

EMU SP-1200

“There’s much more magic to this machine than the lo-fi character it’s famous for.”

Roland SH-7

“The only vintage keyboard I’ve hung on to. I’ve not found a similar character in newer units.”

Cwejman S1

“This would be my desert island monosynth – it’s like a modern Arp 2600.”

Roland TR-909

“It is of course *the* sound of techno. The 909 has been with me for 29 years.”

Sequential OB-6

“It’s extremely lush and can handle all the ‘analogue’ I need.”

Black Corporation Deckard’s Dream

“It has a beautiful unwieldy character that really comes to life.”

Roland TR-808

“Clearing patterns and tapping in is so intuitive, and I don’t think modern sequenced machines nail the workflow.”

Abstrakt Instruments Avalon Bassline

“The only recreation that improves on the original. It’s also built like a tank.”

Roland MC-202

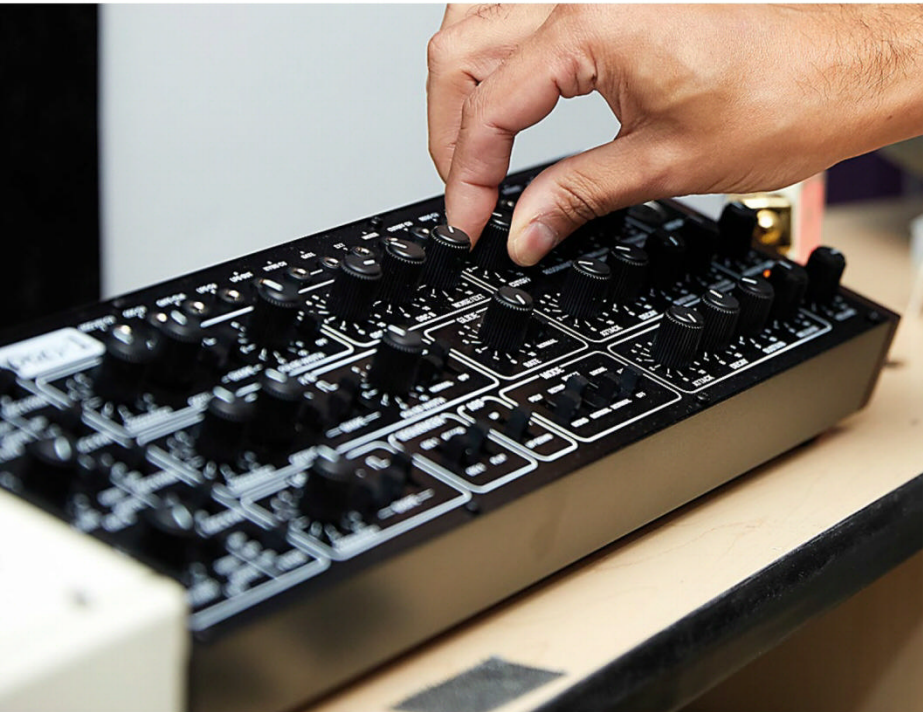
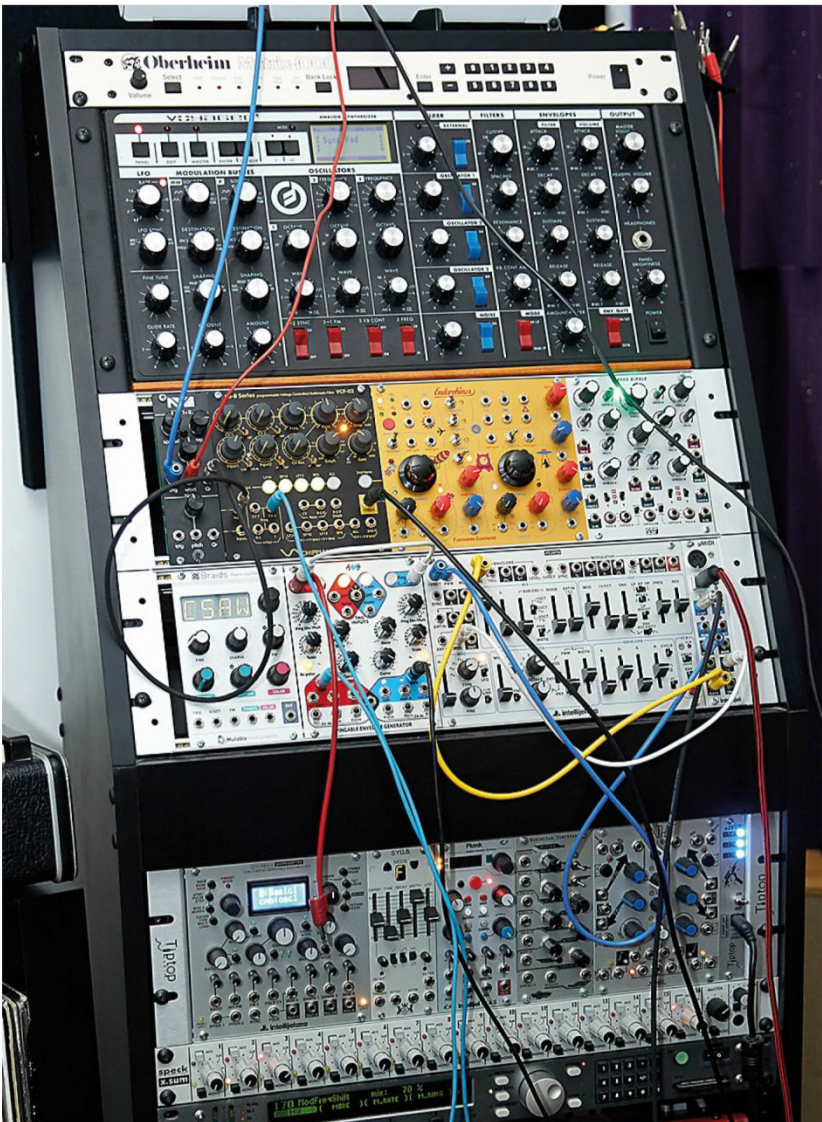
“It has beautiful quirks that give it a lovely character.”

Apple MacBook Pro

“I find modern DSP the most interesting these days.”







is being improvised and generated live I'm not particularly married to anything because I know we can generate a lot of stuff."

But at some point John you no doubt wanted to spend time tweaking the material? Was mixing done in your own time?

JT: "We did a couple of mixes together all the way until the end, which was part of what we discussed earlier about not wanting to be stuck with too many options. With this record, we went through the content together and did the scary stuff while we were still in the same place. That helped me a lot because Reggie can see it more as 'music' where I might be stuck on how two sounds are fighting each other in a frequency. It made the whole production process more pleasurable and come out better."

I have to ask you about the track *Marmite*, where Reggie seems to adopt an English cockney accent. What's the idea there?

JT: "That track was a bit unique because I was messing around with the SP-1200 and getting excited to have that back in my life. Usually, everything we do gets edited or layered, but *Marmite*'s five minutes of Reggie being completely raw and a dream example of no editing."

RW: "It was definitely me just ranting. A friend of mine's English and we were talking about that old-school battle between Vegemite and Marmite. I was just imagining roommates fighting over things, like 'someone drank all my oat milk', or 'who ate all the Marmite?'. It's usually whatever's on my brain."

JT: "What came out is this honest expression of our influences. It's just dance music in general that's now been categorised into a lot of different styles, whether it's *Renegades* at the beginning of the album or *Little Man*, which is more of a rap-style thing. It all blends together for me, which is something that almost needs to be explained these days."

RW: "The one unifying thing is that it's music to make you move and all the stuff within the electronic world that we dug. John and I talk about Art of Noise sometimes and think, '*Peter Gunn*? What was that? What the hell happened?'"

JT: "That was part of the hip-hop culture over here. I don't know about England, but I'd imagine beat-box made its way into stuff and they were looked at as a rock band. Kraftwerk's the same. It blew up in the hip-hop scene but people called it Krautrock so it existed in multiple cultures as multiple genres. I guess our goal, if we can do it, is to get all different people to connect to the music we make."

RW: "When I sing, I do a lot of vocalism where the track sounds 'electronic' but it's not like your typical electronic track. Maybe that attracts people that normally wouldn't consider listening to us, because it doesn't sound like 'house' or 'techno'."

Are you particularly influenced by European electronic music and new wave?

RW: "Oh my god, if I could live in a simulation that existed between 1978 and 1985 I'd be completely happy. What was being generated then was one of the greatest periods in music history. New wave and



post-punk, and the whole culture around them, have had a huge influence on me. I'm a huge industrial head – I love Nitzer Ebb, Front 242 and Ministry and keep coming back to those cats. When I'm doing a vocal line, closing my eyes and listening to the track I'm thinking of Depeche Mode or imitating those early Fairlight vocal samples. The greatest crossover that influenced me was Jimmy Jam and Terry Lewis working on The Human League's *Human* at the same time they were about to embark on Janet Jackson's *Control*. Although new wave was very British, there were so many things complementing it in the US generating the look, feel, tonalities, sophistication, raw power and disgusting nature of that era, and those are all I need to generate anything."

Did you latch on to those influences John or was it more about the American dance scene?

JT: "I've recently had an Echo and the Bunnymen phase, and coincidentally learned quite recently that Bill Drummond of The KLF signed them when he started Zoo Records. It feels like it's all connected. Besides that era and Trevor Horn, Throbbing Gristle – just because they did so much shit they weren't supposed to and made it into music. My biggest compliment to the British scene is that they took influences from Chicago, Detroit, NY and LA and made it something else. I love a lot of the bleep scene and ambient house hit me massively – The Orb and Future Sound of London were a great combination of everything I liked, and when I first started figuring out how to produce that's the first place I went."

RW: "I also think Britain was going through a lot of interesting political dynamics. The creation of The

Sex Pistols mixed with druid-based occultism that came through in bands like Bauhaus and The Cocteau Twins. Liz Fraser's Gaelic mixed with gibberish is one of my biggest vocal influences because you don't have to worry about lyrics and you're immediately transported down this magical dark route. When I'm coming from that point of view, I feel like I'm at my most sincere, compared to when I'm in Selena Gomez territory, which is when I feel existentially lost."

Today, it feels everything's lumped into EDM...

JT: "EDM is a great descriptor for what everybody's doing, but it's become a very dirty word. In the '90s Trance was the big thing pre-EDM, and then bigger companies started getting involved and doing events. It's essentially pop music that's club music, but they exist hand in hand. There are a lot of academic tools that get developed and 20 years later become democratised so people can make music easily. It's the same balance with underground artists pushing the envelope. That trickles over to the business side then everybody adopts those sounds."

RW: "There's so many labels for so many things these days. You get one pie that comes out the oven and divide it into quarters, then you keep dividing and dividing until it's a meaningless pile of mush." **FM**

WANT TO KNOW MORE?

The Wajatta album *Don't Let Get You Down* is released 28th February on Brainfeeder. For more visit, wajatta.lnk.to/down



Tech house

This hybrid genre, falling somewhere between techno and house, is not without its controversies. We explore its roots

As much as we might want to pigeonhole it, music can be a wonderfully imprecise art. The lines between styles, sounds and genres are often blurred and poorly defined. Nowhere is that more apparent in electronic music than in the case of the nebulous grey area of tech house.

Emerging as a distinct style in the mid-to-late '90s, tech house falls – as the name suggests – somewhere between techno and house. Exactly how that works in practice has changed since the genre first evolved, but as a rule of thumb it could be defined as the structure and rhythms of house with the sounds and production values of techno.

Of course, there are also caveats – not least in the fact that the two genres were very closely related in the first place. Given that not all house tracks have the same structure and that not all techno uses the same sounds, it's also almost certainly something of an oversimplification,

but as far as generalisations go, it's not too bad.

To understand the sound a bit better, think back to the dance music scene of the mid '90s. House was already a splintered genre, with the wonderfully camp sound of handbag house splintering off in one direction while other producers explored the crowd-pleasing simplicity of filter house, to name just two sub-genres. Meanwhile, the techno scene was largely heading in one direction: harder, faster, heavier. As average tempos in techno shot up to well over 140bpm, it's not hard to see how a new middle ground opened up. Tech house filled the gap, offering an alternative for those who still enjoyed the rough-edged sound of techno but craved something just a little more laid-back and funky, closer to house.

The tech house sound initially broke out in London, with its roots possibly traceable as far back as 1993, when Richard 'Mr C' West of rave heroes The Shamen started

running illegal parties in Farringdon under the name The Drop. He would eventually team up with producer and DJ Layo Paskin (of Layo & Bushwacka!) to open The End nightclub, a hotbed of tech house through to its closure in 2009. Elsewhere, Terry Francis and Nathan Coles were launching their Wiggle parties in 1994, with resident DJ Evil Eddie Richards also being a champion of the sound.

The genre would go on to find a level of commercial success to match its underground credentials. Francis became one of the first residents at London's new superclub, Fabric, bringing the tech house sound to a bigger audience. Layo & Bushwacka! scored a huge underground hit with *Love Story* (2002) and went on to have one of the first big crossover hits from the tech house scene, reaching the UK top ten the following year when the track was mashed up with the vocal from *Finally* by The Kings of Tomorrow.

But, as tech house became more established in the early 2000s, the genre started to receive minor criticism for being formulaic and samey. It's a strange criticism in a lot of ways. Genres are formulaic by definition; break with the tropes and conventions of a particular sound too much and you no longer fall under that banner. But even a cursory glance across the genre's history shows the range of sounds that can loosely be described as tech house, from the feverish machine funk of Green Velvet's *Preacher Man* (2000) to the high-tech sheen of Dave Spoon's *At Night* (2007), through to the big-room slickness of Patrick Topping's *Forget* (2014).

A quarter of a century on from its underground beginnings, tech house is now almost a default sound for festivals, clubs and Ibiza, proving there's still plenty of life in the hybrid sound. Maybe it's not even just a sound. As Mr C once put it, tech house is an attitude. **FM**

Technology that defined the second wave of tech house

Pioneer CDJs and DJMs

1 We wouldn't normally consider DJ gear to be much of an influence on the music itself, but the rise of tech house coincided with the emergence of digital DJing technology and there are interesting parallels to be drawn with the way Pioneer CDJs and DJM mixers encourage DJs to select particular types of track and mix them in a certain way, notably favouring quite rigidly-structured arrangements suitable for looping, applying effects and carrying out long, perfectly-synced blends. There's an argument that digital DJing has had as much to do with the evolution of tech house as music software itself.



Sample packs

2 It's certainly not just tech house that's benefited from the surfeit of royalty-free loops and samples, but the rise of the sample market has helped the genre achieve such dominance. Sample CDs have been around since the early '90s, but the market reached critical mass in the early 2000s, when dozens of new companies popped up offering sample DVDs (and eventually downloads) based on increasingly

specific genres and styles. By the 2010s, the market was flooded with sample packs at ever-cheaper prices, meaning that it was easier than ever to create authentic versions of club styles. If there's any substance to the criticisms of tech house for being formulaic, they surely stem from the widespread availability of generic sounds and loops. But tech house certainly isn't the only genre where that's true, making it something of an unfair criticism.



Ableton Live

3 You can draw a line somewhere in the early 2000s where the original tech house sound pioneered by the likes of Mr C, Terry Francis and Eddie Richards evolved into the slightly more commercial sound we know today. You can identify a lot of reasons why genres evolve, but in this case there's a strong correlation with the evolution of music tech. Ableton Live was first released in 2001, and the software quickly became popular with house producers. Growing in parallel with the early 2000s tech house scene, there's no doubt Live has had a big influence on the genre (and others), fostering a loop-based approach to composition that already existed in other DAWs but works particularly efficiently in Live.



The Emperor Machine

Former Bizarre Inc hit maker Andy Meecham, aka The Emperor Machine, chats to **Danny Turner** about the mindboggling arsenal of gear behind his latest album *Music Not Safari*





Inspired by his love of British synth pop, house and electro, Andy Meecham's teenage fascination with analogue gear led him to work as a sound engineer at Blue Chip Studios in Stafford. It was here that he joined forces with Dean Meredith's techno outfit Bizarre Inc, which crossed the club/mainstream divide to score numerous top 10 hits in the early '90s including *Playing With Knives* and *I'm Gonna Get You*.

Jaded by label interference, Meecham and Meredith disbanded Bizarre Inc in the mid-'90s to record as Chicken Lips, founding Lipservice Records for their own productions. Born out of his love for vintage samplers and synths, Meecham then focused his attention on his solo dance project The Emperor Machine. Sharing Llama Farm Studio alongside avid synth collector Richard Hale, the producer's rarely lost for inspiration.

What first got you hooked on electronic dance music?

"It's mainly down to my sister who bought the John Foxx album *Metamatic*. Amongst her 7-inch collection was also a Kraftwerk single that was absolutely bizarre, and one of my earliest memories is the start of the track *Reflections* by Diana Ross. It's got this weird delay on it that kind of got me hooked. My uncle was also a collector of instruments. He had an HH mixer with a delay on it and I used to plug a guitar in and make these weird Doctor Who-type noises. As I got into my teenage years, Afrika Bambaataa's *Planet Rock* blew me away."

You had a string of mainstream hits in the early '90s as a member of Bizarre Inc, which must have been quite an exciting period in your life?

"It was a great time during a period where there wasn't a lot of dance music being played on Radio 1. I remember doing an interview with Lisa F'Anson and saying you need to play more dance music, at which point she gave me such a dirty look [laughs]. Bizarre Inc went up really quickly and went down the same way, so it was a bit of a ride."

Were you corrupted by that experience?

"We signed to Warner Brothers and I can remember the A&R man saying we needed to make more songs like *I'm Gonna Get You*, but we didn't want to do that. We were being told to chase the success, and when we moved over to Mercury Records the same thing happened. We never set out to write hits like *I'm Gonna Get You* and *Playing With Knives*, so we got a bit disillusioned with it all and created Chicken Lips out of frustration. I remember having a conversation with Dean [Meredith] at the time saying we needed to get back to the clubs because that's where we had the most fun. 'Let's forget all this major bollocks,' were his exact words."

You have an amazing amount of gear. Do you consider yourself a collector?

"I'm more of a player really – it's the sound that I'm after and that's what led me to buy all the

synthesisers. I moved most of my gear into Llama Farm Studio with Richard Hale and he's a collector. When I first met him all of his equipment was covered in dust and in storage, so we decided to move my gear in and turn the barn into a studio."

But you still have a home studio?

"The farm is being rewired because Richard wanted to build an extension on the side of it. So I've come home for a bit, but I've always had bits of equipment here, usually Akai MPCs because they're what I like to write on. I've basically moved as much gear as I can and crammed it into the back room, but there's still quite a lot left at the farm and I can't wait to get back there because it will be really cool when it's finished."

What's the origination of the new album title *Music Not Safari*?

"Originally, I wrote a track called *Moscow Not Safari* – I think I was just playing with words and doing a bit of a David Bowie. I did come to a conclusion about the title at one point, but I've completely forgotten it so there's no point pretending to be super-cool now."

If anything the album's more spacey than earthy. Is that an inevitable consequence of the sounds you're using?

"I wanted the album to be quite electronic, but not electronica, and make music that I'm really into from '80s boogie and funk/disco to a tougher electronic sound. I wrote some of it at the farm with all the synths around me and mixed the album at home. Ultimately, it's the sound of the synths. I was signed to a label once and they didn't know how to categorise me, which I found quite interesting. I don't know if I'm a house music artist, electronica, future disco or new disco, but I'm massively into disco and all those great producers like Patrick Cowley. From my point of view, some of the riffs have a Depeche Mode vibe, probably because I've been a massive fan since the beginning."

The cover art features the Akai MPC3000. Is that just iconography or did songs on the album originate from that device?

"I wrote it all on MPCs to begin with. I've got two MPC2500s and the MPC3000. I wanted a robotic sound but not too quantised. When we were talking about the artwork I sent an image to a graphic designer called Luke Insect and he came up with the idea of an MPC rotting away in the jungle."

The MPC was designed by Roger Linn of Linn Drum fame and manufactured by Akai. Are you a fan of companies collaborating in that way?

"There was the Dave Smith collaboration with Pioneer for the DJ Toraiz SP-16 sampler. He makes amazing synthesisers but only put a filter on it. I know Dave Smith and Tom Oberheim rereleased some synths but I haven't got any from Sequential. They're too expensive and I'd rather buy something vintage for the same amount of money, but I did use the Oberheim SEM and Two Voice on the album."

Do you find that with many of the vintage synths there's only a handful of practical sounds on each?

"I see it like having a toolbox – some synths do things better than others. For example, the strings on the Polymoog sound better than the Roland Alpha Juno-1. The Oberheim Two Voice is quite mechanical sounding but I really like the filters on that and use the Roland System 100 and SH-7 a lot for bass sounds. I walk into the studio in the morning and say 'hello boys', switch everything on and they all warm up amidst the sweet smell of machine dust. Then I'm hooked and I'll play until I come up with something I really like."

On the topic of MPCs, *Music Not Safari* doesn't sound like an album cultivated from samples...

"All the beats on the album come from the MPC then they're dumped into Logic at which point everything sounds a bit less MPC. I like using the MPC because I'm fast on it and speed is important. I'm not a fan of mouse clicking to be honest. I like hardware and machines, so I'll write most of the tracks using drum breaks or samples."

The MPCs are okay for sample time?

"I've got 32MB on the 3000, so that's maxed out and the 2500s are maxed out as well. I get an idea, record it in and usually have the 3000 running drums and

the 2500 recording riffs because that does have more sample time. Once it's all dumped into Logic I'll replay the riffs to either fatten them up or add some variation. I wanted this album to be instrumental and full of riffs and sounds that could be played out."

Are you also using any softsynths?

"Not really. I use Logic as a tape deck by recording everything in and chopping it up as if all the regions are a piece of tape. There are probably loads of tricks that I don't know, but I'm not a fan of having millions of plugins. I tried that route but it was just too much. Digitally, all I need is a compressor and limiter. For flange/delay, I'll use old external stuff like the Boss DE-200 or Roland RE-501. With those, I'll come out of Logic, record and go back in, because I think it sounds better that way."

There's definitely a toughness and thickness to your productions. Is that the definitive advantage of analogue?

"I can hear the difference but it doesn't matter. Some thinner sounds work if you want a skinny Italian disco vibe and want to use softsynths for that. I bought the Roland AIRA System 1 fake analogue device and really like that, but the filter wasn't right and it didn't have the warmth that I'm used to. I've used softsynths in the past. If it does the job that I'm looking for I don't really care, but I definitely prefer the analogue sound to digital and that's probably down to all the discrete circuitry. Having said that, I recently bought the UAD Apollo X4 audio interface and that's amazing – it made my synths sound even nicer. But analogue must mean something otherwise they wouldn't put an analogue filter on so many digital synths."

"Bizarre Inc went up really quickly and down the same way... it was a bit of a ride"



What made you buy the UAD Apollo x4?

"My old audio interface blew up. I was using an RME Fireface, which I thought was the bee's knees, but one day it didn't work. I had an Apogee Duet for backup but it almost sounded hollow. I read that the x4 had zero latency, so I got a new laptop and basically thought I'd create a studio under my arm. When I heard the sound I couldn't believe it. I think the word I'm looking for is 'true' – I got back what I recorded in, and that's not always the case."

Do you run the synths through a lot of outboard?

"It depends on the mood I'm in and how rushed I am. I try not to EQ the synths too much because I think there's enough filters on them to get the sound I want. I always go through a desk though. At home I've got an Allen & Heath GS3000, which has got valves on it, and at the farm there's a Soundcraft DC2000. Sometimes I'll go through a synth or a guitar amp if I can be bothered to plug stuff in and mess around. Again, it's about knowing your tools. If you're a mechanic you know what a torque wrench is or the best screwdriver for a socket."

It sounds like you're highly familiarised with your gear and what each device can offer...

"It depends how clean you want the signal and how coloured you want the sound. It's hard to explain



In The Studio With | The Emperor Machine

because there's not a massive difference but you can hear it dynamically. I quite often put stuff through the four-channel mixer on the Roland System 100 because it sounds nice and has a built-in spring reverb. If I want a cleaner sound I won't go through that because it creates hiss, but then once you flange hiss it adds dynamic – so I know what I want and how to get there if I need to.”

The album's rich with basslines but they rarely seem to derive from the same source

“Whereas some people will use any old sound to write a riff, I can't work like that. I like to get the sound I want first because that inspires me to write the riff. I used the Moog Prodigy on the first two tracks because I wanted a warm sound, but I also used the Korg Minilogue XD, which is a great little synth. I'll always go to the SH-7 or System 100 for basses. At Farm studios, Richard had the System 700, which was massive. That sounded amazing, but somebody made him an offer he couldn't refuse.”

Do you have a lot of artists visiting Farm Studio to buy gear?

“Todd Terje came to have a go on the System 700 and I'd never seen anyone patch as quickly as he did. He loved it and wanted to buy one of the sequencers. I actually recorded him using the System 700 and put it on my track *RMI Is All I Want*. The 700 has this groove to it and the sound of the oscillators and filters are enormous. It's a joy to play on because it's not like some tiny Eurorack; it has big quarter-inch jacks clunking in and out.”

We've read that you prefer not to quantise. What's behind that decision?

“It's about the feel really. Some things sound good quantised but it goes back to me writing riffs into the MPC and recording them all live. I'm quite anal with stuff like that and try to do little hi-hat changes on the fly. So I don't like quantising riffs, although drums are different because you can get some swings going on there. You'll be surprised how the whole track starts to come alive if you can refit the drums around the feel of an amazing riff.”

Some prefer to mix as they go, presumably because they feel they can shape the track better, but you feel you'll lose the vibe doing that?

“I monitor mix as I go because if I've had to loop stuff there'll be clicks and pops and I've got to correct that anyway. Mixing as you go can work if you're trying to stack loads of synths together, but I prefer to do it more towards the end. I guess I've learned that I know what something can sound like when it's finished so don't try to spend too much time mixing when I can focus that time on writing or arranging. Also, my ears get shattered after a while – they've been punished over the years.”

You also believe it's important to set deadlines, which must take a lot of discipline?

“It does, and learning how to move on quickly. I had to do two remixes of the last single in a week, which





ANDY'S ESSENTIAL GEAR

Roland System 100

"It's got such a nice-sounding filter alongside an inspiring sequencer."

EMS VCS 3

"When looking for that strange sound FX or top-end riff sounds this is my choice."

Moog Polymoog

"Warmth and dynamics are what it's best at and it's my go-to synth for strings."

Akai MPC300

"The drum sampler to end all drum samplers."

Elektron Monomachine

"It sounds different to anything else in my studio and is full of happy accidents."

Oberheim SEM and Two Voice

"They can create almost any sound I'm after and that classic SEM filter sits really well in the low mids."

Roland TR-8S

"I use it to play all the basslines and drum samples in my live show."

Korg Delta

"It's a go-to synth for that classic '80s techno vibe."

Roland SH-7

"A great all-rounder that I use for basslines, mid riffs and just about any percussion sound."

Moog Prodigy

"I use it a lot for bass sounds and lead riffs."

In The Studio With | The Emperor Machine





leave them plugged in but not switched on so they're still earthed, then clean them out and reseal the parts, you can definitely get them to come back to life. If something's really knackered there's a guy called James Walker who has his own synth repair service. I believe he works at Soundgas now, so I don't know if he's still fixing synths. There's quite a few at the farm that need doing, like the PPG Wave. The sounds you can get from that are amazing and it comes with a big screen called the Waveterm."

A couple of other devices stand out, notably, the Roland SP-404A Linear Wave Sampler...

"It's a tiny little sampler that streams samples off your SD card with instant load times. I've used it for gigging because I wanted something that I could turn on that holds and loads up massive samples."

What about the Simmons Clap Trap – is that as useful as it sounds in terms of creating a variety of claps?

"Definitely; it sits next to my Space Echo. We used it a ton on the Chicken Lips stuff – you just send a trigger and it claps away. It's got a really squelchy clap sound and Dean had a habit of playing it for hours because it's so addictive."

Are there one or two pieces of gear you find yourself constantly leaning towards no matter the project?

"The System 100. I've got it in a position now where it's at desk height and I've put it next to my new Tannoy Gold 5 speakers. I love to get inspired by it and the EMS VCS 3, but because that's semi-modular I know that once I start I'm bound to be there for a few hours. If I'm looking for weird noises and bass I'll turn to those, and if I want to create melodies, chords and pads I'll go straight to the Juno-6 or Polymoog."

When it comes to playing the album live, how are you managing that without relying on your army of studio hardware?

"I'm playing the whole album live other than the first three tracks. I was using two MPC2500s, but they're way too heavy and I was getting charged at airports for being overweight. Now I've bought the Roland TR-8S for all the drums and basslines and the MPC Live, which is full of loops from original tracks that I can mute in and out. I'll use the Korg Monologue to play riffs and all of that fits in the backpack. I'd love to go on stage with analogue synths like I used to, but it's just not worth it any more. Too many times I've got back, opened the flight case and the guts have dropped out of them." **FM**

WANT TO KNOW MORE?

The Emperor Machine album *Music Not Safari* is released 20th March on Skint Records. For more visit: facebook.com/theemperormachine

was ridiculous but not anybody's fault, so I've had to learn how to make decisions quickly. I just prefer to do things in block sessions. I spent two hours with the SH-101 this morning, recorded everything and picked the best bits afterwards."

Without having a structure in place do you feel it's too easy to meander around without getting anything done?

"Yes, because you can love something you've created but spend so long on it that you start to hate it in the end. When that happens, you'll quite often listen back to the original demo and find it sounds really good. So my advice is to stay within some boundaries you've set for yourself – as long as you have the lifestyle to do that."

Looking through your incredible gear list, Roland play a prominent role...

"I really enjoy Roland oscillators and filters for bass, but in the early days I think cost had a lot to do with it as well. I always loved the American synths, but they were so expensive. I love the look of the Roland gear, especially the older gear and the colour scheme, but I've primarily gone with whatever I had in the bank. I bought the VC3 because of Doctor Who, but had to buy that with a credit card. There's no way I was going to have that sort of money stashed away, so I thought 'sod it, let's get it on the never, never. My dad helped me buy the SH-101, which was the first synth I ever had, then I bought a Juno-6 because I wanted a polysynth."

Have you often been tempted to buy gear just because it's associated with a favourite record?

"You know how it is when you listen to a record and

flip it round to see what synths were used. I'm quite fascinated to know what made those sounds. The Oberheim SEM and Two Voice sound completely different to the records, but you can hear those riffs straightaway. It's the same as rock aficionados who can tell the difference between a Telecaster and a Strat."

What modern synths of yours stand up to the vintage gear?

"I've got the new Korg Monologue and Minilogue XD and they're amazing. I'll take the Monologue out live and the third track on the album, *House Des Lowe*, was entirely written on the XD. I was inspired by it as soon as I bought it, so decided to quickly MIDI it up to a bigger keyboard. I see a lot of people raving about the new Dave Smith stuff, and would like to get some, but my head usually gets turned by something vintage."

Is there a downside to vintage gear in that you have to spend a lot of time maintaining it?

"The Polymoog went weird recently and started to distort, plus some of the keys stopped working, so I bought myself an earth strap from Amazon, put it on my wrist and took the thing to bits. Inside I found all these Polycorn cards, so I pulled them out, reseated everything and couldn't believe that worked."

What do you think was responsible for them going wrong?

"I've found that you need to keep analogue switched on regularly. If they're not warm they start to get crackly and won't play nice, but with most of this stuff the joints just dry or get dust in them. If you



FutureMusic



Moog Matriarch £1,979

The colourful Matriarch sits at the top of Moog's semi-modular 'Mother' range. Dan 'JD73' Goldman gets connecting...

CONTACT WHO: Moog **WEB:** moogmusic.com **KEY FEATURES** Fatar 49-note semi-weighted keyboard with patchable velocity/aftertouch. 90 patch points. 4 Voyager-based analogue oscillators with osc sync. Moog Modular stereo filters and VCAs. 2 LFOs, 2 utility sections with mults and attenuators. 256-step poly-sequencer and arp. Stereo analogue delay module **DIMENSIONS:** 812 x 361 x 139mm **WEIGHT:** 13.6kg



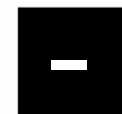
THE PROS & CONS



It sounds wonderful and it's beautifully built and designed

Though complex, it's surprisingly intuitive and the patchability allows for full modular exploration

Can cover all manner of classic analogue and futuristic/spacey tones



It's not cheap (but you're essentially getting a self-contained Moog modular)

The colourful panel might not be to everyone's tastes (but it is very practical)

No presets means once your sound is gone, it's gone forever!

Moog are still the most well-recognised name in synthesis, some 67 years after launching. The company has gone from strength to strength since it launched the Voyager in 2002 (which is now regarded as a modern classic). Following on from the Voyager came the Little Phatty (the last synth design Bob had a direct hand in before his death), the Sub and Subsequent range, the

flagship One and the 'Mother' range of semi-modular machines.

In front of me today is the rather colourful and playful-looking Matriarch; but make no mistake, this is one serious piece of kit. Opinions are divided on the look but I love the pastel shades on the front panel. Recent Moog designs have been more in line with classic Moog design language (black front panel and wooden sides), but the Matriarch (and its Grandmother sibling) hark back to the more colourful plastic/metal designs laid out by The Source,

Satellite and Realistic MG-1 (a Moog design sold by Radio Shack but manufactured by Moog). The colours aren't just there for looks – they serve a function, making clear distinctions on the panel between the 'modules', and the various inputs and outputs on the rear are also colour-coded, linking nicely to the front panel. It all feels warm and friendly right from the get-go. With regards to the front panel, there's no silk-screening for the panel legending (which can scratch off easily); the whole front panel is a super-tough 'Lexan' sticker. Every one

of my synths with Lexan stickers for their panels still looks like new.

The knobs on the panel are all familiar Moog issue (either 'chicken head' style or skirted black plastic with silver-disc inserts) and feel premium under the fingers with a nice resistance and accurate response so you can dial sounds in reliably every time. There are also some lovely sturdy flick switches with white caps for various functions and some super-stylish 'sweet-shop' style backlit buttons on the left-hand controller for sequencer/octave control/hold and for

THE ALTERNATIVES



Arturia MatrixBrute

£1,699

A three-voice paraphonic analogue monster with versatile 'brute' oscillators, ladder/Steiner filters, killer analogue effects, presets and hybrid matrix.

arturia.com



Sequential Pro-3

£1,459

Upcoming for review, the Pro-3 is Sequential's latest hot-rodded 'mono'! It combines two VCOs and a wavetable osc, a multimode filter, 16-step sequencer, three LFOs and powerful effects. Up to three-voice paraphonic too.

sequential.com



Behringer Poly D

£649

The fully analogue Poly D puts four Ds into a single box with 37 keys, four-voice paraphony, a Juno-style chorus, a 32-step sequencer, an arpeggiator and a variable distortion circuit.

behringer.com

osc sync, delay controls/tap tempo. All together these quality component parts form a rather unique, inviting and very intuitive interface.

If we start on the left you'll find the first of the 11 modules (the sequencer/arp) and a quick note: these aren't removable modules – they are embedded and pre-wired like an MS-20 or other semi-modular synth but you can use the included patch cables to significantly reroute things via the connections on each module and at the rear. The sequencer section is surprisingly easy to use and allows you to create keyboard-transposable sequences at any tempo (and with tap tempo) up to 256 steps in length with up to four notes per-step. Simply set the toggle switch to Rec, play some notes into your sequence, hit the green play button on the left-hand controller and you're off – your sequence will be auto-saved to the slot and retained after powering down. In Rec mode you can also add ratchets per-step

(fills and trills) or ties and rests easily too, all with no screen in sight (there are no presets of any sort on this machine apart from that you can save up to 12 sequences over three banks, selected with the oct/bank switch).

As expected, there's also an arpeggiator with octave range control and the direction switch employs several modes which can be applied to both arps and sequences including random, forward/backward, and order (as originally played) modes. Being semi-modular, you can also send sequencer velocity, CV and gate out and have external devices control rate/division input. So in this first module alone there's plenty of power (and you can seamlessly switch between sequences too for more extended/smooth performances).

Moving onto the oscillator section, the Matriarch has four beautiful sounding oscillators with unison, two-voice and four-voice paraphonic modes via a switch to the far right of the panel (you can play chords of up

to four notes but each oscillator is articulated by a single amp and filter envelope rather than a standard poly, which will have an amp and filter envelope per-voice). The oscillators are based on the Minimoog Voyager (and not Moog's modular range) and so you get greater stability but still with plenty of fatness and bite (the Voyager has been my go-to bass/lead machine since 2004). Also notable is that the Matriarch gets up to pitch almost instantly (unlike the Voyager which needs about 15 mins). Each oscillator has a wide frequency range and a choice of four waves (there are no variable osc waves like the Voyager, however that isn't an issue with 90 physically patchable points and the versatile controls available to shape sonics)! Oscillator sync is also onboard and three round red backlit switches select which oscillators have sync applied to them. For modular heads, you also have three CV inputs (pitch, linear FM, PWM) and a wave output per-oscillator too.

DELAY, UTILITIES AND MODULATION

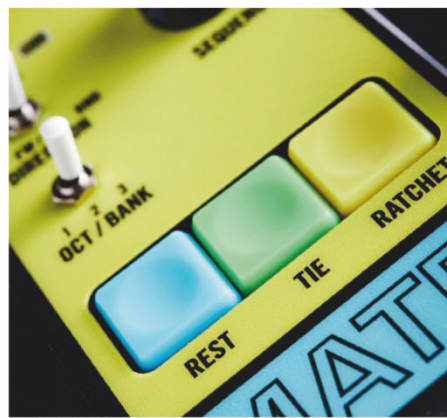
In contrast to the Matriarch's 'Grandmother' sibling, featured here is the Moog 500 series delay (in glorious stereo and clock-syncable). Moog delays are some of the finest around (their Minifooger Delay and 104-SD are mainstays in my setup) and this module doesn't disappoint. It's smooth, classy and textured (and can be grainy at longer time settings) and can sound like a reverb at shorter settings too. You have ping-pong and standard modes, time, feedback and spacing controls, a tap tempo for jamming with (and you can sync it to the internal clock to work in time with the sequencer and arp too) which is all very handy. Of course, it's also patchable with six inputs in total (audio and CV) making it a great external delay processor.

The three bipolar attenuators and two four-jack mults allow further detailed shaping and deeper patching of the CV/gate (internal or external) signals to satisfy the modular heads, whilst the modulation section offers an audio-rate capable six waveform LFO which can be applied to Oscs 1 and 3, 2 and 4 or all oscs simultaneously. Sonic complexity is always nearby and exploring the patching is addictive!



Next up is the CP-3 Moog Modular-based mixer for the four oscillators, which is key to a lot of the Matriarch's old-school Moog Modular-ish character! You can really detail your sonics here with the oscillator levels having a huge bearing on how much the mixer saturates and how the filter is driven. You can go from clean to nicely driven and textured or anywhere in between – versatile is the word! And of course, this section also has five CV inputs and an output for further patchability. The filter section is also refreshingly versatile (and sounds fantastic) and once again is based on the highly regarded Moog 904A module. This is a stereo filter (again like the Voyager) but with three switchable modes – Series HP/LP, Stereo LP/LP, and Parallel HP/LP. You have a single big cutoff control, two resonance dials (one per filter L/R and you can use resonance to filter out lows too) a spacing control to blend/pan between the filters, plus envelope amount and keyboard tracking. Once again, this is classic Moog and simply never sounds bad – the way you can have high-pass and low-pass filters panned left/right makes for some very unique animated sounds, giving the impression of more than one synth being played simultaneously. There's lots of patchability in this section too; five CV inputs and two outputs. The beauty here is that even if you are new to semi-modular (or just want to play without any further patching) you can still get a very wide range of sounds from the Matriarch from the get-go. It's all very intuitive/elegant but complexity is readily available via the patch points too.

There are two typically punchy, patchable Moog ADSR envelopes (from the Moog 911 module; both with a lovely DJ-mixer-style long throw sustain slider) and these are hardwired to amp and filter. However, these can be patched to control almost anything else on the panel and with the use of the mult(iplier) and attenuator sections, you can send signals to multiple destinations with detailed control (as applies for the other modules too). Patch points here include env out and env end out plus trigger inputs per-EG. Finally, there's the output stage which again is based on a classic Moog Modular module – the 902. This is nicely sensitive to level and can be driven if required. Three modes allow versatile control



LEFT-HAND CONTROLLER: Classic Moog pitch and mod wheels, octave-shift controls and poly-glide

REAR PANEL: Jack/Eurorack outs, MIDI in/out/thru, USB, delay outputs, sustain/expression inputs and more

KEYBOARD: The 49-note Fatar keyboard feels very high quality and is fast to play and accurate

UTILITIES: Allow you to attenuate, manipulate, multiply, ring-modulate and reroute CV signals

– Amp (both VCAs controlled by the amp EG, leaving the filter to control other choices), Split (one VCA controlled by the Amp EG and one by the Filter EG), and Drone which auto-triggers and decouples the VCAs from the EGs. The versatility on offer in this section is very handy and patch points include two audio VCA inputs (plug in any audio here) plus two VCA CV inputs (allowing CV to control the VCAs' output voltages for tremolo effects, for example).

To sum up, the Matriarch is a very elegantly designed self-contained

synth; the nearest you can get to owning an expensive Moog modular but at a fraction of the cost. It has a great-feeling Fatar keyboard, audio rate modulation, intuitive sequencer and arpeggiator, killer analogue delay section, velocity and aftertouch and a very engaging soulful sound. The patchability is also very well thought-out and allows you to travel very deep (if you want).

A truly inspired design and one that's very hard to stop playing/ exploring once you get your hands on it! **FM**

FM VERDICT

9.5

The Matriarch is very inspiring. It's well built, has the classic Moog Modular sound and is complex yet intuitive. A future classic!



Dreadbox Erebus v3 €499

Bruce Aisher checks out the latest incarnation of Dreadbox's popular patchable desktop analogue synth

CONTACT WHO: Dreadbox **WEB:** dreadbox-fx.com **KEY FEATURES** 3 Oscillators, Auto Tuning Function, Triple 'Ring Modulator', 12dB Resonating Multimode Filter, Dedicated ADSR Envelope to AMP, Lo-Fi Echo, ADSR Envelope with Loop Function, White Noise Generator, 3 LFOs, Individual Patchable VCA, Analogue Clock Generator, Patchable Sample & Hold, 35 Patch Points **DIMENSIONS:** 350 x 180 x 55mm **WEIGHT:** 2.38kg

THE PROS & CONS

Three oscillators with a wide range of interconnected modulation options

Panel with 35 patch points that also includes addition processing and control elements

Lo-fi echo with CV control of delay time



Filter resonance present even with control set to zero

Oscillator glide only works when Erebus is played via MIDI



The separate Osc 3 section really makes a difference to the flexibility of Erebus

though is the Triple Ring section, which allows you to use the pulse waveform from Osc 1 to switch between the triangle waveform of the Osc 2 and sine from a new additional oscillator section. In other words, this is a form of audio rate amplitude modulation, and allows for a lot of scope in creating weird, clangorous, undulating and engaging tones – especially given the added flexibility of the multiple patching points.

At this stage, it is worth detailing the separate Osc 3 section, which really makes a difference to the flexibility of Erebus. Here you will find six electable waveforms, tuning and level controls, as well as an FM knob. The large tuning range of this oscillator allows it to extend down into very slow LFO modulation territory (with a cycle time of nearly two minutes). Like Osc 1, the pulse width

can be modulated using patch points, but here you'll also find a 'supersaw' wave that can come under PW control as well – and this alone makes for some very thick tones. The FM control determines the strength of frequency modulation from Osc 3 to Osc 1 and 2. You can see already, that without even reaching for a patch cable there is quite bit of interaction possible between the various audio sources.

Next we come to the filter section; this is of a 2-pole (12dB-octave) low/high-pass design, featuring knobs for cutoff and resonance and a slider to move continuously from low-pass to high-pass modes (with the middle ground creating a notch filter, though sadly there is no band-pass option). At higher resonance settings, the filter can be driven into self-oscillation – in effect creating a fourth audio source – though, oddly, a resonant bump is

Dreadbox are on a winning streak when it comes to making interesting analogue kit. As well as creating modular gear, over the last few years they have released a stream of sound-generating modules, effects and even some DIY kits. Here we look at the Erebus Version 3 desktop synthesiser. While versions 1 and 2 of this synth were very similar to each other in terms of looks and functionality, the new

Erebus has been expanded both physically and functionally – with the most obvious changes being an additional oscillator and envelope plus greater patching capability.

In terms of raw sound generation the Erebus is based around the two-oscillator design from before, with each oscillator getting its own tuning and waveform selection controls, and with a mix slider setting the balance between the two. Each also has a dedicated glide control (which sadly only works when the synth is under MIDI control). An interesting addition

THE ALTERNATIVES



Lil Erebus €260

Sibling to the Erebus v3 – available for a while as a DIY kit, and also in Eurorack form – this patchable desktop synth still packs a punch.

dreadbox-fx.com



Behringer Neutron £99

Fun, flexible and great value for money, the Neutron has 56 patch points to achieve deep sound exploration.

behringer.com



Arturia MiniBrute 2 £399

The second version of the MiniBrute added an additional oscillator and patch panel to an already strong keyboard-based synth – and it can be integrated with modular gear using Arturia's RackBrute system.

arturia.com



OSCILLATORS: Additional modulation functionality for the two core oscs, and a third multi-waveform osc that can also be used as a second LFO

ENVELOPE: Alongside the dedicated AMP envelope, this ADSR can be configured as a looping modulation source

ECHO: Here you'll find a monophonic lo-fi delay with dedicated controls for mix, feedback and delay time

PATCHBAY: The 35-point patchbay allows you to access multiple circuit points in the control/signal paths, and contains extra functionality of its own

always present, even when the Res knob is set to zero. This is frustrating and odd, given that controlling resonance directly via its patch point allowed it to be dialled out altogether (with a peak reduction of around 8dB).

Although Erebus v3 uses analogue circuitry for most of its sound generation, the envelopes are digitally generated. There is a looping ADSR envelope hardwired to filter cutoff, and another four-stage type for amp duties (an expansion of the two-stage envelope on v1/v2). You also get a basic triangle wave LFO, which is rooted directly to control the frequency of all three oscillators. However, such

is the flexibility of the Erebus that the looping filter envelope can also be used as an LFO-style source – and not forgetting Osc 3 and the onboard clock generator, which can both also be used as modulation sources.

Finally we cut to the effects section of the unit, which is inherited from earlier versions and is based around a simple lo-fi delay line, with mix feedback and time controls. Although it is basic, I would choose this type of effect over a more fully-featured built-in digital reverb every time – especially as the delay time can be modulated via a dedicated CV input, allowing you to create chorus

flanging or just complete sonic mayhem as required.

Taking just the features covered so far, the Erebus is powerful and fun to use, however it has a few other tricks up its sleeve. It has onboard MIDI to CV/gate conversion, which is used to control overall pitch, trigger envelopes and provide a separate modulation output derived from incoming Mod Wheel data. Switching one of the rear panel dip switches allows the synth to operate in duophonic mode, where Osc 1 and 3 play the lowest note and Osc 2 the highest – though, with only one VCA and VCF, envelopes are re-triggered with each note played. Turning to the 35-point patchbay you will also discover that this goes beyond being a simple access panel and offers some extra and interesting functionality all of its own (see left).

Overall, the Erebus V3 is an excellent synthesiser with real scope for in-depth sound creation. **FM**

EREBUS V3 PATCHBAY

There are 35 patch points on offer here, and they are broken down into seven main elements.

The general inputs in the lower section allow you to control oscillator frequency, pulse-width modulation (PWM), gate triggering, delay time, filter cutoff and resonance, plus direct audio access to the filter and amp sections. The outputs at the top of the panel mirror this by providing audio outputs, modulation sources and CV control signals. The middle portion of the patchbay adds an inverting VCA, Sample & Hold and Analogue Switcher. To the side, you get an analogue square wave clock generator (with CV control of clock speed and duty/pulse-width), and a three-point multiplier section.

FM VERDICT

8.9

The Erebus V3 is a powerful, well-specified and flexible synth, capable of both conventional and more experimental tones

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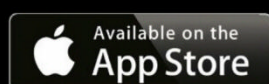
JANSONS

Mixing tips revealed

Computer Music is the magazine for musicians with a PC or Mac. It's packed with tutorials, videos, samples and exclusive software to help you make great music now!

www.computermusic.co.uk

Available digitally on these devices



PreSonus E8XT

£422 per pair

An update for this very popular PreSonus monitor range has landed. **Jon Musgrave** finds out what's new

CONTACT WHO: PreSonus **WEB:** presonus.com **KEY FEATURES** Drivers: 8" woven reinforced LF, 1.5" silk dome HF **Frequency response:** 35Hz to 20kHz **Crossover:** 2.2kHz **Inputs:** RCA (unbalanced) TRS and XLR (balanced) **Amplification:** 75W (LF), 65W (HF) **EQ:** Mid peak and high shelf (+/-6dB max) **Size:** 406(H) x 292(D) x 248(W) mm **Weight:** 10.43kg





THE PROS & CONS



Broad sweet spot

**Excellent
build quality**

Plenty of tweaking
options

**Three
separate inputs**

Great value



**Midrange a bit
laid-back**

PreSonus produce three different mid/nearfield monitor ranges incorporating various interesting features like co-axial drivers (Sceptre) and ribbon tweeters (R-Series). But their most traditional design, Eris, is actually their most successful, and sports a slotted front port, woven woofer and silk dome tweeter. The range first appeared in 2013 and the original E8 scored a respectable 4/5 in our review with particular mention for its tone-shaping options, volume and bass delivery. The whole range has now received an overhaul and, although visually similar, it has both obvious and subtle differences. I have the 8" model (E8XT) for review and the most striking difference is its new EBM tweeter waveguide. This dominates the top third of the front baffle and contributes to the box being a couple of centimetres taller.

The new elliptical boundary-modelled design is the work of WorxAudio's Hugh Sarvis who also contributed much to their R-Series monitors and CDL reinforcement speakers. Its broad shape delivers a wide horizontal dispersion (100 degrees) and narrower vertical dispersion (60 degrees). The horizontal width is very obvious when you first sit in front of them, and

although the vertical dispersion is clearly narrower, I didn't really struggle to find a sweet spot. This is particularly good news when it comes to slightly larger monitors as you're more likely to be a bit further away or in a bigger space, or a combination of both. It's also handy for group listening or tracking situations. The smaller E5XTs also benefit from this same style waveguide. As before, the new cabinet is slightly larger and though made from the same vinyl-laminated medium-density fibreboard as before, it's a new design, meaning better, more focused low-frequency extension.

Beyond this, many of the features will be familiar to existing E8 owners and include both unbalanced (RCA) and balanced (TRS and XLR) inputs, class AB amplification and a bunch of controls on the back. Here, in addition to input gain, you'll find mid-peak and high-shelf EQs, low-cut filter (off, 80Hz and 100Hz) and a room correction option (0dB, -2dB and -4dB). This last feature curtails frequencies below 800Hz and helps when the monitors are in corners or up close to walls. The control is quite impactful and I found the -2dB setting was more than adequate when they were right up against a wall. Give the monitors a bit of free space and I found the setting totally unnecessary. In fact, the overall tonal

balance of the E8XTs is pretty good and I didn't initially feel the need to hit the EQ. However, having AB'd with some other monitors it became obvious the mids were a bit restrained, and a small boost from the mid-EQ (1kHz) sorted this.

Overall, the E8XT delivers the sort of scale one expects from slightly larger monitors and, coupled with the broad sweet spot and extended bass, they're great for both tracking and mixing. The amps deliver plenty of punch if you need it, but the low frequency delivery feels suitably controlled, and with no EQ option to boost low frequencies you can't get too out of shape. Build quality is also excellent, and with a list price matching their predecessor, these monitors offer incredible value. **FM**

FM VERDICT

9.0

The E8XT is a big, powerful monitor that doesn't overstep the mark. Simple to set up and, importantly, excellent value for money



Teenage Engineering PO 400 £469

TE's 'poor man's modular', is really more 'beginner's semi', but there's fun to be had, says **Andy Jones**... if you put the effort in

CONTACT WHO: Teenage Engineering **WEB:** teenage.engineering **KEY FEATURES** DIY analogue modular synth. Includes 14 modules, 1 battery pack, 1 power distributor, 37 trim knobs, 13 value knobs, 15 audio cables, rubber feet, screws, screwdriver, user manual. Powered by 8 x AA batteries (not supplied) or optional 12v adaptor



THE PROS & CONS



Includes all the modules you need to make great sounds

The synth looks cool, and fits well together once built (if careful with the wires)

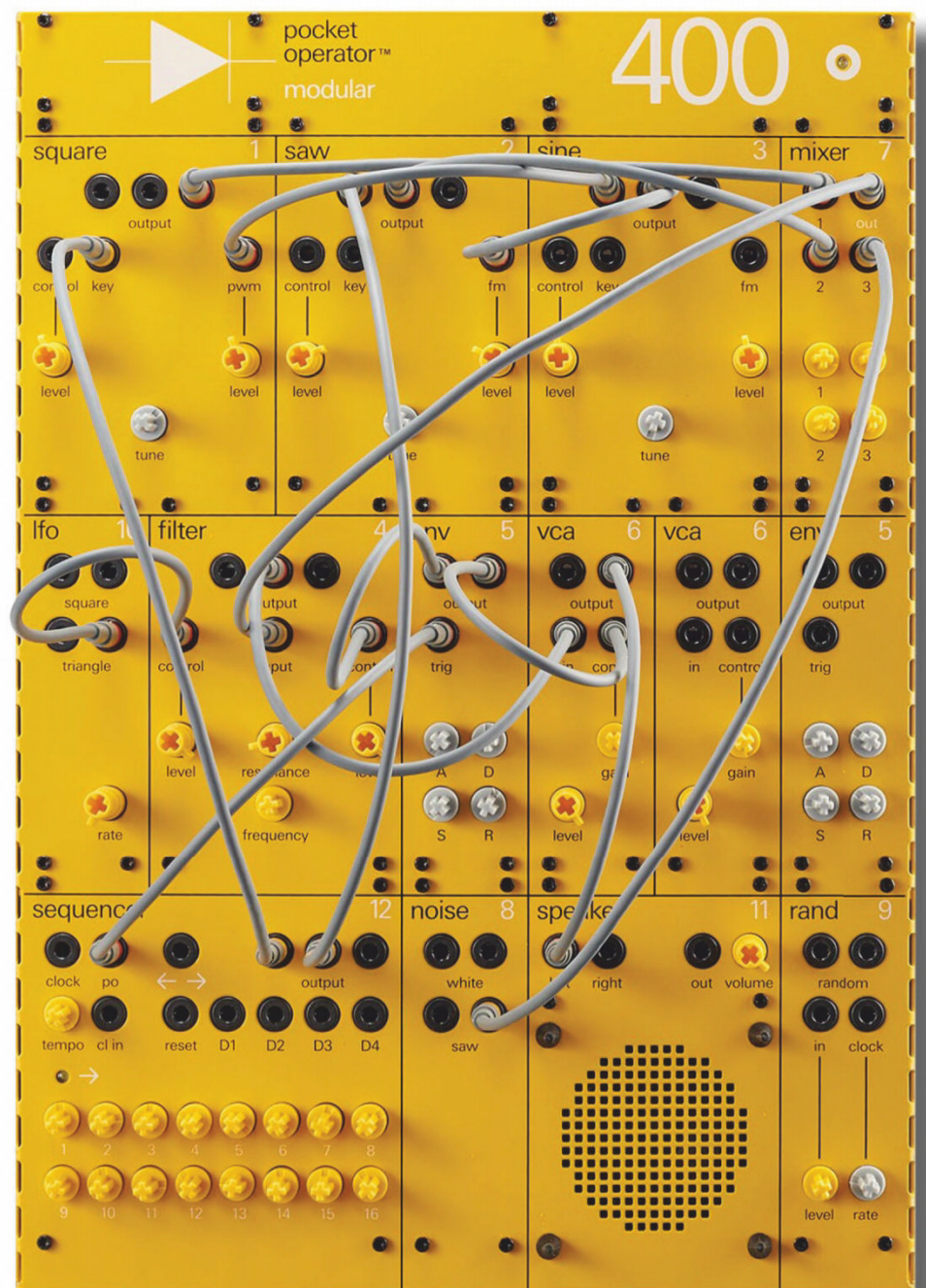
Easy to explore sonically – you can't go wrong plugging anything in



Takes up to two hours to build

The unit moves when plugging and unplugging for patching

Some rotary controls are not very precise, particularly the tuning controls



THE SPEAKER: You might want to consider patching the output to your studio speakers for much better results

OSCS: Square, saw and sine oscs offer lots of sonic flexibility and have three outputs each (and the latter two feature FM)

THE FILTER: A simple low-pass affair – we'd have liked more options here although, again, connectivity is good

Teenage Engineering never take the obvious route. Their range of products now takes in everything from analogue cameras to a recent range of IKEA 3D printing 'hacks'. On the music gear, we see some almighty swerves from the norm: the PO range of unfinished calculator synths, the OP mini synth/radio/sequencer/recorder/everything modules, and now this, the Teenage take on modular.

The PO Modular System 400 on test here is one of three products announced over a year ago at NAMM and described as "the poor man's modular", although really it's "the slightly well-off person's semi-modular". There are three products in the range: the Modular System 16 keyboard with sequencer (for £155); the Modular System 170 monophonic analogue synth with nine modules for £315; and this 400 synth with 15 modules for £469. It's not 'normal' modular by any stretch of the imagination; it'll connect to your

Eurorack system, yes, but the modules are preconfigured to sit behind a pre-built fascia, so it's not customisable. Really, it's a synth with modules rather than a modular synth – you might even call it a 'semi' if you like. Oh, and you build it yourself.

PO System 400 comes in an IKEA-esque flatpack. The metal panels that make up the unit are ready to 'fold' into shape, alongside 15 boxes, each containing a module ready to mount. TE's instructions are mostly good but assembly isn't without issues. If you're a seasoned flatpacker, you might be done in under an hour. Us? Two hours plus.

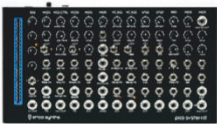
It's not as long-winded as the Korg MS-20 kit I built some years ago, but equally satisfying when the LED does light up. OK, you're assembling pre-built modules – not soldering resistors and capacitors – but the

feeling that this synth is more personal to you is worth the time.

You get the full synth experience with PO 400: three oscillators, noise and random modules, LFO, two envelopes, filter, mixer, two VCAs and a sequencer – everything you'd expect, but their interconnectivity is perhaps more than you may have bargained for. On each oscillator there are three outs; the same with the filter and sequencer, and with pretty much every 'module' having a control input, there are a lot of routing options. The manual has a few patching ideas to get you started, but just wading in pays dividends.

I start with a three-oscillator combo just to hear them all in action together, and quickly build a huge sound driven by the sequencer. The manual details how the Reset and Arrow slots can control the sequence

THE ALTERNATIVES



Erica Synths Pico System III €400 –€450

A full analogue synth with a 2-3-4 step sequencer, two VCOs, mixers, syncable modulator, two ASR envelope generators and more. Pretty cheap too.

ericasynths.lv



Moog Mother-32 £489

A semi-modular with expandability, so while it might only have a single oscillator, it can grow. Its semi-modular approach means lots of sonic flexibility and, well, it's a Moog.

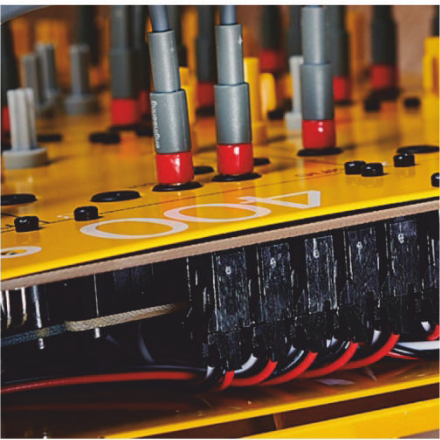
moogmusic.com



Pittsburgh Modular Microvolt 3900 £550

Featured as the number one semi-modular on MusicRadar, Pittsburgh's 'love letter to the analogue monosynth' features some of the best elements of both west and east-coast synthesis.

pittsburghmodular.com



position and direction, while other pots set to maximum reset it to step 1. While they work, getting a melody together can feel imprecise in pitch and control terms. However, getting the sequencer in full flow is easy and effective. Once I have it driving all three oscs, I bring in some FM on the square and sine wave oscillators using the LFO square wave, with both outputs connected directly to the FM inputs for a thumping, ringing metallic type effect on the sine and a driving rasp on the square. It's easy to hear them in action individually via the mixer or as one fat sound when

played together. Then, routing the square wave through the (slightly disappointing) filter allows me to underpin the sound with a gradually sweeping square. I say 'gradually', as moving many of the controls doesn't always give subtle results. The tuning of the oscs, for example, is massive so you'll find it hard to home in.

However, after some experimentation time flies by. This is an all-in-one modular that is easy to get to grips with, you can't really go wrong, and it will draw you in. The results won't always be musical – the sequencer and tuning options aren't

quite precise enough – but the results are invariably big and interesting, especially with the Noise and Random modules adding their parts. You'll inevitably find yourself in one of those sessions where your path is random, as you plug and unplug, but recording everything to your DAW will result in very usable and varied audio.

As for the 'poor man's modular' concept. It's neither truly modular, nor is it necessarily for poor people – this kind of cash can get you a very good semi-modular machine. The construction is not without its niggles, it could do with a keyboard, the quirky controls don't always do 'precise', the angle of the front panel doesn't make for a robust experience when you plug in (and out), and the Eurorack expansion possibilities are vague (though individual modules in Eurorack size have been demoed).

But the leftfield thinking, and determination by TE to challenge the norm does reel you in. And as you start to invest the time in it, it can yield great results. You may not end up using it as much as the price deserves, but it's a curiosity that demands attention. It looks great, it's versatile, has loads of modulation options and a fat, varied sound. **FM**

THE BUILD

Putting PO Modular 400 together starts with the bending and slotting of the main panels into a pleasing upright frame. As you bend, you're reminded to 'think twice, bend once'. Fear not, though, as you should succeed here with just a few beads of sweat.

Stage 2 comprises adding spacers and screwing in the various modules. There's no choice in the order of modules – they're dictated by the front panel which has all the final positions of rotaries and other controls pre-mapped. But it's a logical order, so go with the flow. Mounting modules is straightforward; you'll get into a system with the screwing and fixing and realise that having a container to keep screws and spacers to hand might be a good idea.

The final stage involves mounting the power distribution unit and connecting each module. In hindsight, this maybe should've been the first stage, as we had to disconnect two modules to screw it in; there simply isn't room to screw the spacers in with fingers.

Otherwise, it's a pleasing experience, albeit one that took much longer than we expected.

FM VERDICT

7.0

We love the concept, but the lack of precise controls plus some in-use and build issues detract from the overall 400 experience

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Hidden treasures

We survey the unsung heroes of the world's top plugin bundles, some of which might even be on your hard drive already...



MeldaProduction MSpectralDynamics

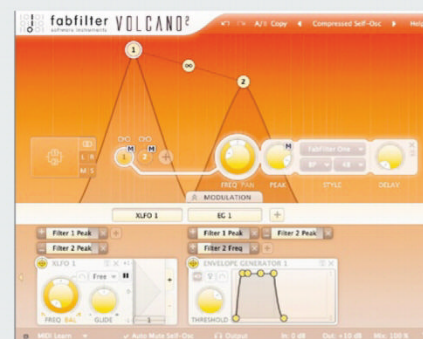
This intensely powerful processor is not quite like anything you've ever used before, the idea being a sort of multiband-compressor-meets-dynamic-EQ-meets-regular-EQ-but-for-dynamics device. These sorts of processes already exist in a few forms in other plugins, but in MSpectralDynamics' Edit window, the controls go deep.

You can tailor the response of the processor's compression/gate threshold, attack and release across the frequency range by drawing in a response across the spectrum. Like an EQ, you're detailing the response across the frequency range, but the actual effect isn't gain – it's reaction to dynamics at anywhere a frequency's level crosses the threshold.

MSpectralDynamics is tough to get to grips with, and needs a complete interface rethink, but the power behind this particular device is huge and uniquely detailed.

meldaproduction.com

VERDICT 9.2



FabFilter Volcano

The world may be obsessed with FabFilter's Pro-Q, Saturn and Pro-R, but Volcano 2 is an underrated hidden weapon in the company's Total Bundle (and Creative Bundle). The idea behind Volcano is filtering, letting you set up to four filters – particularly resonant filters, hence the name – and modulate them to within an inch of their lives.

Those filters themselves sound great – enough to hang a company name on – with roll-offs of 12, 24 or 48dB, a choice of 11 Styles and a delay circuit that can introduce filtered flanging effects. With up to four filters running in serial, parallel, or multiple combinations, the true power of Volcano comes from the modulation system, getting them moving automatically. With XY Generators, LFOs and Envelope Generators, you can start pushing your peaks around; and thanks to envelope followers and MIDI sources (routed in via your DAW's MIDI routing or sidechaining functions), you can trigger the filters with other signals in your project. Great for creative effects, and ideal for easy-going live work.

fabfilter.com

VERDICT 8.9



Soundtoys Crystallizer

People may rave about EchoBoy, Decapitator and Little AlterBoy, but there's more to the Soundtoys bundle than just those. Crystallizer is a pitchshifter-meets-delay plugin that has each echo pitching higher and higher (or lower and

lower) into seeming infinity. This it can do in forward or reverse echoes, aided by dynamics settings. Crystallizer isn't just for big wet rising/falling effects – used with restraint, it's capable of subtler feats, turning sounds into a washy mess (in a good way), and sounding great when used with care to make a reverb signal a bit more lively.

In terms of sheer creative inspiration generation, Crystallizer offers something you'll get in few other places, and all in a very immediate, simple-to-use package. soundtoys.com

VERDICT 8.9



Neutron Advanced Gate Multiband

iZotope's Neutron package comes with channel-strip processors, but in the Advanced version, each of these is available as its own plugin, including the excellent Gate plugin. Gating's not the sexiest effect, but this multiband version, with sidechaining in tow, can give you some new creative avenues, and new mixing tools.

Neutron Gate's Attack and Release times go right down to 0ms, letting you take extra control over your signals. The implications of having this in a multiband setup? You can 'cut off' different parts of a sound – say, a drum's transient frequencies and ringing frequencies – and leave them at different lengths, helping you sculpt hits, or any other sounds you send through it, to perfection. Add to that the ability to sidechain each band from a different source, and you've got some serious firepower that it's hard to find anywhere else.

izotope.com

VERDICT 9.1



Native Instruments Drum Lab

Since it's packaged with Komplete alongside heavy hitters like Battery, Abbey Road Drums and more, you'd be forgiven for not noticing Drum Lab, the Kontakt drum instrument that combines acoustic and electronic sources for the best of both worlds.

Each drum in the 'Lab has an Acoustic and Electronic source sound, and a slider to blend between them. Each has its own parameters, based on the type – so you'll find reverb features for the acoustically-recorded samples vs filtering for the electronic ones – and common parameters include amp envelope settings and tuning functions. Add in a big library of MIDI grooves, plenty of in-built sounds, and extra effects, and you're onto a winner.

Drum Lab is not a hella advanced sci-fi drum machine but the appeal is in its no-nonsense, instantaneous habit of finding something that sounds great, with all the hallmarks of what makes acoustic and electronic drums great, curated to a tee.

native-instruments.com

VERDICT 9.3



Arturia MicroLab

£69

Compact keyboard controllers can feel like a compromise. What does **Jon Musgrave** make of Arturia's latest offering?

CONTACT WHO: Arturia **WEB:** sourcedistribution.co.uk **KEY FEATURES** Arturia keybed, USB/MIDI class compliant with low USB power requirements, Touchstrip pitch/modulation controls, USB lead with storage, Navigation for Analog Lab, Advanced **DIMENSIONS:** 414 x 130 x 37mm **WEIGHT:** 0.77kg





MicroLab is Arturia's latest and smallest keyboard, and it joins an established stable of

controller keyboards that includes popular models such as MiniLab MkII and KeyLab MkII. With just 25 compact keys (they're the same size as the MiniLab by the way) and a small number of controls to the left, MicroLab is designed primarily for portability, and at 0.77kg and just over 41cm long fits comfortably in a regular backpack. It's USB powered and USB/MIDI class compliant, but it also has low power requirements which means it works with Android devices, iPads and iPhones (using the Camera Connection Kit) without the need for pass-through power.

Simple feature set

In recent times, Arturia have offered black or white versions of their controllers. MicroLab expands this with three colour choices – black, blue and orange. This is achieved via a rubberised bumper which also includes a groove for wraparound storage of the colour-matched USB lead. The USB socket is a standard B type so you can use a different lead if you want, but the included one is just the right length to wrap around the case, and the elbow-style plug-on body magnet means it tucks away neatly. I found wrapping it away did take a bit of practice, but at times I also didn't need to unwrap all of it in the first place, so overall I like this.

MicroLab has a simple feature set, with up/down octave buttons and

Arturia have set realistic feature limits rather than incorporating too much

a latching Hold button. Out of the box, Hold provides note sustain, including sending MIDI sustain messages, both of which are handy as there's no sustain pedal input. The same button when combined with Shift activates the Chord memory, and, when played, all notes of the chord are sent over MIDI with the velocity of the pressed key.

Pitchbend and modulation are handled via touchstrips to the left, and, combined with the Shift key, these can also be used to page through (slide) and select (tap) Categories and Presets in Arturia's own Analog Lab software. Further customisation can be achieved using Arturia's MIDI Control Centre software and options include setting the pitchbend to regular or hold, and reconfiguring the Hold button to momentary (Gate) rather than latching (Toggle) as mentioned above.

Quality keyboard

I've tried a number of Arturia keyboards and the keybeds are excellent. MicroLab continues this tradition, and although the small key design won't suit everyone, the action is positive, quiet and feels robust enough to handle plenty of abuse. Meanwhile the matt finish on the

pitch and mod strips provides a nice contrast to the glossy keyboard keys.

MicroLab's bundled software includes Bitwig Studio 8-Track and UVI's Grand Piano Model D. Most impressive is probably Arturia's own Analog Lab Lite, which includes more than 500 presets and dovetails in nicely as mentioned above.

I like this controller. Arturia have set realistic feature limits rather than try to incorporate too much. They've then maximised the design and functionality. So although this is a very affordable, basic device it still oozes quality. Having said that, there is some pretty stiff competition out there that can provide more features for roughly the same spend. **FM**

FM VERDICT

8.8

The MicroLab may not tick all the boxes for a studio controller keyboard, but as a super portable travelling device it hits the mark

THE PROS & CONS



Stylish robust design with integrated rubberised case and USB lead

Very compact and ideal for travel or mobile users

Integrates with Analog Lab for preset navigation

Advanced settings can be set via MIDI Control Centre app



Quite basic controls

Plenty of competition at this price

2

Kurbis BT

QUICK SPEC: Bluetooth 4.0,
Frequency response: 55Hz–20kHz,
Output RMS: 68W, Dimensions:
516.8 x 273 x 339.8mm

Thonet & Vander BT monitors

German manufacturers Thonet & Vander produce a wide range of speaker products for use in home theatre, multimedia, gaming, hi-fi and studio settings. These combine traditional speaker design with onboard amplification and EQ, often incorporating Bluetooth connectivity. We have two designs on the test bench – the nearfield Kugel and compact Kurbis BT

1**Kugel**

QUICK SPEC: Bluetooth 4.0 Aptx,
Frequency response: 45Hz–20kHz,
Output RMS: 140W, Dimensions:
571.5 x 310.9 x 421.6mm

Thonet & Vander Kugel £330

1 Kugel comes from T&V's studio range and is a mid-sized powered nearfield that features a 6.5" aramid fibre woofer and a 1" silk dome tweeter. The speakers come as a pair, comprising a master and slave and the slave is connected via a proprietary lead (3m) with screwfit 4-pin connectors. Power and audio are connected to the master unit and the physical input options are phono or optical S/PDIF. The master also includes volume and EQ (bass and treble). These options, along with input selection (Bluetooth, phono, optical), are accessed via soft keys on the side of the speaker or using the included remote control. There's no clear calibration for EQ and volume, however the remote does include a Reset button as well as mute and standby. This option is handy, as standby mode retains your settings, while switching the speaker off at the mains loses those settings.

The Kugel paired easily and though we didn't use them far from the Bluetooth source, they retained connections or reconnected reliably. Kugel also supports the Bluetooth 4.0 aptX codec, which though not as good as the wired connection, sounded obviously better than the default SBC codec. However, Bluetooth does bring latency, so isn't suitable for overdubbing.

Sonically, the Kugels have a smooth hi-fi sound, and the rear port helps deliver plenty of bass extension (the frequency response is 45Hz to 20kHz). The EQ allows you to adjust things somewhat, though its shelving style is a blunt tool if you've got tricky bass buildup to resolve. What's more, the hi-fi

tuning means mid-range detail is missing. Even so, the Kugels can go pretty loud, they're quite punchy and overall we were pleasantly surprised by their spacious delivery. thonet-vander.com

VERDICT 8.4

Thonet & Vander Kurbis BT £180

2 Kurbis is the larger of T&V's two bookshelf designs and includes a 5.5" aramid fibre woofer and 1" silk dome tweeter in a compact enclosure around 27cm high. The speakers are also sold as a pair with master and slave configuration and the slave connects up via a standard 2-core speaker cable (2m) and push terminals on each speaker. The master speaker includes three rotary controls – volume, treble and bass found on the side of the cabinet – and physical connections on the back include a 3.5mm mini jack and a pair of phonos. The Kurbis BT supports Bluetooth 4.0 (though not the aptX codec) and with no fancy soft controls like the Kugel, you simply turn it on to begin the pairing process. Sonically, the Kurbis is tuned towards the mid and high frequencies and, despite the rear bass port, is lacking low frequencies (frequency response is 55Hz-20kHz). That said, we improved this a bit by tweaking the EQ controls. With no aptX codec support, the Bluetooth audio is noticeably lower quality than the wired connection; nevertheless the Kurbis is quite revealing in the mid range so certainly has its uses.

thonet-vander.com

VERDICT 7.4

FM VERDICT



To our ears, the more expensive Kugel model is head and shoulders above the cheaper Kurbis. That said the Kurbis BT isn't inherently bad, but it is clearly hindered by its smaller enclosure and basic Bluetooth codec.

Universal Audio Apollo x4 £1,500

Universal Audio's Apollo range of interfaces gains a new member. **Jono Buchanan** looks for signs of sibling rivalry

CONTACT WHO: Universal Audio **WEB:** uaudio.com **KEY FEATURES** Desktop 12 x 18 Thunderbolt 3 audio interface, Mac/Windows compatible, 4 Unison mic preamps, UAD-2 QUAD Core Processing, 2 Unison-enabled Hi-Z instrument inputs, 2 headphone outputs, built-in Talkback mic, up to 8 channels of digital input via Optical ADAT/SPDIF input, 'Realtime Analog Classics Plus' UAD bundle



Universal Audio's range of audio interfaces has always provided a twin approach to sound recording and processing. In addition to the high-end preamps and I/O you'd expect of a top-end audio interface, they've also provided access to UAD's extensive effects collection. They use native processing to reduce load from your computer's CPU and provide near-zero latency in the process. 18 months ago, the rackmount range of Apollo interfaces was updated with improved audio specifications and Thunderbolt 3 connectivity. At that time, the desktop Apollo Twin interface remained untouched by the upgrades afforded to its brothers, but it now gains many of the new specs offered by the rackmount Apollo units. More intriguingly, a new desktop module enters the Apollo family – the Apollo x4.

Like the other units in the revamped Apollo range, the x4 is a Thunderbolt 3-enabled interface and it's a little less than twice the size of the Apollo Twin, offering a similar desktop, wedge-shaped design with a prominent rotary dial on its upper surface. The front edge provides twin guitar inputs on its left-hand side, whilst two, independent headphone outs feature on the right. Round the back, you'll discover four Unison-enabled preamps from which the x4 takes its name. Unison is the proprietary emulation technology Universal Audio have developed to model the input behaviour of a range of classic preamps and channel strips, each of whose input levels and settings can be selected and adjusted from the rotary dial and top-panel buttons.

Output-wise, you'll find six round the back. If your mind has leapt to the possibility of surround-sound configurations, you're going to be disappointed, as the ports can't be arranged this way. Instead, a Monitor stereo output pair is flanked by additional Outputs 1-2 and 3-4, which does mean that both effects loops or three pairs of monitors can be driven directly. Specs-wise, the Apollo x4 offers 127dB of dynamic range and -117dB THD+N, which is a significant improvement from the previous generation of Apollos. UA's interfaces have long held an entirely



The x4 is an excellent addition to the Apollo range

justified reputation for an open, warm recorded sound, befitting the company's origins. That reputation is further enhanced here: the sound is sumptuous.

And, of course, it's aided further by UAD effects provision. The x4 comes with a Quad processing chip onboard and bundles some classic effects, including the Teletronix LA-2A and 1176 compressors, 610-B Tube Preamp and Pultec EQs. Many more effects can be ordered, individually and in customised bundles from UAD's store directly.

The x4 is an excellent addition to the Apollo range. If the Apollo rackmount modules offer more spec than you need, it should prove head-turning and as a desktop front end to

a larger system (up to four Apollo units and six UAD-2 devices in total can be daisy-chained), there's an awful lot to like here. **FM**

FM VERDICT

9.3

With a seductive feature set, it will provide ample I/O for many and, at a lower price than its bigger brothers, will prove justifiably attractive

THE PROS & CONS



Wonderful sound and ease of use

Four Unison-enabled preamps

Doubles as a monitor controller for multiple speaker pairs



No way to configure the x4's six outputs for surround sound applications

Erica Synths Sample Drum £295

Philip Wise investigates this award-winning module that brings sample-slicing to your Eurorack rig

CONTACT WHO: Erica Synths **WEB:** ericasynths.lv **KEY FEATURES** Dual channel, Built-in effects, Auto sample slicing, Sample recording capability, Cue point loading from WAV files, 1 v/oct tracking, 3 assignable CV inputs per channel, 3 assignable performance controls per channel



The Sample Drum is part of Erica Synths' new Drum range of modules, but unlike its one-shot competitors this offers sample-slicing: it's all about the loops. Offering two identical channels each with their own output, a toggle switch flips between one channel and the other; there's no option to combine channels for stereo sampling – it's strictly a mono affair.

The Sample Drum ships with a 16GB micro SD card including samples to get busy with straightaway. These weren't that inspiring but, fortunately, sample-loading was easy; I just dragged a load of samples from my computer onto the SD card.

Sampling into the module is also simple. The input level can be adjusted to compensate for your input: instrument/line or modular level, and a monitor option lets you hear what you're recording. Recording is limited to 12-bit so don't expect pristine quality, but it's still very usable. The bit reduction may even be useful for adding crunch to drums.

As the Sample Drum is all about slicing, my first move was to load up an Amen Break and get busy. Slicing is easy and can be set to detect zero crossing points, just choose the number of slices and away you go. Sadly there's no transient detection to help you deconstruct beat loops; the slicing is strictly a mathematical division of the sample length, however you can manually slice if your sample is not that rhythmically tight. Usefully if you set marker points in an audio editor on your laptop these will be recognised by the module when you load up the sample. Once sliced, you can set the module to random trigger for some Squarepusher-style craziness or map them across your keyboard and sequence like a junglist.

64 slots per channel are available and I managed to load 60 samples before the RAM limit was reached. These samples can then be mapped across your keyboard so you could make a multisample instrument or play a whole drumkit on one channel. Sadly the Sample Drum will not record or play back CV like the Squid Sample from ALM, only audio files.

I had great fun with the Sample Drum, slicing up not just beats, but melodic loops and phrases. For



experimental play you'd be better off with a Morphagene but there's plenty of potential. The three performance controls for each channel are freely assignable and, with the three assignable CV inputs you get lots of scope for expressive play.

The module also features seven built-in effects which, while fairly basic, are handy, particularly the delay and wavfolder which add bite.

Slicing/preparing your samples and setting up your CV sources, effect options and performance controls is a bit fiddly using the encoders. Menu diving is minimal, but it still takes a while. Happily, once you're done you can save either one or both channels

as a project for easy recall. You can also set the module to autoload the last project when powered up. **FM**

FM VERDICT

8.0

A well thought-out and fun to use sampler/loop slicer. A welcome addition to any modular rhythm section

THE PROS & CONS



Plenty of CV and hands-on control for performance

Built-in effects

Module state and samples savable as presets



No timestretch facility to repitch loops for different tempos

No transient detection in the slicing algorithm

No internal LFO or envelope for modulation

Wavesfactory Cassette €59

An old-school tape deck for your DAW –
Si Truss asks if this is more than another
retro affectation

CONTACT WHO: Wavesfactory **WEB:** wavesfactory.com **KEY FEATURES** Cassette emulation
plugin with three varieties of Deck emulation and four Tape types **FORMATS:** PC/Mac, VST, VST 3, AU,
AAX (64-bit only)





THE PROS & CONS



Nuanced and convincing tape emulation

Lots of customisable parameters

Multiple tape and deck types offer surprisingly broad results



Some of the most interesting features are hidden in an easy-to-miss Settings window

It would be easy to write off the modern resurgence in appreciation for cassette tapes as just another hipster retro affectation were it not for the fact that there is genuinely something inherently pleasing about the audible effect imparted by recording music to tape. There's a certain sonic quality to cassette-based music that just sounds nice – a blend of subtle saturation, pitch modulations and randomised noise that adds both character and cohesion. Cassette, from developers Wavesfactory, is a plugin that understands this appeal and aims to bring it to your DAW in plugin form.

With a straightforward, clean interface modelled on the look of a classic tape deck, Cassette is a deceptively simple-looking effect. You'd be forgiven for writing this off as a one-size fits all novelty effect – a simple processor you can slap onto a channel insert in order to make things sound 'a bit retro'. Looks can be deceiving though, as this is a plugin that takes tape emulation seriously, with a copious amount of parameters allowing users to really dive into the nuances of cassette effects.

Central to the plugin's UI is the virtual tape deck itself. Here users are presented with options for both Deck

and Tape type, for configuring the fundamental properties of the effect. On the Deck front there are three options – Pro, Home and Micro. Pro is based around the sound of the much-loved Tascam 414 four-track, while Micro models the considerably smaller, cheaper and sonically lower-quality Omega Reporter-20. Home is a generic mid point between these two settings – slightly less high-quality than the Tascam, but without the full-on degradation of the Omega. Tape option, meanwhile, offers four variations of tape material, affecting the frequency response and quality of the saturation, compression and noise applied to the sound.

Beneath the tape is a bank of rotaries controlling input and output gain and common parameters such as the level and movement of noise applied, overall wow/flutter depth and stereo spread. There's an Erasures option too, which replicates the effect of using an older tape which has been repeatedly recorded over and erased (the main effect here is a dulling of the frequency response, particularly evident on the Micro deck).

Hidden within a settings menu are a whole host of further parameter options though. Here users can tailor the speed and quality of wow and flutter pitch modulations, as well as

engage/disengage various elements of the effect allowing, for example, just the saturation to be applied without compression. There are also several interesting parameters including Azimuth – adjusting the angle of the tape head for a comb filter-like effect – and Re-Cassette – used to stack multiple instances of the processor.

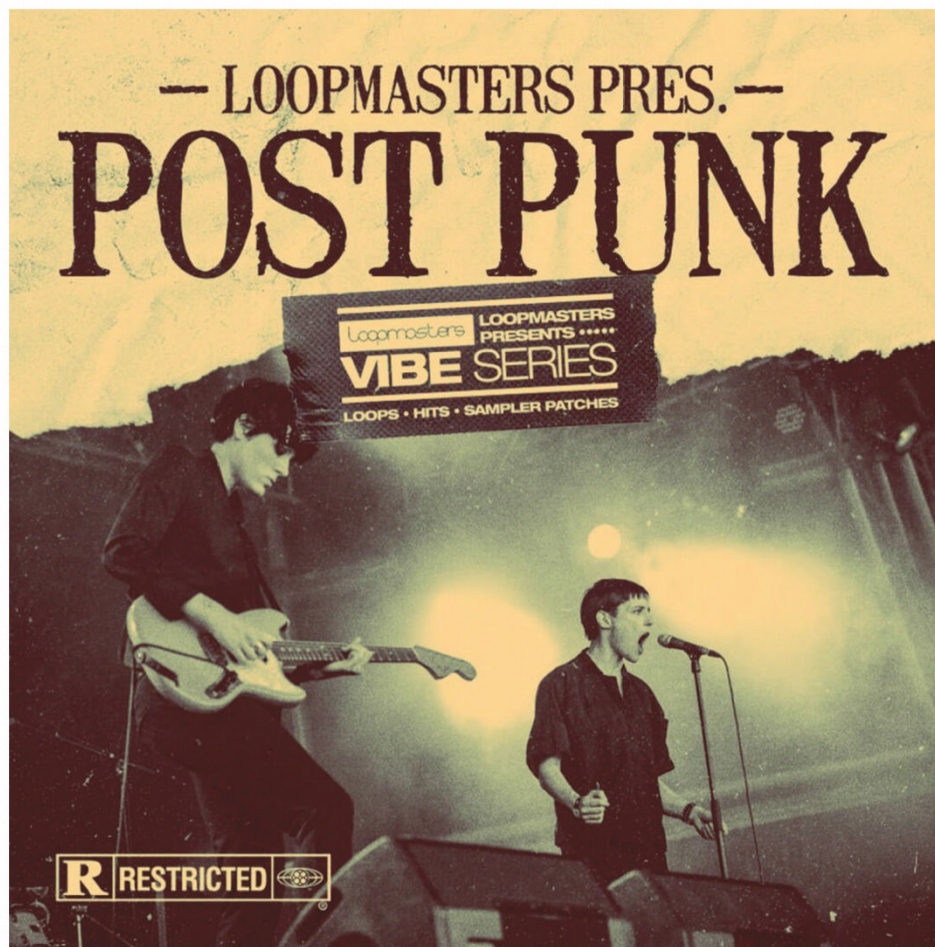
It all adds up to a plugin that is far more than a mere gimmick. By going in depth and seriously studying the effects of tape recording, Wavesfactory have produced a tool that allows users to precisely capture the individual nuances of tape. The results sound great on pads, drums and mix buses. An excellent and well-priced tool. **FM**

FM VERDICT

9.1

Wavesfactory's plugin takes cassette emulation seriously, resulting in a deep, nuanced and powerful effects processor

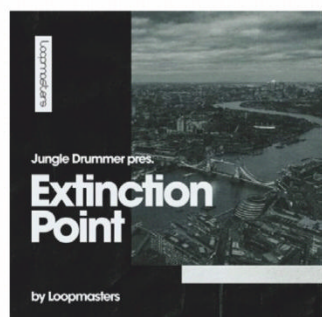
Loopmasters – Vibe Series 13: Post Punk £25



With their esteemed Vibes series, Loopmasters have been steadily offering up samples inspired by eras of the past, rather than the usual club sounds of now: from acid rock loops, to ska drums and vintage soul riffs. It's like having a secondhand record shop to dig through. For their latest, they serve up the spiky energy of post punk. This new wave sound, typified by its attitude and groove, is captured perfectly here through eight song kits, all recorded with care into gear from those key years between 1973 and 1980. Overall, there's plenty of edgy guitar, pogoing drums, and funky basslines. And they'll all work a charm in anything you've got cooking that needs those vital ingredients. Pure vibes!

Roy Spencer

VERDICT 9.0



Jungle Drummer – Extinction Point £25

The Jungle Drummer is a next level live sticksman who's thumped tubs for everyone from Timbaland to London Elektricity. Here he brings us more of what we love him for – live and dynamic loops and hits, ready to be chopped and layered into your ongoing drum programming. It's informed by his latest project, Extinction Point – a kinda melting pot of dubby UK electronica and DnB. So expect touches of jazz, alongside street tough funk and breakbeat playing. The results are on point, and designed to work a treat in hip-hop, nu-jazz, neo-soul, deep house, and, of course, drum & bass. You also get bass and music loops to play with, making this another essential outing from the man behind the drums. **Roy Spencer**
loopmasters.com

VERDICT 9.0



Sample Magic – Organic Ambient £10

A great batch of moody and uplifting layers to add to your work, here, made up of unique live and synthetic loops and one shots. You get expansive sound design, plaintive piano melodies, dusty drum beats. And enough variety of grainy soundscapes and nuanced melodic sequences you'll need for your next cinematic masterpiece. The low end is full and rich, and the highs shimmer when you need them too. The 500MB of files are produced to a high degree, too, and bathed in that warm analogue, tape-tinted glow. Yum! Perfect for downtempo tracks, leftfield electronica, and that laid-back tip. It all makes for a nice little pot to dig into, and a fine addition to your ever-evolving sample library. Yoink! **Roy Spencer**
samplemagic.com

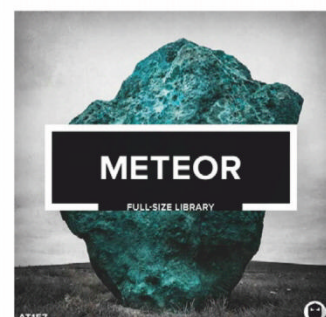
VERDICT 8.0



Deep Data Loops – 80s Themes £16

What a decade: giant phones! Stupid haircuts! Electronic music! But enough about the 2010s (arf!), let's talk about this '80s sample pack. For your buck here you get 15 themes (or tracks) to pluck apart, each coming equipped with its own distinct groove, energy, mood, and speed, as well as its own style of beats, bass, chords, and melody loops. As is era-specific, the vibe across the board is on that synth pop, new (new) wave angle, with the boombastics turned up higher than a denim collar, and all subtlety left at the door. It's plenty of retro fun, if you like the music of Heatwave or the Jellybean Benitez-phase of Madonna's early work. And who doesn't? Now, back to this darn Rubik's Cube... **Roy Spencer**
sounds.beatport.com

VERDICT 7.0



Audio Tent – Meteor £37

Look to the skies! The white coats at the A.T. lab are showering us with their largest sample library to date, and it's out of this world! This time it's the cosmic sound of underground techno they're working with, and the tone is as sparse and moody as an alien landscape. Amid the darkness you get shimmering FX, heavily textured and pitchshifting pads, planet-rocking bass and synth, and enough drum loops and hits to give your productions the deep impact they lack. There's 1.45GB of content – all recorded through a next-gen chain, just waiting to boldly take your beats to another dimension. This is Audio Tent's new look for their full-size libraries. Perfect then, if you like your releases 'a little meteor'. **Roy Spencer**
audiotent.com

VERDICT 9.0



LEARN TO PLAY

STEELY DAN
KID CHARLEMAGNE
* Rockschool version

WEEZER
THE END OF THE GAME
* Video riff

SLIPKNOT
DUALITY

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GREEN DAY

// No one's got time to listen to a guitar solo any more //

THE INTERVIEW
THE GUITARS
THE ANTI-SOLO!

THE BEST NEW GEAR FOR 2020
NAMM show special report

MARK MORTON
Unplugged!

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FAKE PLASTIC TREES

LEARN FIVE RIFFS FROM FATHER OF ALL MOTHERF

FREE CD
70+ MINUTES OF LESSON AUDIO!

SLIPKNOT
Duality

WEEZER
The End Of The Game

RADIOHEAD
Fake Plastic Trees

STEELY DAN
Kid Charlemagne

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PLUS JAM TRACK: GYPSY JAZZ / SONNY LANDRETH LESSON

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Are there any synths that sound like the Sega Mega Drive?

For a while, it seemed like Nintendo was getting all the retro console love, but with the release of the Mega Drive Mini in 2019, Sega's 16-bit machine came back into the spotlight. And, the good news is that music software and hardware developers have been taking inspiration from it, too. The sonic (the Hedgehog) heart of the

Mega Drive was the Yamaha 2612 FM sound chip and, on the desktop, this has been recreated pretty successfully by Inphonik in their RYM2612 plugin. Not only does this deliver what's described as a cycle-accurate emulation of said chip, but the Mega Drive's amp circuitry has also been cloned to give you that all-important old-school grit. RYM2612 runs on PC and Mac in VST/AU/AAX and Rack Extension formats and costs 49 euros.

Clavinet patches as a replacement for guitar parts?

Using a clavinet sample can be a really nice alternative to using guitar samples which can often be lacking. As the clavinet is also a stringed instrument, it has the right texture and, like with a guitar, once you pair clav samples (or a real clav) with stompbox effects you get very close to the vibe of a real guitar.

If you're a real Genesis lover, there's also Twisted-Electrons MEGAfm, a new hardware synth that contains two YM2612 chips, each of which offers six voices with four operators per voice and eight algorithms. So, that's 12 voices in all, and all inside a box that's designed for easy hands-on control (think faders and knobs rather

than the tiny LCD screens and menus that FM synthesis is known for). This one can be pre-ordered for 474 euros and will be released in March.

What's the difference between an audio interface and a soundcard?

Both audio interfaces and soundcards are designed to do the same thing: get sound in and out of your computer. The principal difference is that, while soundcards are housed inside the computer and plugged into a PCIe slot, audio interfaces are external devices that need to be connected via a cable.

Back in the day, everyone used soundcards, but as USB and FireWire became popular in the late-'90s, so external audio interfaces came onto the market. In fact, these quickly came to dominate; it's much more convenient to have your I/O in an external box, and the rise in laptop usage has meant that, for most musicians, buying an internal soundcard isn't even an option. That said, we've heard the two terms used interchangeably; some producers we've spoken to have even referred to their 'soundcard' when they mean 'audio interface'. This is probably where some of the confusion comes from, but the difference is really quite simple.

Are iOS music app updates always free?

Because of the way Apple's App Store works, developers can't charge directly for updates. So, yes, it is true to say that updates will always be free. However, it's also not quite as simple as that.

This is because there are other ways that developers can charge you

How many octaves are necessary?

This depends largely on the kind of music you play and whether you're playing bass, leads, piano, chords or single lines etc. We'd say for bass or leads, three to four octaves is ideal; two octaves can be too short and you end up relying on octave switches too much. For synth chordal work, four or five should work; for piano or EP, ideally five to seven octaves will allow you to really stretch out and do expansive keyboard splitting.



Bang for buck travelling synth

> Looking for versatility and portability? The Roland JD-Xi is still a great bet. Sure it's small, but it's hugely powerful and has PCM, drum and a real analogue monosynth onboard. However, be sure to check out the new Korg Wavestate as it's very compact and tactile and also has lots of quality PCM content included onboard.



for new features – specifically, with the use of in-app purchases. Often these are used to obtain additional content, but an IAP might also unlock a part of the app that was previously unavailable to you.

This is why, when you buy an app, it's always worth checking exactly what comes included and what needs to be paid for. Some developers are fond of the freemium model, whereby the main app can be downloaded for free and you then pay for more content as and when you need it. As a customer, there are certain advantages to this – you get to try an app for nothing – but it can

also be frustrating to discover you'll have to shell out for features you thought came as standard.

Another option for developers is to release a completely new app, as Steinberg recently did with Cubasis 3. This may have irked those who'd bought Cubasis 2 but, as Steinberg pointed out, this had received more than 30 free updates in its lifetime, so it was inevitable that, at some point, the company would have to charge again for a new version.

Given the cost of keeping many desktop apps up-to-date, iOS software can represent good value, seeing as how cheap a lot of it is. **FM**

JD-XA with external bass module

How do I set up a split patch with Moog Sirin covering bass duties and JD-XA on EP/string?

The JD-XA is a versatile machine with features that take time to 'get'. You can set this up to work nicely and we've used a similar setup with our own Sirin and Minitaur. Though the XA only has four octaves (a little limiting) our advice is to split the XA down the middle and let the bottom two octaves cover bass from the Sirin and the upper two on the XA cover your EP/string layered sound. This works for most applications, though if you want more space for each sound in the split, connect an external MIDI controller to the XA.



> Choose an initialised patch on the JD-XA and choose the bass patch you want to use on your Sirin. Connect MIDI out from your XA to MIDI in on the Sirin. Plug the Sirin audio out into a channel on your mixer/interface and do the same for the XA's outs.



> Now let's make an EP/string sound on the JD-XA. Go to digital part 1, switch it on and make sure it's selected (the blue light will show it's selected and red light shows it's on). Hit the variation button, choose an EP PCM wave and tweak it to taste.



> Switch on partial number 2 on the same digital part (1), hit the variation button and choose a string wave for the layer. Use the envelopes to shape transients, then add effects and filtering. Hold the part button and set your key range by tapping the low and high keys.



> Choose the part for controlling the Sirin. Set key range (to control the Sirin) by holding the part's 'on' button and tapping low/high keys. Ensure the part's MIDI channel corresponds to the Sirin's (in the XA's menu). Turn off the XA's part volume using the amp level control.

Which amp for synth bass?

> Bass from the likes of a Moog (with its particularly uncompromising bass end) really shows up a weak speaker or amp design. To get the full frequency spectrum and low end, choose a 12" or 15" speaker with as much power as possible and a high-quality cab. We've had great results with Yamaha's DXR range.

Got questions that need answering?
Send us your Qs via Twitter [@futuremusicmag](https://twitter.com/futuremusicmag) or facebook.com/futuremusicmagazine and we'll endeavour to solve them!

MIDI KEYBOARDS



Novation SL MkIII from £540

Full Review: FM338

Well-designed and versatile. For those who work with both hardware and software, this may be the best studio centrepiece on the market.



NI Komplete Kontrol S-Series Mk2 £499

Full Review: FM324

Komplete Kontrol MkII brings a whole sonic universe under your fingertips like never before, with much deeper DAW integration too.



Akai Advance 49 £399

Review: FM293 Combined with Akai's VIP software, the Advance controllers remove the disconnect between controller and DAW.



NI Komplete Kontrol A-Series | from £119

Review: FM338 A quality controller combined with a well-rounded software bundle.



Arturia MicroLab £69

Review: FM355 This may not tick all the boxes for a studio controller keyboard, but as a super portable travelling device it hits the mark.



Novation Launchkey Mini Mk3 £110

Review: FM349 Small but well spec'd, this is a convenient and well-made controller that's great with or without Ableton Live.



Roli Seaboard Block £279

Review: FM322 A unique and high-quality MPE-capable, expandable, two-octave controller with a price that makes Seabords more generally accessible.



Arturia KeyLab MkII from £439

Review: FM339 KeyLab 49 MkII is a premium quality keyboard/controller that delivers for both DAW and live hardware users. Pricey, but worth it.



NI Komplete Kontrol M32 £99

The M32 controller takes Native Instruments' Komplete Kontrol concept and places it into a properly portable, entry-level package with impressive results.



Nektar Impact LX88+ £249

Review: FM315 The LX88+ combines a pretty good keyboard with extensive DAW integration, and is about as good as you'll get at this price point.

AFFORDABLE SYNTHS



Modal Argon 8

£579

Full Review: FM354

A very versatile sound engine, which covers lots of territory – from warm analogue to cold industrial. Another great British synth!



Korg Wavestate

£699

Full Review: FM353

The price might be pushing what we'd usually call 'affordable' but with 64 stereo voices and a multi-timbral sound engine you get a lot for your money here. And it sounds great too!



Novation Circuit £250

Review: FM299 A broad range of sounds with a fluid and intuitive workflow all adds up to make Circuit a winner. Its sequencer is absolutely killer too.



Arturia MicroFreak £279

Review: FM345 If you're looking to go beyond regular analogue synths and expand your sonic palette with an affordable creative tool, MicroFreak should be top of your 'must try' list.



Roland JU-06A \$399

Review: FM349 The JU-06 was already up with the best Boutiques, and this update is a winner all-round. A must-try source of classic sounds.



Arturia MiniBrute 2S £575

Review: FM328 The second coming of 'Brute sees it take on an expanded synth engine and semi-modular architecture. The sequencer-focused 2S is our favourite.



Korg Minilogue XD £565

Review: FM341 The four biggest Prologue features (Multi-Engine, user oscillator/effect import, filter-drive and stereo-effects) in an affordable form. Instabuy!



Teenage Engineering OP-Z £529

Review: FM339 Unique, inspirational and a lot of fun – the OP-Z looks set to be something of a future cult classic, despite a few design quirks and limitations.



Korg Nu:Tekt NTS-1 £99

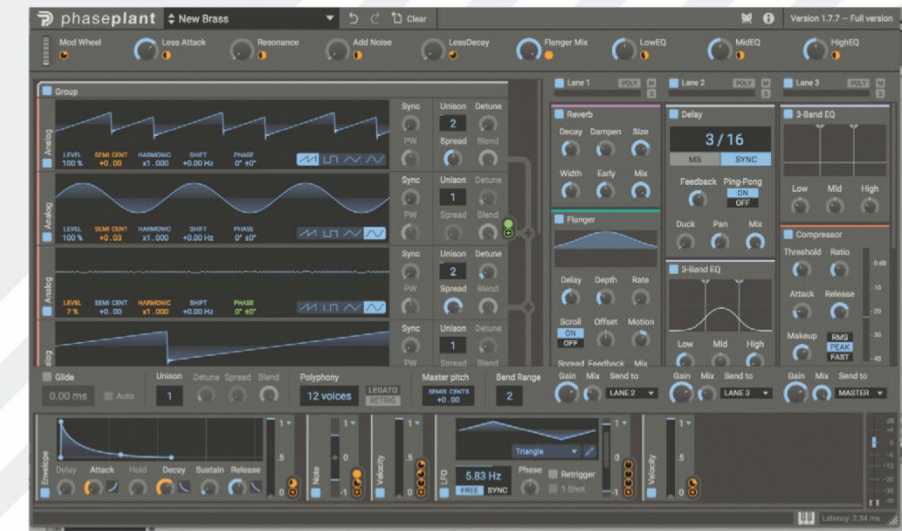
Review: FM351 Easy to build and fun to program, the NTS-1's flexibility and expandability make it a mini synth to be reckoned with.



Korg Volca FM £129

Review: FM305 A great-sounding box of classic FM sounds. It might lack the polyphony of the DX7 but, apart from that, the sound is bang on. Its motion sequencing is seriously powerful too.

SOFTSYNTHS



Kilohearts Phase Plant from €169

Full Review: FM350

Phase Plant’s modular architecture is an incredible resource for conjuring real and otherworldly sounds. A powerful, flexible synth in every way!



Native Instruments Massive X £179

Full Review: FM348

A long time in the making, NI’s follow-up to the most successful softsynth of all time doesn’t disappoint. There are still some rough edges at launch, but it sounds exceptional.



Arturia Pigments \$199

Review: FM342 With a multipart synth engine, sequencer and lots of creative tools, there’s a lot going on in this latest synth powerhouse.



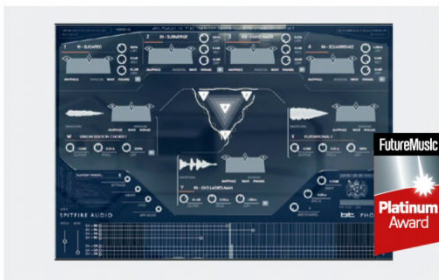
Xfer Records Serum \$189

This flexible, powerful wavetable synth has quickly risen through the ranks to knock Massive and Sylenth off the top of the ‘synth every producer must own’ list.



Audiaire Zone £99

Review: FM341 An impressive debut synth that’s handy for all kinds of sounds, but really shines when it comes to grooves, drones and rhythmic synth lines.



Spitfire Audio BT Phobos £269

Review: FM319 If your projects need contemporary, flexible sounds, or an instrument that will inspire creativity, Phobos may very well be what you’re after.



Spectrasonics Omnisphere \$499

Review: FM294 Version 2 of Omnisphere is a must-try. Audio import is the standout new feature, but dig a little deeper and there are improvements in all areas.



KV331 SynthMaster One \$79

An easy-to-use sibling to KV331’s great SynthMaster. With more than 500 presets and user wavetable import, you get a lot of flexibility for the price.



Vengeance VPS Avenger €199

With powerful wavetable editing, a ton of modulation, an onboard drum machine, sequencer and plenty of effects, this is a true power synth.



FXpansion Cypher 2 £159

Review: FM336 Despite a slightly dense interface, version 2 of Cypher is a powerful synthesiser with a solid USP and some killer MPE capabilities.

SEMI-MODULAR SYNTHS



Moog Matriarch

£1,979

Full Review: FM355

The Matriarch is very inspiring. It's well built, has the classic Moog Modular sound and is complex yet intuitive. A future classic!



Dreadbox Erebus 3

€499

Full Review: FM355

The Erebus V3 is a powerful, well-specified and flexible synth, capable of both conventional and more experimental tones.



Korg Volca Modular £190

Review: FM342 A West Coast synth in a compact package. It may be fiddly and a little complicated, but if you're willing to give in to its experimental ethos, the Modular is endless fun.



Pittsburgh Modular Microvolt 3900 \$629

Review: FM341 A characterful semi-modular that wears its influences on its sleeve, but still has its own unique style and sound.



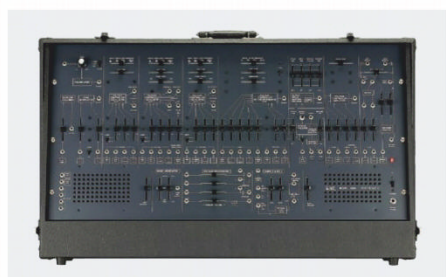
Moog DFAM drum synth £549

Review: FM333 A unique and inspiring percussion synth, and the perfect partner to the Mother-32. The lack of MIDI is quite disappointing though.



Arturia MiniBrute 2S £575

Review: FM328 The second coming of 'Brute sees it take on an expanded synth engine and semi-modular architecture. The sequencer-focused 2S is our favourite.



Korg ARP 2600 \$3,899

Review: FM354 This limited reissue isn't cheap, but it is a loving recreation of a legend that lets modern musicians experience a brand new ARP 2600 with none of the quirks of a vintage unit.



Dreadbox NYX 2 €539

Review: FM352 Dual filters and some great routing, modulation and patching possibilities make this more than just another semi-modular. The reverb is great for drones and FX too.



Behringer Neutron £549

Review: FM334 Despite a couple of design issues, the Neutron is a fun, useful and immensely flexible synth. At the suggested price, it's fantastic value for money.



Analogue Solutions Impulse Command £1,020

Review: FM346 Likely an acquired taste, with its unpredictable sequencers and filters, but if you embrace the chaos this is truly inspirational.

AUDIO INTERFACES



Arturia AudioFuse
8Pre £1,800

Full Review: FM354

All in all, this is an excellent interface with some thoughtful touches. The included software makes it good value too.



Antelope Audio
Discrete 8 £1,279

Full Review: FM351

An impressive platform: audio conversion is precise and the I/O configuration is deep. The future looks bright for Discrete 8.



Universal Audio Apollo x6 £1800
Review: FM340 Now a match for any rival interfaces. If you're tempted by the UAD ecosystem, this is highly recommended.



Universal Audio Apollo x4 £1,500
Review: FM355 With a seductive feature set, and, at a lower price than its bigger brothers, the Apollo x4 will prove attractive to many.



Arturia AudioFuse £519
Review: FM321 A nicely designed, highly configurable interface ready for almost any sound source. Its price is the only potential downside.



NI Complete Audio 2 £109
Review: FM344 A compact, slick 2x2 interface at a good price. The NI pedigree shines in build quality and performance. A quality package.



RME Fireface UFX+ £2,418
Review: FM330 Multiple analogue and digital sources in one incredibly flexible device. Plus it's a bargain.



Focusrite Clarett 4Pre £550
Review: FM329 The addition of USB to the Clarett range brings these high spec'd yet reasonably-priced interfaces to a wider audience.



M-Audio M-Track 8x4M £256
Review: FM341 A well-executed desktop interface with a decent choice of inputs, two headphone feeds and simple direct monitoring.



Steinberg AXR4 £2,200
Review: FM342 Stunning audio quality with ultra high-resolution recording rates and gorgeous preamps designed with Neve's involvement.

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