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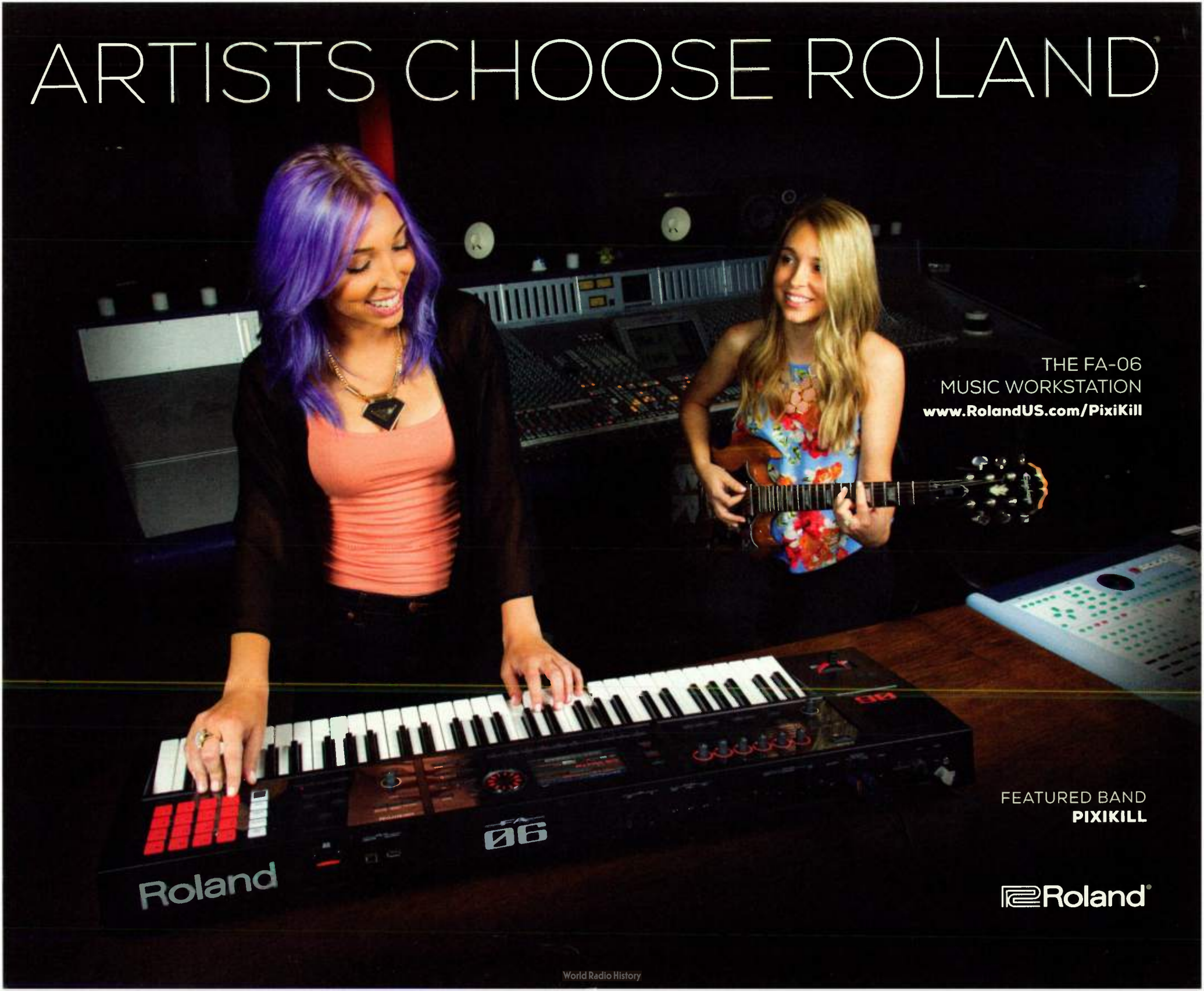

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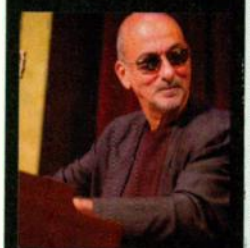

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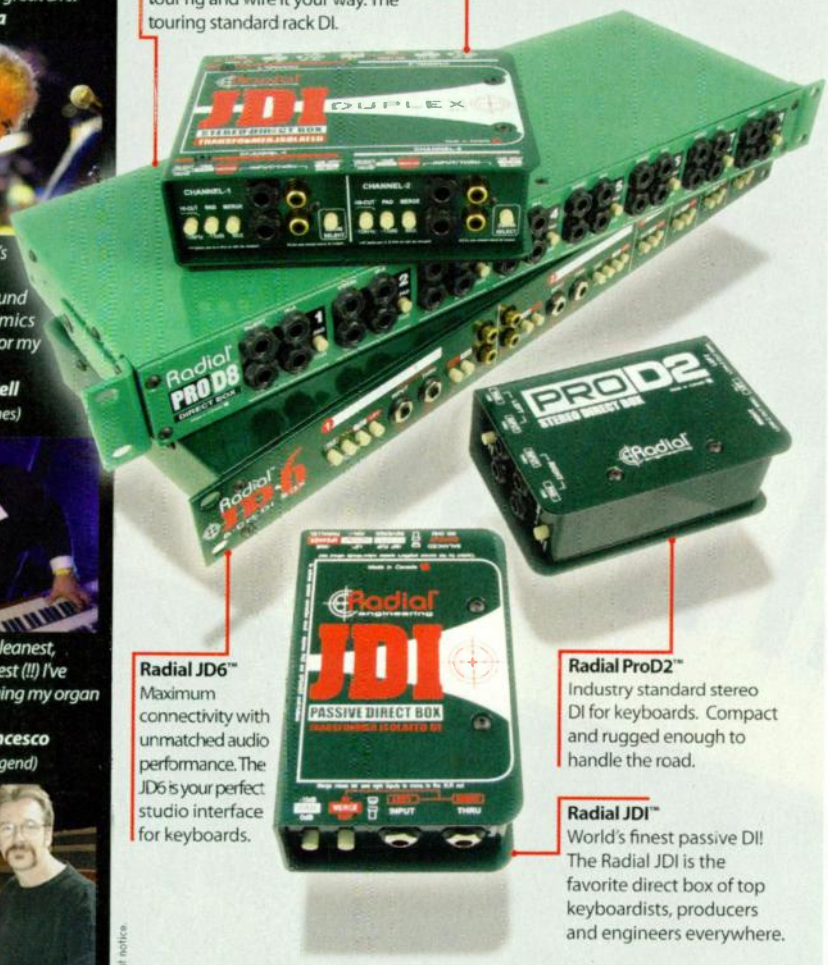

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EDITORIAL DIRECTOR Michael Molenda
mmolenda@nbmedia.com

EDITOR Sarah Jones
sjones@nbmedia.com

TECHNICAL EDITOR Gino Robair
gino@ginorobair.com

MANAGING EDITOR Barbara Schultz
bschultz@nbmedia.com

CONTRIBUTORS
Jim Aikin, Michael Cooper, Marty Cutler, Steve La Cerra, Kylee Swenson Gordon, Emile Menasche, Ken Micallef, Lily Moayeri, Markkus Rovito, Bud Scoppa, Tony Ware, Geary Yelton

FOUNDING EDITOR Craig Anderton

ART DIRECTOR Damien Castaneda
dcastaneda@nbmedia.com

STAFF PHOTOGRAPHER
Paul Haggard phaggard@nbmedia.com

PUBLISHER Joe Perry
jperry@nbmedia.com, 212.378.0464

ADVERTISING DIRECTOR, EASTERN REGION, MIDWEST & EUROPE
Jeff Donnenwerth
jdonnenwerth@nbmedia.com, 770.643.1425

ADVERTISING DIRECTOR, WESTERN REGION & ASIA
Mari Deetz
mdeetz@nbmedia.com, 650.238.0344

ADVERTISING SALES, EASTERN ACCOUNTS
Anna Blumenthal
ablumenthal@nbmedia.com, 646.723.5404

SPECIALTY SALES ADVERTISING, WEST
Michelle Eigen
meigen@nbmedia.com, 650.238.0325

SPECIALTY SALES ADVERTISING, EAST
Jon Brudner
jbrudner@nbmedia.com, 917.281.4721

PRODUCTION MANAGER Beatrice Kim

THE NEWBAY MUSIC GROUP
VICE PRESIDENT, PUBLISHING DIRECTOR Bill Amstutz
GROUP PUBLISHER Bob Ziltz
EDITORIAL DIRECTOR Brad Tolinski
SENIOR FINANCIAL ANALYST Bob Jenkins
PRODUCTION DEPARTMENT MANAGER Beatrice Kim
DIRECTOR OF MARKETING Chris Campana
MOTION GRAPHICS DESIGNER Tim Tsuruda
SYSTEMS ENGINEER Bill Brooks
CONSUMER MARKETING DIRECTOR Meg Estevez
CONSUMER MARKETING COORDINATOR
Dominique Rennell
FULFILLMENT COORDINATOR Ulises Cabrera
OFFICES SERVICES COORDINATOR Mara Hampson

NEWBAY MEDIA CORPORATE
PRESIDENT & CEO Steve Palm
CHIEF FINANCIAL OFFICER Paul Mastronardi
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VICE PRESIDENT, AUDIENCE DEVELOPMENT
Denise Robbins
VICE PRESIDENT, CONTENT & MARKETING
Anothony Savona
IT DIRECTOR Anthony Verbanic
VICE PRESIDENT, HUMAN RESOURCES Ray Vollmer

LIST RENTAL: 914.925.2449
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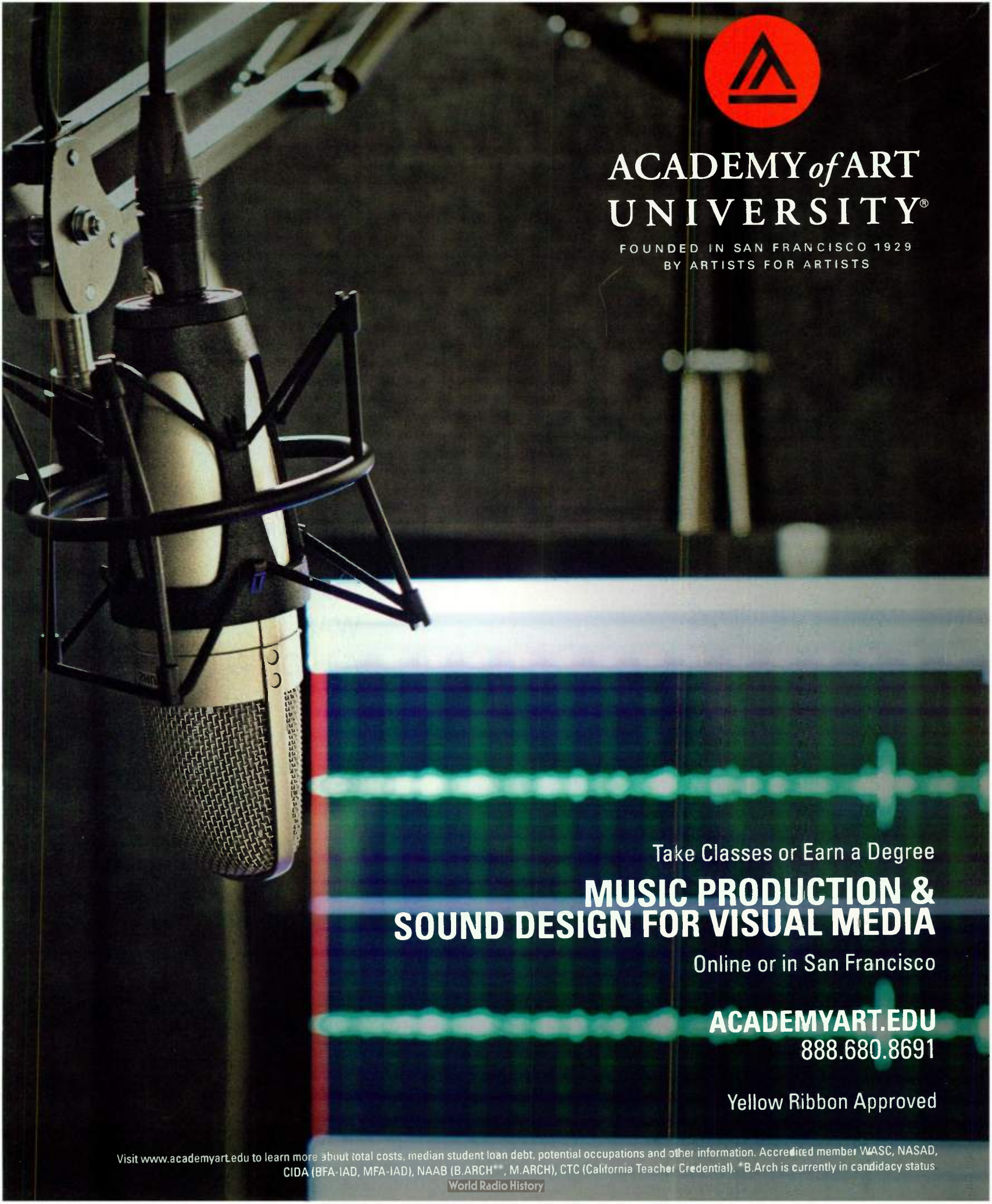

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insight

The Most Wonderful Time

WELL, WE made it through another year—and no matter which holiday you recognize, December is the time to celebrate and get your gift on. And as always, when it comes to music technology and gear shopping, *Electronic Musician* is here to help.

We've put together the ultimate guide to help you find something that is sure to delight everyone on your studio list: For the second year in a row, we checked in at studios and stages around the country to poll dozens of our favorite artists, producers, and engineers for their favorite gift suggestions ("Gear for the Holidays," page 22). We have something for everyone, whether your taste (and budget) runs more toward a $50 plug-in or a $10,000 controller.

We asked our gift advisors to share practical, affordable ideas—you can pick up, say, Steve Aoki or Chuck Ainlay's favorite studio goodies, for a few bills. Have champagne taste on a beer budget? We've got plenty of gift ideas priced at under $100—including one awesome freebie.

We've also collected the coolest accessories for modular synths ("Mod Squad," page 18), and a handful of decidedly impractical stocking stuffers ("Holiday How-To," page 14).

You or someone you love deserves something cool this year, and we want to make browsing for studio gear the most fun part of your holiday shopping.

SARAH JONES
EDITOR
sjones@musicplayer.com

"I DECIDED THAT I WAS GOING TO MAKE A HIGH ALBUM — IN FACT, THE HIGHEST ALBUM EVER MADE, JUST SO THAT MY [DOGS] SPOT AND REX CAN HEAR IT, NOT AUDIBLE TO HUMAN EARS···AND TO RAISE MONEY FOR MY FALL TOUR."

Singer Michelle Shocked, explaining her new album *Inaudible Women*, which features ten tracks of silence, all named after music industry executives; on Vimeo.com.

World Radio History

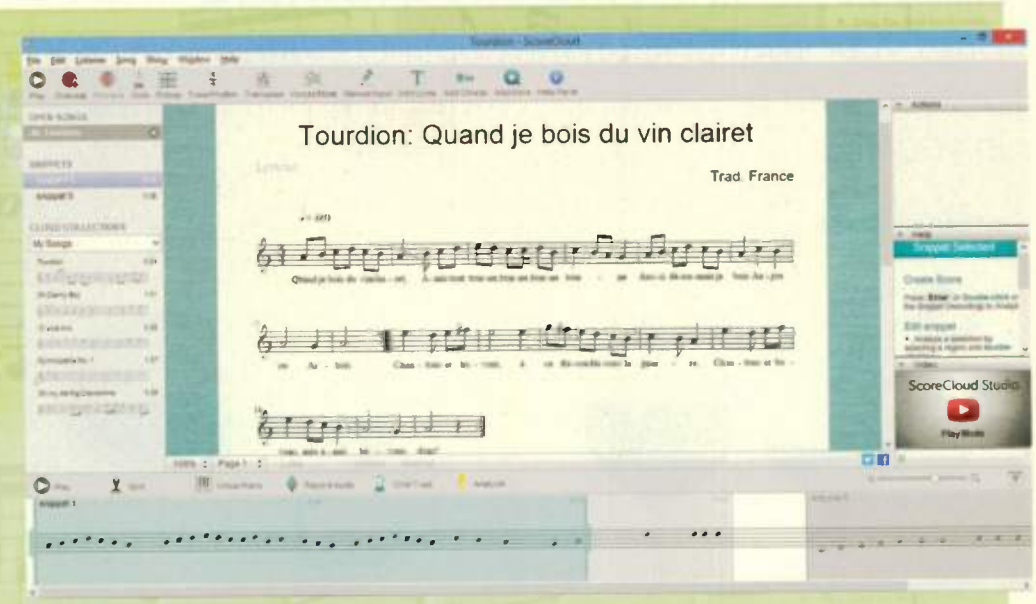
DOWN LOAD

Notes from the Web ScoreCloud music notation software

BY GINO ROBAIR

Stockholm-based DoReMIR Music Research recently launched ScoreCloud, an integrated cloud-based music notation program for computers and iOS devices. Designed for ease-of-use and online sharing, ScoreCloud has the ability to transcribe monophonic audio input from your device's built-in mic. As you sing or play an instrument, the notes show up on a music staff. From there, you can edit your piece using the provided toolset, then export or share your work via email and social media (Facebook, Twitter), as well as sync your scores between platforms.

Two versions are available—ScoreCloud Express for iOS (free; requires an Internet connection) and ScoreCloud Studio (Mac/Win), which has a tiered pricing scheme: ScoreCloud Studio Silver (free) lets you save 50 songs online; Gold ($4/month) offers unlimited online storage; Platinum ($7/month) allows you store your work on- or offline.

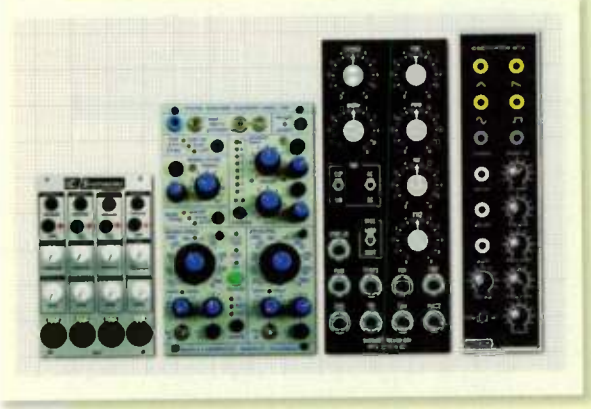


The Studio version includes an onscreen keyboard and accepts MIDI input for note entry, offers the ability to re-record a part or overdub a new voice, and can export PDF, MusicXML, MIDI, or mp3 files. Overall, the editing tools are kept relatively simple and concise, and a contextual help window is there for assistance. Look for a full review in an upcoming issue.

ASK!

I AM INTERESTED IN BUYING MY FIRST MODULAR SYNTHESIZER, BUT I CAN'T DECIDE ON WHICH FORMAT IS BEST—LARGE MODULES OR A SMALLER FORMAT. IS THERE AN ADVANTAGE TO ONE SIZE OVER ANOTHER?

SUZANNE SHARPES
RIVERSIDE, CA
VIA EMAIL



While synth modules are available in numerous formats, some sizes, such as Frac Rack and Eurorack, have grown particularly popular.

While modules are available in numerous formats, some sizes have become popular and easy entry points for the new user. The main minijack (3.5mm) formats are Frac Rack and Eurorack. Of the two, Eurorack has the largest number or manufacturers and modules available, and some of the least expensive. The advantages with both formats are size (3U tall; more modules per foot) and portability; with Eurorack, breadth of products and affordability are pluses. For some people, the diminutive size is also the main disadvantage: the knobs are small and often placed close together, depending on feature density. If you have big fingers, patching and playing small modules can be frustrating.

In contrast, the larger, 5U "Moog-style" format feels roomier. The knobs are bigger and the web of patch cables easier to navigate. The downside is that large-format modules take up a lot of space and are more difficult to transport. Additionally, there are fewer manufacturers and fewer module choices.

Banana-jack systems are much more varied in terms of module size, power supply requirements, and CV levels. Bug Brand, Buchla and Modcan A-series, for example, are 3U, 4U, and 5U in size, respectively. But if one company's offerings excite you, then banana jacks are a great way to go because the plugs are stackable, making it easy to create complex patches.

Some manufacturers provide affordably priced starter systems, such as Pittsburgh Modular (Eurorack) and Synthesizers.com (5U). The good news is, no matter what format you choose, it'll almost always play well with the others.

THE EDITORS

>>> Got a question about recording, gigging, or technology? Ask us! Send it to ElectronicMusician@musicplayer.com.

World Radio History

Holiday How-To: Mini-Gifts and Stocking Stuffers

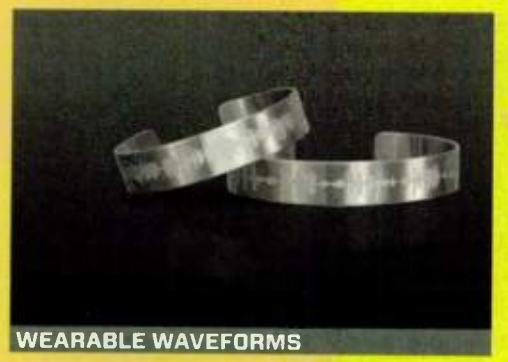
Start your shopping on the right note with some cool presents for the deserving musicians and engineers in your life

BY SARAH JONES

MUSICAL WINE GLASSES

$65 for two glasses, uncommongoods.com

Create beverage-based instruments the easy way with this custom set of eight lead-free crystal glasses from Uncommon Goods. Fill up (or drink down) to A-major scale note markers laser-etched along the glass and then run your finger around the lip to create beautiful resonant tones; sheet music is provided so all of your friends can get in on the action.



WEARABLE WAVEFORMS

Prices start at $75, soundwavejewellery.com

Sound Wave Jewellery customizes earrings, rings, bracelets, and other unique pieces with a visual representation of your favorite recording. Share words of wisdom or a secret message, or just show off your wide dynamic range in style.

REPURPOSED PICKS

$20, nashvillepicks.com

Do your part to recycle with custom guitar picks made from retired cymbals. Each handcrafted, solid-brass pick has a unique dual-sided lathing pattern and smooth, beveled edges; our friends down the hall at *Guitar Player* rave that they "glide off the strings, creating an otherworldly tonal palette."

NERD HERDER

$32, rockitbot, etsy.com

You *could* jam your smartphone, guitar picks, business cards, USB cables, business cards, jump drives, SD cards, batteries, cash, and ID into every spare pocket in your pants. But the safari look is so 1990. Instead, neatly pack it all into the Nerd Herder, an all-in-one gadget wallet that holds all of this and more—even your passport. It's available in two sizes and a dazzling array of designs, and converts into a purse if you add a detachable shoulder strap.

MINI THEREMIN

$39.99; thinkgeek.com

Make gorgeous space music on the go with the Theremin Mini from Gakken. This easy-to-assemble kit will have you up and running before everyone else has finished tearing open their presents; all you need are a Philips screwdriver and four AA batteries. Includes tiny sheets of music and a Japanese Theremin magazine for inspiration.

FREAKENFURBY

$48, artstruments, etsy.com

The beloved Furby robot toy has been through numerous incarnations since its launch in 1998, but none as cool as this circuit-bent beauty. The Freakenfurby lets you craft alien-sounding vocal noises, freeze strange sounds, and send the toy into utter sonic chaos via a handy Glitch switch. Patch into its built-in 1/8" jack to send your creations into other noise-making machines.

World Radio History

>> My Brightest Diamond at The Bank, L.A.

BY BARBARA SCHULTZ

UNDER HER OWN NAME, SHARA WORDEN HAS contributed her rich, clarion vocals to recordings by artists including David Byrne, Gabriel Kahane, Fatboy Slim, and the Blind Boys of Alabama. Her solo project My Brightest Diamond couches that angelic voice in a fearless, dynamic orchestra of classical, jazz, electronic music, and rock sounds. *This Is My Hand* is an ear-opening creation unto itself.

Worden worked in numerous studios in different locations to capture the sounds she was after, but the real shape of the songs began and ended in The Bank, the L.A. studio of Worden's friend and co-producer/engineer Zac Rae.

"The very first thing I did was fly to California, and Zac and I worked for four or five days, just doing writing sessions. And ultimately, strangely, some of those writing sessions ended up making the record," Worden says. From the beginning, she and Rae were forming the sound ideas that define the record.

"We made a deliberate decision to mix modern, electronic, and urban music with Shara's soft, beautiful classical sounds," Rae says. "We knew we wanted to do things like take the hard sound of a New Orleans marching band to give her sound a different edge."

Some of the earliest album-recording sessions took place in Berlin, where drummer Earl Harvin lives. Further drum sessions saw Brian Wolfe playing in Rae's studio. The horns—essential to that marching band sound Rae mentioned—were all captured in engineer/producer Patrick Dillett's facility in New York.

"The first time I worked with Pat was when I sang on a David Byrne record," Worden recalls. "I really enjoyed working with him, and I liked how he comped the vocals, so I ended up doing my entire third record with Pat. He has really great classical sensibilities and also a fabulous pop sensibility.

"And my friend Casey [Foubert], who has a basement studio [in Madison, Wisc.] also contributed pretty significantly to the record, all long-distance," she continues. "He played some guitars, some percussion, keyboards, autoharp. And on that crazy, jarring interruption [with a screaming electric guitar and cymbal crashes] that happens in 'Shape' after the first chorus: I told Casey, 'Something dramatic has got to happen here,' and he made that happen."

Worden and Rae built the songs in Pro Tools in The Bank, which comprises a large tracking room, booth and Rae's control room. Worden sang her vocal parts in all three spaces; Rae says that she often used the big room, but sometimes she'd sit in the control room with him, so they could talk things over as they went. "On Shara's vocal, I just used a [Neumann] U67 through an Avedis MA5 mic pre—no compressor. I actually started out with a more elaborate vocal chain, but realized it would be better to keep her sound more simple and natural," Rae says.

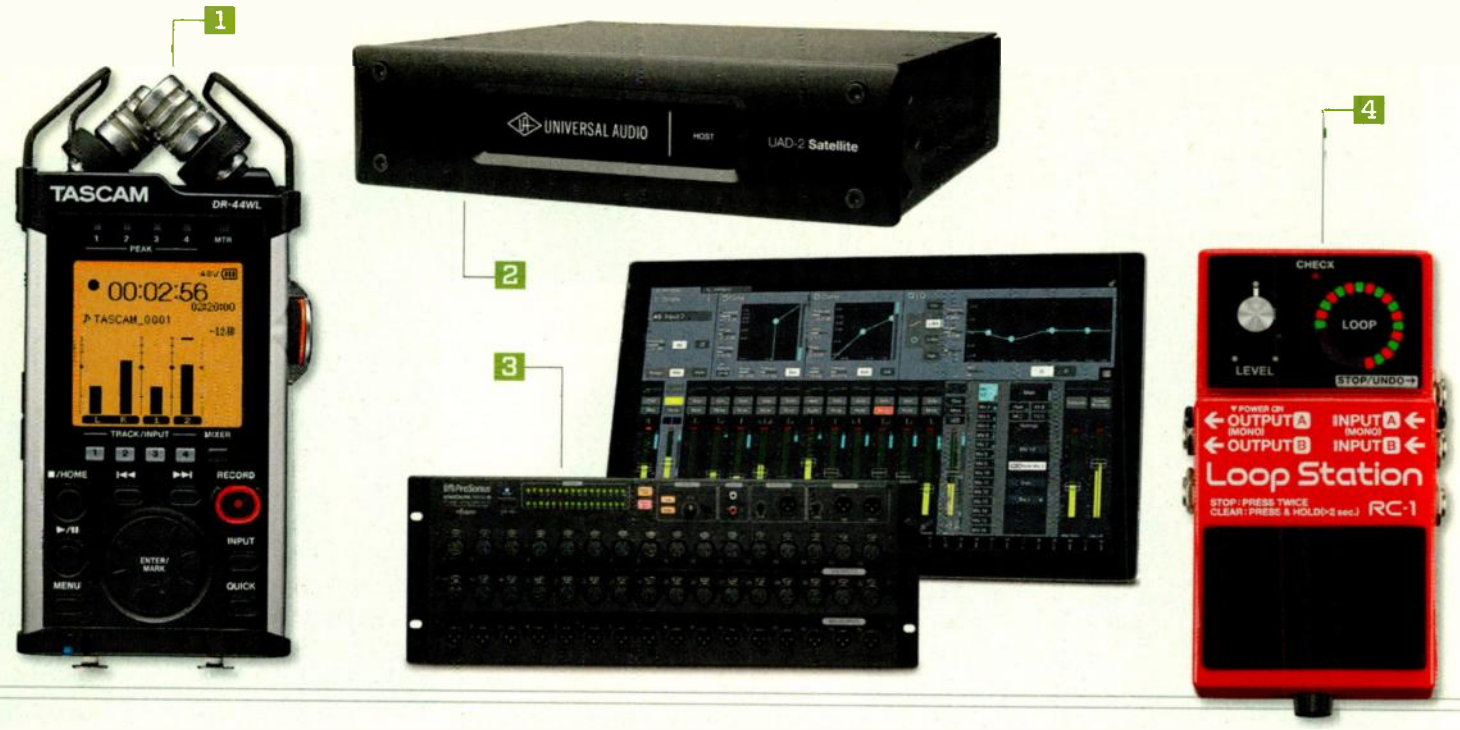
"That's sort of contrasted with the synths and electronic instruments we used. We used a lot of the [Teenage Engineering] OP-1. We combined the electronic drums from that with the real drums, for example. I have a lot of vintage gear in my studio, but we wanted to create a more modern sound."

Engineer/co-producer Zac Rae: "This is the crazy drum setup for 'Pressure.' There are 17 layers of drums that Brian Wolfe did to create the marching band sound. We kept changing the drums and their position and using different room mics to simulate the sound of the bigger ensemble. Everything from big old radio king drums to a toy kit and probably a half dozen different snares in different tunings to emulate all the different sounds you would hear in a marching band."

Engineer Patrick Dillett

World Radio History

NEW GEAR



1

TASCAM

DR-44WL

4-track portable digital recorder

$299.99

HIGHLIGHTS Two phantom-powered XLR mic inputs • built-in stereo condenser mics • transport control, audio streaming, and file transfer to your smartphone or computer via wi-fi • multitrack mode to record one track at a time with reverb • dual-recording mode • hot-shoe mount for use with camera • simultaneous WAV (24-bit/96kHz) and MP3 recording

TARGET MARKET Musicians and videographers

ANALYSIS This portable recorder combines modern recording and transfer convenience with updated mics and preamp technology.

tascam.com

2

UNIVERSAL AUDIO

UAD-2 SATELLITE THUNDERBOLT

DSP accelerator

$999-$5,999

HIGHLIGHTS Runs UAD Powered Plug-Ins using Thunderbolt and Thunderbolt 2 ports • five configurations available, with 4 (Quad) or 8 (Octo) SHARC processors • bundled with Analog Classics Plus plug-ins; Custom and Ultimate configurations include additional plug-ins • dual Thunderbolt 2 ports

TARGET MARKET Musicians and recording engineers

ANALYSIS For Mac users, this provides modern, fast connectivity with the ability to use other UAD-2 devices (UAD-2 Satellite Firewire, Apollo) simultaneously.

uaudio.com

3

PRESONUS

STUDIOLIVE RM16AI AND RM32AI

Rackmountable digital mixers

$1,399-$1,999

HIGHLIGHTS 16-input/3U and 32-input/4U digital mixers with PreSonus StudioLive AI engine • supports UC Surface control software • XMAX Class A mic preamps • Fat Channel DSP on all input channels and buses • Wi-fi and Ethernet networking • Capture recording software integration • includes Studio One Artist DAW software • RCA tape inputs

TARGET MARKET Live sound mixing and studio recording

ANALYSIS PreSonus' highly flexible and robust AI-series mixer technology is now in a portable, road-ready rackable format.

presonus.com

4

BOSS

RC-1 LOOP STATION

Looping pedal

$129 street

HIGHLIGHTS Up to 12 minutes of looping time • circular LED loop indicator • stereo audio I/O • features include record, overdub, undo/redo, and clear • stores last loop when powered down • accepts FS-7 footswitch (not included) for additional control • can be powered by AC adapter (not included) or 9V battery

TARGET MARKET Musicians using mono or stereo instruments

ANALYSIS Many of the famous Boss looping features now available in a small, but rugged pedalboard-friendly package.

bossus.com

All prices are MSRP except as noted

World Radio History

5

KORG

ELECTRIBE MUSIC PRODUCTION STATION

Groove box

$399.99

HIGHLIGHTS PCM and analog modeling sound engines • step sequencer • 16 velocity-sensitive pads • KAOSS-style x/y controller • MIDI and sync I/O • Export parts as WAV files • export entire patterns as an .ALS file for use in Ableton Live

TARGET MARKET Producers and musicians working in modern dance music genres

ANALYSIS The Electribe has been modernized with performance features borrowed from Korg's kaossilator, Taktile, and KingKorg, and is optimized to easily integrate with Live.

korg.com

6

ELECTRO-HARMONIX

CLOCKWORKS

Trigger clock source

$293.73

HIGHLIGHTS Re-issue of the '70s-era, analog clocking pedal for synths and drum machines • provides four channels, each with level and division controls, derived from the same clock source • can be used as the master clock or accept external trigger signals • die-cast housing • AC adapter included

TARGET MARKET Beat producers and owners of hardware synths and drum machines

ANALYSIS A straightforward and intuitive way to setup up polyrhythmic patterns across your various instruments.

ehx.com

7

FOCUSRITE

ITRACK POCKET

iPhone audio interface

$99.99 street

HIGHLIGHTS Designed to capture high-quality sound while you shoot video with your iPhone • holds phone at optimal angle for video capture • stereo microphones • guitar input • record audio, apply mastering effects, edit video, and upload directly to YouTube using the free Impact by Focusrite app •

TARGET MARKET Musicians and songwriters

ANALYSIS With the free recording/editing app, the iTrack Pocket provides a convenient way to get increased audio quality for iPhone-based videos.

focusrite.com

8

NOVATION

AUDIOHUB 2X4

Audio interface/USB 2.0 hub

$199.99 street

HIGHLIGHTS Portable and lightweight • 24-bit/96kHz resolution using Focusrite technology under the hood • stereo RCA inputs with level switch • two stereo pairs of RCA outputs • balanced 1/4" outputs • three USB ports that can bus-power other devices • includes Ableton Live Lite and 1 GB of Loopmasters sample content

TARGET MARKET Musicians, DJs, beat producers

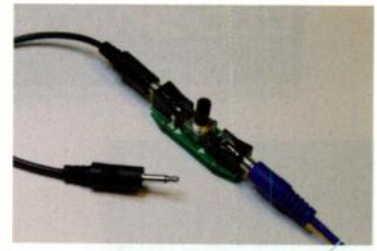
ANALYSIS A relatively low-cost and convenient way to interconnect your USB-based controllers and audio gear.

novationmusic.com

World Radio History

Synthesizers.com QHL cable holder

Koma Elektronik kabelhänger



Ljunggren Audio RYO Airtenuator I

Cables, Hangers, and More

Accessorize your system with these nine modular-friendly goodies

BY GINO ROBAIR

Often it's the little things that count, and for modular users, that means accessories—cables, hangers, and other gadgets that make the patching experience more efficient and enjoyable.

Following this month's holiday gift-guide theme, we've assembled a list of affordable, modular-friendly items that are a mix of practical and fun.

CABLE HANGERS

SYNTHESIZERS.COM QHL CABLE HOLDER

$38

SYNTHESIZERS.COM

A well-organized, centrally located rack makes it easy to find the right-sized cables while keeping them off the floor where they can get damaged or lost. One problem with standard racks is that they're designed to be attached to some surface—a wall or the side of your case—which can be inconvenient if you have lots of cables.

Enter the QHL, a 9"x12" heavy-duty cable hanger that attaches to a standard mic stand. Because it's not nailed to the wall, you can place it anywhere—even take it to a gig! Designed to hold 156 1/4" cables, it'll hold even more banana and 3.5mm cables, as well as any other cables you have around the studio (MIDI, USB, FireWire, AC power cables, and so on).

Synthesizers.com also offers the QHS ($19), a surface-mountable, 36-cable holder that is only 6" wide, making it a great choice when the side of your synth case is too narrow for a standard-width cable rack. (Mounting screws are included.)

KOMA ELEKTRONIK KABELHÄNGER

$35-$40

KOMA-ELEKTRONIK.COM

For those times when you want your cables right next to you in the studio or onstage, the kabelhänger attaches directly to the rails in your Eurorack case. The racks are available in two sizes—19 and 24 slots.

SIGNAL TREATMENT

LJUNGGREN AUDIO RYO AIRTENUATOR I

$15 ASSEMBLED; $9 PACK OF 3 PCBS; $25 DIY KIT (ENOUGH FOR THREE UNITS)

LJUNGGRENAUDIO.COM

A passive attenuator for systems with 3.5mm jacks, the RYO Airtenuator I has a linear taper that makes it great for adjusting signal levels and modulation depth between source and destination modules.

At 2.25" long and 1" tall, the RYO Airtenuator I is designed to float in the air, suspended by the input and output cables attached to either end. The knob is easy enough to turn with a single hand, yet

World Radio History

• RXA5: 5-inch: 70 watts, 50Hz-27kHz

• RXA6: 6-inch: 100 watts, 45Hz-27kHz

RESOLV RXA ACTIVE STUDIO MONITORS deliver the sonic elements essential to any studio setup featuring Samson's newly-developed *Air Displacement Ribbon Tweeters* for extended high-frequency response and increased dynamic range.

Sold individually in 5 and 6-inch models, RXA monitors offer a true reference sound with no hype, just precise audio imaging for authentic and critical sound reproduction.

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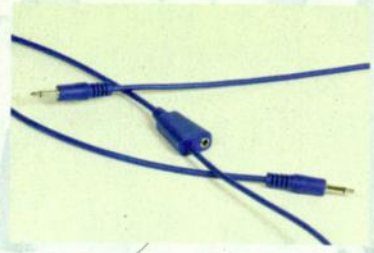
SAMSON

World Radio History

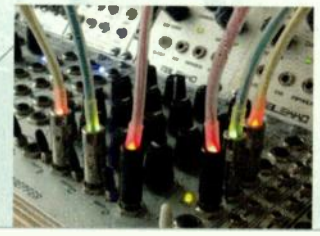
Intellijel The Hub

Tiptop Audio Stackcable



Erthenvar IV Cables

Division 6 Jack Lite



UTOPB LED Cable

Expert Sleepers Glow-in-the-Dark Cables

it is lightweight enough that it won't create stress on your modules' jacks at either end. Simply route your signal in the right direction through the device. Little white arrows printed on the circuit board show you the proper connection.

I found the RYO Airtenuator I to be extremely handy when I needed a way to subtly adjust the parameters of a patch, especially during a performance.

INTELLIJEL THE HUB

$10

INTELLIJEL.COM

One of the handiest, but least sexy modules in your system is the mult, a device that splits an output signal into several copies. Although a mult module doesn't take up much space in your rack, it does take some, and in a complex patch, it seems like you can never have enough of them.

With that in mind, Intellijel created the Hub, an inexpensive and portable 1- to 3-way passive mult. The Hub is built into a solid, lightweight plastic enclosure that is 1.5" wide and just more than 0.5" thick, and the 3.5mm gold-plated jacks are mounted onto the PCB. (The unit can be opened up by removing a pair of screws, if you need to repair it.)

Magnets on each side allow you to attach the device to metal edges or posts of your case. (The Hub is also available without magnets for the same price.)

CABLES

TIPTOP AUDIO STACKCABLE

$8.75 STREET

TIPTOPAUDIO.COM

Buchla, Bug Brand, and Serge owners have known all along that the ability to distribute source signals to any number of destinations with the use of a cable-based mult increases your patch complexity exponentially, while simultaneously saving you module real estate. Other than converting all of our minijack modules to banana jacks, what's a synthesist to do?

Tiptop Audio revolutionized patching for Eurorack and Frac Rack users with the introduction of the Stackcable, a heavy-duty 3.5mm plug with a 3.5mm jack attached directly behind it. The cables are available in five color-coded lengths, from 30cm to 150cm.

Once you start using them, you'll wonder how you ever got along without them. (Banana-jack users can now wipe that smug look off their faces!)

ERTHENVAR IV CABLES

$4-$5

ERTHENVAR.COM

In contrast, Erthenvar's 3.5mm IV Cable allows you to directly split a signal at the middle of the cable, using an attached 3.5mm jack—very useful in situations where you want to keep cable-lengths as short as possible and your multed patch-point destination is located somewhere in the middle of your module case.

IV Cables are available in lengths from 11.8" to 47.2" and in four colors—Black Magic, Snow White, Cordon Bleu, and One Shade of Grey.

UTOPB LED CABLE

€10 ($12.50)

UTOPB.COM

Inside the LED Cable are two colored cables that show polarity (one color for positive voltages, the other for negative) and level (the stronger the signal, the brighter the color). This not only looks great onstage, but it allows you to see at a glance the state of envelopes, gates, and other control or audio signals.

The cables are most efficient when attached directly to a module's output or a buffered mult. In non-buffered situations, signal strength is weakened by the cable, which the manufacturer suggests can be used creatively to smooth control signals.

The interior cables are protected by a squishy silicon outer tube, so be sure to hold the plug itself when you connect or disconnect the LED cables. Available in lengths up to 19.7"; choose from eight colors for the inner cables, and select 3.5mm Neutrik/Re'an silver or black plugs.

DIVISION 6 JACK LITE

$9.95

DIVISION-6.COM

Whether you need something to test the polarity and strength of an output signal, or some additional blinking lights, the Jack Lite will do the trick. The light at the end of the 3.5mm plug will shine red for positive signals, blue for negative, with brightness indicating signal strength.

EXPERT SLEEPERS GLOW-IN-THE-DARK PATCH CABLES

$3.50-$5.25

EXPERT-SLEEPERS.CO.UK

If you need 3.5mm patch cables that glow bright green in the dark, now you know where to find them. Available in lengths from 12" to 31.5". ■

World Radio History

YAMAHA

Yamaha Synth 40th Anniversary

MOdern MOjo

In the studio, you need computer connectivity and control.

On stage, you need great keyboard feel, expressive sound and expandability.

Get it all with the MOXF.

Featuring deep computer integration with built-in audio and MIDI interfaces, a choice of 61-key synth action (MOXF6) or 88-key Graded Hammer Standard action (MOXF8) plus the legendary Motif Sound Engine and optional FlashROM expansion, the MOXF is the heart of your studio and the soul of your performance.

moXF

Visit **4wrd.it/MOXF40EM** for more details.
Join our synth community at **yamahasynth.com.**

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World Radio History

World Radio History

Gear for the Holidays!

Artists, DJs, and engineers reveal favorites that help you treat everyone on your list like a rock star

BY BARBARA SCHULTZ AND SARAH JONES

It's the most wonderful time of the year! Time to troll for markdowns on music and studio equipment. In this year's holiday special feature, we asked 20-plus music-making pros to tell us what's on their Christmas wish and gift lists. Each one revealed one "practical" choice and a "sky's the limit" idea. Bearing in mind that one electronic musician's "low-budget" may be pure fantasy for others, you're sure to find some inspiring ideas to enhance your productions and your musical friends'.

World Radio History

Teenage Engineering OP-1 synth/workstation

Above and Beyond

Formed in 2000, this British EDM group also owns the record labels Anjunabeats and Anjunadeep. Members Jono Grant, Tony McGuinness, and Paavo Siljamäki also host a weekly radio show called Group Therapy. Their latest album is *We Are All We Need*.

"As a budget gift," says member Jono Grant, "the Teenage Engineering OP-1 synthesizer/workstation [around $850] is a lot of fun and gets you thinking outside the box.

"Crane Song's Avocet stereo monitor controller [around $3,000] may seem like an extremely expensive volume knob to some, but the excellent D/A converter ensures you're hearing things correctly, and because most things are done "in the box these days, it makes sense to spend the money on the listening environment and monitoring tools."

Rusty Soup Can microphone

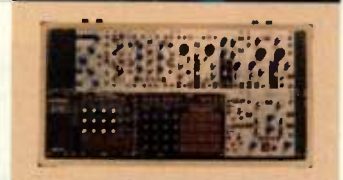
Adam Hawkins

L.A.-based Grammy-winner Adam Hawkins' varied discography includes engineering and/or production for recent releases by Switchfoot, Gary Clark Jr., Avenged Sevenfold, Regina Spektor, and Keith Urban.

"My practical choice would be the Rusty Soup Can microphone from Mead Guitars [around $24.99]. They're made by a small company that sells them on eBay. These are just so much fun for odd drum, vocals, or guitar sounds. They give you unique sounds for small-sounding drum loops or a weird filtered kind of guitar sound without having to do any extra work. You just plug it in, see what it sounds like, and creatively it can inspire something you wouldn't do otherwise. They're dirt-cheap and everything they do is really fun.

"If the sky's the limit, buy the nicest studio monitors you can afford, assuming you've already got a treated room. Nothing changes your work more than hearing more detail in your mixes. And there's nothing like changing to give you a new perspective and a new way of listening to everything. Right now I'm on Focal SM9s [about $7,500/pair], and I like them because they don't lie. If something sounds bad, it really sounds bad, and if something sounds good, it really sounds good. A lot of monitors I've tried seem to always sound good no matter what you do. You make an EQ change and you're like: That sounds good, too. Which one's right?"

Alessandro Cortini



Make Noise Shared System

Multi-instrumentalist Alessandro Cortini has lent his synth genius to Nine Inch Nails, both in the studio and onstage, on and off since 2004. He co-wrote some material for NIN's eighth album, *Hesitation Marks*, with Trent Reznor; founded SONOIO; is a touring member of How to Destroy Angels; and has collaborated with the likes of Ladytron and Christina Aguilera. Cortini is preparing instrumental releases on Important Records (*Forse 3* will be available soon) and Hospital Productions. (*Sonno* is available now, while *Sonno II* will be released soon.)

Cortini's budget gift suggestion? A Korg Volca Keys analog loop synthesizer ($150). "It's incredibly versatile and unique sounding, includes MIDI, and hackable, for only 150 dollars."

His sky's-the-limit gift suggestion: Make Noise Shared System ($3,330), a complete synth voice that offers high-level, West Coast-style modular synthesis capabilities in a portable case that lends itself to live performance.

All Hail the Silence

Roland System-1

All Hail The Silence is the collaboration between BT and Christian Burns. BT's career has spanned more than 20 years, nine albums, multiple movie scores, and development of numerous music software products, including Stutter Edit, BreakTweaker, and Muse. Vocalist Christian Burns has collaborated with the likes of Tiësto, Armin Van Buuren, and Benny Benassi. All Hail the Silence will be releasing a fully analog album in early 2015.

BT: "FL Studio [various versions—prices vary] because it's the most comprehensive and powerful DAW ever made. And better than that, all your friends think it's a toy and won't understand why all your latest music sounds so effing awesome.

"The Roland System-1 [around $600] looks beautiful, sounds great, and is a wonderful head break from a computer screen."

CB: "In a dream scenario, a bit of gear I would say to get is an actual Lexicon 224 reverb [upwards of $1,200—resale prices may vary]. I recently got to play with one and it has actual magic inside. Unicorn central.

"And if you don't have $10,000,000 to spend on a Lexicon, I recommend a vocal pedal called the TC Helicon VoiceLive 3 [vocal effects processor and harmonizer with vocoder, talkbox, guitar FX, and looper]. I have been using it on all my recent shows and it sounds incredible. Take control of every single part of your vocal sound. A must for any vocal performer."

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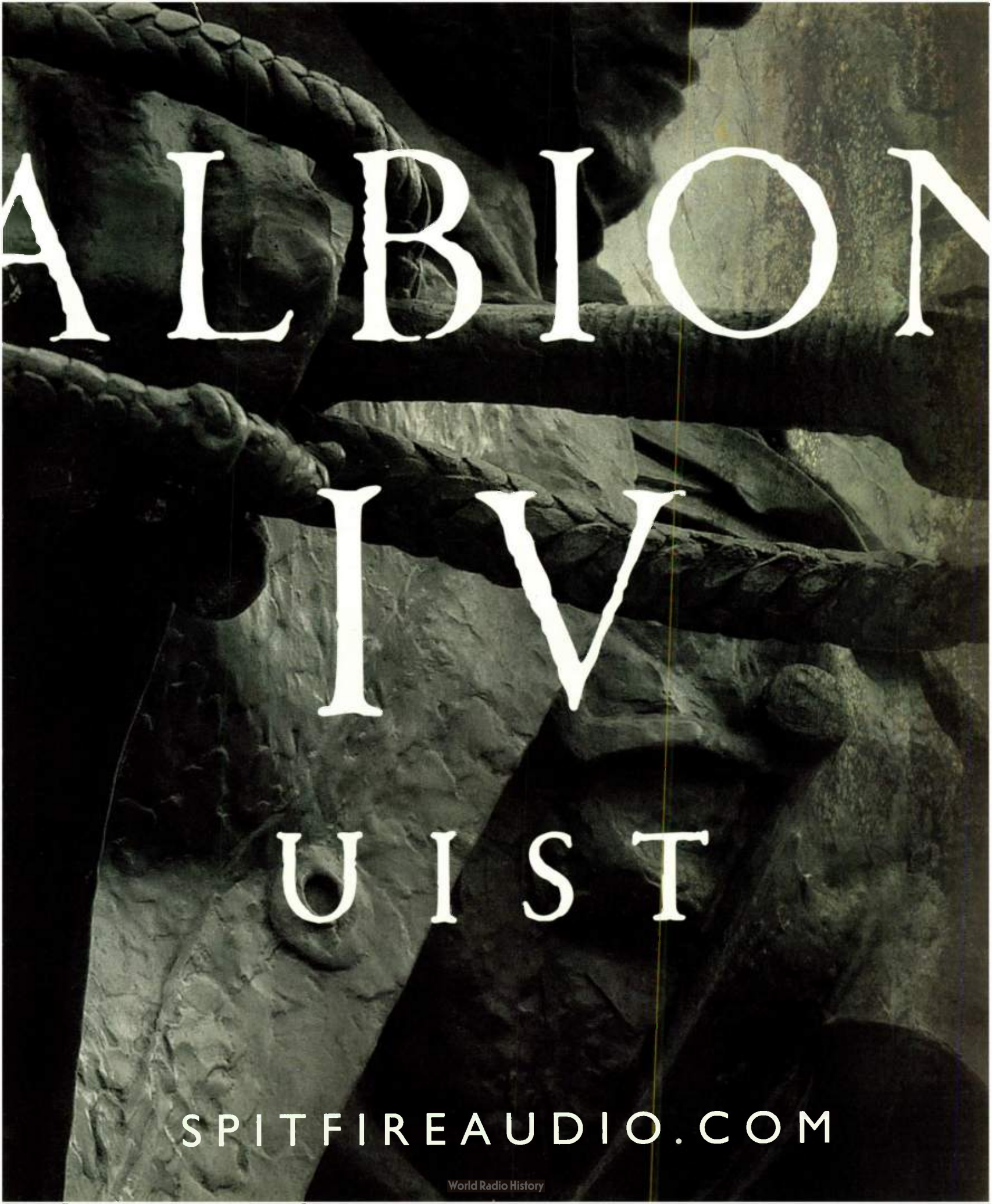


World Radio History

Brian Tarquin

Shure SM57

Brian Tarquin is an Emmy Award-winning composer and guitarist whose credits include daytime dramas (*General Hospital*), prime-time series (*The Simpsons*, *Grey's Anatomy*, many more), and news programs (*60 Minutes*, *MSNBC Reports*, etc.). Working out of his own Jungle Room Studios, Tarquin also operates the BHP Music label, whose projects include the *Guitar Master Series* featuring music from Jeff Beck, B.B. King, Carlos Santana, and many others.

"My practical-budget purchase would be a Shure SM57, the most versatile microphone, from miking drums and percussion to guitar amps and horns. For 100 bucks you can't get a more useful microphone for the studio. I have several 57s and always use them when tracking drums.

"If the sky's the limit, my choice is the Neve 33609 compressor/limiter [around $5,000], the ultimate bus compressor. It fattens those weak digital mixes, giving a smooth bottom to the mix. Still manufactured today by AMS in England to Rupert Neve's original specs, it's worth every dime. I use mine across the mix bus for every style of music and love it."

Chuck Ainlay

JBL LSR305

Nashville-based Chuck Ainlay has been a force in music and audio technology for more than 30 years. As a producer and engineer, consultant, and developer, he remains a voice for quality in the industry at large as well as his own projects. His recent work includes album projects for Miranda Lambert, David Nail, Lee Ann Womack, and George Strait, and co-development of Fredenstein's line of 500 Series modules.

"As a budget choice, I was blown away by JBL's new powered studio monitors. They make two different versions. The LSR305 has a 5-inch woofer [around $149/pair] and they have an 8-inch woofer version [LSR 308, around $249/pair]. Speakers are the first thing you need to evaluate anything, and you could mix on these things and be satisfied that what you're hearing is accurate.

"For the high end, I love the Audeze LCD-3 headphones [around $2,000]. For me, they're the only headphones I could try to mix in. They're so comfortable; it seems like you've got a pair of speakers rather than a pair of headphones just forcing music in your ears. I was on a conference call the other day about high-resolution audio at the AES show. There was going to be an entire row devoted to high-resolution audio, and Audeze was mentioned as being there. Bob Ludwig was also on the phone call, and he said, 'Oh great!' He's obviously a big fan as well."

Slate Virtual Buss Compressor

Chris Dugan

Green Day's go-to engineer, Chris Dugan, works mainly in the band's Jingletown Studios (Oakland, Calif.). Dugan recently tracked and mixed the new album by Toy Guitar, as well as the Billie Joe Armstrong/Norah Jones tribute to the Everly Brothers, *Foreverly*, and all of Green Day's albums for the past dozen years.

"The Virtual Buss Compressor from Slate Digital is only about $99, and it's just a kick-ass plug-in for the money. It's designed to emulate three famous bus compressors: an SSL 4000, Focusrite Red, and a tube-based compressor like a Vari-Mu or Fairchild. You can put them together tailor your mix in a custom way. It can be very versatile. Even just between the SSL and the more vintage style, you can get a broad range of really cool possibilities.

[Universal Audio's] Apollo Twin interface is top-notch. You can't go wrong with any of the UAD stuff; everything in their bundle is always quality. The Apollo not only is portable, but it lets you get in the door so you have the hardware that is required to actually process all of those [UAD] plug-ins. You get a cool interface as well as a cool A-to-D converter that's super handy, and a volume knob and multifunction knob. For someone who might be struggling with their interface for their laptop or their home studio and wants to make a step up, I definitely recommend the Twin or the Apollo 16, the bigger one.

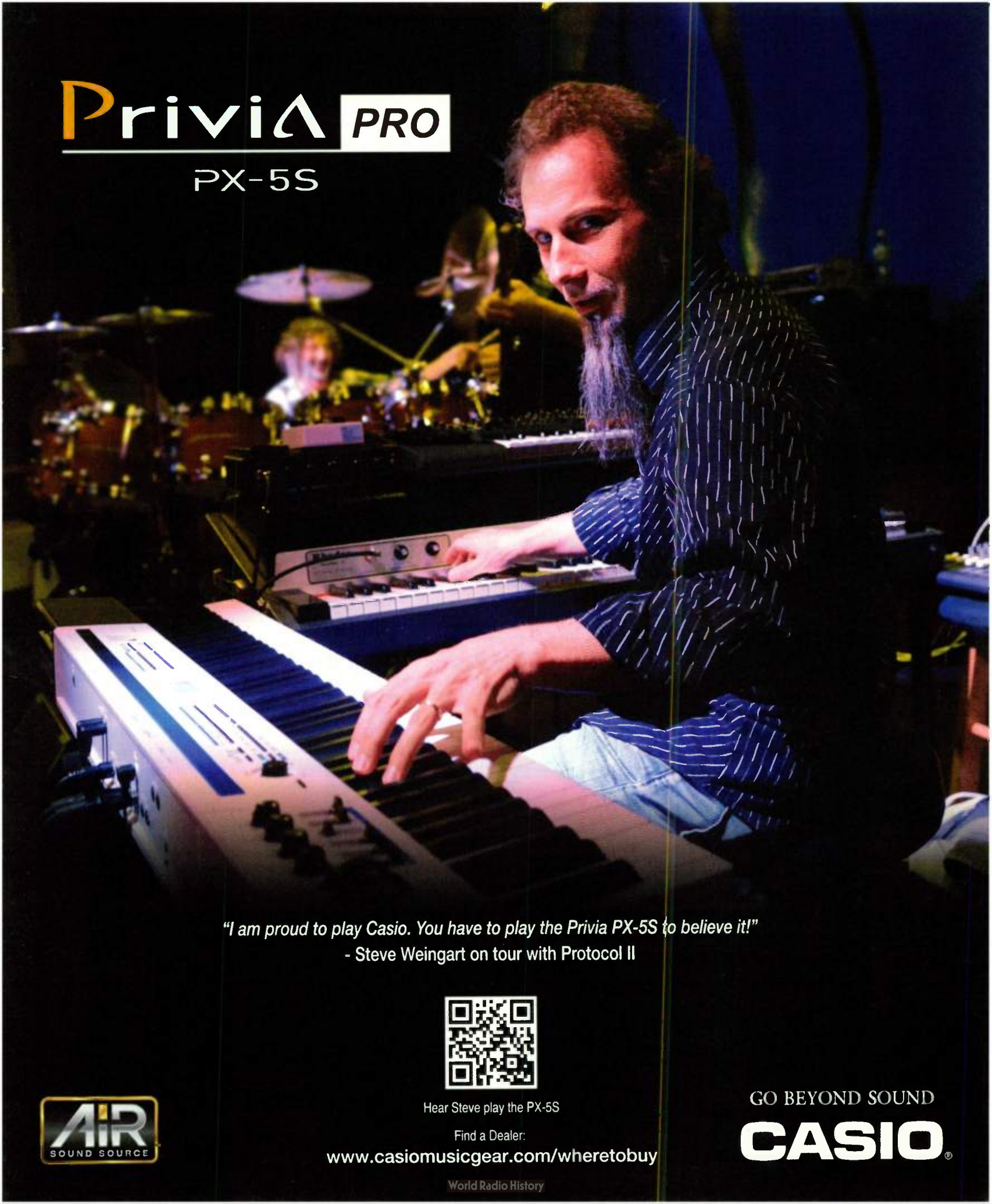
Golden Age Pre 73 MK2

Deerhoof

After 20 years on the punk scene, Deerhoof remain steadfastly DIY in the studio. Guitarist Ed Rodriguez shares a couple of gift picks. The band's 12th album, *La Isla Bonita*, was released last month on Polyvinyl.

"Deerhoof have always been big followers of the 'do the most with what you have' school of recording—from the years of four-track knob twisting to manipulating free online software to now having honest-to-goodness computers and recording programs. But even still, some of the instruments on our recent albums were recorded using the mic built into the laptop. If you decide to take a step further and use a real microphone, a mic pre can add some life, especially to vocals. A great one is the Golden Age Pre 73 MK2 [about $350]. It can usually be found used for only a few hundred bucks. It's perfect for adding that little something to take your recordings to the next level. If money is no object, I would recommend the Abagnale 48, which I absolutely guarantee will make everything you write a great song or I'll give you double your money back."

World Radio History



World Radio History

Moog Little Phatty Stage II

Denitia and Sene

The Brooklyn-based singer-producer duo Denitia and Sene meld hip hop, soul, and electronic music, with influences ranging from The Fugees to The Beatles; their EP, *side fx*, was released last month via Red Bull Sound Select. Producer Sene offers some ideas for your gear wish list.

"I think a great lower-cost tool is [Native Instruments'] Maschine [hardware options range from $350 to $999]. It's so diverse; by being a synthesizer and programmer, it gives a lot of editing options and sampling options, good for studio work or live triggering. If you are all about your synths and can shell out a buck, then I would suggest a Moog Little Phatty Stage II [around $1,400]. It's got a really warm sound that a lot of new-school producers spend hours trying to duplicate. It's a steroid option to the Micro Korg."

Ferry Corsten

Dutch trance pioneer Ferry Corsten is a producer/DJ who has worked with superstar vocalists from Simon Le Bon to Guru. He's also remixed songs from U2, The Killers, Moby, and more, and has released four albums of his own.

"I'm a fan of Native Instruments. Their software is amazing, and the team behind the company are great guys and help me out whenever I need it. Komplete 9 [around $350] is a great package to have. This is a basic package that contains everything you could possibly need in a production—from amazing synths, sound libraries, and fun stuff like the guitar rig. I think it would be a great Christmas gift because it's the gift that keeps on giving.

"If I had a to give a piece of audio gear as a Christmas gift I would give the old-school Roland JP 8000 synthesizer [priced from $400 on eBay]. I know it's from way back but some of my earliest hits were made on that synthesizer. There are obviously new synthesizers in the market that you could use, but since it's Christmas I'd want to give something special and, of course, personal."

NI Komplete 9

Yamaha CS-80

Escort

Disco big band Escort have been filling dance floors around the world since the 10-plus person ensemble burst onto the scene in 2006 with party hits "Starlight" and "All Through the Night." Cofounder Dan Balis is all about synths on his wish list:

"For the analog synth fetishist in your life, the SoundToys FilterFreak [around $180]—we've been programming analog synths for over 15 years now and it's simply one of the best-sounding digital filters we've heard. They'll be able to take any cheap synth and make it sound like a modular monster. If we had an impossibly wealthy benefactor, we'd be perfectly happy to get a MIDI retrofitted Yamaha CS-80 [vintage prices vary]. After all, who doesn't want a 200-pound polyphonic beast under their Christmas tree?"

Focal SM9 monitors

Gareth Emery

The British producer, DJ, and "fervent anti-genre campaigner," known for blending house, progressive, and trance into creative new productions, spent months touring in the wake of the success of *Drive*, released last April. Emery, who is currently in the studio working on a follow-up album project, took a break to talk gear gifts.

"The Studio Electronics SE1 [about $1,800] is a classic analog bass synth ... it's still impossible to get these sounds with software! Sensaphonics 3D AARO [starting at $2,000] is the best in-ear monitoring system I've ever used, for both for live shows and travel."

Credland Audio Big Kick : "If you re making any genre of music that requires kick drums, this wave-shaping tool will be the best $65 you have ever spent. Trust me! My sky's-the-limit pick: Focal SM9 monitors with Focal Sub6. They may cost the price of a new car, but these are the best studio monitors I have ever used, incredibly transparent and precise, whilst also being a lot of fun to make music on—which is often lacking in many ultra-neutral reference monitors."

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Generationals

ZVEX Fuzz Factory

The dreamy pop duo from New Orleans has been featured in movies, television, and by retailers ranging from Bloomingdales to Amazon and Starbucks. We caught the band on their headline tour supporting their fourth studio album, *Alix* (Polyvinyl); frontman Grant Widmer shared his gift picks:

"I first bought a ZVEX Fuzz Factory [about $175] a couple years ago, after it caught my eye in a display case at my local guitar store. I assumed it would give me a cool, boutique distortion sound, but I had no idea how much I would love it. There are 5 knobs that give a ton of different variations on a typical fuzz distortion sound, and if that's too much variation to start with, ZVEX provides a little recipe book with a handful of setting combinations that sound great to get you started. It's a super-fun toy to plug any instrument signal into and immediately get a lot of new buzzy textures. Highly recommended for fun and studio."

Jonathan Segel

t-Jays Four

Multi-instrumentalist and recordist Jonathan Segal is best known as a founding member of Camper Van Beethoven. He has also fronted his own band, and owned and operated personal studios in California and in his current home base in Sweden. His latest projects include the new Camper album, *El Camino Real* and a solo record called *Shine Out*.

"For the budget-minded shopper, I would suggest something that everybody needs these days, which are earbuds for listening to music on the move. I know that it can be a nuisance to have to listen to MP3s, but I have finally found some decent ear buds: t-Jays Four. Made by a company in Sweden, Jays, they are the first in-ear headphones that I have actually liked to listen to, and they're only a little over $100!

"For high-end gifts, I think I'd get that studio head on my list one of the new Universal Audio UAD-2 Satellite Thunderbolt units, and why not go with the UAD-2 OCTO Core PCIe card with eight SHARC processors. And let's say it's the Ultimate bundle, with 79 plug-ins. You won't go back to your old plug-ins, whether compressors, EQs, even delays or reverbs."

Hook n Sling

Bose QC15 noise-canceling headphones

In-demand Australian DJ/producer Hook n Sling received an ARIA Music Awards nomination for his early hit "The Bump" in 2007. He has remixed songs for Calvin Harris, Fedde Le Grand, and numerous compilations for Ministry of Sound, and he regularly DJs at venues and festivals around the world. Hook n Sling's latest offering is "Magnet," a collaboration with longtime David Guetta collaborator Chris Willis.

"On a practical budget would be a pair of Bose QC15 noise-canceling headphones [the current model, QC25 retails for around $300]. I swear, the amount of times these things have saved me on a hung-over or sleep-deprived plane trip home is ridiculous. Also, when I'm on the road, these are the headphones I use to work on my music. They're surprisingly accurate and the fact I've had them for a few years now means I know them inside out.

"My sky's-the-limit gift choice is a pair of Barefoot MiniMain 12s [four-way active monitors, around $20,000/pair]. I can do without analog gear, but what I'll never be able to do without is a good-sounding room and an amazing pair of near- or midfield monitors. These can pretty much do it all. I was lucky enough to hear them in a studio in the Vintage King complex in L.A. a few months back. They sound incredible, and the way they can emulate smaller speakers like NS10s is unbelievable. Can someone please buy me these for my birthday?"

Bricasti M7

Kevin Shirley

One of rock's most celebrated producer/engineers, Kevin Shirley has helped define the sounds of guitar-god acts including Led Zeppelin, Aerosmith, Metallica, and Joe Bonamassa.

"For years I have used the Peavey Kosmos Pro [sub-bass generator/audio processor, around $200]. I use it on guitars; it can really help you give heavy metal guitars that kind of width and height and thump that doesn't really occur naturally in the amplifier.

"As a more high-end thing, there's a wonderful reverb called the Bricasti M7; it's my go-to reverb. It's got the most wonderful algorithms in it that make it sound like the most natural reverb in the most natural rooms, and there's so much you can do with it. It's got some great halls in there, but you can really adapt it to actually copy [the reverb of] a room. I did a show with Joe Bonamassa at the Royal Albert Hall, and I could tell what the delay and reflections were by listening to the microphones. It's a very echoey room, and with the Bricasti, I could do the odd fix here and there, put the identical room sound on the fixes, and just blend it perfectly."

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Pioneer DJM 900NXS DJ mixer

Kissy Sell Out

Kissy Sell Out is best known for his production chops, charismatic DJ style, and wildy successful *Kissy Klub* BBC Radio 1 show. But he's also a designer, label manager (San City High), part-time astrophysicist, and in his spare time, he composed official music for the 2012 Olympic ceremonies in London.

"I definitely have a special place in my heart for the wide range of compressors and multiband-limiting plug-ins I use on a daily basis, but as the endless studio sessions of being locked indoors for days at a time have passed by over the years, another piece of studio gear has become crucial to almost everything I now do. The piece I'm recommending as a killer gift for any aspiring musician is the Pioneer DJM 900NXS DJ mixer [about $2,300].

"There are so many more uses for this thing than just mixing tunes together; it has a huge selection of effects, it has incredible sound quality, and most crucially, it is a 4-channel multiplatform versatile sound card device with zero latency. For those who are uncomfortable with the 900NXS price tag, there are low-cost alternatives, starting with the DJM 750-K [about $999].

"When making music, you should never let technology limit your ability to fully realize ideas. After all, that's where great music comes from—ideas!"

Lili Haydn

With five albums and performances with Tom Petty, No Doubt, the L.A. Philharmonic, Herbie Hancock, Sting, and Robert Plant and Jimmy Page under her belt, singer/songwriter/violinist Lili Haydn knows music technology. Listen to Haydn's latest album *Lililand*, out now on MRI.

SoundToys Decapitator

"My violin can sound shrill if it's not recorded right, and some of the best solos on my record were recorded totally off the cuff and very badly (my fault), so the mixing was really important to get the sound beautiful and brilliant, while allowing it to be powerful and raw enough to keep the emotion. Darrell Thorp (Beck, Radiohead) used the Universal Audio UAD 1176 Rev A, UAD Neve 1073 EQ, and UAD API 550 A [plug-in bundles vary] on my violin and my voice ... so I'd say those plug-ins would be an awesome gift!

"In terms of gear on a budget, for live, I love the sound of TC Electronic's Nova Delay [about $240] on my violin, even with no actual delay; it just fattens up my tone. And for studio, SoundToys Decapitator [$179] makes everything better...great for the holidays!

As for sky's the limit, Neve 1073 and 1176 blue stripe, or a Neumann M49 [vintage prices vary]... sound like a million bucks."

"SoundToys Decapitator makes everything better... great for the holidays!"

Genelec 8010a monitors

Maxim

The Prodigy MC/vocalist Maxim Reality, aka Maxim, has been performing at the band's backstage parties for years, and he's finally ready to unleash his DJ and production skills on the rest of the world. He teamed up with hardcore MC/vocalist Cianna Blaze to produce the four-song electronic, grime, hip-hop, reggae, drum n' bass, and rock-informed *Animal Anger* EP, out now on We Are Noize. Studio monitors make Maxim's holiday short list.

"I would say an essential piece of equipment is decent set of speakers; a budget pair of Genelec 8010a monitors [about $400]. If you're writing music, the most important part is to hear what you're doing.

"If you have a big budget, maybe get a pair of PMC MB2S-a active monitors [around $10,000]. As I said before, you need to hear what you are truly producing; these should do the job."

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Volca Beats Analog Drum Machine

Memoryy

Brooklyn-based artist Shaun Hettinger's latest incarnation is under the electro-pop alias Memoryy, though local fans may recall his previous projects as Kitten Berry Crunch. We caught Hettinger on tour supporting his new self-released EP *Young Oblivion*.

"My budget items: I've been loving this trend of well-priced little synth gadgets. Where were these when I was a broke teenager? There are so many stocking stuffer options out there that I'm sure will inspire more garage bands than the Velvet Underground. I was just playing with the Korg Volca line [starting at around $99], and I gotta say, I was pretty impressed. Tweaking the Volca Beats Analog Drum Machine was a ton of fun, and the Volca Bass packed a pretty big punch despite its size. Speaking of Korg, if there wasn't an original one sitting in my studio, I'd totally splurge on the MS20 Mini [$599]. It's a classic synth that every studio needs!

"Sky's-the-limit items: Roland Jupiter 8! Sorry, I had to get that one off my chest real quick. I'm a synth connoisseur and that's my dreamboat synth [vintage prices vary; around $8,000]. Someday she will be mine; oh yes, she will be mine...I use the Arturia Jupiter-8V [$99] on just about everything I do and I can't wait for the day when I can afford the upgrade to the real-deal big boy. It's my sound.

"I'm not sure how often I'd use it in my Ableton-centric workflow, but gotta say the Slate Pro Audio Raven [about $2,500] would look pretty nice on my desk. It's essentially the world's largest iPad that's only programmed mission is to terminate all mixing boards that have come before it. Plus it looks like something out of *Star Trek*, so that's pretty sweet."

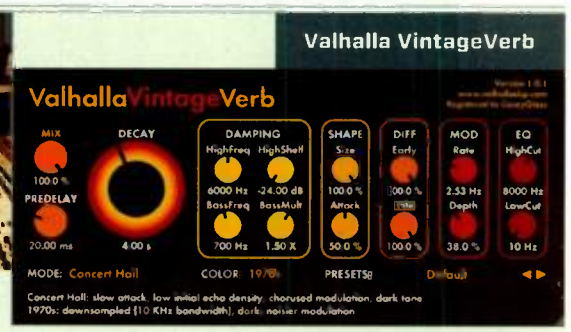
Universal Audio Apollo

Pretty Lights

Derek Smith has kept busy since releasing *A Color Map of the Sun* (profiled in our August 2013 issue): He was nominated for a Grammy, and performed with the Colorado Symphony, and when we caught up with him last month, was gearing up for VooDoo Music Fest in New Orleans and Sea of Dreams in San Francisco.

"The best piece of gear to grab a producer for the holidays, I think, is something that they will use on nearly every track; something that will make its way into the signal path permanently and really take their productions to the next level, sonically.

"I've been a fan of Universal Audio Apollo products. I have three different units that I use as the central part of my process: An Apollo 8 for live shows, 16 for in the studio, and a Twin for on the road in the bus or hotel. The Twin [starting at around $699] has made the processing power of UAD hardware and the versatility of their numerous plug-ins available at an accessible price and a conveniently mobile size. This, plus the fact that having UAD as the spinal column of a production suite opens many doors of sonic possibilities, makes it a great gift idea."



Valhalla VintageVerb

Sheldon Gomberg

Grammy-winning producer/engineer/musician Sheldon Gomberg runs Carriage House studio in L.A. His recent credits include Ben Harper and Charlie Musselwhite's album *Get Up*, as well as work with Rickie Lee Jones, Ron Sexsmith, Jackson Browne, and more.

"The other day, I bought the Valhalla VintageVerb. It's an emulation of '70s and '80s reverb hardware including a concert hall, bright hall, plate, room, a chamber, random space, chorus space, ambience, and a what they call a "sanctuary." It includes typical things like predelay, mix percentage, decay and damping choices, and some EQ cuts and room shaping. I used it on a couple of mixes already, and I'm really enjoying it; I used the concert hall on vocals and a chamber for cello, ambience for snare. They also offer a free plug-in called FreqEcho, so for $50, you can get all of these reverb settings plus a free frequency shifter/analog echo emulation.

"On the high end, I have been using the A Designs Ventura preamp/EQ/instrument in [around $2,000]—a single mic preamp with an EQ based on the Quad Eight Coronado Series, except it's tweaked out to the stars and it's very versatile. You can use the mic pre with or without EQ. The EQ sounds fantastic, and you might want to use just this section for an external source while still using the pre section on its own. You can access it separately from the back of the unit using insert points, allowing you at the same time to use the pre. It's also got a fantastic sounding instrument in, which is its own separate single ended instrument preamp. I use this for recording bass all the time. It's basically three units in one.

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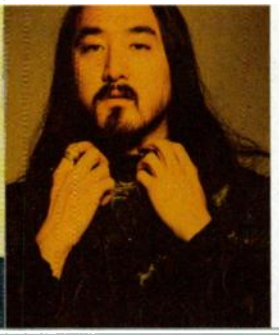
Steve Aoki

Sol Republic Master Tracks XC Studio Tune



Superstar DJ, musician, producer, and Dim Mak founder Steve Aoki performs 300-plus festival-headlining, cake-tossing shows per year. In his spare time, he released the first half of a highly-anticipated follow-up to his Grammy-nominated 2012 debut, *Wonderland*: Part one of the concept album *Neon Future* is out now on Ultra; part two will be released in early 2015.

Aoki recommends "a good set of monitors like the KRK VXT 8 powered monitor [about $600].

"[Another] practical choice is the Sol Republic Master Tracks XC Studio Tune [$250] by Calvin Harris; this headphone's incredible for the studio because it doesn't disguise the sound with extra layers of frequencies.

If money's no object, Aoki suggests "Barefoot Sound studio monitors; they custom-make each one, and they are my favorite speakers out there."

Electro-Harmonix Holy Grail reverb pedal

Tom Schick

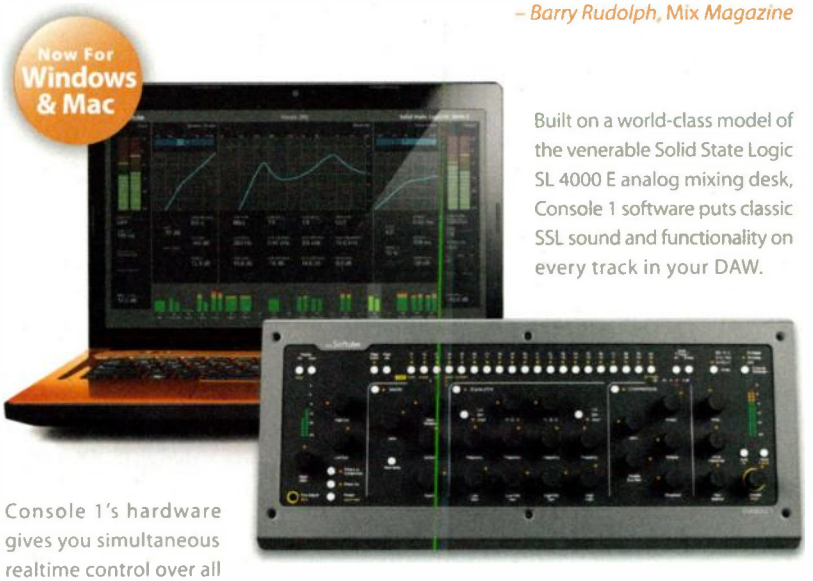
Tom Schick relocated to Chicago a few months ago, as he has become the the go-to engineer for Wilco's records and others that frontman Jeff Tweedy produces in the band's Loft studio. Schick's recent projects include the album Tweedy made with his son Spencer, *Sukierae*, and Beck's *Song Reader*.

"My budget gear choice would be an Electro-Harmonix Holy Grail reverb pedal. The Holy Grail's Hall setting combined with a little bit of actual spring was the main reverb I used for mixing *Atlas* by the band Real Estate. It's got a gritty sound that really sits nicely in the mix. The Holy Grail Plus [around $150] sounds slightly nicer than the Nano [around $125] to me if you can't find a vintage one. It's great because it can fit in my pocket and I can bring it anywhere.

"My sky's-the-limit choice would be a Fairchild 670 [around 40 grand]. It's one of the few pieces of gear that modern technology has not been able to replicate. The plug-ins don't quite cut it. I was spoiled when I was a staff engineer at Sear Sound in N.Y. They have a 670 and two 660s. I would use them on everything: bass, vocals, acoustic guitars, and especially drums. ■

"Console 1 is a brilliant godsend!"

– Barry Rudolph, Mix Magazine



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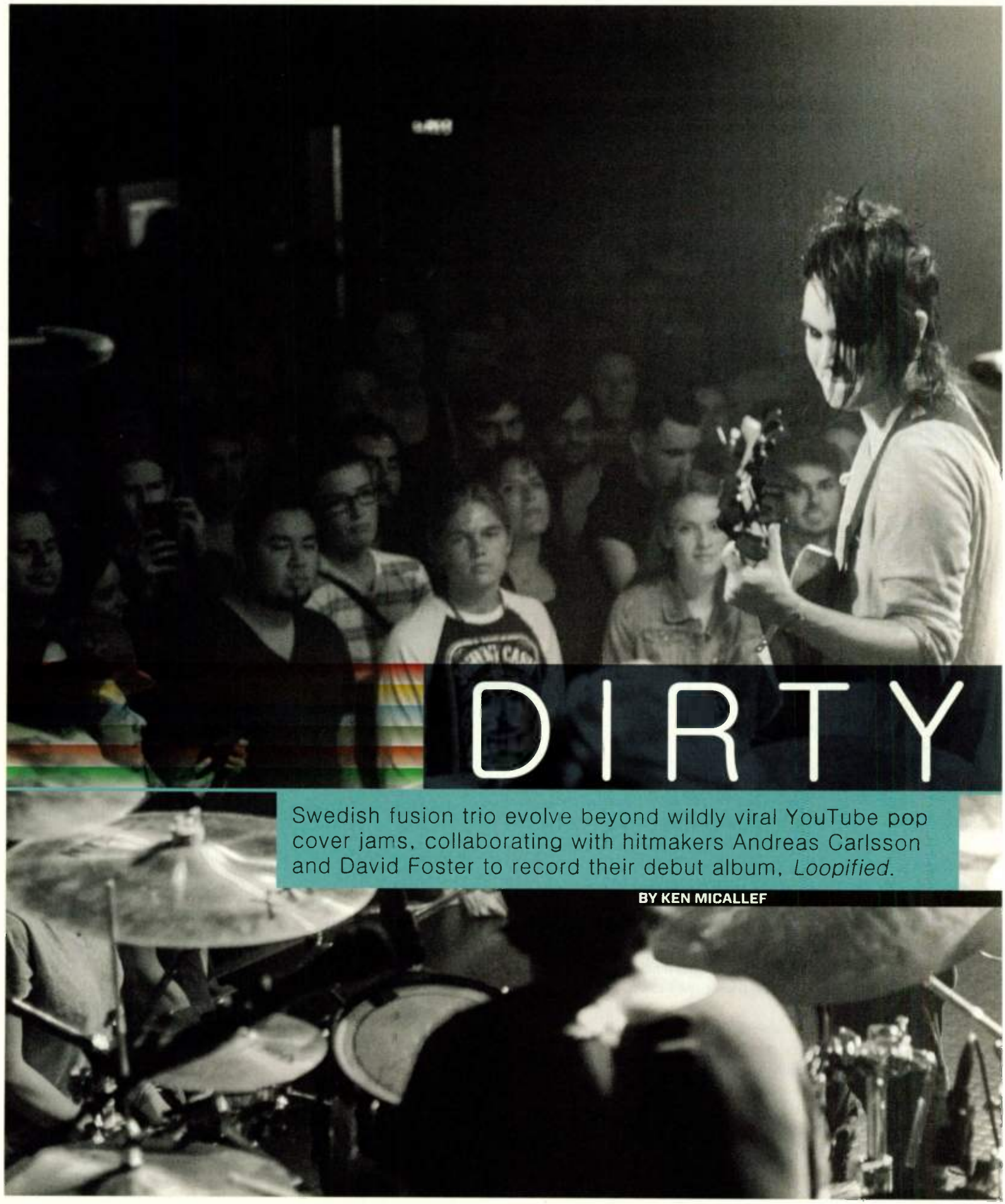

DIRTY

Swedish fusion trio evolve beyond wildly viral YouTube pop cover jams, collaborating with hitmakers Andreas Carlsson and David Foster to record their debut album, *Loopified*.

BY KEN MICALLEF

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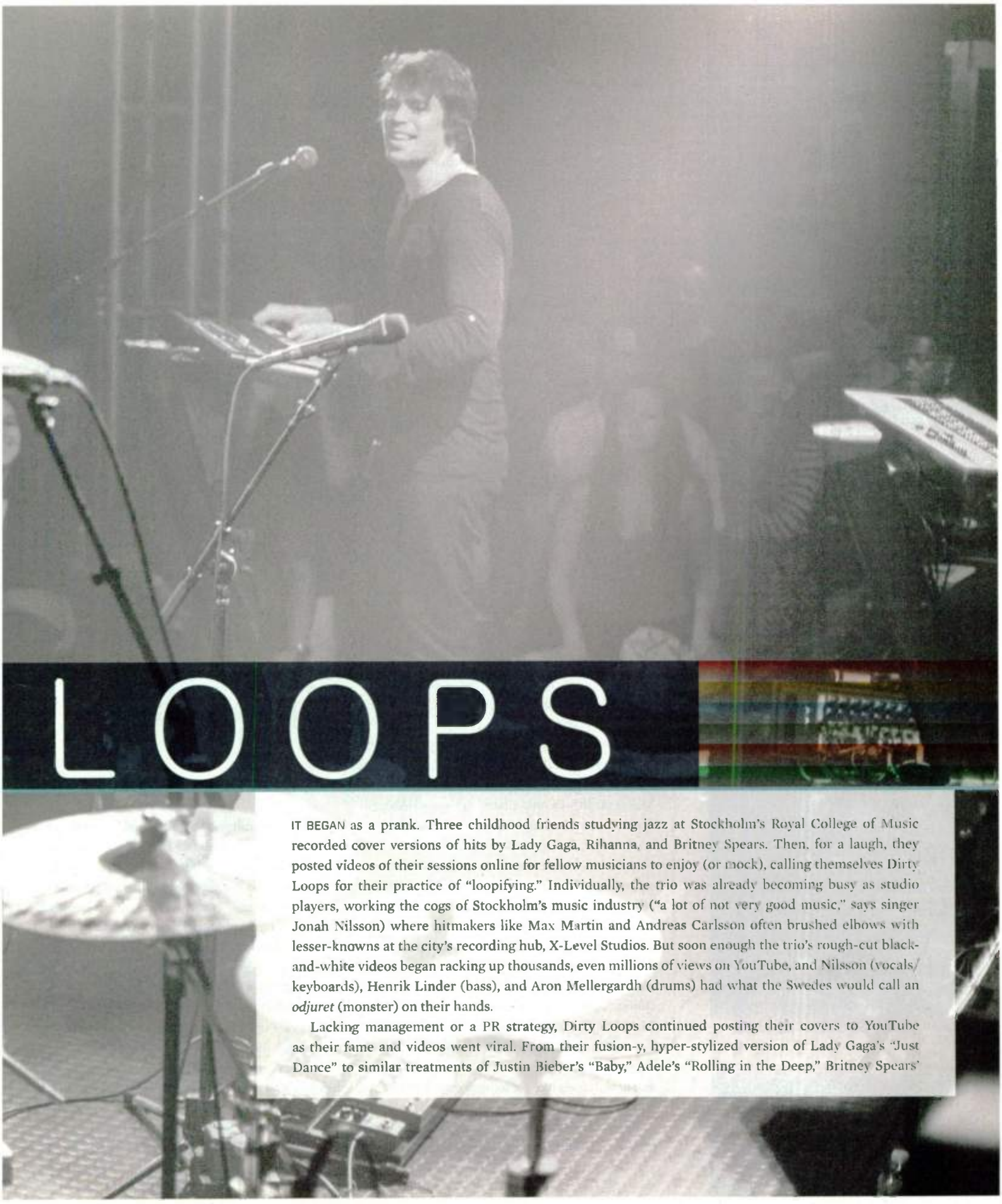

LOOPS

IT BEGAN as a prank. Three childhood friends studying jazz at Stockholm's Royal College of Music recorded cover versions of hits by Lady Gaga, Rihanna, and Britney Spears. Then, for a laugh, they posted videos of their sessions online for fellow musicians to enjoy (or mock), calling themselves Dirty Loops for their practice of "loopifying." Individually, the trio was already becoming busy as studio players, working the cogs of Stockholm's music industry ("a lot of not very good music," says singer Jonah Nilsson) where hitmakers like Max Martin and Andreas Carlsson often brushed elbows with lesser-knowns at the city's recording hub, X-Level Studios. But soon enough the trio's rough-cut black-and-white videos began racking up thousands, even millions of views on YouTube, and Nilsson (vocals/keyboards), Henrik Linder (bass), and Aron Mellergardh (drums) had what the Swedes would call an *odjuret* (monster) on their hands.

Lacking management or a PR strategy, Dirty Loops continued posting their covers to YouTube as their fame and videos went viral. From their fusion-y, hyper-stylized version of Lady Gaga's "Just Dance" to similar treatments of Justin Bieber's "Baby," Adele's "Rolling in the Deep," Britney Spears'

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"Circus," Justin Timberlake's "SexyBack," and Rihanna's "Rude Boy" (re-worked as "Prude Girl"), Dirty Loops hit a collective nerve the world over. Andreas Carlsson signed Dirty Loops to a management deal, and über-producer David Foster inked them to a Verve Records contract. Ever the pros, Carlsson and Foster stepped back (save Carlsson's lyric-writing savvy), and Dirty Loops recorded and produced their debut, *Loopified*.

"We wanted it to be organic," Carlsson explains. "We didn't focus on writing hip songs. I wanted the record to be exactly what the guys heard in their heads, something that was highly original. David Foster wanted it to be even more loopified, even more musical and complicated. We strived for perfection and it sounds simple, but it's actually very complicated. Dirty Loops produced it and put it all together. David and I nurtured it."

What is "loopified?" "We put the music into our Dirty Loops machine and what comes out is loopified," Nilsson cryptically explains. "It's like arranging, taking something that already exists, twisting it, and turning it into something completely different. Like we did with the cover songs: We stripped the songs down to the melody, and then created another song around it, basically. And not making it different to be different, but to make it as we want it to sound, what we hear in our *heads*. To make the best shape and form for the music. But nothing is actually looped!"

Dirty Loops mines the past and present to create something exhilarating, merging their brilliant instrumental technique with the programmed, plug-in-crazy productions of the hip-hop elite. Allied to Nilsson's high-as-a-kite vocals, Linder's quick-witted bass work, and Mellergardh's Dennis Chambers-meets-Ableton drums is some serious song-craft. Plying edgy pop hooks in hyper, cut-up arrangements performed via a fusion-funk drummer, a progressive, seven-string-happy bassist, and a vocalist/keyboardist who can burn chemtrails in the sky, Dirty Loops have already sparked imitators on YouTube, performing tepid covers in "Dirty Loops style."

"The music on this album is on a level I have never heard before," Carlsson says. "Even Quincy Jones is a fan of Dirty Loops because Dirty Loops has taken it one step further. There is a combination here of a new influence and the old jazz world. It's sensational and very different and new. It feels like something we haven't heard before."

Dirty Loops self-produced *Loopified* at three different studios. Nilsson recorded his vocals and keyboards at X-Level Studios in Stockholm; Mellergardh's drums were engineered by Ronny Lathi at Soundtrade Studios (part of SAE Institute) in Solna, Sweden; and Linder tracked his custom seven-string Mattisson bass last, at his father's home in Stockholm. Additional recording occurred at Interscope Studios, Santa Monica; DANDY Mansion, West Hollywood; and Mason Sound, North Hollywood. Mix engineers Nisse Westfelt and Simon Petrén also played large roles in the sound of *Loopified*.

HENDRIK LINDER

"[FOR BASS], I OFTEN SIDECHAIN ONLY THE STUFF BELOW 150 HZ OR SO TO THE KICK AND LEAVE THE REST OF THE FREQUENCY SPECTRUM, MAKING ALL HIS FRENZIED RUNS STILL CUT THROUGH THE MIX."
—ENGINEER SIMON PETRÉN

Nillson, Linder, Westfelt, and Petrén all work in Steinberg Cubase; Dirty Loops records apart but writes together, as a group, in each other's faces, as it were. They write a basic song form, play around with ideas, work up demos, improvise parts, and finally, track vocals.

"If we get an idea, we write the song in its basic form," Nillson says. "If it's a three-chord pop song, don't overdo it. A great song doesn't need a 1,000 chords and a huge arrangement. We work out the arrangement when writing the song. I make my demo in Logic and create a scratch vocal, some fake drums and bass lines and keyboards. Drums go down, Henrik records his bass part last, then my vocals."

Nilsson tracks keyboards direct but his vocal chain consists of a Brauner Velvet microphone into a Focusrite RedNet 4 preamp. "That mic doesn't get in the way and it sounds natural," he

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says. "The Focusrite adds just a little brightness and perhaps strengthens the signal a bit, but it's very natural sounding. That lets me do more afterward if need be. It's more important that the particular vocal take sound as natural as possible, so it's not too processed sounding. I usually sing verse by verse and chorus by chorus, and sometimes do longer takes if I have a feeling for it. Other times, the verse might be good and I'll need to punch in a phrase."

Though *Loopified* sounds heavily saturated, produced, and gridded in general, the production is the result of excellent musicianship, minimal software, and smart miking and mixing techniques. Nilsson's small but potent keyboard arsenal included Korg X50, Spectrasonics Omnisphere, Native Instruments Massive, Expert Sleepers Silent Way and Logic's ESX-24 Sampler. However, Nilsson believes there is a better way.

"There are a lot of unique sounds in synths like Massive, but sometimes it's not massive enough," he says. "If you choose an oscillator and a straight sound with no effects and if you make a chord with that, it has a lot of overnotes; I like that. But the soft synths don't have these special sounds,. To create something unique, I find a very straight sound, so I can hear the chord. I hide it under something that is more distinctive, so it sounds unique; it's always doubled with something. If you choose a sound like that you will always have a very clear foundation. Usually you have to find a multiband compressor that will push some frequencies down and some frequencies up. But if you're using this technique, you don't have to do that. Logic's EXS-24 has two sounds that I use for that purpose. When I write a song, I create that foundation first."

Throughout *Loopified* the instruments lock

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"FOR SOME PARTS I TRANSCRIBED JONAH'S DEMO TAKES. HE WOULD RECORD AN IDEA VERY FAST, AND WE'D LIKE THAT IT SOUNDED IMPROVISED. SO I WOULD PLAY HIS IDEA BACK AS A SYNTH-BASS THING, TRYING TO PLAY THE SAME LENGTH OF NOTES, SYNCED WITH HIS KEYBOARD."
—HENRIK LINDER

together and flow like a single robo-organism. Dirty Loops' instrumental brilliance is evident as a unit and individually. But if there's a rising star among the three, it's Linder, who scales bass heights rarely attainable by lesser mortals. He too cut his own tracks, straight into Cubase at his dad's cellar studio. He ran his Mattisson bass direct via an Aguilar preamp.

"I tracked myself because I really needed a good signal," Linder says. "I wanted the bass to sound like it does when I play it live, so there is not a ton of EQ on it. The only thing I did was simulate the tweeter effect from an amplifie. I boosted a lot from 7.2 kHz and upward. Then, of course, the mixers cut out some things and EQed it differently for every song to fit with the drums."

Attention to micro-detail is a big ingredient in Dirty Loops' sound, and Linder goes the extra mile, both in writing and recording. "We're usually sitting together after Jonah has found a keyboard part, so that's when I create my part," Linder says. "It gave us a lot of control. We wanted the effect that if the keyboard played a more upbeat pattern, I added 16ths in-between. In that way we could make a pretty complex thing that was still grooving. We really spent a lot of time thinking how it should sound and the best way to do it. For some parts I transcribed Jonah's demo takes. He would record an idea very fast, and we'd like that it sounded improvised. So I would play his idea back as a synth-bass thing, trying to play the same length of notes, synced with his keyboard. We did 'Sexy Girls' and 'Sayonara Love' like that."

For a reworking of the Avicii smash "Wake Me Up," Linder replicated a setting taken directly from guitarist Allan Holdsworth's rig, including 16 series delays, all panned and modulated.

"I got a chart of exactly what the sound of his program is there," Linder says. "I copied that but did it with 16 emulations instead of eight. On 'Wake Me Up,' especially in the second half of the first verse, it's that sound. Generally we did a lot of mixing of the bass lines and changed small things, like the dynamics of the songs and bringing up the harmonics and EQ and having the right delays. During the recording phase, I experimented with different techniques because these guys were busting my balls! They wanted all of the notes to be shorter so I had to play with my

Primacoustic... better design, better

"The ease of install really allowed us to experiment with placement and with the quality of the treatments, we achieved the sonic balance we were looking for!"
~ Tommy Lee
Founding member - Mötley Crüe.

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Engineer/producer - Janet Jackson, Sting, TLC, George Duke and Jennifer Lopez.

"The Primacoustic is up and kicking butt at my new studio in Santa Monica. I love the way the control and tracking rooms sound now... and so does everyone that records here!"
~ Butch Walker
Engineer/Producer - Avril Lavigne, Fall Out Boy, Pink, Sevendust, Hot Hot Heat, Simple Plan, The Donnas.

"I love the way the control and tracking rooms sound now... and so does everyone that records here!" *~ Butch Walker*

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palm, thumb, and index finger so the attack would be as short as possible. There was something new to learn for each song. Recording really developed our playing. These songs are far more arranged than our cover songs."

Primary drum engineer Ronny Lathi tracked Mellergardh's drums at Soundtrade, recording anywhere from five to ten complete takes, punching in as necessary. Lathi is succinct in his drum miking scenario, which featured "a Shure Beta 52 inside the kick drum and a Manley Reference Cardioid lying on the floor just outside the kick drum. I taped together a Shure SM57 and Electro-Voice PL 10 for the snare drum. That way I only need one mic stand for two different microphones," he explains. "The PL 10 gave a bit more bottom to the snare. For snare, I also used a SM57 distorted through an old Spectra Sonics Complimiter. Sometimes I add a bit of distortion to the snare drum to create more presence. Hi-hat was a Schoeps CMC 5; toms were Sennheiser 421s, with sub mics under each tom." For overheads, he placed couple of Swedish Ehrlund EHR-M mics (with the triangular capsule) 24-28 inches over the crash and ride cymbals. "I also used Coles 4038 ribbon mics placed, one, under the drum chair and one, overhead, maybe 40 to 50 inches facing the snare drum and toms, minding phase issues with all these different mic

placements. The Coles mics don't sound so bright and I like the low frequency they have." For room mics, Lathi placed two Neumann U87s in A/B, nine to thirteen feet from the kit and approximately nine feet from each other.

Nisse Westfelt is credited on drum technician, mixing, and tambourine duties on *Loopified*, and as the album is seriously production-heavy, his and fellow mixer Simon Petren's contributions were invaluable. He offers a few tips for re-creating the album's saturated, dance-friendly drum sound with minimal software: "My favorite plug-in to get just a touch of warmth and saturation on drums is the Waves Kramer PIE Compressor," he says. "With a

performance, amazing results!

"I put up Primacoustic Broadway Panels on the walls and MaxTraps in the corners. The difference was amazing... the room went from unruly to tight and controlled!"
~ **Daniel Adair** Drummer - Nickelback.

"We've got a mixture of bass traps, diffusion and clouds and the result was phenominal. It ended up costing less than 25% of the custom solution and it turned out very cool."
~ **Keb' Mo'** - Grammy winner, roots-legend.

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~ ***John Rzeznik*** - Goo Goo Dolls.

"Not only does my room sound amazing, it's also really beautiful!!!"
~ John Rzeznik

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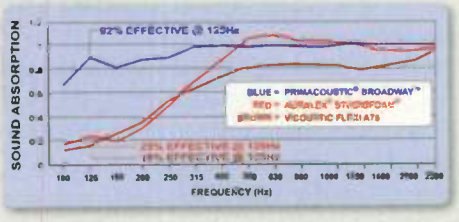

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ratio of 1:1, it does magic for the low-mids without the typical pumping sound of a compressor working too hard. Westfelt uses use a lot of sidechain compression, but not in the typical way: "Sometimes I like to sidechain the ambient mics to the snare and kick to get even more 'in your face' sounding drums, but still making them sound big and roomy," he says. "I use as few samples as possible, but sometimes I like to trigger the kick drum with a sub-kick, like a short 808 and a snappier snare drum. Luckily, we did sample Aron's kit, so I used those samples to get some of the bleeding out. Good-sounding room mics are essential for drums, but if there are none, I'll use Superior Drummer for ambience instead of the typical reverbs."

Dirty Loops' Technical Manager and Head of Production at Stockholm Sound, Simon Petrén, offers more recording tips: "A great plug-in is FabFilter's Pro-MB Multiband Compressor to make surgical side-chains of different bands to my liking," he says. "For instance, since Henrik's bass is such an important part, I often sidechain only the stuff below 150 Hz or so to the kick and leave the rest of the frequency spectrum, making all his frenzied runs still cut through the mix. [If on a budget: duplicate the track, add lowpass respectively, highpass EQ, and only sidechain the low-passed track.] I also automate all synths and choirs to exaggerate any dynamic and musical ideas in the original files. When soloed, these parts sound ridiculous, but all in all, they fool the ear to perceive the drums as bigger, since they mimic the ear's natural behavior of ducking when hearing a loud sound.

"The kick can make or break the mix for me," Petrén adds. "When I've found the right kick, I tailor everything else around it. I'm not afraid of completely replacing the recorded kick drum with a more "controlled" sample, taking the song into more EDM territory. I blend Vengeance [Metrum/Expansions]-style kicks with attack from some crappy old acoustic kick samples to give it a less programmed feeling. Dirty Loops' brand is, after all, their spectacular live performances, and it must still feel like a played part. I occasionally use a plug-in called [Boz Digital Labs'] Sasquatch Kick Machine. I use the tone generator part to replace the existing, often less-than-optimal-for-clubs fundamental of the kick with a new, clean one, perfectly adjusted to the song. And I sampled Dave Weckl's snare from his album *Master Plan*, which was perfect for my room snare! The sampled snare and Aron's snare together perfectly beefed up the original snare by adding a tight, gated room."

"[I USED A] SHURE BETA 52 INSIDE THE KICK DRUM AND A MANLEY REFERENCE CARDIOID LYING ON THE FLOOR JUST OUTSIDE THE KICK DRUM. I TAPED TOGETHER A SHURE SM57 AND ELECTROVOICE PL 10 FOR THE SNARE DRUM. THAT WAY I ONLY NEED ONE MIC STAND FOR TWO DIFFERENT MICROPHONES."
—ENGINEER RONNY LATHI

Many of the loops on the record are actually recorded performances, which grants greater dynamic control and timing suited to the specific song, as opposed to using ready-made ones.

"Everything that sounds like live drums is actually played by Aron!" Simon insists. "No programming there—he really is that good!" Trigger samples, parallel compression, and transient shaping are added, making for an almost artificial sense of articulation of the snare and tom fills. In certain sections, Jonah's percussion loops from earlier sessions are chopped up to stutter together with some synths behind Mellergardh's fill. The entire drum bus also gets a flanger (Cubase Flanger), automated to dive in frequency, making the listener seasick for a few seconds.

"When I master the track I use pretty bold mid-side EQ and widening (iZotope Ozone 5 Advanced) to musically shift things around, making the illusion of even more space in the stereo image," Petrén says. "To keep the punchiness of the drums even in a loud track, I also take great care in using transient shaping (Slate Digital FG-X), and setting the attack values on the limiter (FabFilter Pro-L) as extreme as possible, and then using oversampling to catch any inter-sample peaks. This enables the snare to keep if not all, most of its former glory."

From sandboxes to sold-out stadiums, Dirty Loops have made play-time profitable. They've captured the imagination of both top producers and average fans. "We grew up together, and we formed each other's musical influences and inspired each other," Nilsson confides. "They were always my favorite guys to play with on other projects as well. We identify with each other musically and as friends, and we know our roles in this project very well. You could say we've got each other's backs." ■

Ken Micallef also writes for *DownBeat* and *Modern Drummer* magazines.

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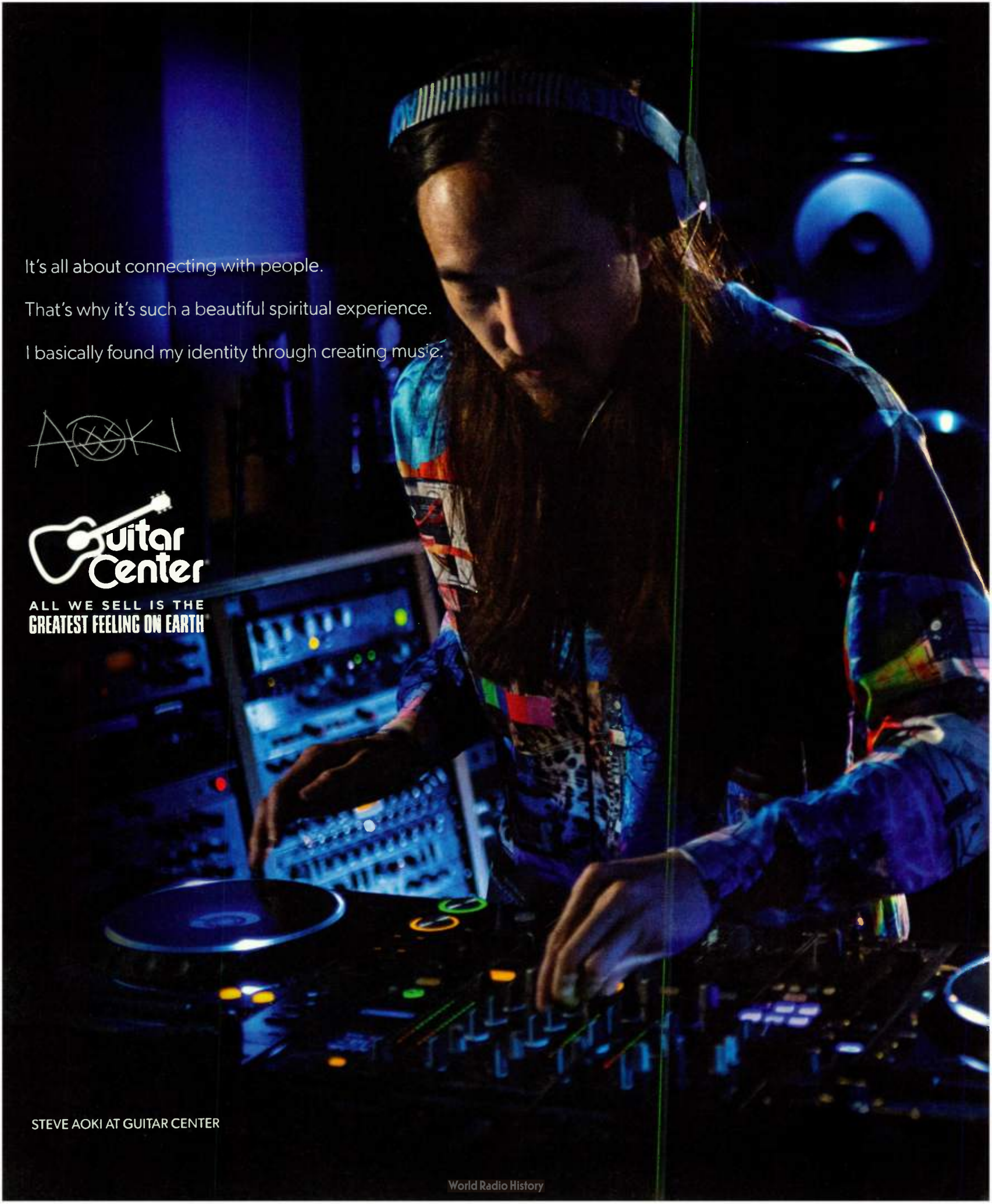

STEVE AOKI AT GUITAR CENTER

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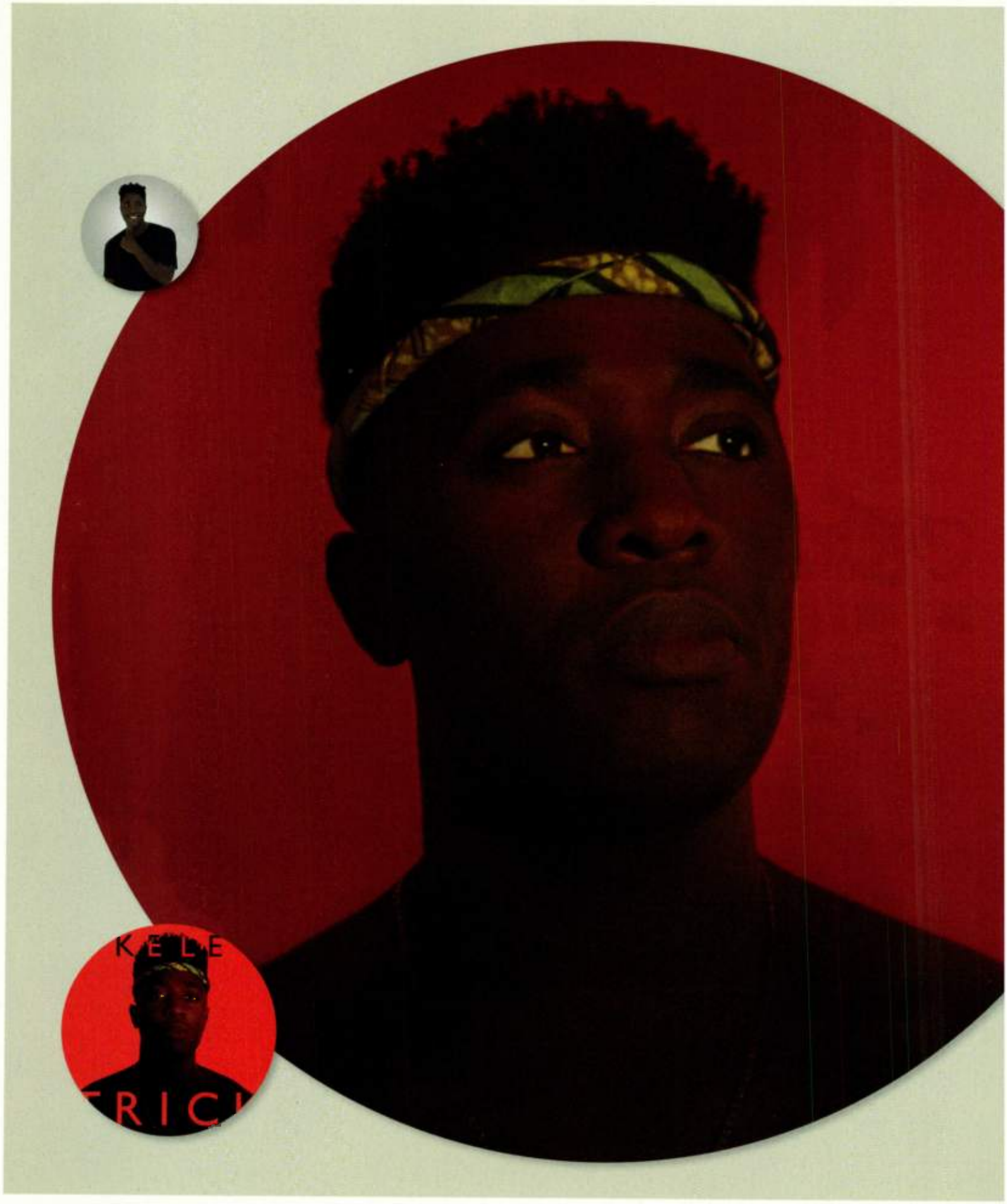

World Radio History

KELE

The Bloc Party frontman gets in touch with his softer side in the studio on *Trick*, his second solo project

BY TONY WARE

KELE OKEREKE has been listening very intently to the voices in his head.

Some are high-pitched, some are raspy, some are masked, some are nearly naked ... oh, and they are all his. With *Trick*, his second solo album and first to be released on his own Lilac Records, the DJ, producer, and vocalist/rhythm guitarist for angular indie rock quartet Bloc Party has heightened the intimacy between his personal instrument and his songwriting process.

Counterbalancing his approach in Bloc Party, where he says he's known for "a big voice where everything is so huge, from the emotional content to the delivery," Kele has used *Trick*'s more sensual vocal pop and his own lustier registers to bridge the 4 a.m. world of nightclubs and fleeting connections with listeners looking for more than a fling.

Deep house, 2-step garage, dubstep, future R&B, and especially minimal tech-house are just some of the dance music forms presented, and atop them rides Kele's softer, yet highly impactful vocals. This use of "head voice" is just one of the ways Kele and his collaborators, producer Alex "XXXchange" Epton and producer/mix engineer Tom Belton, assembled an album pairing express and affected techniques.

"The name of the album isn't meant to imply that I'm pulling a stunt on the audience or focused solely on how I can edit sounds," explains Kele. "The name *Trick* came from a term I learned whilst I was living in New York for a year, when lots of my friends when they had a one-night stand would use it to refer to that person, and I liked the term ... the suggestion that two people were complicit in line for one another. And I felt it made sense in the context of the album as I noticed toward the end of making it that all the songs were conversations between lovers, where one lover is imploring another.

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"There was plenty of work put into production, but whereas with my first record [2010's *The Boxer*] I was more super-excited about being in a studio with Logic for the first time, using a lot of post-production to get a very euphoric feeling, for this album I focused on the songwriting first," Kele continues. "I was very much concerned with the idea of song construction and didn't want to get bogged down into the idea of finessing the sound before its time."

Working with a Wurlitzer electric piano, Kele strived to develop melodies first, to construct each song's essence before indulging the urge to fill in all the sounds around it. Laying down rough demos of voice ideas, scratch drums, and keys in his study, using his lack of formal piano training to allow him to work out tonal relationships without a format bias, Kele supplied the rudiments to Epton in order to have a fresh perspective and a sounding board for arrangement ideas.

"Something to bear in mind is that, having grown up in Britain and been exposed to lots of sonic textures from 2-step garage through to drum 'n' bass through to dubstep through to techno, it doesn't feel odd to me to use a smooth rhythm and put a harsh synth sound on top of it," he says. "Mixing disparate sounds and genres together is what we did in Bloc Party, and with [2008's] *Intimacy*, which we made with Jacknife Lee and Paul Epworth, I got my first taste of how it feels to sit by a computer creating and editing audio. That album started my sense of curiosity about the process of editing tones and techniques together as opposed to performing them in one take. So I came at this record from the angle that I'm a songwriter, so I need to use any tool I feel fit when constructing something. I'm not so precious about referring to other forms of music.

"Part of the joy of working with someone like Alex was that he had a completely different set of reference points than me, musically," he continues. "It challenged me as a songwriter ... he took the songs I was writing and pushed them slightly somewhere else. I feel glad about that occurrence, because it didn't just sound to me like pastiche. It sounded like a sense of collaboration, which is why I wanted to work with him again."

Vision and shape established, often leaning in the direction of Kele's DJ sets, Epton would look to translate the prescribed direction in the box. "At this point I'd add a ton of ideas, like way more than we're ever going to use," says Epton, who previously collaborated with Kele on *The Boxer*. "I just gave him a bunch of stuff to choose from, and then we keep the stuff he

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thinks works for the sound he's going for. I'm mostly into [Native Instruments'] Reaktor, and u-he Zebra [wireless modular synth]. With those and a couple analog synths I can quickly get almost any sound I'm looking for. After the rough mixes were done and vocal production completed, everything was bounced out and sent to mixing where, in this case, the arrangements were stripped back and refined further."

From this point in production, vocals were the only aspect that involved outboard gear, and the process began with a Neumann U47 tube condenser while tracking at two studios: The Bridge and The Yard. "This is a great mic for male vocals, period," says Belton, who previously worked with Kele to produce the house-centric "Heartbreaker" and "Candy Flip" EPs on U.K. dance label Crosstown Rebels. "It's great at dealing with dynamic range and it has that silky, warm quality that only this mic can give."

"WHEREAS WITH MY FIRST RECORD, I WAS MORE SUPER-EXCITED ABOUT USING A LOT OF POST-PRODUCTION TO GET A VERY EUPHORIC FEELING, FOR THIS ALBUM, I FOCUSED ON THE SONGWRITING FIRST." —KELE

For preamps, Belton turned to the Tube Tech MEC1A and the Amek System 9098. "The Tube Tech was naturally a little more noisy than the Amek, but at the end of the day, it was the only place we were getting real-world noise on the album," he explains. "For the quieter vocal performances, I had to closely watch the gain structure in the signal path and change it between some verses and choruses, but other than that, it was straightforward tracking.

"We used an 1176 [peak limiter] at both studios for compression, and I'm not looking for more that 3 to 4 dB of reduction when working with singers. I never use EQ when recording vocals; I tend to think that if you do, something's not right in the path. So much difference in tone and texture can be achieved with mic placement and mic choice."

Similarly, when Kele headed to sessions in New York with Epton, the mic of choice was a Soundelux E47 tube condenser, which Epton picked to match the Neumann. Both producers took a similar approach toward prepping the vocals to fit the tracks. "Kele has a powerful, gravelly rock singer's voice with a very strong midrange presence, which works naturally in dense arrangements," observes Epton. "But for this record, since it's more stripped back, I ended up taking a ton of midrange from his vocals in order to fit into the more skeletal arrangements."

Compared to previous hands-in-the-air material, *Trick* has a more raw context and the team took a different approach in post production. "We were producing a larger body of work—more songs, less beats," Belton explains. "With *Trick*, it was definitely more a case of making sure the message in the song was conveyed first and foremost, as opposed to the primary function of the music being something that would make people want to dance. I used exactly the same gear, software, but this time I was developing Alex's work. So I was reaching for sounds that complemented his parts, but did it on a case-by-case basis for each part."

Inheriting Epton's multitracks, Kele and Belton pulled up a range of virtual instruments, including Native Instruments' Kontakt sampler, Massive virtual-analog synthesizer, and Razor additive synthesizer, as well as Spectrasonics' Omnisphere "power synth," the Korg Legacy Collection's M1 digital synth/workstation emulation and Lennar Digital's Sylenth1 virtual analog synthesizer.

Razor and Omnisphere were particularly handy for warmer sounds, while "throughout the album you hear a lot of mallet sounds, and a quite a few of those are derived from Impact Soundworks' Resonance: Emotional Mallets library for Kontakt," says Belton. "When it comes to creating harsher sounds, I like to resample synths and put them in to Kontakt and build my own patches. You can really make things sound weird very quickly by messing around with the playback engine types and the effects built in there."

EQ and multiband compression were as integral as sample selection when it came to guiding sound design. Using the Waves parametric Renaissance Equalizer for broad strokes and Waves Q10 10-band paragraphic EQ for subtractive notches, Belton helped Kele and Epton's sessions "sit in a mix in a way that sounds like it's going somewhere" in order to inspire new musical ideas. While for buses or instrument groups he preferred iZotope Alloy 2 for a "neutral, uncolored sound," in contrast, the dynamic reaction of multiband compression—heavy on individual instruments but subtle on sub

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Track Walkthrough: "DOUBT"

"Doubt," the first single on *Trick*, is a song that comprises a series of resonant overlaps, a brooding mass of grimy drums, pulsating synths, and galvanized static. According to Belton, what you first hear is a collection of drums and pads based on noise for suspense and build, backed by sidechained crackle with a single-filter EQ and several drive simulators and compressors.

"I've got Massive as the sound source with all the oscillators turned off except the noise oscillator, which is set to 'Paper' with the color at max," explains Belton. "Then it hits [Camel Audio's] CamelPhat with the highpass filter in the bandpass filter module filtering out everything below 3 kHz. I've got its compressor module set to the max amount with release time set to the shortest. This can really crunch and distort things. In the distortion module, I have 'Mech' and 'Tube' at max, which adds color and drive, but because it's only noise, we don't get any nasty harmonics being added from the distortion—be careful to keep the plug-in's output volume right down to retain a good gain structure. Then it goes through [iZotope audio mastering software] Ozone 5's stereo-imaging module and I'm widening everything above 2 kHz by about 50 percent, which adds width (using Stereoizer) and color. Then we hit Logic's compressor for the sidechain effect, which is keyed off of my dummy sidechain signal with a VCA circuit type and a release of 180 ms."

The pulsating synth/pad drone comes from a custom patch in Omnisphere featuring a lowpass filter sweep dialed in using an automated instance of Sonalksis Creative Filter. "It was quicker to do it this way, because I already had an LFO creating the rhythmic filter pattern that goes round twice every bar using the lowpass filter in the synth, so I didn't have to interfere with this modulation which I liked," reveals Belton.

As for the bassline in the verse with the vocal, it came as a stem from Kele's sessions with Epton, and was then compressed through Native Instruments' Guitar Rig 5 with its tube compressor saturation turned up "to give it a little bit of subtle high-frequency fuzz," says Belton.

"I like processing the top end of 808 kicks or subby basslines to give them a bit of sparkle and cut when the track is sparse as it is here. Then we've got a Waves Q10 in the signal path with a 3dB bump at 62 Hz to extend the lows, and a subtractive notch a bit high up at 102 Hz to clean out a bit of mud. After that, although I don't usually do much automated bass reinforcement on individual instruments, this was an exception. The reason is that the vocal, the kick, and the bass are the lead instruments here, and I wanted to get a clear space for each one of them in the mix, allowing each one to cut through and sound strong. Lastly, in the signal path, I added an instance of Alloy 2 and switched one of the dynamics modules in to multiband mode. Then in the low band, cutting off above 100 Hz, I sidechained this band to my dummy kick sidechain signal. It's a very subtle effect, but I'm actually achieving 18 dB of gain reduction here. It allows the kick and bass to breathe together in the very low frequencies."

Belton is also quick to praise the control possible when inserting a reverb on a send rather than an individual channel. "I find that EQing the reverb return before the reverb plug-in can give you more interesting colors and can sometimes sound more natural. Another thing to try with long reverbs is to sidechain the reverb return to the source that's sending to it. Works great on vocals and means that the tail pops out in between words, which can be a subtle or extreme effect."

mixes—brought out stimulating noise and nuance. For example, Belton would "use upward multiband compression [in something like the Waves C6] to make sounds brighter, so when the signal is below the threshold, gain gets added when you set a negative ratio."

A balance of spare and expressive, highly delineated tones has been increasingly central to Kele's musical psyche. "When Bloc Party's second single, 'Banquet,' came out, it was played a lot in clubs and I remember a DJ, Erol Alkan at a club in London called Trash we went to a lot, telling me that Paul [Epworth] had done a great thing with separation on that track and it didn't lose any of its energy in any frequency when played on a large system. So that sensibility has always been with me, and with *Trick* I was most conscious of the fact I wanted the music to reflect these things I'd learned being first around DJs and then being a DJ, seeing how something like the sidechain reverb in 'Doubt' [see sidebar] could sound both so far in the distance but have an undeniable, indispensible rhythmic pulse."

"I'M MOSTLY INTO [NATIVE INSTRUMENTS'] REAKTOR, AND U-HE ZEBRA [WIRELESS MODULAR SYNTH]. WITH THOSE AND A COUPLE ANALOG SYNTHS I CAN QUICKLY GET ALMOST ANY SOUND I'M LOOKING FOR."
—ALEX "XXXCHANGE" EPTON

Kele's confidence in his aesthetic has culminated in a holistic listening experience. "I like how my voice sounds with no stress, no push," says Kele. "I'm kind of getting off on the idea of it being super, super intimate, so you can hear me breathing, you can hear the sound of my tongue and my lips. In Bloc Party I was pushing myself as far as I could in one direction, and I don't feel I have to do that anymore. I have certain doors in my singing that I want to keep exploring, and more ways I'm excited to explore the marriage between organic songwriting and synthetic sounds." ■

Tony Ware is a writer, editor, and former DJ based in the Washington, D.C., metro area. He also hears voices in his head, and they all demand more coffee.

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LES SINS
MICHAEL
COMPANY

Les Sins re-brands mastermind producer Chaz Bundick (the man behind Toro y Moi) as a largely instrumental, sample-heavy dancefloor act. Although it moves through dark, funky, bouncy, and mellow moods and features only one full vocal track, *Michael* maintains a coherent album flow, as well as hip-shakeability. A distinct '90s vibe permeates the house, techno, and up-tempo hip-hop styles, as Bundick twists, mangles, and stretches obscure samples, yet there's nothing stale about this singular effort.
MARKKUS ROVITO

ANNIE LENNOX
NOSTALGIA
Blue Note

Annie Lennox transports each of the American classics on her latest solo release into a new, awe-inspiring place. It's not just the way she captures the essence of "I Put a Spell on You" or "Summertime" with a beautiful performance—it's the way Lennox and co-producer Mike Stevens judiciously change up the instrumentation and production techniques. The reverberant organ on "Georgia on My Mind," and the dreamy 1920s intro/outro to "Memphis in June" are just two examples.
BARBARA SCHULTZ

APHEX TWIN
SYRO
Warp

SYRO is the first Aphex Twin-branded album since 2001, masked in song titles as busy as the 138 outboard components used to compose this 12-track electro-acid-breakbeat funk primer/palate cleanser. Like the "Analord" EP series, *SYRO* meticulously (re)sequences familiar rave templates that feel out of step with and completely within context of everything non-AFX. Neither hi-fi nor high concept, *SYRO* is skittish, melodic, staccato and glacial; a series of modulated envelopes. Essentially, it's an analog fetishist's dream.
TONY WARE

GORGON CITY
SIRENS
Priority/Capitol

This debut from Gorgon City is filled with golden-throated vocalists, among them, Laura Welsh, Katy B, and Jennifer Hudson. The flagship tune, "Ready for Your Love," an irresistibly smooth collaboration with MNEK, sets the mid-tempo, shuffling tone for the album. While *Sirens* is somewhat monotone and at times melancholic, its primarily booty-bouncing persona is born of the dance floor, but not restricted to that space. In fact, *Sirens* is more conducive to sunkissed days than dark evenings.
LILY MOAYERI

PETER MORÉN
BROKEN SWENGLISH, VOL. 2
Ingrid

When he's not busy as one third of Swedish indie-pop darlings Peter Bjorn and John, Peter Morén pumps out a few solo jams per year. On this EP, Morén strikes '70s easy-listening gold. Whether it's catchy meta lyrics about the music industry on "The Odyssey," a sugary string section on "Hit Where it Hurts," the delicate background harmonies of "Esther," or the wistful chorus of "Capri," Morén keeps his expertly produced pop tunes light and airy.
MARKKUS ROVITO

...AND YOU WILL KNOW US BY THE TRAIL OF DEAD
IX
Superball Music

Austin's Trail of Dead is a peristaltic post-hardcore band, currently a quartet, which half-flailed its way through early albums, and 2012's *Lost Songs* compellingly refocused on that serrated, thrashing facet with little reprise. This ninth full-length, however, is less fever-pitched and hell-bent, gradually building in melodic, monolithic stature across suites of resonant percussion and guitar squall. The drums maintain a lot of air without sounding distant, and synths dovetail with generous reverb.
TONY WARE

VARIOUS ARTISTS
WHILE NO ONE WAS LOOKING...
Bloodshot

Indie label Bloodshot Records marks 20 years in business with a compilation that rises above the typical anniversary retrospective. This 38-song collection features new covers of songs from the Bloodshot catalog. Warm Soda has a great low-fi fuzz version of the Gore Gore Girls' "All Grown Up." Iowa singer/songwriter William Elliott Whitmore does a raw interpretation of Neko Case's "I Wish I Was the Moon." There's much to celebrate as Bloodshot and its wonderful roster pass this milestone.
BARBARA SCHULTZ

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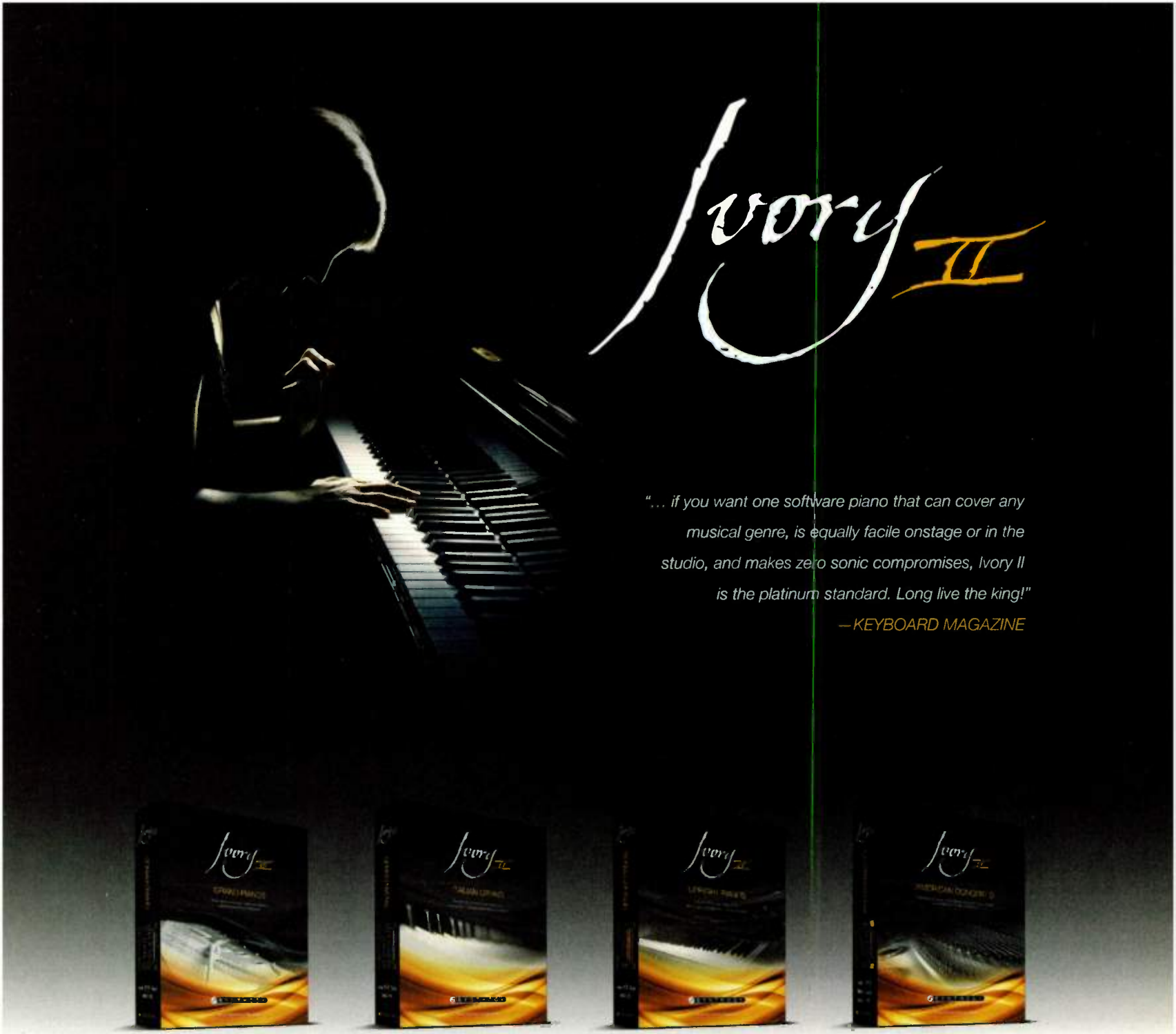

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Fig. 1. SampleTank 3's Play page gives you easy access to the browser and all 16 Parts in its multitimbral architecture.

IK MULTIMEDIA

SampleTank 3

A POPULAR SAMPLE PLAYER GETS A LOT MORE POWERFUL

BY GEARY YELTON

High-end romplers offer immediate access to just about any instrumental sound you can think of, often spanning music history and world cultures. Their immediacy and timbral range make them ideal for many musical tasks, whether you're performing onstage or recording in the studio. Despite the availability of so many other methods of synthesis, from analog and FM to physical modeling and granular synthesis, sample playback remains the most popular.

Former senior editor Geary Yelton has been reviewing software for *Electronic Musician* since 1986.

STRENGTHS

Tremendous variety of high-quality instrumental sounds. Lots of audio loops and MIDI files. Easy-to-navigate GUI. Excellent effects and effects routing options. Convenient live performance features.

LIMITATIONS

Limited user-programmable modulation routings. No arpeggiator. Can be hard to find scroll bars.

IK Multimedia Sampletank 3:
$299.99 download
$199.99 crossgrade
$149.99 upgrade
ikmultimedia.com

IK Multimedia's SampleTank is one of the most successful virtual romplers. But it has been 13 years since its launch, and half a decade since the last major update, so when rumors surfaced of SampleTank 3 (ST3), users expected big things.

And ST3 does not disappoint: New features include a redesigned GUI and plenty of new content, including more than 2,500 loops, 2,000 MIDI files, and 4,000 new instruments. The entire sound library has been updated to reflect current sampling technology, with higher sampling rates, more layers, and many more multisamples than in previous versions.

GETTING TANKED

ST3 is a 16-part multitimbral sample player that runs either standalone or as an AAX, AU, or VST plug-in, in Windows or Mac OS X. One difference between the plug-in and standalone version is the latter has an extra tab in Settings to specify the MIDI In source and audio interface parameters as high as 96kHz. You can specify any one source as your MIDI input or configure ST3 to accept control signals from all MIDI sources. Also, the standalone version has a handy meter for monitoring ST3's CPU usage, which is impressively light.

To install ST3, first, you must download IK Multimedia's Authorization Manager, install it, run it, and enter your authorization code. Once authorized, download and install ST3, which starts out with no included content. You'll find links for the content in your user area on IK Multimedia's website, where you'll download more than 33 GB in eight ZIP files—more than six times as much as SampleTank 2.5. Once your download is complete, decompress all eight parts, one at a time, to any location you like. The next time you open ST3, it will automatically find the content and build a database.

ONCE AROUND THE BLOCK

Unlike SampleTank 2.5, which crammed all its controls onto a smaller GUI, ST3 has three main pages: Play, Mix, and Edit. You'll probably spend most of your time on the Play page, which provides access to all 16 Parts and a browser for selecting Instruments, Multis, and MIDI Patterns (see Figure 1). As someone who felt the text in the previous version was too small, I appreciate that the Play page's Parts section is twice as large, and the GUI is

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better organized. I wouldn't mind if the GUI were even larger, but it's a big improvement. My only real complaint is that the dark-gray on darker-gray scroll bars can be hard to find.

Each Part in the Play page has a slot for a single Instrument along with its MIDI channel assignment, volume and pan sliders, and an LED-style level display. An Instrument could be a 12-string guitar, a drum kit, a vocal ensemble, sound effects, or even a groove construction kit, for example. To layer Parts, simply assign them to the same MIDI channel. In addition to Instruments, buttons let you load Multis and Patterns, as well as open a page that enhances live performance.

The Mix page resembles a DAW's mixing console with separate channels for each Part. Each track has four effects sends and slots for five insert effects, as well as all the other controls you'd expect from a channel strip—lever fader, pan slider, mute and solo buttons, etc. Accessing insert and master effects on the Mix page is particularly easy, and you can save a channel's effects chain as a group. You can also scroll sideways to make changes to the four effects return channels (with five inserts each; see Figure 2). Most of the Mix page's parameters are also available on the Play page, but the Mix page makes working in the standalone version of ST3 more like working in a DAW, which is especially handy in live performance.

The Edit page resembles a synthesizer's front panel and furnishes controls for Instrument parameters—filters, LFOs, envelope generators, and the like—and settings for each Part (see Figure 3). You can instantly switch between the 16 Parts using buttons on the right side of the page to access controls for every Instrument that's currently loaded. In the Edit page's Part section, you can specify details that are not Instrument-specific for each Part, including maximum polyphony, transposition, panning, volume, and note and Velocity range. You can create splits by limiting a Part's note range and Velocity range, and you can create layers by assigning Parts to the same MIDI channel.

The row below that is the Sample section, where you can adjust parameters such as tuning and pitch-bend range or choose one of ST3's three playback engines. Next to the Filter section are knobs that govern how much note Velocity affects parameters, such as amplitude, filter cutoff or resonance, and LFO depth. Two more sections control LFO, envelope, and keyboard parameters.

All three pages have Instrument-specific Macro and FX buttons to access quick edit parameters in the lower section. Clicking on Macro reveals whatever eight controls are best suited for editing the selected Instrument. Clicking on FX reveals five buttons and a pop-up menu for selecting the Instrument's insert effects and controls for editing their parameters. At the bottom of all three pages

Fig. 2. The Mix page resembles a mixing console, allowing many users to work with Parts in a familiar studio environment.

Fig. 3. The Edit page is where you get down to the details of customizing individual Parts and Instruments.

Fig. 4. In the Play page's Live screen, you can set up all the sounds you'll need for your songs and organize them into Set Lists.

are buttons to assign hardware controllers to MIDI CCs, start and stop loop and pattern playback, etc.

JUST BROWSING

In the Play window, the browser provides a list of 22 instrument categories organized into folders, much as in previous versions. Clicking on a category's adjacent triangle opens the folder and reveals a list of subcategories. Within each subcategory are two or more individual Instruments. For example, the Organ category contains Tonewheel, Electronic, Pipe, and ST2 XL subcategories, and the Electronic subcategory contains Combo Organs 1, 2, 3, and 4.

When you click on the Search button and type in a keyword, ST3 helps you locate a sound quickly by displaying only Instruments tagged with that keyword. Clicking on an Instrument's Info button displays a 3-D drawing of the instrument that was sampled, along with a brief description, information about how much memory it consumes, a list of the parameters you can access using the Macro knobs, and other pertinent data.

Clicking the Multi button lets you browse Multis (called Combis in previous versions) exactly like you browse Instruments. A Multi may contain as many as 16 Instruments and all their associated parameters, Patterns, and effects. If you're an old hand at SampleTank, you can import your Combis completely intact to the newer Multi format.

One of the most useful new features in ST3 is the Live screen, which helps you organize groups of sounds for quick access—especially convenient in live performance—but ST3 goes beyond similar features in other multitimbral instruments (see Figure 4). Start by naming a Song and optionally assigning it a MIDI program change. Within each Song, you can specify a number of Multis that have whatever Instruments you'll need for that Song.

During a performance, you can send one program change to load a Song, one for the verse, another for the chorus, and so on, or simply click on the Song or Multi in your display. Because loading a Song loads all the Multis it contains, switching from one Multi to another is instantaneous. You can create as many as 64 Songs, each containing up to 16 Multis, and save them as a Set List. Set Lists will appear in the browser, much like Instruments, Multis, or Patterns.

NOW I'M DOWN IN IT

All of the controls you normally associate with a synthesizer are on the Edit page, including the filter, envelopes, LFOs, and so on. You can select from ten filter types in the Filter section. I especially liked that, for more than half the types, four buttons let you choose the filter slope (from 1- to 4-pole) independently of the type. An Overdrive knob adds distortion to all filter types except the three standard VCF types.

The VCF lowpass, highpass, and bandpass types are the same filters that were on the previous SampleTank. Three new ones emulate the Moog ladder filter. The formant filter replaces the Frequency knob with Morph, which shifts the frequency of the formant band, and the Res knob changes the bandwidth.

Another new filter type is the phaser. It's not the same as the effects section's older phaser model and occurs at a different point in the signal

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chain. The phaser filter has fewer parameters than the phaser effect, and instead of four filter slopes, it lets you select from one to four stages. Another difference is that envelopes and LFOs can modulate filter parameters, but not effects parameters, resulting in some dramatic phase-shifting effects.

A pair of LFOs gives you a respectable number of parameters to tweak. In addition to the usual rate, depth, and waveform, you can dial in the phase, fade-in rate, and destination—pitch, filter cutoff, amplitude, or pan. Either LFO will begin its wave at the zero point at the beginning of a note, but one can be free-running if you prefer. I was disappointed that ST3 has no more LFOs than the previous version.

I was also surprised that ST3 has only two envelope generators, but I suppose the GUI limits the number of controls that fit on the Edit page. Both are AHDSR generators, with a hold segment between the attack and initial decay. The first envelope is dedicated to shaping amplitude; assign the second to modulate the filter, pitch, or both.

Although ST3 is a sample player and not a synth, comparisons to synthesizers are inevitable because it's so similar to traditional romplers. Because of that, I wish it had more extensive user-programmable modulation capabilities. Other than the two envelope generators and two LFOs, ST3's only modulation source is keyboard Velocity. Velocity can modulate amplitude, filter cutoff, and pitch, as well as LFO depth and envelope sustain. Fortunately, you can assign MIDI CCs to control any Instrument's eight Macro parameters, which allows you to modulate them with external sources such as Aftertouch or an expression pedal.

In addition to the five effects inserts per Part, the master channel has five effects slots. ST3 expands the number of available effects from 33 to 55 by adding new effects borrowed from IK Multimedia's AmpliTube and T-RackS. New effects include amp models, new EQs and compressors, and convolution reverb.

Like SampleTank 2.5, ST3 boasts three playback engines: resampling, pitch shift/time stretch (PS/TS), and note and phrase stretch. Resampling is IK Multimedia's term for standard sample playback, the technique most ST3 Instruments use. In the factory content, all the loops use the stretch engines, as do the solo voices and some of the pianos. You can modify any of the Instruments, sometimes radically, by switching their playback engine.

PS/TS lets you transpose a sample's pitch or change its length independently while maintaining the original's formant structure. It works best when you are editing loops containing chords or multiple instruments. Note Stretch and Phrase Stretch perform similar operations, but they also allow you to alter a monophonic sound's formants, too. However, the manual is a bit sketchy on how to use the Stretch controls.

Fig. 5. SampleTank 3 comes with a large collection of short MIDI files called Patterns. You can assign as many as 128 Patterns to each Part and trigger them from your MIDI keyboard.

CHECK OUT THE LIBRARY

Some sounds are mono and others are stereo, and the sampling rate appears to vary considerably, sometimes within a single Instrument. In addition to new Instruments, ST3 includes all of the content from version 2.5 XL.

The selection of sounds that come with ST3 includes lots of drums, ethnic percussion, basses, guitars, and pianos, as well as orchestral instruments and others used in most styles of music. The sampled synthesizers are particularly good, but the real standout is the collection of vocal samples. Realistic pop solo voices, ensembles, and the gospel choir go beyond what you might expect in a bread-and-butter rompler. Acoustic sound effects are limited to a single Instrument that maps them across the keyboard, though you also get a few Instruments containing electronic sound effects.

Multi-articulation Instruments are Instruments that use keyswitching, Velocity, or the mod wheel to toggle between multisampled articulations, called Elements. For example, you can instantly switch a violin from legato to staccato to pizzicato. Keyswitches are indicated graphically by the color of keys on the onscreen keyboard. On the Edit page, the Element/Articulation menu lets you select which Element you're editing at any given moment.

Loop Instruments are recordings of instrumental performances mapped across several notes on the keyboard, indicated by gray keys that turn red when you trigger the loops by pressing their associated keys. Most are drum and percussion loops. A loop's file name indicates its original tempo. Loops automatically match the tempo of your current project unless you indicate otherwise.

In addition to the huge amount of included content, ST3 can import Instruments and Combis (which are converted to Multis) from earlier SampleTank-compatible products such as Miroslav Philharmonik, Sonik Synth 2, or SampleTron, including sound libraries from Sonic Reality's Xpansion Tank series and other third parties. It can also import mono or stereo user samples in 16- or 24-bit WAV or AIFF formats. If the samples have loop markers, ST3 will retain the loops.

ST3 also comes with a large library of short MIDI sequences called Patterns, which you start or stop by playing single notes on your keyboard or by pressing the Play button in the GUI's right-hand corner. In the browser, Patterns are organized into categories in much the same way as Instruments (see Figure 5). Pattern categories are organized by the name of the most appropriate instrument (such as Piano or Synth Bass), and subcategories are organized by the type or style (such as Chord Riff 01 or Smooth Blues 02) and the original tempo.

Double-clicking on a Pattern loads it into the currently selected slot, which automatically assigns it to a MIDI Note. The first Pattern you select will be assigned to C0, the next one to C#0, and so on. You can also assign a Pattern to any key you choose by clicking and dragging it to the onscreen keyboard. You can transpose Patterns, scale their Velocities up or down, and more. Create your own Pattern by recording a MIDI file with just one track, copying it to ST3's Pattern folder, and rescanning the content.

Unlike with Instruments, which you can assign to Parts only one at a time, you can assign a maximum of 128 Patterns to each Part—one for each MIDI Note. That means each of the 16 Parts can play as many as 128 preset Patterns you trigger by simply pressing its associated key. It's also possible to create a complete multi-Instrument groove by playing a single Pattern for each of the Parts simultaneously. In the standalone version of ST3, Patterns play at the master tempo, which you can change at any time. In the plug-in, Patterns sync to the host application's tempo unless you indicate otherwise. Even with so many Patterns to explore, though, I still found myself wishing for an arpeggiator.

TANKS FOR EVERYTHING

With superior functionality, better effects, a much-improved user interface, and more than six times the sample content of version 2.5 XL, SampleTank 3 is light-years ahead of its predecessor. I liked it the first time I used it, and I liked it even more after getting to know it better. The selection of sounds is outstanding, and the sound quality of most is a noticeable improvement. Although it took years to see an update, IK Multimedia is to be applauded for its accomplishment.

If you've ever been a SampleTank user, then you're going to enjoy exploring all its enhancements, and your music will be all the better for it. And if you play romplers but you've never given software a chance, SampleTank 3 may be just what you need. ■

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The Launch Control XL is a class-compliant USB MIDI controller designed to work with Ableton Live (though adaptable to any DAW or app) and to complement Novation's Launchpad S button box.

NOVATION

Launch Control XL

TABLETOP MIDI MIXER FOR LIVE AND BEYOND

BY MARKKUS ROVITO

Markkus Rovito is a musician, DJ, and journalist based in San Francisco.

STRENGTHS

Good mix of Ableton Live mixer and device controls. Sixteen onboard template memories. MIDI class-compliant.

LIMITATIONS

Encoders don't have LED feedback rings to pick up the parameter value where it left off and change it after the physical knob position passes over it.

Novation Launch Control XL:
$199.99 street
novationmusic.com

If there are any music software titles that are Too Big to Fail besides the ubiquitous Pro Tools, we'd have to include Ableton Live. The studio/stage DAW has a cottage industry of control hardware that would topple along with it, sending ripples of devastation through the gear world. Novation's latest contribution to the Live-centric hardware pool, the Launch Control XL, fills another niche for Ableton devotees seeking their perfect controller setup.

Compact and reasonably priced, yet bursting with control flexibility, the Launch Control XL is built around eight mixer-style channel strips, which can work all the tracks and track devices you have in a session. The controller shares the same footprint as the Novation Launchpad S 8x8 button pad for Ableton Live: Together, the two make a solid and portable one-two punch for performing, playing, and recording in Live.

The USB bus-powered controller will also work with any other MIDI class-compliant desktop software or iOS apps, the latter with the optional Camera Connection Kit. Launch Control XL comes with Ableton Live Lite, 1 GB of Loopmasters samples, and six Novation Effect Racks for Live, so you can get started right away.

XLAYOUT

The Launch Control XL's familiar mixer-style setup includes three rows of encoders with center-detents and accompanying LEDs. With the default Factory template for Live, the top two rows control the amounts for Send A and Send B, while the third row controls track panning. The 60mm track-volume faders exhibit a smooth fading action. One row of LED-backlit buttons at the bottom assigns the track in focus in the Live software, and the other row has three selectable modes for track Mute, Solo, and Record Arm. Send Select and Track Select arrow buttons let you scroll through and control as many Sends and Tracks as your Live session holds.

A crucial secondary layer of control lets you operate Live's effect and instrument devices using the Launch Control XL. Hit the Device button, and the green Pan encoder LEDs turn red, letting you know they're in Device mode and will control the first eight parameters of the currently selected track device. You can also scroll through all the multiple devices embedded in a track from the controller.

There are eight Factory and eight User templates (16 total) stored in the Launch Control XL. To change from the Ableton Live Factory defaults, hit the User button. Upon purchase, you can download and register the Launch Control XL Editor software, which lets you assign MIDI CC numbers for all of the controls (except the Template buttons), as well as MIDI Notes for the buttons. You can also create User templates using the MIDI Learn function in Live or in any other software that offers it.

IN SITU

The Launch Control XL is very handy for everything you would do in Live—composing, recording, sound design, and live performance. The more you rely on using Send effects, the more

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value you'll find in the Factory setup, but either way, navigating and controlling devices is a huge plus for this kind of controller. It's particularly fast and easy if you make frequent use of the eight Macro controls for Live devices.

Novation's latest contribution to the Live-centric hardware pool, the Launch Control XL, fills another niche for Ableton devotees seeking their perfect controller setup.

All the controls feel solid and provide a good grip. And although there is a lot packed into a small space, it doesn't feel cramped (except, occasionally, when manipulating consecutive encoders in the same row).

While the Launch Control XL is in the best respect a WYSIWYG mixer controller for Ableton Live, its ability to navigate large sessions, control device parameters, switch among 16 onboard templates, and control iOS MIDI apps means that it has some pretty sweet extras under the hood. The result is a formidable DAW/controller setup for both studio and stage. ■

Use Launch Control XL's editor software to assign MIDI Notes to the buttons and MIDI CC numbers to the knobs and faders.

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Each of Electra2's four layers gives you access to all of its parameters at the same time. The only time you'll need to view another page is when you want to list all its patches.

TONE2

Electra2

SYNTH WORKSTATION

Don't overlook this stunningly powerful software instrument

BY GEARY YELTON

STRENGTHS

Flexible synthesis architecture. Four-part multitimbral. Impressive patch library. Quick patch templates. Bang for the buck.

LIMITATIONS

No standalone version. No multisampling. No Undo command in current version. Not Pro Tools-compatible.

Tone2 Electra2: $189
tone2.com

Your choices may be overwhelming when you enter the world of software instruments. In addition to synths that emulate analog, FM, and sample-playback hardware, software leads the way in modeling, granular, and other algorithmic techniques. One of the most accessible plug-ins combining multiple synthesis technologies is Electra2, an update of Tone2's ElectraX. It supports VST in Windows and AU and VST in Mac OSX, though not AAX or RTAS.

Electra2's architecture provides four layers, each with three oscillators, two filters, four ADSR generators, four LFOs, a modulation matrix, and a sophisticated, programmable 16-step arpeggiator. Because layers can receive on separate MIDI channels, Electra2 can play four independent parts.

Three identical oscillators, which can sync to and modulate each other, generate waveforms using various methods. I was impressed that you can combine three sound engines (one for each oscillator) in a single layer. Five synthesis modes include wavetable, sample playback, and Ultrasaw, which layers detuned sawtooth or pulse waves. Custom Wave resynthesizes user samples into wavetables, and Tone2's exclusive Noise/Fractal mode relies on real-time algorithms that take advantage of chaos theory. Wavetable mode lets you choose from simple and complex wavetables that were produced using virtual analog, FM, phase distortion, and additive synthesis. Electra2 can import user samples (in WAV format only). The Edit menu enables sample trimming, waveshaping, automatic tuning and looping, and much more, but the current version doesn't let you undo your edits; nor can you map multisamples.

Twin filters supply numerous lowpass, bandpass, and highpass modes and EQ types, as well as comb, vocal, aliaser, fractal, and other options. Two filter types model plucked strings and blown pipes.

You can apply effects such as reverb and delay to the output of all layers and process individual layers using any of those effects.

Electra2's GUI displays every control for the selected layer, divided into functional sections. Change most parameter values by turning a knob or clicking on the parameter's name, which toggles on and off or displays a popup menu for making selections. Animated displays help you visualize dynamic processes.

The easiest way to create a patch from scratch is by clicking on the Init button, which reveals a list of 18 templates that include SubtractivePad, Phase Distortion, Waveshaping, and the two physical modeling types. A Quick Import Vocoder selection in the File menu lets you instantly create a vocoder patch by setting up the appropriate parameters and importing an audio file to use as the modulator.

Clicking on the Browse button replaces the layer controls with the patch browser window, which has an onscreen keyboard for quickly auditioning sounds.

The browser displays 24 patch types, such as Bass, Pad, ArpMultilayer, and SemiReal. More than 1,200 patches are included, and you can buy hundreds more online. The browser's Info box displays information about each patch, like what real-time modulators are available and what type of synthesis is employed.

Electra2 has features you won't find elsewhere and gives you a broad range of creative possibilities. For sound designers who want extraordinary flexibility and surprising depth, Electra2 is near the top of my list. ■

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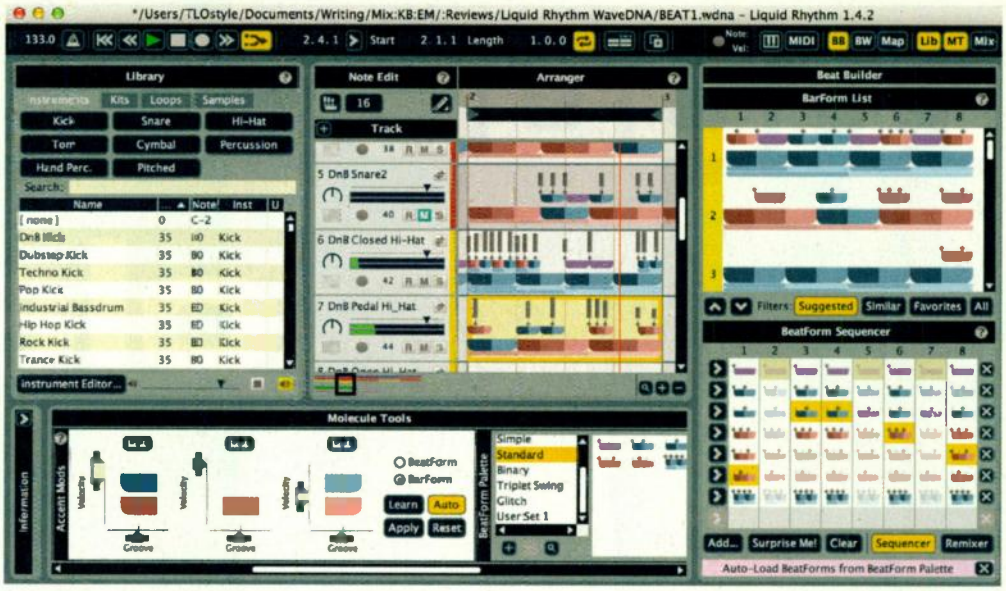

Fig. 1. Liquid Rhythm shown in standalone mode, with the Beat Builder on the right and the Molecule Tool MIDI effects along the bottom.

WAVE DNA

Liquid Rhythm 1.4.2

OPENING THE FLOODGATES OF BEAT HEAVEN

BY MARKKUS ROVITO

STRENGTHS

Innovative MIDI sequencing. 12 starter drum kits. Imports samples. Convenient bouncing to audio and MIDI. Suitable for live performance. Huge variety of beat-creation and editing methods. Intro version retains most of the key features for a low price.

LIMITATIONS

Only one global set of BeatForm Favorites. Sample import limited to .wav, .aiff and .mid formats.

Wave DNA Liquid Rhythm 1.4.2: $129
Liquid Rhythm Intro: $49
wavedna.com

When one small music software company obsesses over building and refining a single product for more than four years, you get something as simultaneously unique and familiar as Liquid Rhythm, a drum-programming plug-in/standalone workstation that can help you quickly build new beats you wouldn't have otherwise programmed. It's essentially a deluxe drum-programming tool with innovative MIDI pattern creators and effects (see Figure 1).

The software works as a standalone mini-DAW (Mac/Win) for MIDI drum track creation or as an AU/RTAS/AAX/VST plug-in with three plug-in modes: Stereo is the most basic; Multi-output sends up to eight stereo/16 mono channels for separate output processing; and the Interplug-in MIDI Routing mode makes Liquid Rhythm into a sequencer-within-a-sequencer that can control the MIDI notes of another VST instrument placed on the same DAW track.

Ableton Live 9 Suite users can enjoy the coolest setup of all, where Liquid Rhythm not only controls other software instruments, but also integrates Live's Session clips within its own interface for a better workflow. That lets you activate Live clips in Liquid Rhythm, so you can dynamically edit them and switch between different clips all within Liquid Rhythm's interface.

The program comes with more than 1 GB of drum sample content organized into 12 kits ranging from Acoustic and Rock to Dubstep and Techno. The included drums sound nice, but it's crucial that Liquid Rhythm lets you integrate sample folders from your desktop to its Library for importing .wav, .aiff, and .mid samples into the software for building beats.

SEQUENCER EXTRAORDINAIRE

Liquid Rhythm takes on the appearance of a one-window, customizable DAW interface similar to Ableton Live and others. The Arranger sits in the middle, with up to 80 slots for drum tracks with full track headers, Overview Scroll with color-coded tracks, and transport/tempo controls across the top.

The rest of the layout harkens to Live as well, with most elements collapsible to manage space: the content Library to the left, MIDI effect modules in a bar across the bottom, an info box on the bottom and many of the special beat-creation tools to the right.

Those tools really comprise the crux of what makes Liquid Rhythm special. Its offloading of drum programming from a DAW to a plug-in or standalone program (with convenient audio and MIDI exporting) wouldn't make much sense unless it was innova-

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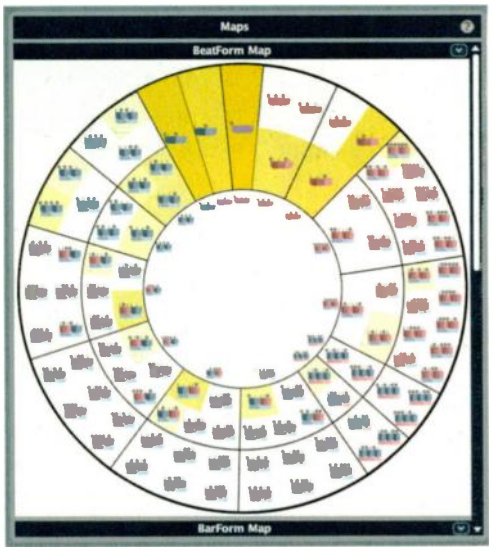

Fig. 2. The BeatForm (pictured) and BarForm Maps show all the patterns available, with suggestions highlighted. You can drag patterns into the Arranger, Beat Builder, or BeatWeaver.

tive in its methods for creating those beats. Liquid Rhythm does that by using a unique modular note-cluster system for rhythm creation.

The system relies on BeatForms and BarForms (see Figure 2). Both are clusters of notes lasting either a full measure (BarForm) or a single eighth note (BeatForm). You'll find a BeatForm for basically any note combination of a certain time signature possible within one beat, and then a BarForm for any combination of eight BeatForms possible. A Maps section shows you all the available combinations in groups, with suggested clusters for each type of drum highlighted. You can drag clusters straight from the Maps into an Arranger track to build rhythms.

Every method for beat creation is available, including live recording using a MIDI controller (MIDI learn mode available) or the Computer Keyboard mode, which turns 16 QWERTY keys into a drum pad. But many of Liquid Rhythm's key features revolve around the placement and/or editing of BeatForm and BarForm note clusters.

For instance, the Beat Builder pops up in the right-hand column and includes the BarForm List and BeatForm Sequencer. When you select a drum track, the BarForm List comes up with a list of suggested bar clusters based on the type of drum. From there, you just need to select a bar in the Arranger and click a BarForm in the list to populate the Arranger track with it. List filters let you alter the list, for example, showing all the possible BarForms, or you can save BarForms to Favorites for quick recall. For now, there is only one Favorites list, but it would be nice to create multiple Favorites grouped by instrument, genre, project, etc.

BeatForm Sequencer is like a grid sequencer for BeatForms, with eight BeatForm slots for each bar. Here you can quickly alter the BarForms you dropped in the Arranger: Change BeatForm values by clicking different slots on or off and change the notes of the individual BeatForms.

The BeatWeaver Rhythm Synthesizer (Figure 3) is similar to the Beat Builder but offers a different method for arriving at BarForm combinations. If you select rhythms in the arranger, the BeatWeaver creates a pool of all the available BeatForms and then creates a list of all the possible combinations that those BeatForms could "weave" into BarForms. The BeatWeaver also lets you import any BarForms you want from lists or from the Maps and includes an 8-step sequencer for choosing when note clusters should occur in the rhythm.

POURING ON THE MIDI

Molecule Tools (or MIDI effects lined up across the bottom of the window) let you quickly customize, randomize, and/or "humanize" the rhythms in the Arranger. The Randomizer lets you select any portion of the Arranger and randomly fill it with rhythms with a single click, with many different options for determining the parameters and limitations of the randomization. The GrooveMover rearranges the timing and accents of patterns based on the color blocks in each BarForm, and is a good way to create variations in repeating drum patterns.

The powerful Accent Mods tool can quickly alter the velocity and "groove" (timing) of as many notes as you select, with different settings for three BarForm color codings. Velocity and Groove sliders have selectable ranges, so you can further "humanize" the results with random variations, or quickly select a preset variation curve.

BIGBEATS

The most important questions are: Will Liquid Rhythm help me make beats faster, make beats I otherwise would not have created on my own, and make beats rhythmically more interesting? I say yes, on all counts.

If you want to ease into the program at a lower cost, check out Liquid Rhythm Intro ($49), which provides many of the groove-creation tools, minus a few MIDI features such as BeatWeaver, GrooveMover, and Randomizer. ■

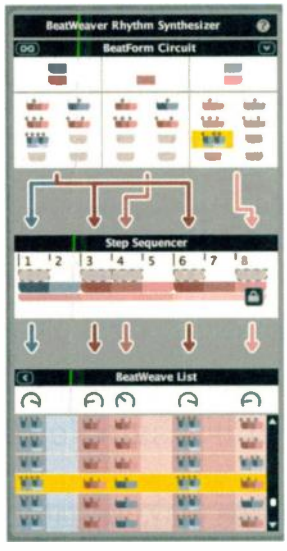

Fig. 3. With each BeatForm added to it, the BeatWeaver creates a list of possible BarForm combinations, which you can dial in using knobs to find the patterns you want.

Quick Tips: Melodic Rhythm

Liquid Rhythm was designed for drums, and its documentation warns that using it for other instruments may cause wacky results. However, that sounds like an excellent excuse for trying it for other instruments.

If you have Ableton Live 9 Suite (which includes Max for Live) or PreSonus Studio One 2, you can drop Liquid Rhythm onto a MIDI track and then also place a VST instrument (or Live internal instrument device) onto the same track, and then Liquid Rhythm's sequencer will control that instrument. Liquid Rhythm uses the General MIDI standard for drum instruments, so it works great with drum VSTs. It also worked well for many (but not all) VST synths that I tried with it.

When using any other DAW, try dragging into the Arranger a scale's worth of samples from any musical instrument that is usually monophonic, like a stringed instrument, piano, synth lead, etc.

Now, you can sequence the instruments as you normally would with a keyboard, but you could already do that with your DAW. Experimenting with dragging or painting in BeatForms can be interesting and productive, but that often results in a noisy mess. So try using the Randomizer with the Collaborate box checked. That ensures that there won't be any note overlap from the tracks.

If sequencing a virtual instrument, you will have one track for each note, so it may take a little more work to only select tracks that will sound good for the key you're in, or for notes of a particular chord. But if you're just dragging in samples, you can pre-select the notes you want, and click away at the Randomizer until you come up with some winning patterns.

World Radio History

To create CFX Concert Grand, Abbey Road Studios contributed the piano, studio, mics, and recording methodology, and Garritan contributed the sampling expertise and programming experience.

GARRITAN/ MAKEMUSIC

Abbey Road CFX Concert Grand

VIRTUAL PIANO

Can software make you forget it's sampled?

BY GEARY YELTON

Former senior editor Geary Yelton has been writing reviews for *Electronic Musician* since the very first issue.

STRENGTHS

Beautiful tone. Responsive touch. Convincing sympathetic resonance. Gorgeous room sound. A versatile workhorse.

LIMITATIONS

Full installation requires 132 GB of disk space and a fast drive.

Abbey Road Studios CFX Concert Grand:
$249 street
garritan.com

Yamaha's hand-built, $180,000 CFX piano is one of the finest instruments made. When Mirek Stiles at Abbey Road decided to sample one, he called on Garritan to pool their resources. Abbey Road's staff chose the miking techniques and supervised the recording sessions, and Garritan transformed the recordings into a software instrument. Together, they captured every sonic detail of the piano in Abbey Road Studio One.

Abbey Road Studios CFX Concert Grand (CFX) comprises AAX, AU, RTAS, and VST plug-ins as well as a standalone application. Simply run the installer, choose the full (122GB) or compact (24.5GB) content, register online, and save the activation file to your desktop. Because the included brochure tells you very little about using the software, you should refer to the user's manual.

CFX offers three sets of virtual mic setups, called perspectives. Engineers used two mic kits to capture each perspective: one close to the piano and one in the room to capture ambience. Classic is the most detailed perspective and makes a good choice for solo performance, whereas Contemporary is the brightest and plays best with others. The Player perspective comes closest to making you feel like you're actually sitting at the piano in Studio One.

CFX's five views share controls for loading perspectives, changing mic levels and panning, and specifying keyboard parameters. A pop-up menu selects Full or Compact versions of all three perspectives, determining CFX's impact on computer resources. Thirty-two excellent presets are duplicated for each version. Knobs and sliders control stereo width and the balance between close and ambient mics. You can fine-tune pitch, transpose by semitones and octaves, and pick from a dozen tuning standards.

Piano view supplies knobs for pedal noise, sympathetic and sustain resonance, and release volume, crossfade, and decay. You can select lid positions, too. Duplicating an acoustic piano's sympathetic string vibration is a challenge for any digital piano. CFX's sympathetic resonance responds realistically to your playing, and is available in both the Compact and Full versions.

Controls for the integrated convolution reverb appear in Studio view. Impulse responses include concert halls, rackmount hardware, and even an underground cave. You also get three bands of EQ for close and ambient microphones, and a saturation effect that affects harmonic texture.

In Advanced view, edit, save, and load velocity curves. Specify the range between the softest and loudest notes, and choose from 15 included temperaments, import additional temperaments, and dial in stretch-tuning adjustments. CFX can load MIDI files directly into the standalone version. Buttons at the bottom of every view provide transport functions and allow you to record a WAV file of your performance. Choose Render Offline to convert MIDI files to WAV files using the current piano sound.

Playing Abbey Road CFX comes as close to playing an acoustic piano as any software or digital hardware I've tried. It sounds superb at both ends of the tonal spectrum, bright and dark. For that reason, along with so much control over mic placement, and stunningly natural reverb, the Abbey Road CFX is my new go-to studio piano. ■

World Radio History

Abbey Road Studios

CFX CONCERT GRAND

VIRTUAL PIANO

Garritan placed the awe-inspiring Yamaha CFX Concert Grand Piano in Abbey Road Studio 1, where award-winning engineers used the world's greatest mics and equipment to create a stunning virtual instrument. Every facet of this project reflects the perfection that only the most passionate can produce.

"...sounds absolutely beautiful, with exquisite tonal detail, powerful lows, glassy highs and a level of expressiveness that has to be felt to be believed." - **Computer Music**

"...this instrument really excels where most others fail: hearing it solo..." - **Downbeat**

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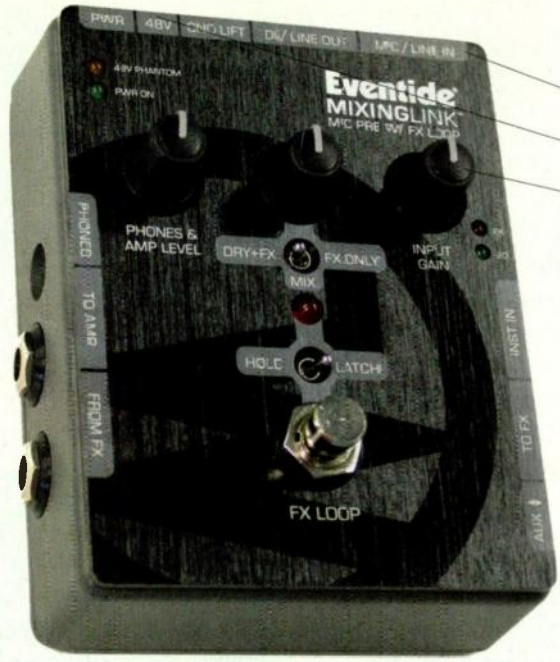


For gigging, recording, or practice, MixingLink provides a wealth of interconnectivity, no matter what instrument you're using.

EVENTIDE

MixingLink

VERSATILE MICROPHONE PREAMP/DI

An easy and creative way to interconnect your gear

BY BARRY RUDOLPH

Barry Rudolph is a recording engineer based in Los Angeles.

STRENGTHS

Interconnect line- and instrument-level signals. Effects loop. Phantom-powered mic input.

LIMITATIONS

Mono operation only. Must be tethered to a wall-wart when using phantom power.

Eventide MixingLink: $299
eventide.com

MixingLink is a mic preamp/DI with mono effect loop, mixer, and stereo headphone amp. Built into a stomp box and designed for stage, studio, or a pedalboard, MixingLink creatively interconnects disparate audio sources and processors, even with different operating levels, impedances, and connectors.

As a simple mic/preamp with an XLR mic in/TRS line in combo jack, MixingLink worked well, providing up to 65 dB of gain to amplify a low-output Royer R-121 ribbon mic to full, balanced line level for recording into Pro Tools HD. I found the preamp to have good headroom, low noise, and similar sound to small, midpriced consoles.

The Input Gain control, with Hi/Lo level switch, sets gain staging for both the balanced mic/line and 1/4" instrument inputs. The XLR output is switchable between -10dBu DI level or +18dBu line level, and there are switches for ground lift and 9V battery/phantom power. The included power supply is required for 48V phantom power.

All audio signals within MixingLink go to its headphone amp, which has a separate volume control: The volume knob doesn't affect the XLR DI/line output level but does control the level going to the 1/4" To Amp jack designed to drive any guitar amp. This could allow you to use the MixingLink to connect a phantom-powered condenser mic to your guitar amp in order to sing through it.

MixingLink saved me time and many trips between the control room and live room to position microphones. By plugging my Shure SRH940 headphones directly into the MixingLink, I could set a mic just the way I wanted while hearing the results.

You can also use MixingLink to split and send an instrument signal to two amps, switch between two instruments going to one amp, re-amp a track, or process vocals through a stompbox.

It also provides a handy set of features for adding effects to your input. I set up a Gauge Precision ECM-84 SDC mic on a Martin D-28 guitar, and then sent a line level signal to the control room while connecting a delay pedal in MixingLink's effect loop. Because the guitarist wanted to switch the delay in and out for certain notes, I set the FX Loop button to Hold mode: The FX Loop stomp button will work in Latch mode, or Hold mode, which engages the loop only when your foot presses the button.

I connected the To FX send jack to an Ogre Kronomaster delay pedal and returned the signal to the From FX jack—simple! My guitarist wanted to refer to a rough mix on his iPhone, so I connected the phone's headphone jack to MixingLink's Aux 1/8" minijack input. The iPhone output is heard in stereo on the MixingLink's headphones but mixes to mono into the effects loop. This feature could also function as a track mix input for practicing on phones.

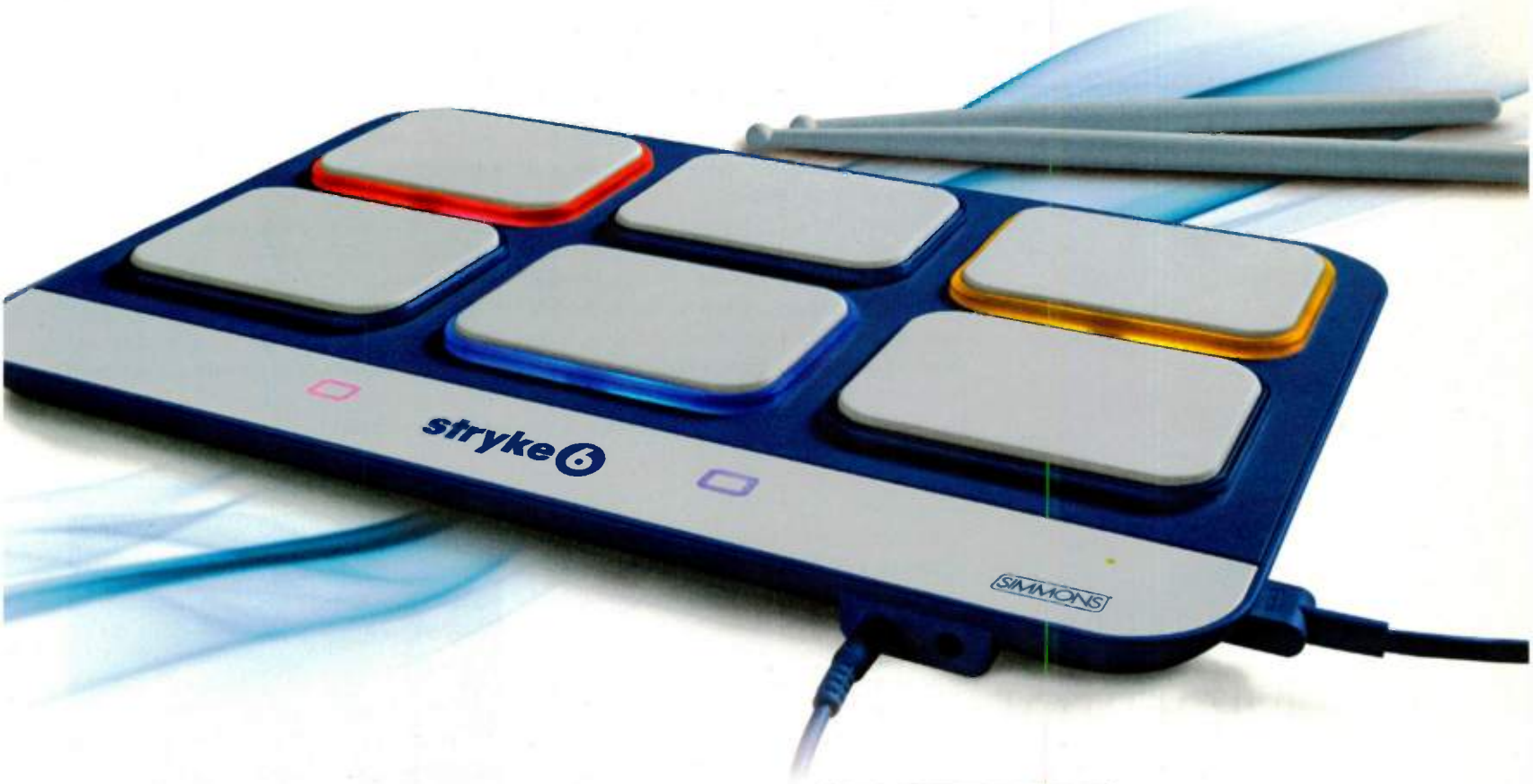
The Aux jack is actually a bidirectional TRRS (4-conductor) path that sends the same To FX send signal out and returns a stereo signal from an iOS device in mono to the effects loop. In this way, I could blend in one of my IK Multimedia amp simulators.

With the effects loop enabled, there are three effect mixing modes: Dry+FX keeps a dry signal level fixed, and the knob sets the effect return level; in Mix mode the knob works as a wet/dry control; FX Only mutes the dry signal and the knob sets the effect level.

Overall, the MixingLink is flexible, uses high-quality parts, and is handy for connecting just about every piece of musical gear you might have. ■

World Radio History

play in the stryke zone



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Free Stryke Drums app for fun and learning (downloadable at the Apple App Store).*

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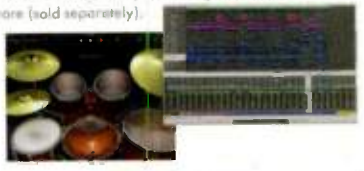

Made for iPad

Stryke Drums app works with iOS 6 and higher, iPad 2 and later.
* iPad not included

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MEEBLIP

Anode

A gutsy open-source synth module that goes anywhere

BY GINO ROBAIR

$139.95
meeblip.com

SOMETIMES ALL you want is a small, uncomplicated synth to knock out a lead or bass line, or to bolster another synth. That's where the inexpensive and portable MeeBlip Anode comes in. As an open-source digital synth with a resonant analog filter, it offers plenty of MIDI assignable controls, whether you use the pre-loaded instrument or roll one of your own.

The 4"-square, 7.5oz. Anode has a 3.5mm stereo output that works fine with headphones but requires a Y-cable if you're going into a mixer (e.g., 3.5mm TRS to a pair of 1/4" TS plugs). The only other connections are the power input (AC adapter included) and a 5-pin MIDI In port (unfortunately, no USB).

The included synth features two 8-bit pulse-wave oscillators with a range of six octaves. You can alter the duty cycle of one or both oscillators, detune the second oscillator as much as eight semitones in either direction, and drop it an octave. The 2-stage envelope generator includes switchable Sustain.

The analog filter has lowpass characteristics and is at its most colorful when the Rez control (the only knob not MIDI mappable) is in the higher settings. Use MIDI to control the synth's other features, as well as portamento and envelope amount over the filter. Velocity controls filter cutoff by default, though the LFO can be routed to filter cutoff or oscillator pitch.

MeeBlip Anode includes alternative firmware that provides 16 wavetables (two banks of 8 wavetables each). Use the Sweep knob to select a bank, and Width to load a wavetable. A variety of sawtooth, FM, voice, distorted, and granular sounds are included, and all are musically satisfying, especially when you crank up the Rez knob or sweep across the wavetables as a sequence plays. To load the wavetable synth, hold down the MIDI Set button on startup. To change back, restart without pressing the button.

Overall, the Anode sounds really good; both instruments have plenty of attitude and personality on their own, yet they can be tamed enough to blend with other synths. It's a useful and fun synth that's hard to resist. ■

PRESONUS

Monitor Station V2

Desktop studio control center

BY GINO ROBAIR

$299.95 street
presonus.com

PRESONUS CREATED the original Monitor Station to provide a lot of tools a personal studio needs—assignable input sources and cue, headphone outputs, speaker switcher, talkback mic—in a reasonably priced, desktop-friendly package. With the update to V2, the company didn't simply refresh the product; it added useful features while improving the device ergonomically.

Built into a smaller, lighter-weight chassis with a reduced footprint, the enhanced functionality in the Monitor Station V2 provides S/PDIF digital input, while the Aux input now includes a 3.5mm stereo input along with RCA jacks, making it more convenient to use with consumer-grade and portable playback devices. Together with two stereo channels of line input on TRS jacks, you now have four stereo inputs to work with.

Top among the ergonomic improvements, everything relating to the Cue mix is located in the upper portion of the unit, while the lower portion handles the Main output. Additionally, buttons such as Dim and their associated controls are placed next to each other.

The majority of the I/O remains the same in the new model: 1/4" TRS jacks for line-level main and cue outputs, three pairs of TRS monitor outputs (which can be configured as two pairs with a subwoofer), and the aforementioned line inputs. In addition, the trim controls for the speaker outputs were moved from the top to the rear panel, while an input for an external talkback mic was sacrificed (which I suspect no one will miss).

The calibration sequence is well-explained and straightforward, making it quick and easy to get your playback system set up with a great deal of accuracy. With reasonably transparent sound quality and all the other features you expect—mono and mute buttons, input summing mode, the ability to combine speaker pairs—the Monitor Station V2 provides major improvements to your studio that are both useful and affordable. ■

World Radio History

ORANGE TREE

Iconic Bass: Jaco

Sampled electric bass for Native Instruments Kontakt

BY MARTY CUTLER

Former *Electronic Musician* editor Marty Cutler wishes banjoists gigged as much as bass players.

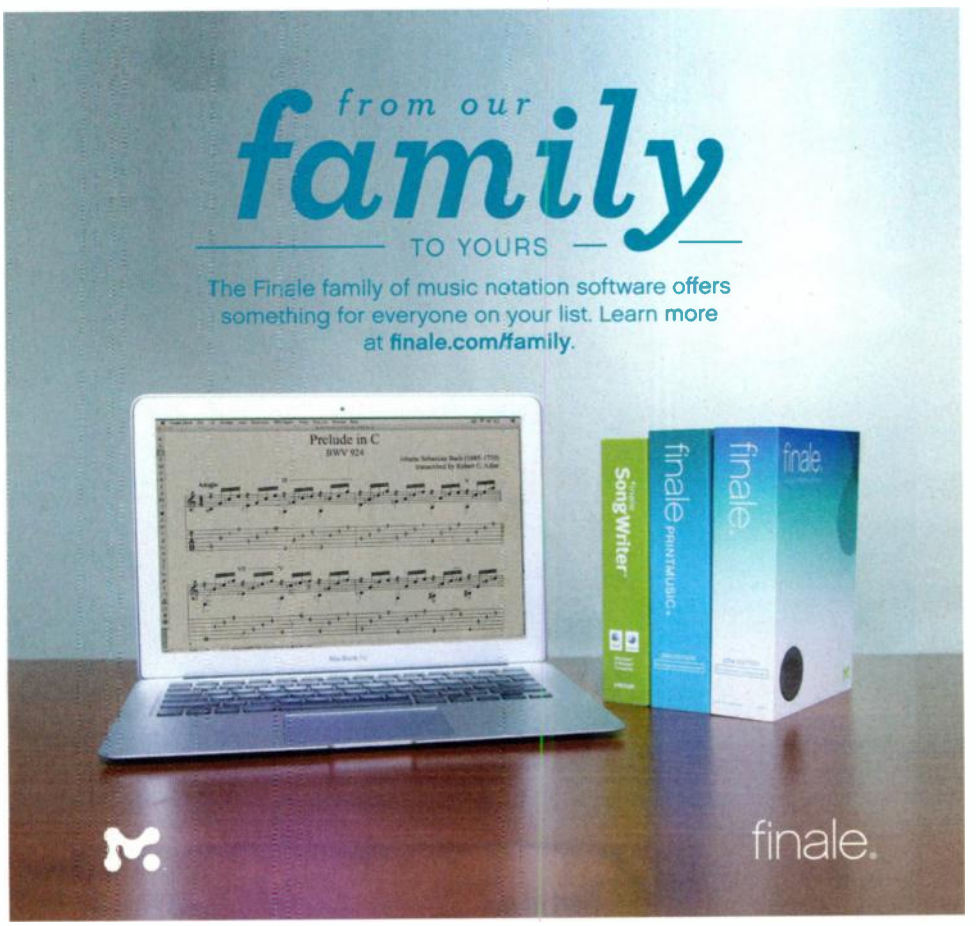
$129.95
orangetreesamples.com

FOR ICONIC Bass: Jaco, Orange Tree re-created its namesake's fretless bass setup, using the same gauge of round-wound strings and recording with a DI, as was Pastorius' preference. The library loads into Native Instruments Kontakt (2.0 or later) and offers a choice of neck, middle, and bridge picking positions. Round-robin cycling and an Auto-play feature keep the tonal differences in line by randomly choosing adjacent positions in between.

Pastorius' unique vibrato, slides, harmonics, ghosted, and X-notes are all accounted for. Equally remarkable is the depth of expression the set affords without getting into keyswitches or MIDI CC maneuvers; the stuff that animates Iconic Bass is, with few exceptions, under your fingertips as you play. The C just below the instrument's low D triggers hyper-realistic vibrato samples, with stronger velocities increasing the intensity. A halfstep above the vibrato trigger, you can mute the currently played note and trigger a sample of a left-hand slap to damp the string. By default, a sustain pedal triggers realistic slide samples, up or down between notes.

Three basic control areas—Performance, Mapping, and Tone—let you shape the overall response and sound of the instrument. The adjustments for legato performance are noteworthy, with lower Threshold settings restricting the instrument to a monophonic, legato performance if notes aren't played simultaneously. You can further shape the instrument's tone using the tasty amp and cabinet impulse responses along with controls for blending the IR with the direct sample.

Iconic Bass: Jaco is the most faithful sample-based instrument I've seen for re-creating Jaco's style of fretless playing: The tone of the instrument—from the woody, bridge-pickup attack to the syrupy, neck-position legato maneuvers—is all there. Check out the online demo files: I'm confident you'll be as convinced as I am. ■



World Radio History

Ringing Out Stage Monitors

World Radio History

Maximize gain before feedback and improve the sound of your P.A. system by following these simple steps

STEVE LA CERRA

One of the most difficult aspects of performing live is the monitor mix—especially when you're in a working band who runs their own P.A., or when you're the engineer in a small venue. Whether monitors are being mixed from front of house or from a separate monitor desk, there are plenty ways to improve the quality of your mixes, reduce feedback, and have a more pleasant show. This month we'll concentrate on wedge monitors; we'll look at in-ears in the future.

MONITOR SIGNAL FLOW

A monitor system provides easy communication between the monitor engineer and musicians; separate mixes between house and stage systems, with individual mixes for each musician; and high gain before feedback in the monitors so that the monitor level can be raised above the volume of the band.

Figure 1 on page 70 shows a simplified signal-flow diagram of audio passing through a mixer channel; the circles with arrows represent trim controls or faders. (Think of these as audio "valves," as I explain below.) Monitor mixes should be generated using pre-fader sends from the mixing console. This is a critical detail because it means that the monitor mixes will not change when the faders are adjusted for the main "house" mix. Note the position of the pre-fader send (3) relative to the main channel fader (4). If you use a post-fader send from the console (5), then every time a vocal fader is adjusted for the house mix, the vocal level in the monitors will also change. This is very distracting to performers and "ties" their monitor mixes to the house mix—defeating your intent in the first place. If you are having trouble understanding this scenario, think of signal flow as water, with each fader as a valve. If you shut the valve at position 4 (Main Channel Fader), water is stopped from flowing at position 5 (the post-fader send).

THE MICROPHONE FACTOR

To stack the odds in your favor for a better monitor mix, pay attention to the pickup pattern of the vocal microphone(s). Omnidirectional microphones accept sound from all directions, so in general these are a no-no for vocals on stage. Pickup patterns used most often for live vocal mics are cardioid, hypercardioid, and supercardioid. Learn which pattern each mic employs so that

World Radio History

you can place the stage monitors accordingly.

Take a look at figure 2, which shows a vocalist and the monitor position for a cardioid microphone. A cardioid pattern is most effective at rejecting sound that comes from directly behind the mic, also known as 180 degrees off-axis. That's the spot where you want to place a stage wedge, because the mic will reject sound coming from that direction, whereas your ears will not. I often see two wedges placed on either side of a singer's mic stand without regard to the mic's pattern, but a cardioid mic is more prone to feedback when monitors are placed in this configuration because even though a cardioid mic rejects some sound from the sides, it still picks up a fair amount.

If we substitute a supercardioid or hypercardioid pattern microphone, we need to move the monitor(s) to a different location from the one we used for a cardioid mic.

Figure 3 on page 72 shows the supercardioid pattern with optimum monitor placement. The front of the mic is at 0 degrees. Note that the areas of maximum rejection for this pattern are roughly 120 degrees off-axis on either side. If you look carefully, you'll see a small lobe at the back of the supercardioid pattern, which indicates that the mic will accept some sound from the rear. When using a supercardioid mic, if you place a single monitor at the rear of the mic (i.e. directly in front of the performer where you'd place the monitor for a cardioid mic), you are inviting feedback. For those reasons, supercardioid vocal mics are more conducive to configuring two monitors, one on either side of the performer. If for whatever reason you don't need a second monitor, place one monitor into the pattern's null on either side, not directly behind the microphone. The maximum points of rejection for a hypercardioid mic are more like 105 and 255 degrees off-axis; place the wedges accordingly.

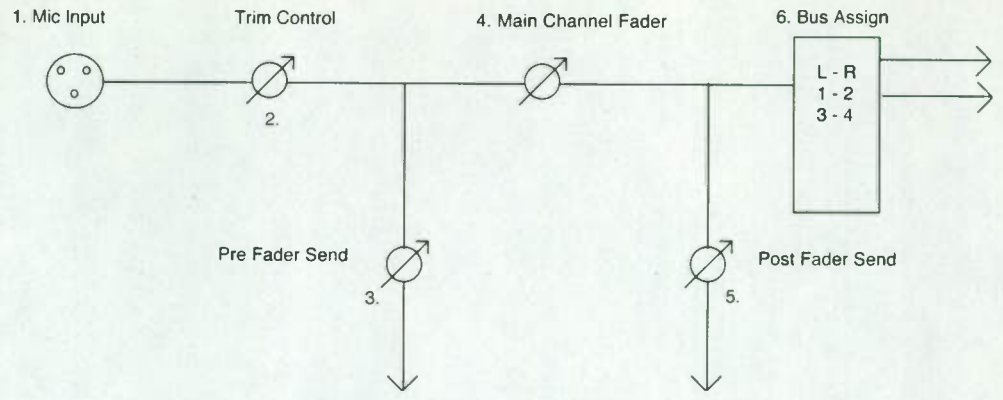


Fig. 1. A simplified signal flow through the channel of a mixing console. Note the location of the pre-fader send relative to the main channel fader.

RECOMMENDED LOUDSPEAKER LOCATIONS FOR CARDIOID MICROPHONES

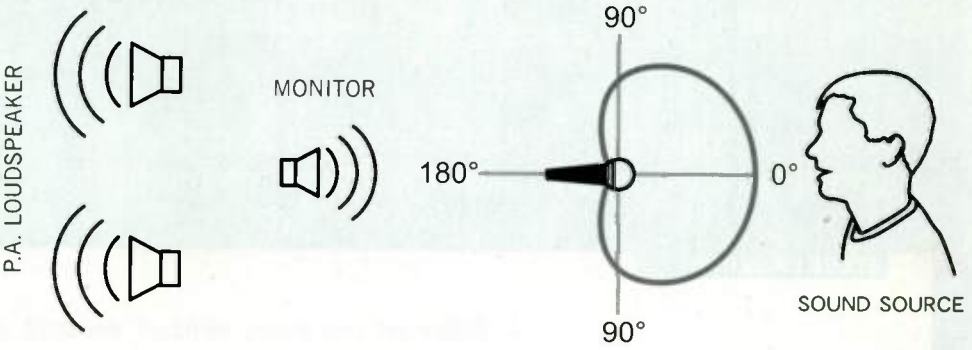


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Fig. 2. Avoiding pickup of unwanted sound sources: Place the microphone so that unwanted sound sources, such as monitors and loudspeakers, are directly behind it. To minimize unwanted feedback and endure optimum rejection of unwanted sound, always test microphone placement before a performance.

GAIN, FEEDBACK, AND EQ

Now we can turn our attention to tuning or "ringing out" the monitors, in order to maximize volume before feedback occurs, which basically means pushing gain until feedback occurs, then using EQ to reduce the troublesome frequencies until you achieve an ideal balance with the P.A. system.

We know that one of the goals of a monitor system is high gain before feedback. In the old days, this concept was paramount, almost to the point where the sound quality of the monitor didn't matter. As long as it was loud, the talent would be happy. Fortunately, times have changed: Microphones are better, and so are monitors. Musicians have become conscious of their stage volume and their hearing. But feedback is still a possibility, so use the technique of ringing out a monitor to reduce feedback while being able to make the monitor loud.

It's almost a rule that there should be a 31-band, "third octave" graphic EQ patched between the send output and power amplifier input for a wedge monitor mix. In the old days, engineers would have a rack full of 31-band EQs: one for every monitor mix on stage. A monitor send from the mixing desk would be patched into a graphic EQ; output from the graphic EQ would be patched into a power amp, which would then feed a monitor, or possibly a pair of monitors; see Figure 4 on page 74. A club hosting national acts would usually be able to supply eight monitor mixes, which required eight graphic EQs and (at least) eight power amps. You didn't really have to worry about being cold during the winter while mixing monitors in a club, because the processing rack would throw enough heat for you to toast marshmallows.

Why not use the channel EQ to fix monitor problems? There are many reasons. Let's say the monitors are being mixed from the front-of-house desk. You don't want to hack away at the EQ on a vocal channel to fix the ringing while at the same time making the vocal sound weird to the audience. This idea also assumes that the monitor sends are tapped from the channel after the EQ—but it is very possible (in fact, likely) that the pre-fader sends are also pre-EQ, in which case the EQ does not affect the send anyway. (Check the manual to be sure.) When monitors are mixed from a separate console, you probably still don't want to hack away at the EQ on a channel because the result may sound odd to the rest of the band in their monitors. Channel EQ is not really the right tool for EQing monitors, anyway: The bands in a graphic EQ are relatively narrow, disturbing as little of the surrounding frequencies as possible, but the bands in a channel EQ tend to be broad and more gentle, in particular, on the low- and high-frequency bands.

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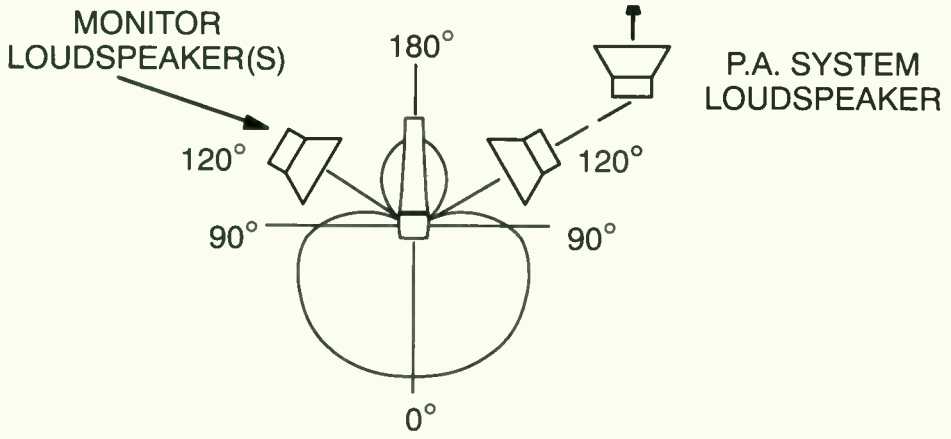


Fig. 3. Supercardioid pattern with optimum monitor placement. The front of the mic is at 0 degrees; the areas of maximum rejection for this pattern are roughly 120 degrees off-axis on either side. Note the small lobe at the back of the supercardioid pattern, which indicates that the mic accepts some sound from the rear.

EQ 101: The Graphic Equalizer

BY STEVE LA CERRA

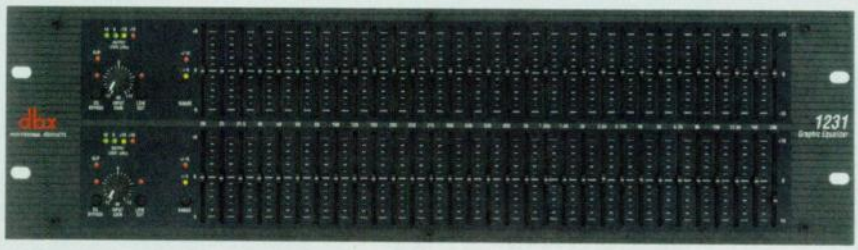
The type of EQ most often used in monitor systems is graphic EQ—specifically, 31-band graphic EQ. This type of EQ has 31 boost/cut sliders, each tuned to a specific frequency. When referring to bands, "third-octave" means you have control over three frequency bands per octave. The frequencies for a 31-band, third-octave EQ are usually set as follows: 20, 25, 31.5, 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, and 800 Hz; 1k, 1.25k, 1.6k, 2k, 2.5k, 3.15k, 4k, 5k, 6.3k, 8k, 10k, 12.5k, 18k, and 20 kHz. It is not a coincidence that most spectrum analyzers have bargraph meters at exactly the same frequencies (which have been determined through years of audio research). Manufacturers generally agree on the frequencies for ease of use.

The good news about using a graphic EQ is that you get a lot of frequency bands. The bad news is that each frequency is fixed and you cannot retune any of them. For example: What if you have feedback at a frequency of 450 Hz? You don't have a boost/cut control at 450 Hz, so you'll have to play around with the controls at 400 and 500 Hz to compensate. Each control's bandwidth is usually wide enough that you will be able to "get in the cracks" between frequencies, but if that does not work you may need to use a parametric EQ (see sidebar on page 74).

Additional controls on a graphic EQ include:

- Gain: allows you to boost or cut the overall signal level AFTER you have applied EQ
- Range: allows you to set the maximum boost or cut for the sliders. Usually you have a choice between 6 or 12dB range — meaning that the maximum boost/cut is either +/-6 dB or +/-12 dB.
- HPF: Highpass filter, allows you to remove very low unwanted frequencies that you might not hear but that might be causing your power amps to overwork.

Graphic EQs get their name from the fact that once you have set the various sliders, their positions display the EQ curve you have created.



Nowadays, EQ processing takes many forms: Most digital mixers feature either a graphic EQ on every output, or several graphic or parametric EQs that can be soft-patched across the sends of your choice before they leave the console. These built-in EQs greatly reduce the amount of hardware, wiring, and space dedicated to monitor world. Regardless of whether you are using hardware or software processing, whether you are mixing monitors from the front-of-house console or a dedicated monitor console, the process is almost always the same. (Exceptions include certain network-capable digital mixers that enable you to physically stand on stage behind the mic while you are also adjusting the EQ using an iPad or possibly even an iPhone for remote control.) You'll probably need to go through this process for every performer's wedge mix, certainly for every performer who sings and has his vocal mic in his personal wedge. If a performer's monitor does not include his own vocal mic or the vocal mic of another band member, there's likely less need to ring out the monitor—but be aware that on very loud stages, drum monitors can also benefit from the procedure, to help avoid feedback from kick drum and toms.

LET THE RINGING BEGIN

Pick a mix to work with and set all of the sliders on the graphic EQ for that specific mix to "0" (flat). (The EQ on the microphone channel can be set flat, but as I explained earlier, this may not make any difference.) Stand at the microphone position on stage and speak into it. While you are doing this, have the person who is running the mixing board slowly (and I mean slowly) raise the level of your voice in that monitor, and only that monitor. (If you're smart, wear hearing protection while you do this.) As the level of your voice gets louder, you will begin to hear ringing, indicating the onset of feedback. That's when you stop increasing the volume of the monitor. At this point your job is to identify the frequency that's starting to ring. Experienced monitor engineers can do this with frightening accuracy, but if you

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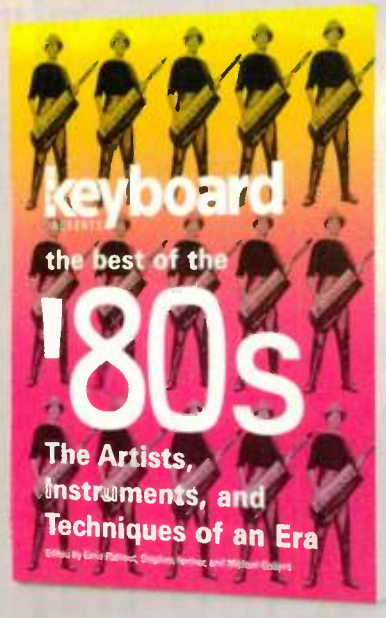

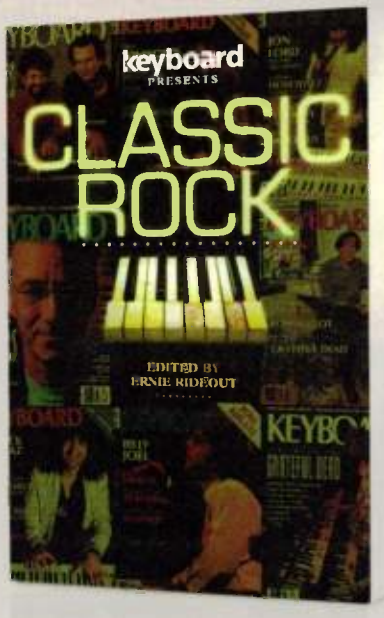

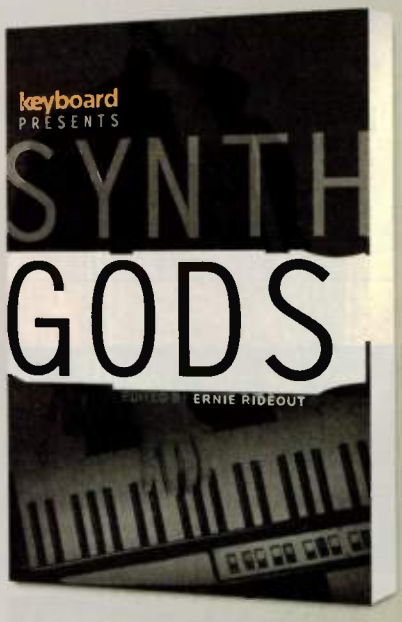

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Crash Course

Fixing a DAW that wants to call it quits

BY MICHAEL COOPER

Of all the potential problems that can put the brakes on production, a frequently crashing DAW is the ultimate showstopper. Fortunately, you can get your session back on track by using the solutions outlined in this article. I'll cite the Mac and Digital Performer (DP) techniques in my examples, but the following tips can also be adapted for use with troubleshooting other DAWs.

Fig. 1. To disable all third-party plug-ins in DP, open the Audio Plug-ins preference pane in Digital Performer's Preferences window and select Safe in the Plug-in Sets drop-down menu.

TAKE A LOAD OFF

In DP, type Shift-Y to open the Audio Performance window. If Audio Performance shows its CPU meters spiking during playback, go to Setup>Configure Audio System>Configure Hardware Driver and select a higher Buffer Size setting, if possible. Check your RAM usage, too: Go to the Mac's Utilities folder and open Activity Monitor. Click on System Memory in Activity Monitor to see how much spare RAM you have. If you're running on empty, record virtual instruments currently in use to new audio tracks and then delete the instrument tracks to free up more RAM.

REPAIR PERMISSIONS

If DP has CPU resources and RAM to spare but is still going AWOL, repair Mac permissions. Open Disk Utility, select your current boot drive and then click on the Repair Disk Permissions button.

REPAIR YOUR HARD DRIVES

If repairing Mac permissions didn't get your DAW back on the job, repair in turn each hard drive used for the current production. These include your boot drive and any disks containing audio files or sample libraries. Open Disk Utility, select a drive and click on Repair Disk. Keep in mind that Disk Utility may not be able to repair a badly damaged hard drive. If problems persist, try duplicating your entire project (including all audio files) to another hard drive. If the duplicated project doesn't exhibit any problems, the hard drive that's home to the original copy is probably damaged beyond repair and should be replaced.

TRASH AND START ANEW

Another potential fix is to trash the preferences (go to Home folder>Library>Preferences>com.motu.DigitalPerformer.plist) and cache files (all files inside the com.motu.DigitalPerformer folder at Home folder>Library>Caches); these files will generate fresh copies when you open DP the next time. After doing your garbage run, open a new project (one containing no audio) and disable all plug-ins except the stock set in DP's Preferences window: Select the Audio Plug-ins preference pane, then select Safe in the Plug-in Sets dropdown menu (see Figure 1). Put DP's transport through its paces (press play, stop, rewind, and so on). If the blank new project with stock plug-in set and refreshed cache and prefs doesn't crash, the project that's crashing probably has corrupt audio files, a corrupt project document, or third-party plug-in conflicts.

VET YOUR PLUG-INS

To determine if a plug-in may be causing trouble for the project that crashes, restore your plug-ins to active duty one at a time (by checking their checkboxes in the Audio Plug-ins preference pane) until DP crashes again. You can disable any offending plug-in in the Audio Plug-ins preference pane or pull it from your Plug-ins folder.

If none of your plug-ins causes DP to crash, you probably have a corrupt project document or one or more corrupt audio files. You can rule out corrupt audio files by *temporarily* placing your project's Audio Files and Analysis Files folders in the Trash. (Don't empty the Trash!) Reboot your misbehaving project and put DP's transport through its paces again. If DP still crashes, the audio files are all okay and the project document is probably corrupt. Your best recourse at this point is to use a backup copy of the project that you made before trouble began. You did back up your project, right? ■

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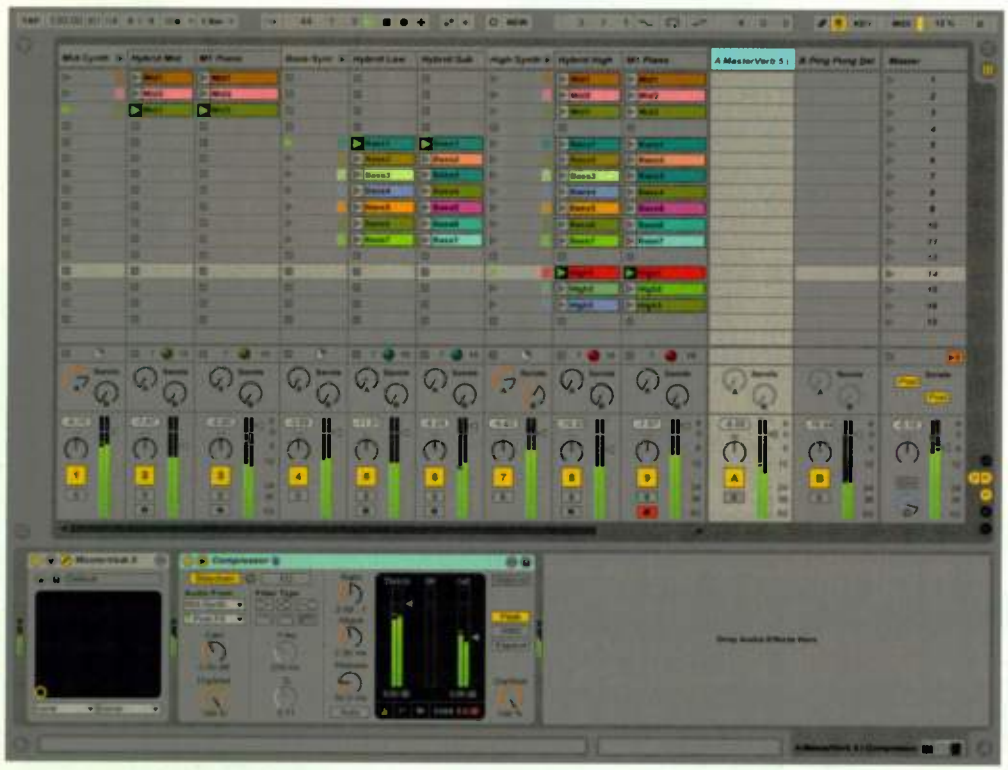
Layering Synths for Big-Room EDM Tracks

Creating similar patches in several track groups will help you build a huge sound

BY MARKKUS ROVITO

If you listen to big-name EDM tracks from Calvin Harris, Eric Prydz, Zedd, or many other progressive- and Swedish-house producers, you've probably heard a lot of enormous-sounding synth chords that seem to span the whole frequency range. Usually those are actually stacks of 6-10 tracks that you can build one layer at a time and group together in your DAW for flexible processing.



Here are all six tracks in three track groups acting as one. You'll have ample opportunites throughout your compostion to drop different layers in and out to change the energy level.

Here's how to do it: Start by creating three track groups with two tracks each in your DAW. Then follow these simple steps.

MIDRANGE GROUP

Part 1: M1 piano. The classic Korg M1 piano and its imitations have been popping up in dance music for literally decades now. You'll find an M1-style piano in almost any rompler synth or in many sample collections. (For a reference, check out the chorus of Madonna's dance hit "Vogue.")

Part 2: Sawtooth synth. Use any synth with multiple sawtooth oscillators, such as Lennar Digital Sylenth1, Air Hybrid, Reason's Thor, or many of the other available products. With an initialized patch, make two sawtooth oscillators with subtle Detune of about 3-5 cents, and pitch one of the oscillators down by one octave (see Figure 1). The synth should sound something like the lead chords in the Canadian electronic group MSKTRKRFT's song "Easy Love" or Van Halen's rock opus "Jump."

Fig 1. The oscillators in Air Hybrid for the Midrange synth sound.

Quick Tip: Processing

To help give you that "big-room" club sound, put your best available large-hall reverb on an effects send and then dial it in for your Mid-range and High-end groups. Following the reverb, add a compressor with a sidechain triggered by one of the Mid-range group tracks, which will ease off on the reverb until the notes are finished playing, making it sound cleaner (see main screenshot above). Finally, a bit of a delay or ping-pong delay applied to the High-end group will add a nice, subtle echo.

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BASS GROUP

Part 1: Sawtooth bass synth. For this, just copy the instance of the midrange sawtooth synth above and paste it into this track. Then roll down the cutoff of a lowpass filter to taste—somewhere around 40% to 60%, to lower the tone of the synth.

Part 2: Sub bass. Using the same plug-in as your sawtooth synth, make a simple 1-oscillator monophonic patch with a lowpass filter at around 30% to 40%. For fun, experiment with oscillator shape, unison, and detune settings (See Figure 2).

HIGH-END GROUP

Part 1: Detuned high sawtooth synth. Using the same synth as before or a new one for variety, create two sawtooth or super-saw oscillators, this time with Detune settings cranked up to 12-24 cents, or even higher if you like. Pitch up one of the oscillators by one octave. Then on a third oscillator, add noticeable, but not overpowering, white noise (See Figure 3). If you wish, add some light lowpass filtering to take the edge off of the noise.

Part 2: Pitched-up M1. Duplicate the M1 piano from the Midrange group and pitch it up by two octaves (24 semitones).

COMPOSITION

Starting with one of your Midrange tracks, record a chord progression, and when you're happy with it, copy the MIDI notes to the other Midrange track. Then, to thicken up the M1 Piano part, duplicate it twice, pitching down one dupe by an octave and pitching up the other dupe by an octave. Also, add an EQ to the M1 Piano and use it to brighten up the top end.

Moving on to the monophonic sub bass, record a bass line. You could simply stick with root notes played in the same rhythm as the chord progression, but it sounds better to record several loops worth of bass beyond just root notes. Keep some of those loops in the same rhythm as the chord progression, but with others, create some counterpoint using different bass rhythms. When you're finished, copy all those MIDI parts to your sawtooth bass synth track.

For the High-End group, it works to copy over all the parts from both the Midrange and Bass groups and sprinkle them into your arrangement as you wish. Also, try some additional single-note and chord variations for the High-End parts and copy them to both group tracks. ■

Fig. 2. For the monophonic sub bass, try different unison settings for voices, detune, etc.

Fig. 3. The three-oscillator High-End synth sound in Air Hybrid, with the third one adding white noise.

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Sam Stauff records his acoustic guitar and vocal for the latest Wess Meets West release. Two Audio-Technica AT4050 microphones are set to figure-eight, placed head to head and crossed at 90 degrees.

PHOTOS: JUSTIN BAKER

Capture Acoustic Guitar and Vocals with the Blumlein Technique

Use stereo miking to capture a realistic soundstage and control room ambience

BY STEVE LA CERRA

Steve La Cerra is an independent audio engineer based in NY. In addition to being an Electronic Musician *contributor, he mixes front-of-house for Blue Öyster Cult and teaches audio at Mercy College Dobbs Ferry campus.*

Way back in the June 2013 issue of *Electronic Musician*, we examined a variety of stereo microphone techniques, one of which was Blumlein stereo. This technique employs two matching figure-eight microphones arranged as a *coincident pair*—meaning that they are placed as closely together as possible, with their diaphragms crossed at an angle of 90 degrees. As shownin Figure 1, neither microphone is "on axis" to the sound source; they are both 45 degrees off-axis, but since their patterns overlap in the middle, we still get a strong center image. Blumlein technique provides a realistic soundstage, with the amount of room ambience dictated by the distance between the microphones and the source. Somewhere along the way, engineers adapted Blumlein stereo to solve a very persistent issue typically encountered when recording a person who is singing and playing the acoustic guitar at the same time.

SOLVING THE BALANCE PROBLEM

Let's suppose we're recording a musician who is playing the acoustic guitar and singing at the same time. We'd probably place one microphone on the guitar, use another for the vocal, and record each mic to a separate track. Later we could balance the two tracks in a finished mix, perhaps adding delay or reverb to one track or the other. There are problems with this arrangement, mostly due to the physical proximity of the singer's mouth and the guitar. First, even with cardioid or hypercardioid microphones, it's very difficult to control leakage. There will often be a fair amount of acoustic guitar in the vocal mic and vice versa. This means that when you mix, it will be tough to make the vocal louder or add an effect to it without influencing the sound of the guitar. For example, if you add delay to the vocal mic, you

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may hear delay on the guitar as well. If you raise the level of the guitar track, you'll probably hear the vocal get louder too.

The other issue we encounter is phase cancellation. If we place a mic at the vocalist's mouth and a second microphone in front of the guitar, the mics are separated by roughly one to three feet. This distance creates a time delay of 1 to 3 milliseconds between the mics, resulting in a perfect storm that yields a flange when the second mic is mixed with the first. It usually sounds awful, but we can literally twist the Blumein technique into a solution.

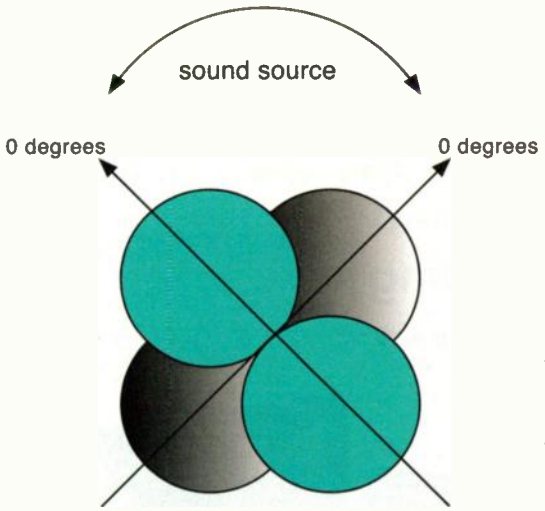
Take a look at our opening image, which shows artist Sam Stauff recording his vocal and acoustic guitar for "I Will Break You" from the next Wess Meets West release. The mic placement is an adaptation of the Blumlein pair: The front of the vocal microphone is aimed toward Sam's mouth, and the front of the guitar microphone is aimed toward the area of the guitar were the neck meets the body. So far this configuration isn't much different from using typical cardioid pattern mics.

However the Blumlein configuration enables us to exploit the figure-eight pattern and reduce leakage to low levels that can't be achieved when using other pickup patterns. The guitar is sitting in the "null" of the vocal mic's figure-eight pattern, and is rejected from that mic. If we make level or EQ changes to the vocal mic, the guitar is minimally affected. On the flip side, the guitar mic is placed so that its null point is facing the vocal—rejecting it. This isolation provides us with far more control over each sound when mixing.

PHASE COHERENCE

One of the most important benefits of this technique is that it takes advantage the fact that coincident microphones yield little (if any) phase cancellation. The diaphragms of the mics in a coincident pair are very close together (almost in the same physical location), so sounds arriving from any direction reach both microphones essentially at the same time. Why do you care? Because time delay between two microphones capturing the same sound produces phase cancellation—and phase cancellation results in timbral changes or a flange-type of sound. When we use the Blumlein arrangement, even if there is some guitar leaking into the vocal mic, mixing the two mics (or tracks) together will not cause phase cancellation.

The amount of leakage at the null of a figure-eight mic depends upon the integrity of the microphone's figure-eight pattern, and will vary with brand and model. Mics possessing a more symmetrical figure-eight pattern provide greater rejection on the sides (at 90 and 270 degrees off-axis). If there is leakage, then yes, raising the vocal track might make the guitar a bit louder, but it's less of a problem because it's not destructive. Note that the Audio-Technica AT4050 mics used on Sam for the Wess Meets West session are set to figure-eight, and are side-address (see Figure 2). (Meaning that the side is really the front. Got that?)



Blumlein Stereo: Two figure-eight mics crossed at 90 degrees. The source is 45 degrees off-axis to the front of both mics

Fig. 1. Diagram of Blumlein configuration. Note that the two microphones are 45 degrees off-axis to the source, but since the patterns overlap in the middle, we still get a strong center image.

Fig. 2. A close-up of Stauff singing, miked with an adapted Blumlein technique.

Since you've been paying close attention, you're now saying, "Ah, but what about sound hitting the back of the microphones?" It is true that the figure-eight pattern captures as much from the back as it does from the front, but it's not really a problem. The rear of the vocal mic is pointing toward the floor but is not capturing much, because this mic is close to the performer's mouth and the mic preamp gain is adjusted for the vocal, not the relatively quiet reflections bouncing off the floor. Also, we're going to make sure the floor is carpeted.

The rear of the guitar mic is aimed at the ceiling. Preamp gain for this mic is optimized for sound hitting the front of the mic (the guitar), not what is bouncing off the ceiling (relatively low-level reflected sound).

If possible, record in a room with a relatively high ceiling and/or one that has absorptive properies. The results sound very natural and allow quite a bit of control when it comes time to mix. You and your artist will be very happy. ■

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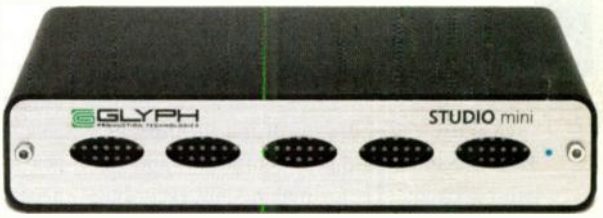

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World Radio History

Embracing Limitations

It's not what you have, but what you do with it.

BY GINO ROBAIR

Talent over tools—that's my mantra.

JANE RICHEY

While we spend a lot of ink in *Electronic Musician* highlighting new products and the latest technologies for making and recording music, it's not because we think the tools are more important than the work itself: It's one thing to know that there is new gear available to accomplish specific things you may want to do, but it's another to put in the work and fully realize your ideas.

Yet, many musicians and budding recording engineers focus solely on the "new" and "updated," usually to their creative peril; the thrill of having the latest features is a great source of procrastination. As we fill our iPads and computers with new apps and instruments, or our Euroracks with new modules, how many of us can say that we put in the time to become virtuosic on any one of them?

One reason for this distraction is that we have an embarrassment of riches. It's remarkable that, while hardware and software instruments have gotten much more complex over the past four decades, prices have fallen, giving us the opportunity to explore a wider variety of products. Unfortunately, that also has led us into permanent "demo mode," where we merely learn a product's top level, easy-access features until the next update or new release comes along. Some people move on to the next hot item before they even touch the exotic features that attracted them to the product in the first place.

This is a complaint I've often heard from instrument designers and manufacturers over the years: Many musically useful functions can now be implemented, in terms of gestural input and parameter control, thanks to modern materials and powerful, small microcontrollers. But how many users take the time to learn them, let alone master them? Often these forward-looking design elements aren't cheap to build, and it only makes sense to include them if you can charge enough to justify it. The difficulty is that today's consumer expects things to be low-cost or free.

Ultimately, musical innovation and artistry don't come from the manufacturing and development side, but from the artists: It's all about how you approach the potential of your gear and find ways to express *your own* ideas, not necessarily the ones imposed by the developer.

CHALLENGE = GROWTH

What I find fascinating is that it's not necessarily a product's feature set that can inspire us most but, rather, its limitations.

I was lucky enough to learn this lesson early. One of my first assignments in the Intro to Electronic Music course at the University of Redlands was to create a work for tape using the available tools of the studio at the time: two 4-track reel-to-reel decks and three synths—an EML ElectroComp Model 200, a Serge modular, and an EMS VCS3 "Putney." (I know, right!) The limitation? You weren't allowed to use the DKI Cricklewood keyboard. (It didn't work well, anyway.) This was a brilliant learning experience, as it forced me to explore studio techniques I wouldn't have otherwise tried, forever changing how I work—even in the modern, digital studio.

Such self-imposed limitations remain a fruitful way to bolster creativity no matter what you're doing. But many times, the most important limitation is keeping your instrument or recording system as is until you know it intimately.

For example, a colleague of mine has a studio configured around a 1/2" multitrack tape machine and a Mac running an, admittedly, outdated DAW. Yet he makes a great living recording high-quality music. How can he do that on technology from the previous century? To begin with, he has a decent mic collection and analog mixer, a few outboard preamps and processors—none of which is collectable or high-end—and a great-sounding tracking room and tuned control room for mixing. Instead of constantly chasing updates, he puts his time and money into maintenance and upkeep, not to mention a well-built, well-maintained set of basic instruments for his clients to use—guitars and basses, amps and cabinets, classic keyboards, and drums and cymbals. What he doesn't have, he rents.

Most importantly, he relies on tried-and-true miking and mixing techniques to get killer sounds. Sure, he can't ReWire a Reason session into the mix or run the latest plug-in emulations of vintage compressors, but his clients don't come to him for that. They want to make a great-sounding record quickly and without hassle, and at a reasonable price, in a real tracking room. They don't look under the desk to see which OS he's running or which interface he's using.

If you consider the studio an instrument, he is a virtuoso on his. But that's not to say he's a luddite or ignores modern trends; he has an iPad and enjoys using it to make music. It's just that he has prioritized his work over his toolkit in order to maximize the amount of high-level work he can do. And although it may seem a little extreme, it's a lesson worth considering when we find ourselves spending more time updating our systems than using them to make music. ■

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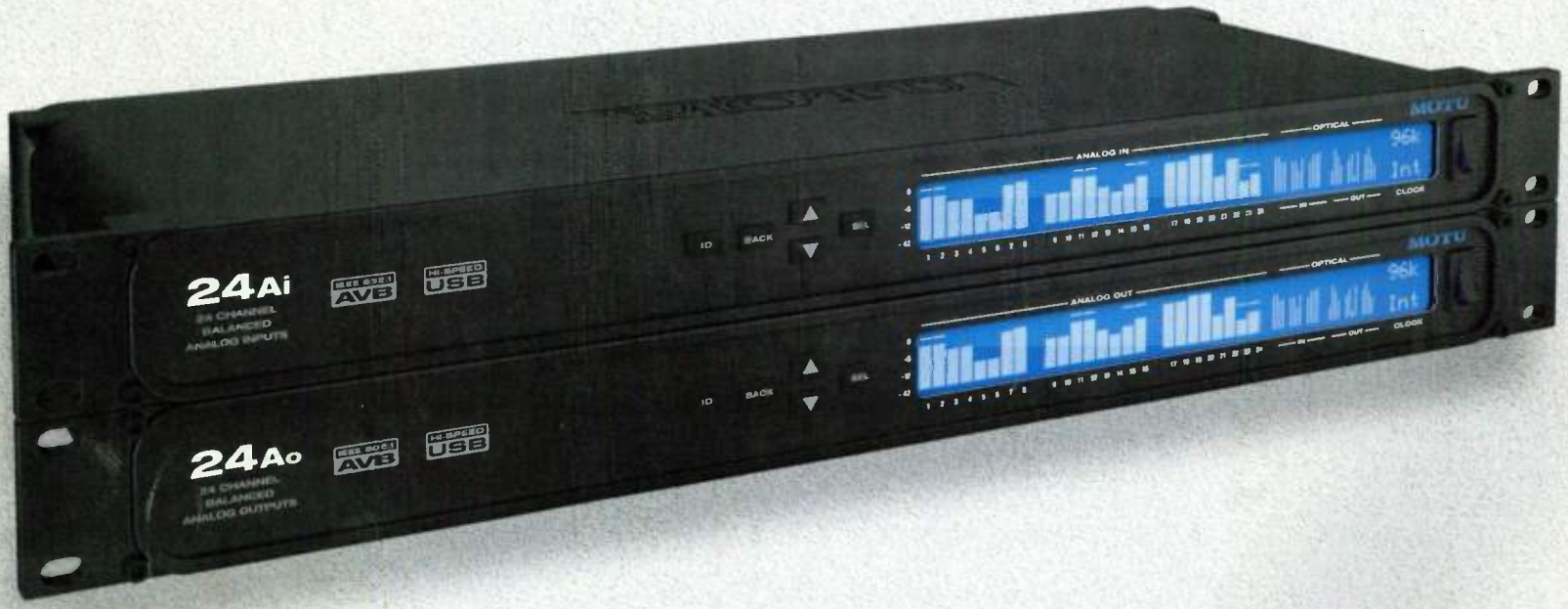

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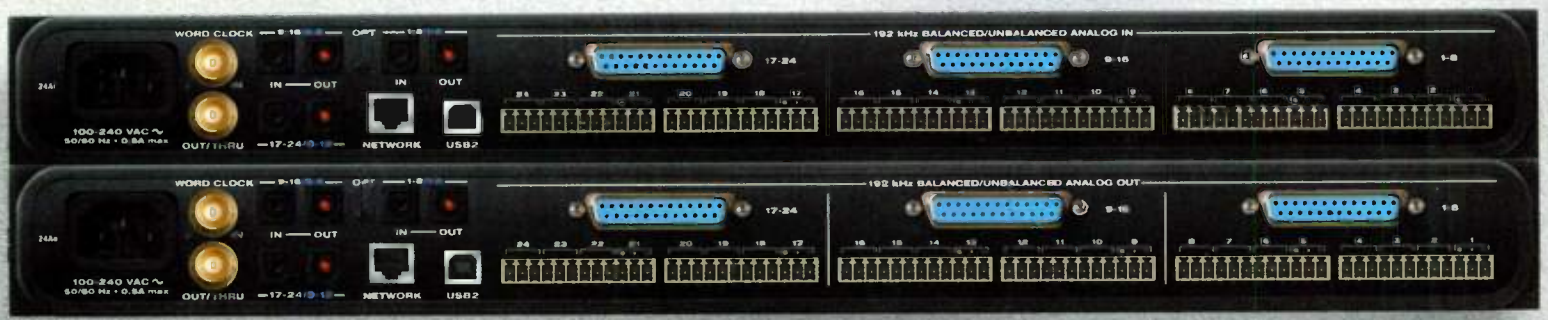

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