REVIEWED: ABLETON/CYCLING 74 MAX FOR LIVE | PRESONUS STUDIO ONE | AND MORE

FEBRUARY 2010

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ELECTRONIC MUSICIAN

ROUNDUP: OFF-THE-WALL SOUND LIBRARIES

NEW USES FOR OLD COMPUTERS

GET YOUR TRACKS READY FOR A MIX ENGINEER

Vampire Weekend

BACK FOR A SECOND BITE

REMIXING CLINIC WITH VINCENT DI PASQUALE

A PENTON MEDIA PUBLICATION

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em ELECTRONIC MUSICIAN

FEBRUARY 2010 VOL. 26, NO. 2

FEATURES

COVER STORY:

32 BACK FOR A SECOND BITE

After a smash debut CD, Vampire Weekend has returned with a new album, *Contra*, which features more of the band's unique blend of indie rock with Afro-Pop and other world influences. *EM* talks to Rostam Batmanglij, the band's keyboardist, producer and engineer, about the recording of the new CD, his production techniques, the studios they used and more.

26 SOUNDS UNUSUAL

Sometimes you want way-out sounds that go far beyond traditional instruments and popular styles. *EM* goes for a dip in the pool of off-the-wall sound libraries and comes up with 10 extraordinary finds.

40 REMIX CLINIC

What are the key techniques for doing a remix? Find out in this story, written by Vincent di Pasquale, a multi-Platinum producer and remixer whose discography includes songs by Madonna, Nelly Furtado and Mariah Carey. He offers tips for getting a remix started, finding tempos, creating basslines, mixing and mastering, and much more.

50 PRIMED FOR MIXDOWN

If you're planning to send your tracks to a mix engineer, it's important to hand over files that are well-recorded, well-organized and free of clipping and digital artifacts. Even if you're mixing the project yourself, you'll benefit from the tips and advice found here.

REVIEWS

COLUMNS

DEPARTMENTS

EM (ISSN 0884-4720) is published monthly by Penton Media, Inc., 9800 Metcalf Ave., Overland Park, KS 66212 (www.penton.com). This is Volume 26, Issue 2, February 2010. One-year (12 issues) subscription is $24. Canada is $30. All other international is $50. Prices subject to change. Periodicals postage paid at Shawnee Mission, KS, and additional mailing offices. Canadian GST #129597951. Canadian Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 40612608. Canadian return address: Bleuchip International, P.O. Box 25542, London, ON N6C 6B2. POSTMASTER: Send address changes to EM, P.O. Box 15605, North Hollywood, CA 91615.

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Mix It Up

I've had a home studio for many years, and I have recorded a lot of different kinds of material including song demos, CDs and music for commercials and TV. But one thing I've never done is a remix (in the modern sense of taking a track or two from the original mix and adding new backing tracks, changing tempo, etc.). I've watched as remixing has become a common way to interpret a song or offer a variation on it, and the more I've learned about it, the more intrigued I've become.

Still, I never had much of a sense for how remixers approach their projects and the specific techniques they use. So I was thrilled when *EM* got the opportunity to have Vincent di Pasquale write the story "Remix Clinic" for us (see p. 40). He's not only an expert remixer (he's produced tracks for a long list of major artists), but he's also adept at teaching remixing, and he has a DVD series out on the subject (*The Art of the Remix* from faderpro.com). In addition to describing numerous techniques in the story, di Pasquale also made available to us video excerpts from those DVDs to post on emusician.com. If you've been curious to get involved in remixing, you'll want to check out this article and the online videos.

MARLA COHEN

On a related subject, I should mention that emusician.com now features a collection of the best material from our late lamented sister magazine *Remix*. You can find tons of gear reviews, how-to articles and excellent artist interviews from the print and online versions of *Remix* on *EM*'s site. Just look for the link on the emusician.com home page.

If you happened to notice that the photo of Vampire Weekend on the cover of this issue looks like it was shot during the warm weather, you're not imagining things. The back story is that their new album, *Contra*, was originally scheduled for release in the early fall, and we were planning to run the story in October to coincide with that. To that end, we did the interview and photo shoot in the late summer. But afterward, the band decided they wanted to spend more time tweaking the production, and they delayed the release of the album until this January. As a result, we pushed back the story until now.

Vampire Weekend is a fascinating band that seemed to come out of nowhere in early 2008 with their popular self-titled debut album. In reality, they worked pretty hard at building up a following and creating an industry buzz before they were able to attract the attention of record labels and eventually sign a deal. During that interview last summer, I spoke at length with the band's guitarist/keyboardist/engineer/producer Rostam Batmanglij and got a tour of the studio in Brooklyn, N.Y., where they did much of the recording for *Contra*. (You can watch a video of the tour at emusician.com.) The album was certainly worth the wait, and I hope you'll find the interview to have been, too (see p. 32).

Another feature story this month that I'd like to tout is "Sounds Unusual," a roundup of 10 out-of-the-ordinary sound libraries, written by *EM* editors Geary Yelton and Len Sasso (see p. 26). If you want samples and loops that are unique and often downright bizarre (in a good way, of course), check out the recommendations in this story.

And, of course, we also have our usual blend of gear reviews, tips and techniques, columns and more. Enjoy the issue.

Mike Levine
Editor

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Download of the Month

Tobor Experiment Berna

By Len Sasso

If you've ever wondered what it was like in the experimental and mostly academic electronic-music studios of the 1950s through the early 1960s, Tobor Experiment (gleetchplug.com) gives you a hands-on look with Berna (Mac, $16 approximate). Berna is not a synth and it's not a workstation—it's a lab with four varispeed tape machines and a variety of sound generators and processors designed in the image (though not necessarily emulating the sound) of the gear of that era. You can record Berna's output in one of the tape machines and export the result as an AIFF file. Aside from being entirely virtual, the only concessions to modern technology are MIDI access to Berna's knobs and sliders, which makes Berna authentically hands-on, and the matrix patching system, which is faster and easier than patching cables (virtual or real).

ONLINE BONUS MATERIAL

The tape decks operate independently from the rest of the lab, and they make quick work of the laborious processes of through-zero flanging and making phased-tape-loop music. Load a couple decks with the same audio clip, slightly offset the speed of one of the decks and hit the synched-start button (see **Web Clip 1**). You can use MIDI or the mouse to modulate parameters such as tape speed in real time (see **Web Clip 2**).

Instead of multiwaveform oscillators, you get a bank of nine sine-wave oscillators and a submixer for dialing in additive waveforms. A 10th sine-wave oscillator with a built-in LFO, a noise generator and a pulse-wave oscillator with variable pulse-width (an expensive rarity at the time) round out the sound sources. For processing, you'll find filters; ring, frequency and low-frequency amplitude modulation; a Tone Burst generator (gate effect); and delay and reverb. You patch these modules together and tweak their controls to create sounds in true old-school fashion (see **Web Clip 3**). Try it and you'll be hooked—it's great fun.

OPTION-CLICK

By David Battino

Coffee Shop Jam

New tricks for your gear

For years, *Vintage Synthesizers* author Mark Vail and I have run electronic jam sessions. Usually we haul out so much gear that setup takes ages and we end up playing each instrument superficially, so I suggested meeting at a coffee shop and bringing only battery-powered instruments that would fit in our pockets.

It was unbelievably fun. I brought a Korg Kaossilator and an iPod touch loaded with soft synths, and Vail brought a Korg miniKP and a Dave Smith Instruments Mopho. We mixed through Belkin RockStar line mixers and recorded into an Edirol R-09 and Zoom H2, monitoring on headphones.

Mark Vail powers his Dave Smith Instruments Mopho with 12 rechargeable AA batteries (total voltage about 14.4 volts when freshly charged); the Mopho runs on 13 V to 15 V.

The Mopho is too big for a pocket, but I cut Vail some slack because he rigged up a battery pack for it (see image to the right). Because actual battery voltages vary, adding a regulator circuit would be even better (see bit.ly/7RPLFM).

—David Battino, Batmosphere.com

This Month on Emusician.com

VAMPIRE WEEKEND VIDEO

Rostam Batmanglij of Vampire Weekend takes you on a tour of Treefort Studio, where the band recorded much of their latest CD, *Contra*.

BACK TO REMIXING BASICS

Check out video excerpts from the educational course *The Art of the Remix* (courtesy faderpro.com). Vincent di Pasquale takes you through each technique step by step.

THIS MONTH'S SOUNDTRACK

By Mike Levine

These releases include a diverse range of production techniques and a wide variety of styles including Delta blues, spacey soundscapes, vintage disco, soul-influenced rock and electronic pop.

KEITH HERRY

ERIC BIBB: *BOOKER'S GUITAR* **(TELARC, 2010)**
An album of stellar Delta blues from Bibb. The title cut was inspired by an opportunity he had to play the National guitar that once belonged to the legendary bluesman Booker "Bukka" White.

SEVEN FIELDS

THE SEVEN FIELDS OF APHELION: *PERIPHERY* **(GRAVEFACE, 2010)**
A disc of ethereal, piano-and-synth soundscapes by the mysteriously named musician, who is also a member of the band Black Moth Super Rainbow.

COURTESY REPHLEKTOR INCORPORATED

JOHN MORALES: *THE M&M MIXES* **(BBE, 2010)**
Remix pioneer Morales, along with the late Sergio Munzibai (the other "M" in M&M), was responsible for many underground disco and Salsoul mixes that reverberated in the '80s club scene in New York. Check out some vintage examples here.

TOMEKA: *THE BLACK HOOD* **(RHYME CARTEL RECORDS, 2010)**

COURTESY RHYME CARTEL RECORDS

Vocalist Tomeka Williams debuts with an impressive set, produced by Sir Mix-a-Lot. that weaves between rock, pop, soul, funk and more. Powerful vocals, strong lyrics and solid production make this a compelling listen.

LINDSTRØM & CHRISTABELLE: *REAL LIFE IS NO COOL* **(FEEDELITY, 2010)**
Funky, processed, electronic-pop featuring tracks from Hans-Peter Lindstrøm and vocals by Christabelle (aka Solale). Lindstrøm terms their collaboration as "structured chaos." Whatever it is, it works.

KIM HJORTHOY

ONLINE BONUS MATERIAL

Go to the Online Bonus Material section of emusician.com to hear music from all of these releases.

EM CAST: GORDON RAPHAEL

An illuminating chat with the man who produced The Strokes' *Is This It*, which was recently chosen as Album of the Decade by *New Musical Express* and the number-two Album of the Decade by *Rolling Stone*.

GORDON RAPHAEL

UNUSUAL SOUND LIBRARIES

Don't just read about them—listen to 'em! Numerous Web Clips for each sound library discussed await your eager ears online.

By Len Sasso

MOTU ULTRALITE-MK3 HYBRID

MOTU (motu.com) releases its first hybrid FireWire and USB 2 audio interface. The UltraLite-mk3 Hybrid ($549.99) comes in a half-rack-sized desktop or rackmount enclosure. For I/O, you get two mic/instrument inputs, eight analog inputs, 10 analog outputs, stereo headphones out and stereo S/PDIF. The included CueMix FX (Mac/Win) software provides graphical mixing and EQ, along with full-screen real-time FFT, spectrogram and oscilloscope display. The UltraLite-mk3 is equally at home onstage; after programming the onboard mixer from your computer, it functions as a stand-alone mixer with all mixing and effects parameters adjustable from the front panel. Built-in no-latency hardware DSP effects include MOTU's Classic Reverb, 7-band parametric EQ and dual-mode compression (conventional or leveling). In your studio, use it with your DAW or the included AudioDesk workstation.

ANY WAY YOU WANT IT

BLUE MICROPHONES YETI

Blue Microphones (bluemic.com) releases the first THX-certified microphone. The Yeti ($149.99) USB condenser mic builds on the technology featured in Blue's Snowball. It adds an amplified headphone output with volume control for zero-latency monitoring, a mic-gain control and a Mute button. Most importantly, its triple-capsule array accommodates four pattern modes: omni, cardioid, stereo and bidirectional. The Yeti features driverless installation on both Mac and PC, and it comes with an adjustable desktop stand. It is designed for diverse applications including recording podcasts and interviews and capturing your band's instruments and vocals onstage or in the studio.

THX A LOT

CELEMONY MELODYNE EDITOR

IT'S THE BLOB

Celemony (celemony.com) has released the long-awaited upgrade of Melodyne (Mac/Win, $349) editor with what promises to be jaw-dropping new technology, Direct Note Access (DNA). The program comes in stand-alone and AU, VST and RTAS plug-in versions, and it offers iLok activation or challenge/response authorization on two computers. The big news, of course, is the ability to unravel polyphonic material so as to adjust the pitch, amplitude, timing, formants and various nuances of the constituent parts. The stand-alone version can also export a MIDI file matching a polyphonic part, which is useful for scoring and part doubling. As with previous versions, you also get modes for reshaping rhythmic and monophonic material. Beyond part repair and modification, DNA offers unusual and fascinating sound-design possibilities (see "Sound Design Workshop" on p. 56 of this issue).

Sound Advice

Propellerhead Software Soul School

Propellerhead Software's (propellerheads.se) latest ReFill, Soul School ($99, download), brings vintage soul licks to Reason and Record. The collection focuses on three centers of soul music in the '60s and '70s: Detroit, Memphis and Cincinnati. All the material was culled from drums, bass, guitar and horn ensembles recorded live without overdubs. Individual parts were then converted to REX loops to allow pitch and time manipulation in Reason's Dr.Rex and NN-XT instruments, as well as on Record audio tracks. You get four grooves from each school in tempos ranging from 80 bpm to 145 bpm. Each groove is played in three major or minor keys: Bb, D and F. You'll find additional percussion loops and instrument patches befitting most grooves along with a separate Soul Keys ReFill of keyboard instrument patches for the free Reason Factory Sound Bank and Electromechanical libraries and for the premium Reason Pianos and Abbey Roads Keyboards libraries (see Web Clip 1).

Native Instruments Sonic Fiction

Native Instruments (native-instruments.com) continues its series of Kore sound libraries with Sonic Fiction ($79, download) from sound designer and avid science-fiction fan Jeremiah Savage. This 1.6GB library comprises 100 Kore instruments fashioned from natural, industrial and handcrafted mechanical sounds. The recorded sounds are combined and processed in Native Instruments Absynth 5 and Kontakt 4 and then reassembled for Kore to take full advantage of its two-dimensional morphing engine. The result is a flexible collection of otherworldly sounds suitable for beds, ambiences, tuned and untuned percussion and sound effects (see Web Clip 2). You can make full use of the library in either the free Kore Player or the full version of Kore 2.

Fixed Noise Rhythm Objekt

Fixed Noise (fixednoise.com) delivers a 4GB collection of sampled instruments especially suited for electro, R&B and urban productions. Designed by Detroit's Jimmy Edgar, Rhythm Objekt (Mac/Win, $199.99) runs on the included Native Instruments Kontakt Player 3 as well as in the full Kontakt 3. Its instruments fall into four categories. Chords & Melodic emphasizes minor chords and dark, pulsating pads. Drum Kits offers a cross-section of electronic and intimate lounge drum sounds to augment your drum tracks. Experimental takes it to the next level with wordless vocals, electronic sequences and highly processed sound effects. Loops gives you a variety of rhythmic and tonal content upon which to build, and a collection of Kontakt multis suggests nine ways to put it all together (see Web Clip 3).

Toontrack Music Electronic EZX

The latest release from Toontrack (toontrack.com) resulted from a collaboration between sound designers Richard Devine and Josh Kay and Toontrack EZX library producers Brad Bowden and Mattias Eklund. Electronic EZX ($89, download or DVD) brings you 33 kits filled with the classic, circuit-bent and resampled electronic drum sounds that lead designer Devine is especially noted for. Additional menus are filled with a large selection of popular electronic kicks and snares. The material is suitable for just about any electronic genre, including house, techno, experimental and glitch. For customization and added variation, you'll find extensive use of parallel effects processing. Electronic EZX is compatible with Toontrack's EZDrummer (Mac/Win, $179) and Superior Drummer 2 (Mac/Win, $349).

ABLETON AND CYCLING '74 MAX FOR LIVE

TO THE MAX

The much-anticipated release of Cycling 74 (cycling74.com) Max/MSP/Jitter for Ableton (ableton.com) Live has arrived. Max for Live (Mac/Win; $299, $99 for Max/MSP/Jitter 5 users) harnesses the power of Max/MSP programming for creating virtual instruments and audio and MIDI effects for Live 8.1. In Live, the plug-ins work and look similar to Live's native plug-ins, but with an expanded set of user-interface elements. Clicking on a plug-in's Edit button opens Max 5, in which you can analyze and modify the plug-in as well as build new instruments and effects from scratch. Max for Live comes with an extensive API (application programming interface) letting you manage many aspects of Live's internal operation along with ancillary hardware such as the Akai APC40 and Novation Launchpad. See Jim Aikin's full review on p. 60 of this issue.

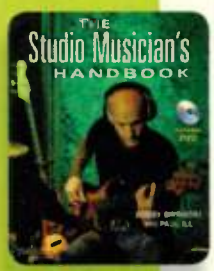
WAVES VOCAL RIDER

RIDIN' HIGH

If you have better things to do with your time than ride the faders for your lead and background vocal tracks, Waves (waves.com) has the answer. Vocal Rider (Mac/Win; $400 native, $800 TDM) takes the drudgery out of both riding the fader and drawing automation. You set the target range for the vocals relative to the rest of the mix (directed to Vocal Rider's sidechain input), and then Vocal Rider takes over, monitoring and adjusting the vocal track level as needed. Additional vocal- and music-sensitivity controls let you fine-tune Vocal Rider's impact. Unlike compression, Vocal Rider adds no coloring to the track; it rides the vocal fader and nothing more.

Get Smart

Hal Leonard *The Studio Musician's Handbook*

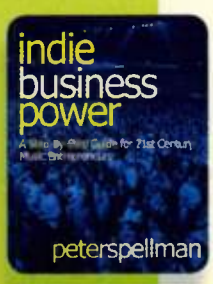


In Hal Leonard's (halleonard.com) *The Studio Musician's Handbook* ($34.99), authors Bobby Owsinski and bassist Paul III unveil the inner workings of a major studio recording session. They start by telling you how to get there: who hires, what you get paid and what skills and gear you need. They then cover session etiquette and how to deliver your best. The book includes individual session guides for guitar, bass, drums, vocals, keys, horns and strings. Interviews with influential session players and a DVD taking you inside a world-class session round out the package.

ASK Video *Cubase 5 Tutorial DVD Level 2*

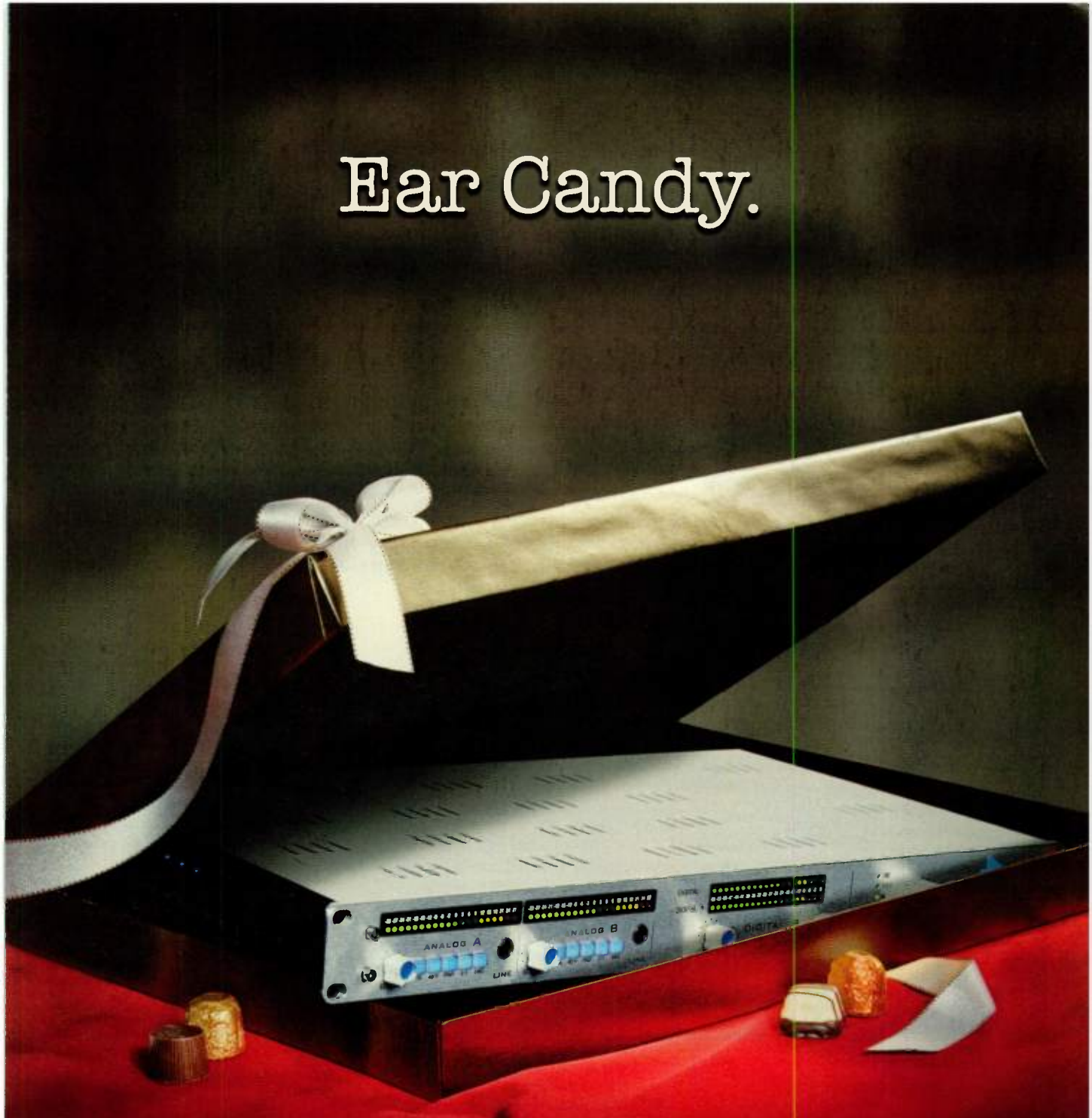
Cubase 5 Tutorial DVD Level 2 ($49.99) is the second in a four-part series from ASK Video (askvideo.com) covering Steinberg Cubase 5 from beginning to end. With 10 years of experience as a Steinberg Canada product specialist and clinician, author Steve Kostrey knows what to explain and how to make it clear. Level 2 comprises 44 videos totaling more than three hours of instruction. Topics include the Key, Drum, Audio and Score editors; mixing, routing and automation; and media access using the Media Bay and Pool. Special attention is given to getting the most from VariAudio. Although designed primarily for Cubase 5, the series is also relevant for Nuendo and Cubase versions LE, AI, SX3 and 4.

Music Business Solutions *Indie Business Power*



Director of career development at Berklee College of Music Peter Spellman reveals the opportunities and pitfalls of running your own music business in *Indie Business Power: A Step-By-Step Guide for 21st Century Music Entrepreneurs* ($19.95 e-book, $29.95 print) from his company, Music Business Solutions (mbsolutions.com). The material is divided into two sections on arranging and conducting your business. Sixteen chapters cover such diverse topics as recognizing opportunities, marketing, spotting trends and finding resources. You'll learn how to create a business plan, get financing, build a team and manage your company to success. The book concludes with a 36-page resource directory.

Ear Candy.



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Electro-Harmonix's (ehx.com) newest stompbox, the V256 vocoder ($217.50), puts full-featured vocoding at your toe tips. The V256 offers 8-band to 256-band vocoding. Nine modes with footswitch-selectable presets give instant access to a variety of vocoder techniques: robotic voices; monophonic, major and minor drones; vocal transposition; pitch follower relative to an external instrument; and pitch correction. You can use the built-in MIDI-controlled synthesizer in place of an external carrier signal. Connectivity includes a balanced XLR mic input feeding a built-in mic preamp with phantom power and gain control, a ¼-inch unbalanced instrument input, MIDI input, balanced XLR effects output and ¼-inch unbalanced instrument output. EM

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DAN MCMAHON

Giant Steps

RJD2 takes his composition and production chops to a higher level

Among underground hip-hop cognoscenti, RJD2 (né Ramble John Krohn) has been a known entity ever since he signed to New York's Definitive Jux label in 2002 and released his sample-crazy instrumental debut, *Deadringer*. That release was also notable for RJD2's convincing impression on the album's cover of a recently dumped corpse.

By Bill Murphy

The music, however, was very much alive and kicking, and it has continued to evolve along a creative arc that widened considerably with the 2007 release of *The Third Hand* (XL Recordings), when RJD2 began to move away from sampling and into full-fledged studio instrumentation, arrangement and production.

"Of course, if I was going to do my own playing and recording, I still wanted to make it sound like a sample," he says. "Everything that I love about samples usually comes from that late-'60s, early '70s era, so my general default mentality was to make it all sound old. But at the same time, I don't necessarily want to go about aping those recordings. I have synths that are from the late '70s and early '80s, and I don't have a desire to make them sound like an ARP 2600 from 1971. At a certain point, you've got to let the instrument just be what it is."

The Colossus (RJ's Electrical Connections, 2010) is his latest foray, and what immediately separates it from his past releases is the presence of some hired guns (largely on strings and horns), some guest vocalists (particularly The Neptunes' protégé Kenna and hip-hop innovator Phonte Coleman) and RJD2's own debut behind the drum kit. The album takes up many of the quirky pop sensibilities explored on *The Third Hand*, but pulls them even further apart into a spaced-out, borderline psychedelic mix where vintage synths merge seamlessly with live acoustic piano, vibraphone, glockenspiel, electric guitars and washes of unusual effects processing—some of it generated by a home-built modular synth with a foundation of components designed by Roger Arrick.

ONLINE BONUS MATERIAL

"You can hear the modular on the outro to 'Tin Flower,'" RJD2 says, citing the envelope filter that he ran the song's drum tracks through to get a wobbly, jarringly off-kilter flanging sound. Along with the modular, he uses a Yamaha CS-80 (the main synth on "Games You Can Win" featuring Kenna; see **Web Clip 1**), an ARP Axxe (on "Let There Be Horns") and a Yamaha SY-2, which stands out with the Axxe on "Crumbs Off the Table," with singer Aaron Livingston.

"To me, the SY-2 is a severely underrated synth," RJD2 says. "It's an early Yamaha that has Aftertouch, so even though it's based on preset sounds, it has a real dynamic to it that you don't find on those 70s synths."

He's no keyboard virtuoso, but RJD2's ear for chord voicings and composition, and his technical bent for all things electronic, puts him in his own class. Few producers can squeeze such richly nuanced beats out of an Akai MPC2000XL, and although RJD2 had largely abandoned the unit in favor of teaching himself to play drums, he rediscovered it while sketching out ideas for the new album.

"In a weird way, I fell back in love with it," he says. "I mean, to use it now is enormously labor-intensive [Laughs]. In the three songs that are essentially sample-based, they're all broken down to single-note hits—every single sample. I knew that was the farthest I could take it, and for a long time I was disillusioned because the payoff seemed to be lopsided. But stepping back into it, I remembered you get these other artifacts out of it. You get to borrow someone's engineered sound from a different era in time, but you're also forced to be very objective and not get lost in the minutiae of a song. The natural tendency of the MPC is to push you to step back and see the forest." em

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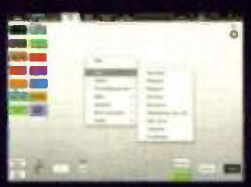

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Brothers in Audio

Lymbyc Systym's sibling connection has no geographic bounds

If you saw Mike and Jared Bell at a party, you could easily tell them apart. Mike has shaggy hair and is the techno whiz. He's an "Ableton master," raised on Radiohead and Boards of Canada, who records spoons clanking on metal bowls just for fun. Jared is the "creative master" and songwriter with close-cropped hair who devises the song structures.

By John Brandon

Together they form Lymbyc Systym, an instrumental rock band that incorporates electronic elements and production methods. While the band's latest work—*Shutter Release* (Mush Records, 2009)—is a Vulcan mind-meld between siblings, it was birthed while the Bells were living in separate states.

"I would write a rough melodic framework, not always sure where it would go," says Jared, explaining their remote production approach. "I would decide where I wanted harmonies or ideas, but nothing really ended up where it started. Then Mike would take the idea and chop them up into bits."

During this recording process, Jared says, the brothers exchanged demos and samples at least 20 times, improving on each others' loops and beats, getting them ready for the final recording sessions at Uniform Recording in Philadelphia. Interestingly, while this process was often random and chaotic, it all came together at Uniform in late 2009 when they recorded guitars and live drums.

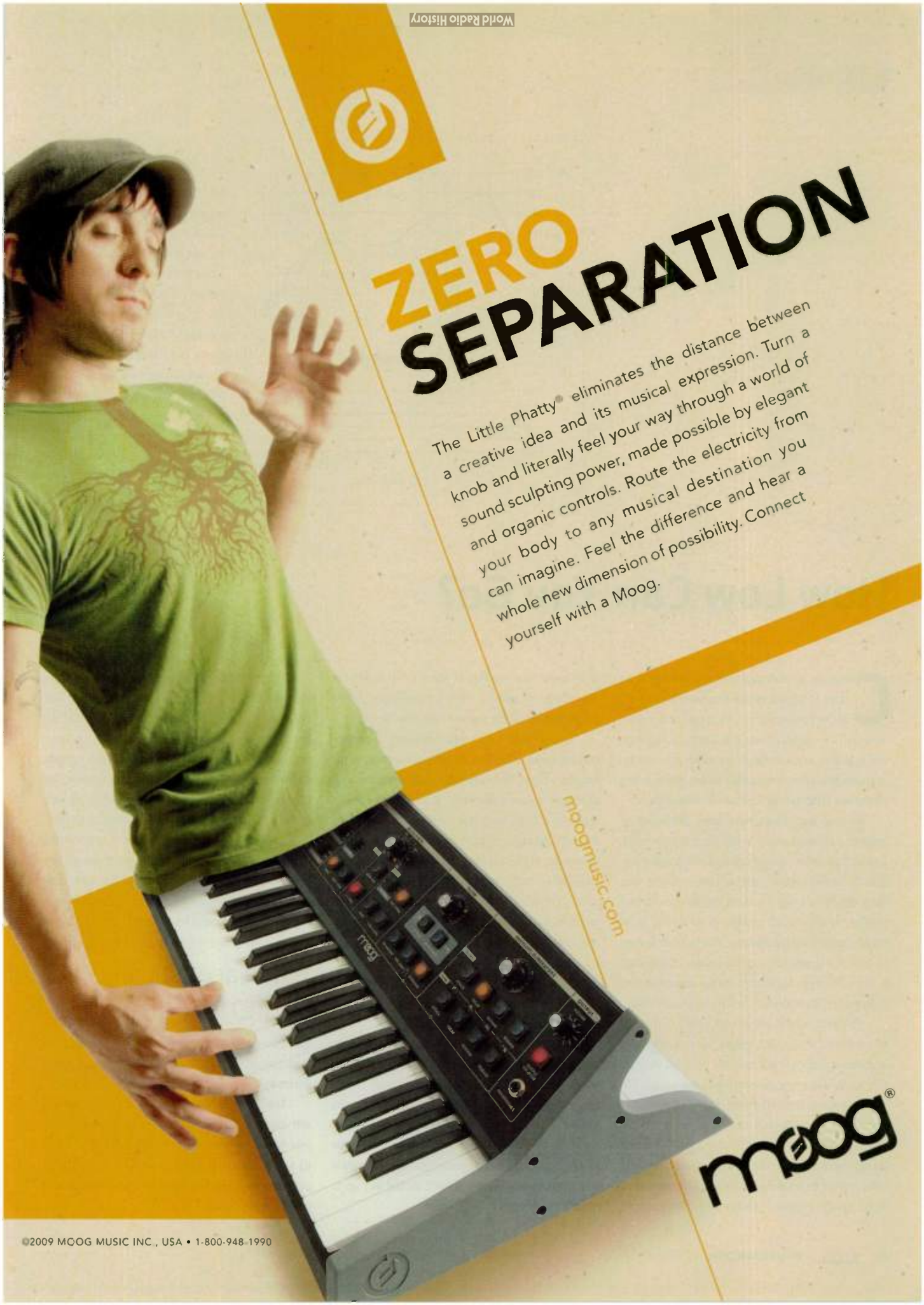
"I can tell you everything on every song—even the mechanics of it, which sound machine we used, which sample we used," Mike says. "The original fragments that became the demos that became the album were basically rhythmic skeletons. My brother would make melodic fragments with kick and snare or electronic drum patterns, and then we'd build and build. It was crazy because the programming had evolved so much over the last two years, I cannot even find the original fragments."

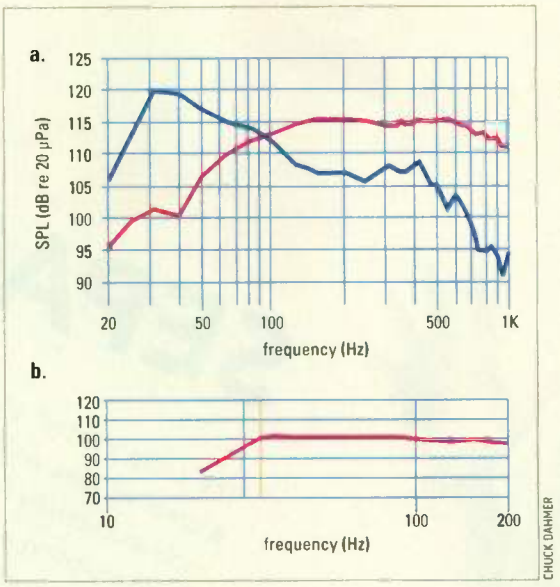
ONLINE BONUS MATERIAL

Mike says this recording was like the Madlib process often used on hip-hop albums and named after the oft-imitated artist for adding layers of sounds in a mish-mash pattern. On "Bedroom Anthem," for example, there's a grinding, oscillating sound that Mike created using a Roland Juno-106 patched through an old preamp that barely worked (see Web Clip 1). On several loops, he used the bit-reduction feature in Native Instruments Reaktor to create a more organic tone, crunching the digital bits until they sounded like airplane noise or a broken police alarm. On the fantastic "Contemporary Art," there's another chaotic, droning alarm sound—an otherworldly buzz (see Web Clip 2). For most tracks, he would make adjustments to filters on the fly.

Mike says the most common problem with modern instrumental music is that artists will try to emulate what they think is cool—a loop from Four Tet, for example. The artist accomplishes the goal, but the music ends up sounding too imitative and dull. Jared helped keep the band's sound original by employing a diverse group of instruments, including a Wurlitzer 200A, a Hohner Clavinet D6, a Korg microKorg synth (to "add texture"), an old banjo and even a nylon-stringed guitar.

The brothers are definitely eclectic. They formed Lymbyc Systym (named after the emotional center of the brain and also because it looked cool) in 2001, and every project—*Shutter Release* is their second full-length album and fourth including EPs—has been entirely instrumental, save for a few playground screams (on "Teddy") and a droning spoken word or two. Jared says they may try vocal recording at some point, and think they might use a remote process similar to the one they used on this album, although they now both live in New York and even occasionally make loops in the same room. em





>> **FIG. 1:** In the upper graph (a), the frequency response (20 to 1 kHz) of a 5.25-inch driver is shown in red and the response of the H-PAS vent is shown in blue. The lower graph (b) shows the frequency response (10 Hz to 200 Hz) of the combined system, which is perfectly flat down to 32 Hz. The -3dB point is 28 Hz, and the -6dB point is 26 Hz—measurements that are heretofore unheard of from such a small driver.

How Low Can You Go?

A new acoustic technology lets small speakers get down | By Scott Wilkinson

Common wisdom says that speakers must be large to reproduce low frequencies—after all, as the frequency drops, the speaker must move more air. This requires a driver with a larger surface area, which, in turn, requires a larger enclosure. Also, low frequencies require more amplifier power, which is why subwoofers often include their own dedicated amps.

Various techniques have been developed to enhance a speaker's ability to reproduce the low range, such as bass reflex (vented cabinet) and acoustic suspension (sealed cabinet), but both are imperfect solutions. Recently, a new approach was announced that promises to allow small speakers to go low like never before. Dubbed Hybrid Pressure Acceleration System (H-PAS), it was originally conceived some 30 years ago by Philip Clements, founder of a speaker company called Solus Audio/Clements Loudspeakers (solusaudio.com).

The basic idea is surprisingly simple, relying on no electronics whatsoever. Instead, low frequencies are amplified acoustically in a specially designed chamber that opens into the space outside the speaker cabinet. The system combines elements of horn loading, transmission-line loading, bass reflex and acoustic suspension—hence *Hybrid* in the name. The chamber's frequency response actually increases as the driver's response decreases at lower frequencies, resulting in a flat overall response from 70 Hz down to a frequency that depends on the specific driver being used (see **Fig. 1**). Above 70 Hz, H-PAS has little effect—the sound is much more influenced by the drivers themselves, the crossover and other factors.

Another benefit is increased efficiency. In conventional speakers, the efficiency generally declines as the frequency drops, requiring more power from the amp to achieve a given output level. In a full-range speaker driven by a single amp, this cannibalizes power from the mids and highs, resulting in a boomy, veiled sound. By contrast, H-PAS balances the acoustic and electrical impedance of the system to increase the efficiency of the speaker's electrical-to-acoustic conversion, requiring less power for the bass and thus making more power available for the mids and highs.

With greater efficiency comes more sound output with less power, as well as a wider dynamic range. Also, the driver's movement is minimized, which naturally results in lower distortion. H-PAS also includes an acoustic bass trap, which works the same way as bass traps in concert halls and recording studios to reduce low-bass distortion. Finally, this technology is completely scalable to accommodate tiny speakers with 2-inch drivers all the way up to large pro systems.

I first heard about, and heard, H-PAS at a consumer-electronics trade show in 2009, and I was impressed. The demo comprised CDs played through a pair of tall but slender prototype speakers with two 4.5-inch woofers and a 1-inch dome tweeter on top and a big port on the bottom with a scrap of paper placed inside. The bass extension on *Pictures at an Exhibition* played on a cathedral organ was astonishing. According to Clements, H-PAS allows those little 4.5-inch drivers to reach all the way down to 31 Hz (-3 dB at 28 Hz), which was entirely believable based on what I heard. The low notes definitely fluttered the paper in the port, but it didn't fly out; rather, it flopped around inside, demonstrating that the air was moving in concert with the driver. The drivers themselves were moving little, which helped lower the distortion far more than you'd expect from such small drivers trying to reproduce such low frequencies.

Low frequencies are amplified acoustically in a specially designed chamber.

The first commercially available H-PAS speakers will appear in the consumer-electronics market this year, but I have no doubt the technology will soon find its way into studio monitors as well. I'm excited by its potential, and I eagerly await its implementation in professional products. em

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Sounds Unusual

Make your tracks stand out with off-the-wall sample libraries

By Geary Yelton and Len Sasso

Most sound libraries furnish traditional instruments and loops in various popular musical styles. Many composers and arrangers want sounds that go beyond normal expectations, however. Whether you're recording hip-hop, house, avant-garde, experimental electronic or one of any number of other genres, you may be looking for offbeat sounds that stand out from the pack. Unless you have enough time on your hands to develop your own unique timbral vocabulary, you probably rely on commercial soundware for textural fodder. Fortunately, thanks to talented sound designers who are willing to share the fruits of their labors, lots of unusual sound libraries are available to suit your needs.

By their nature, sounds that qualify as unusual can be difficult to classify and come from many sources. Some are purely electronic and may result from the efforts of a skilled synthesist with a rich imagination and a thorough understanding of different types of synthesis and effects. Others may be field recordings of found sounds, often recordings of mechanical devices or environmental ambiences that can be used in a musical context. Still others are samples of hard-to-find musical instruments that are rarely heard by most people.

ONLINE BONUS MATERIAL

Although the most popular format for loop libraries and raw samples is WAV, the most popular format for sampler content recently is Native Instruments Kontakt. Kontakt's scripting gives sampled instruments new capabilities beyond just sample playback, such as the ability to emulate performance techniques by generating MIDI data in response to how you play. Several libraries surveyed here are geared toward additional platforms, including Ueberschall Liquid Player and ReFills for Propellerhead Reason. All of them comprise 24-bit, 44.1kHz recordings of the source material—a de facto standard that offers an acceptable balance of file size and audio quality—and one supplies 16-bit files as well.

We've selected 10 of the most unusual sound libraries we could find from a broad range of soundware developers. No matter what your musical interests, we hope you'll find something here that pushes your music over the edge.

Big Fish Audio

Found Percussion ($99.95, DVD, WAV/REX2/Apple Loops)

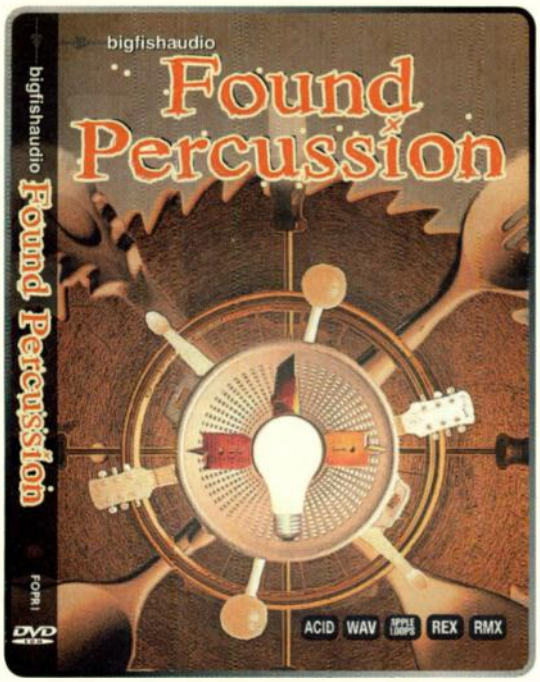
Found sounds are frequently applied as an antidote for tired percussion tracks, but they're rarely used to build them from the ground up. That's what Big Fish Audio (bigfishaudio.com) had in mind with Found Percussion, a 2.5GB collection of audio parsed into construction kits ranging from 49 bpm to 190 bpm. In addition to WAV files, you get Apple Loops and REX2 files, and the latter are easily installed as a Spectrasonics Stylus RMX user library. The sounds are not broken out as individual hits, but solo loops are provided for each sound, making it fairly easy to extract the sounds and build your own percussion kits.

The 85 construction kits are labeled by tempo and sometimes-enigmatic names, but inside, the individual loops (composite examples are also included) are named for their source: hair clipper, sandal slap, rag in water, kitchen sink and so on. Methods of exciting and distressing these found objects often vary within a loop, producing a combination of sounds that work nicely together when mapped to velocity layers of a sampler. Pulling together loops from different construction kits generally requires some groove-matching, but most DAWs now offer that (see Web Clip 1).

Bitword

Wavefront ($149, DVD, ReFill)

Wavefront, from sound designer Marc Van Bork of Bitword (bitword.com), is a Propellerhead



Big Fish Audio Found Percussion is just what it promises: percussion loops assembled from glass bottles, Styrofoam, foil plates—just about anything found sitting around the house.

Reason ReFill of sampler-based Combinators (combined devices) derived from a massive collection of multisampled analog and digital waveforms. The source material is not standard-fare acoustic instruments and vocals, but rather pads, textures, ambient sounds and effects from both field recordings and a variety of digital and analog electronic sources.

At the heart of the ReFill are roughly 1,300 Combinator patches with a similar structure: a mix of two or three multisamples in NN-19 samplers along with both send- and insert-effects processing. Those are spread across nine categories: pad, lead, bass, blip, ambient, noise, experimental, keys and hits. All the NN-19 patches are provided in categorized folders for hot-swapping in the Combinators. Collections of 36 ethereal, pulsating NN-XT sampler patches and 191 Redrum kits emphasize bent and mangled electronic percussion, giving you a toolkit for creating myriad rhythm beds to accompany the Combinators (see Web Clip 2). The off-the-rack sounds lean toward the electronic and experimental, but you can easily craft something to serve almost any purpose.

Haunted House Records

Electronic Critters (about $22, DVD, WAV)

Sound designer Stephen Haunt has pulled together a menagerie of children's toys, mutilated their innards in unspeakable electronic ways and recorded the results as Electronic Critters from Haunted House Records (hauntedhouserecords.co.uk). You get 1,000 16- and 24-bit WAV clips, 250 of which have additional DSP. The tortured toys include Tiger Electronics Furby (wordless vocals, bloops and bleeps), Playskool Major Morgan (modulated musical tones), Texas Instruments Speak & Spell (glitchy words and letters), Chicco Musical Insects (more electronic bleeps and tiny percussion), IQ Builders My Little Talking Computer (words and tonal sequences) and VTech Talk 'N Lights Radio (letters, glitches and tonal sequences).

It's easy to get lost in the novelty potential of Electronic Critters (see Web Clip 3), but a little searching reveals a lot of musically useful material, as well as interesting Foley and sound-effects fodder. Start by auditioning the DSP clips, then try applying your own radical processing to any of the clips—extreme time-stretching and pitch-shifting, granulation and resonator effects work well in this context. The collection includes 10 MP3 songs to illustrate its musical potential.

Impact Soundworks

Impact: Steel ($59, download, Kontakt/HALion/Giga)

What sounds would you expect from sampling a metal spring? If you guessed *boing*, you wouldn't be wrong, especially if you anticipated the resonant rattle afterward. Add the sounds of hitting and playing rolls on a pair of metal cylinders, striking a small metal cone, and scraping and beating on a big metal frame, and you'd have the five main patches in Impact: Steel, from the same team that created Sitar Nation: Impact Soundworks (impactsoundworks.com). The 384MB library is available only as a download, formatted either for Tascam GigaStudio or for Kontakt and Steinberg HALion.

All the sounds in this collection could probably be classified as found sounds, but Impact's imaginative sound designers got much more creative than simply hitting things and calling it a day (see Web Clip 4). The FX Patches, in particular, supply a veritable gold mine of clangorous sonorities, with three complete junk-metal ensembles that would give an Indonesian gamelan nightmares. The patch Bellowing Drone is both immense and spooky, and Buzzing Overtones makes a fantastic underpinning for dark metal ambience. All the programming is solid, with sufficient velocity-switching and round-robin sampling to avoid repetition, even when you trigger the same note repeatedly.

Loopmasters

Rise (about $30, download, WAV)

Rise, from British sound-design team Push Button Bang, starts out with noises—540 of them. A variety of bangs, crashes, whooshes, Doppler effects, seamless loops and transitional elements are fashioned into highly processed events of various lengths, and although primarily atonal, many have a good bit of tonal content. You get raw WAV files along with patches, categorized by type, for a variety of popular samplers. The collection is available separately as an Ableton Live Pack, and that version is enhanced with 560 Live Instrument and Effects racks. Both versions are distributed by Loopmasters (loopmasters.com). The sampler patches map all sounds in a category across the keyboard, whereas the Live instruments each feature a single sound with enhanced processing and performance controls.

Loopmasters Rise is a downloadble collection of noise effects from sound-design team Push Button Bang.

If you're wondering what all the noise is about, Rise was originally intended for builds, breaks and transitions to add emotional impact to dance and other rhythm-heavy genres. But that barely scratches the surface. You can also use its elements (either as-is or processed) as sound effects, as hits in electronic drum kits and to create sonic beds (see Web Clip 5).

New Atlantis Audio

Physical Therapy Volume 1: Mallet and Percussion ($19.99, download, ReFill)

Physical Therapy Volume 1: Mallet and Percussion is a ReFill for Propellerhead Reason from the sound designers at New Atlantis Audio (newatlantisaudio.com). It comprises 54 Combinators mixing physical-modeled mallet and percussion instruments, field recordings (birds, crickets and water) and evolving synthetic textures with extensive effects processing.

The library is quite flexible: You get Combinators with effects and step-sequencers crafted for each type of sound, Combinators (labeled Ensembles) that combine all three types, and individual Reason NN-19 and Redrum patches for all sound sources. Providing the source patches separately makes it a snap to remodel the Combinators with different sounds. The Combinator controls are cleverly mapped for maximum effect, and patches with an arpeggiator have a Freeze button that keeps mallet arpeggios running while letting you play the patch's pads and synths from your keyboard (see Web Clip 6).

Although the selection of field recordings is limited, the mix of those with mallets, percussion and evolving ambient textures gives Physical Therapy a tropical rainforest feel. For different atmospheres and additional leads and pads, check out New Atlantis Audio's Polar Elements ReFill ($39.98); these polar opposites are a great match.

Pulse is the second collection of sounds designed by Richard Devine and Josh Kay for Sony Creative Software.

Soniccouture

Glass / Works ($159, DVD or download, Kontakt)

Glass / Works is not a collection of found sounds—quite the contrary, it features three very hard-to-find musical instruments made of glass, collectively known as *crystallophones*. The one you've probably heard is the glass armonica invented by Benjamin Franklin. A series of glass bowls of increasing size are lined up on a rotating spindle turned by a footpedal, and the player rubs wet fingers on the rims to elicit a typically floating, ethereal tone. Soniccouture (soniccouture.com) gives you three variations from which to choose, each with two velocity levels and three round-robins.

Another musical instrument that's played with wet fingers is Le Cristal Baschet, a visually striking sound sculpture designed in 1952 by two French brothers with a knack for building odd instruments. Fifty-four chromatically tuned glass rods are attached to tuned metal blocks and use a large steel plate called the *flame* for amplification. Eleven Kontakt instruments offer a wide range of Cristal Baschet articulations ranging from percussive to sustained. You can select articulations on the fly using keyswitches, with flame parameters affecting the resonant sustain of the entire instrument (see Web Clip 7).

Avant-garde composer Harry Partch invented the third in this trio of sampled instruments in the 1950s. Cloud Chamber Bowls are made of cut sections of 12-gallon bottles (carboys) suspended from a large wooden frame. The bowls sampled for this collection were custom-made for Soniccouture. You can load either untuned or chromatically tuned versions, keyswitch between hard and soft mallets, and enable a sort of random arpeggiator called the Jammer to trigger patterns. Each note has 10 velocity levels and three round-robins. The

PHOTO: COURTESY OF TONEHAMMER.

This odd-looking instrument is Le Cristal Baschet, which Soniccouture sampled in detail for the Kontakt-compatible Glass / Works collection. Like the same library's glass armonica, this particular instrument belongs to rare-instrument specialist Thomas Bloch.

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I'm learning tunes fast with help of your Audio Chord Wizard." "It finds the exact chords to the song... perfectly." "Wow!" **"I am blown away!** The jazz/swing RealTracks stuff is amazing." **"Awesome."** "Is this cool or what?" "I'm in seventh heaven" "You won't regret it (and if you do, there's the **30 day money back guarantee**)." "I never thought I'd see the day this was possible." "I know it's been said before, but you guys are **incredible**." "This is **gonna set the world on fire!**" "I'm so stoked about how good everything sounds I can hardly stand it." "This is just killer." "Amazing, simply amazing." "[RealDrums] is really awesome sounding. Good work!" "Many kudos all around." "You never cease to **amaze** me. You got it." **"Wow and Double Wow."** "The **RealTracks** and **RealDrums** sound awesome." "Long live PG Music!" "Mind bending." "I am frankly amazed at most of the styles." 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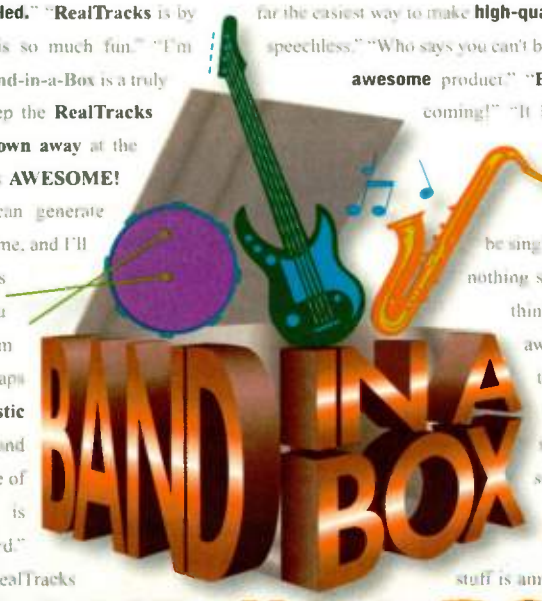
"Band-in-a-Box is an **awesome** tool for getting projects done NOW!" "The soloist feature is **phenomenal!**" "Excellent quality is a PG Music standard." "I use your program with my saxophone students. They love to play with a "real" band in the back!" "Who knew what Coltrane would sound like soloing over country music—**LOVE IT!!!**" **"Awesome software at a fantastic price!" "Band-in-a-Box, well, it's just a great program!"**



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result sounds like a cross between glass bells and slightly muffled wind chimes over a four-octave range.

Sony Creative Software

Pulse: Pure Analog Lifeforms ($39.95, CD, WAV)

Succeeding The Electronic Music Manuscript, Pulse is Richard Devine and Josh Kay's second collection of loops and samples for Sony Creative Software (sonycreativesoftware.com). Pulse supplies 545 MB of Acid-ready files in eight categories, with loops cataloged by the number of beats, the original tempo and, in a few instances, the root note. Sound sources include analog modular synths from the likes of Buchla, Cwejman, Doepfer and LiveWire Electronics, as well as a slew of soft synths, circuit-bent drum machines and field recordings, all processed with a variety of rackmount and software effects.

Working with the sounds in Pulse is a bit like getting a day pass to Devine's personal studio, with one of the world's most original sound designers supplying you with unique new timbres for your compositions. If way-out tones are what you're after, then you'll find some of the most off-the-wall sounds in the Experimental Artifacts, Micro FM Pulses and Psychic Drones folders. Other than a dozen Cloud Pads and the bass patterns in Low End Pleasure, the mostly abstract and experimental electronic sounds on this disc are like nothing you'll find elsewhere (see Web Clips 8 and 9).

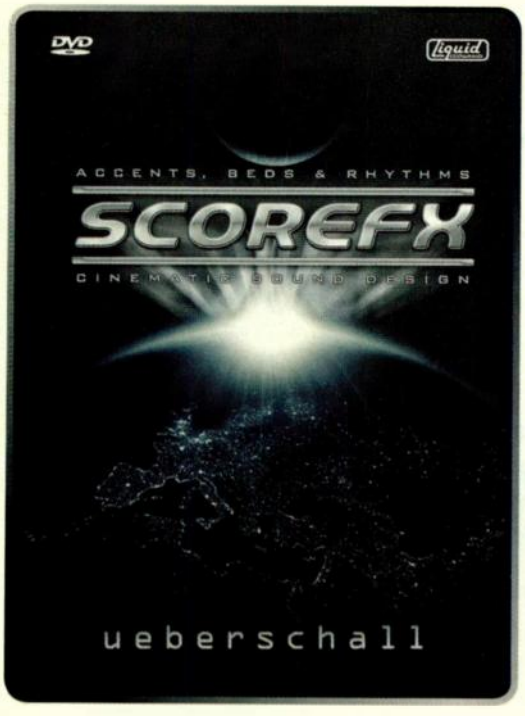
Tonehammer

Mini ($79, download, Kontakt)

When it comes to crafting unusual sound libraries, Tonehammer (tonehammer.com) maintains a position at the top of the heap. Take the Mini collection, for instance: There's something about sounds with a fast attack and brief duration that adds punch and immediacy to tracks. Mini (also called Click) delivers the largest and most creatively assembled collection of high-frequency clicking sounds we've heard yet.

All the source material in Mini came from sampling objects you wouldn't normally consider musical: breaking branches, jingling coins and screws, opening and closing a Zippo lighter, knocking marbles together, counting on an abacus, snapping belts and tape measures, cracking Styrofoam, ripping paper—even eating chips and popping bubble wrap. And that's only the beginning. The two Pixel Kits are made of sounds so short that the longest is just four samples long, and in one kit, 74 samples total just more than 8 KB (see Web Clip 10). It takes a lot of very short samples to fill up the nearly 730 MB you get with Mini.

Not all of the sounds are so fleeting in nature, though. Electric Chair, for example, produces a kind of unearthly wailing that can't be described. In Kiss, the mod wheel pitch-shifts a simple smooch into something unrecognizable. Load some of the more heavily processed samples, and you have new dimensions of alternate reality that defy explanation.



Ueberschall's Score FX furnishes a distinctive compilation of sounds intended for enhancing soundtracks, but useful for any music that calls for unusual sounds.

Ueberschall

Score FX ($199.95, DVD, Liquid Player)

Score FX is one of Ueberschall's series of Liquid Instruments (distributed by Big Fish Audio, bigfishaudio.com), which allow you to graphically pitch-shift and time-stretch samples using technology developed by Celemony for Melodyne. Liquid Instruments require installing the included Liquid Player (Mac/Win), which runs standalone or as a plug-in.

> *Working with Pulse is like getting a day pass to Devine's studio.*

Score FX's nearly 7 GB of content is divided into five categories: Accents, Beds, Construction Kits, Rhythm and Vocal Bits. Some sounds are obviously orchestral, some are purely electronic and many others effectively defy identification. Hundreds of phrases and loops are further classified by words suggesting moods they might convey.

With names such as Creepy, Disturbed, Howl, Notice Me, Panic, Piercing and Startle, Accents are probably the most unusual of the bunch. Close behind are Beds, which offer some of the same descriptors. Nineteen construction kits at tempos ranging from 83 bpm to 152 bpm are mostly groups of sound effects that fit together nicely and have names such as After the Battle, Last Day Alive and Where Are You Taking Me. The Rhythm loops are anything but traditional drum kits: Many are synthesized, and quite a few are processed ethnic percussion. Vocal Bits furnish a variety of multicultural melismata processed with effects. Virtually every sound in Score FX promises to give your tracks a distinctive edge (see Web Clip 11). If you want more, Score FX 2 should be available by the time you read this. EM

Veteran EM *editors Geary Yelton and Len Sasso are quite capable of sounding unusual on their own, but a little assistance from sound libraries never hurts.*

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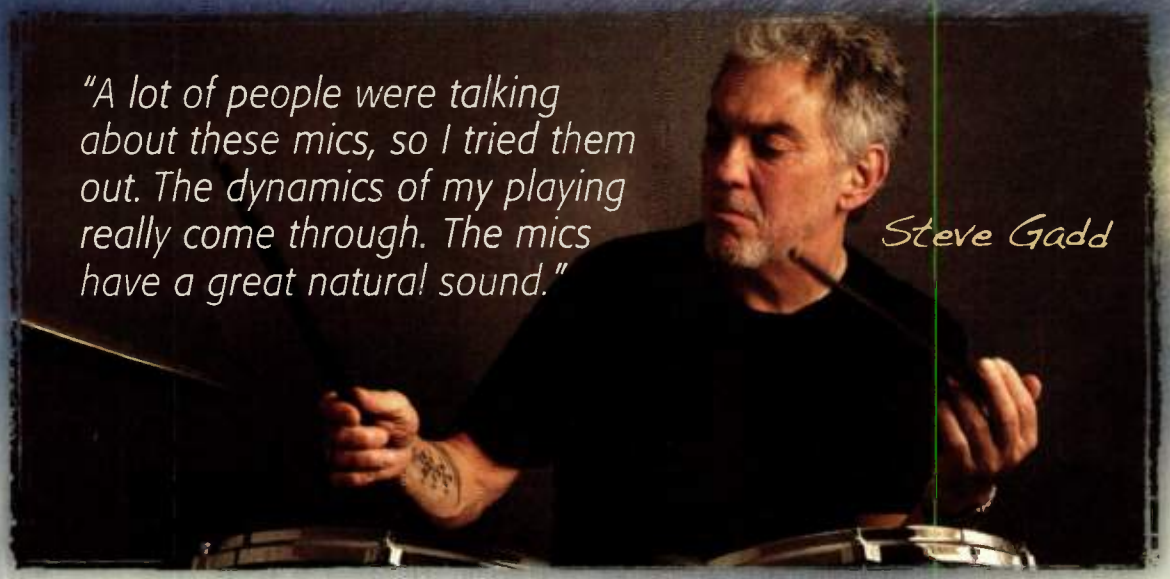

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Back for a Second Bite

Inside the recording of Vampire Weekend's new release, *Contra*

By Mike Levine

To the public at large, Vampire Weekend's ascent seemed like an overnight success story. They exploded on the national scene in 2008 with their album *Vampire Weekend* (XL Recordings), on which the four bandmembers—who started playing together in 2006 while they attended Columbia University—debuted their unique brand of pop and rock, featuring clever lyrics and a distinct Afro-pop influence.

But according to Vampire Weekend keyboardist and guitarist Rostam Batmanglij, who is also the band's producer and engineer, their story is less about overnight success than about a band that built its reputation through gigging. It was not until the band's live shows had created a great deal of buzz that the record labels came calling (see sidebar "Not-Quite-Overnight Sensation" on p. 37).

ONLINE BONUS MATERIAL

Vampire Weekend—which is fronted by lead singer/guitarist Ezra Koenig and includes bassist Chris Baio and drummer Chris Tomson in addition to Batmanglij—have just released their second album, *Contra* (XL Recordings, 2010). It was originally slated for the fall of 2009, but it got pushed back to January so the guys could have more time to perfect the production.

Like the first album, *Contra* was tracked in a number of different studios. This time around, the recording venues ranged from an apartment-based home studio to Avatar Studios, one of New York's top commercial facilities. A lot of the production took place at a studio called Treefort (see **Web Clip 1**) in the indie rock-crazed borough of Brooklyn. That setup—a relatively small, two-room project space in a drab industrial building—was the band's de facto home base for this project and where I interviewed Batmanglij about the production process, the gear they used, his musical and production background, and his side project, Discovery.

Vampire Weekend are (from left) Chris Baio, Chris Tomson, Ezra Koenig and Rostam Batmanglij

Photo: Peter Murphy

Both the first album and *Contra* were recorded in a variety of studios. Any particular reason for that?

Having different kinds of rooms and a variety of sounds is what brings the different colors to a recording.

So you did it intentionally, as a way to inject various vibes or colors into the recording rather than it just being a logistical thing?

We went to Mexico for a little tour and a kind of little break from recording. There, we recorded in this studio in Mexico City, owned by this guy Tito from the band Molotov. We recorded drums and guitars and bass to one song, "Cousins," in that studio in Mexico. It has kind of a different drum sound from anything else on the album. With the first album, that was the reason we recorded drums in that basement studio.

Tell me about that.

I don't know if you've ever seen the show *Juan's Basement*. It's our friend from college who had a basement with drums and mics set up and [Digidesign] Pro Tools, so it was real easy for us to bring the scratch tracks and start recording the drums there.

Because every studio you recorded at had Pro Tools systems, it was easy for you to go from one recording venue to the next, seamlessly.

Yes. But I actually bought [Apple] Logic and Ableton a few months ago, and I like those programs and I get why people use them. I think it's good to use all these different programs.

With a mobile laptop system, it's easier to use Logic or Live rather than carry around an interface for Pro Tools.

Yes, and I have the littlest one, the [Mbox 2] Micro, and I have the [Mbox 2] Mini, and the Digi 002. And I have an [original] Mbox that I got back in 2001. That was my first experience with recording.

Now that you've used some of the other programs, what in particular do you like about Pro Tools?

I like being able to have [the power of] Pro Tools HD. And I really like a couple of programs: [PSP] VintageWarmer [see image above] and [Audio Ease] Altiverb. And being able to use a lot of instances of those plug-ins is really crucial. That's why I like this room [Treefort] because it has this computer and the Pro Tools HD hardware.

Batmanglij used PSP's VintageWarmer, a digital emulation of an analog compressor limiter, for both limiting and coloration on many of the tracks on *Contra*.

You like VintageWarmer because it lends an analog sound?

Yes. You can use it as a brick wall limiter, but it doesn't limit in the same way like [the Waves] L2 would. It kind of makes things kind of edgy. It's hard to describe what these plug-ins do, but it can make things super-compressed or it can make them kind of furry.

By *furry* you mean subtle distortion?

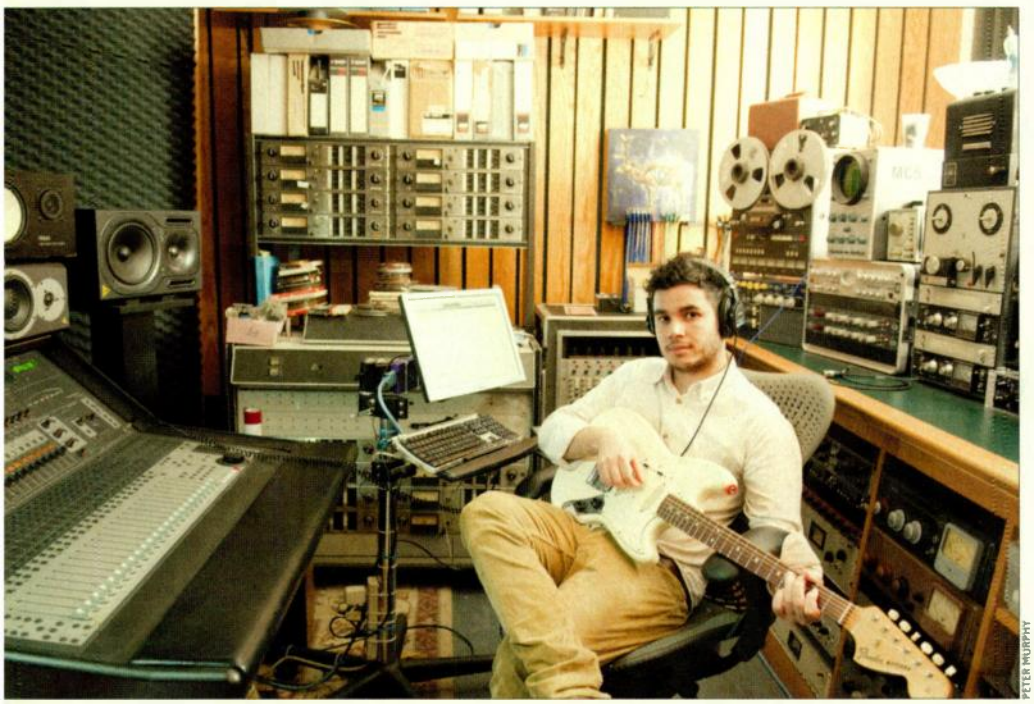
Yeah, exactly.

Did you produce any of *Contra* at your home studio?

There is one song that I kind of started making on my own. And I used my own piano and had that [Neumann] TLM 103 and a dynamic mic, and I tried miking it with both of those mics at the same time. So yeah, I did record that at my own house.

How did you first get into doing production? Did you study it or just learn it by doing?

At Columbia, they had a recording class that I took, but I can't say that I learned anything there I didn't know before. I picked up a lot just from reading and experimenting. Reading stuff in magazines and books about recording, and just the experience of doing it, I guess.


PETER MURPHY

Rostam Batmanglij in the control room at Treefort Studio in Brooklyn

Drums and vocals should be up front. That's what makes a hit song.

Were you working on projects all through your college years?
Definitely. I've been kind of obsessed with recording music since I was 18, or even before that.

Is your main instrument keyboards?
I don't know that I can say that. Really, the instrument that I studied when I was a kid was the guitar. The keyboard was always something that I taught myself. I was taking songs that I learned on guitar and transposing them for the keyboard. When I got to college, I started studying classical piano. When I got to college, I wanted to be a music major. I had always studied harmony in guitar lessons and in high school, but then in college I really focused on it.

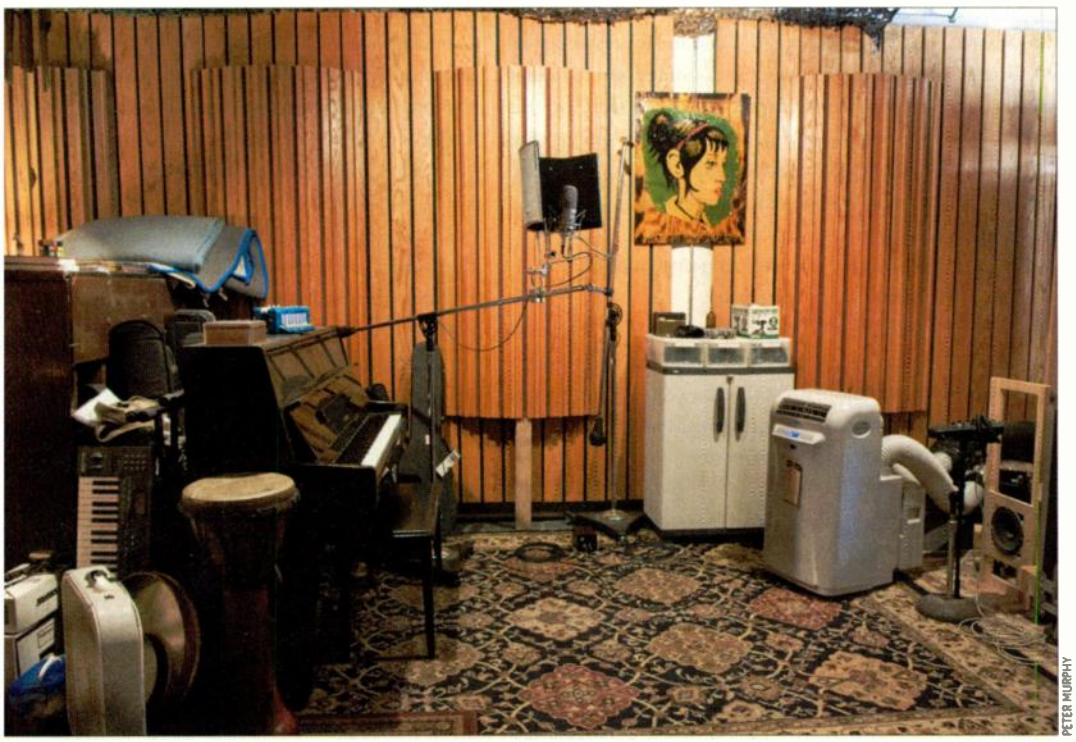
Do you think your classical and music theory knowledge influenced your music in both Vampire Weekend and Discovery?
Yeah. Probably more with Vampire Weekend than with Discovery. Discovery doesn't have as much explicit allegiance to classical music. There's stuff there that I think is extremely classical, but I wonder if anyone will pick up on it. I think some people might.

So studying classical harmony got you into the whole classical mindset?
Also studying popular harmony. I treat the book *The Beatles—Complete Scores* [Hal Leonard, 1993] as a bible. Just to be able to see "Eleanor Rigby" written for vocals and string quartet, that's much more exciting than seeing like chords and tabs, or even a lot of classical music, which doesn't really work in the song world.

You studied that as part of your class or on your own?
At Columbia, I would study classical harmony in classes and I would study music on my own, and I would try to re-create songs that I love in recordings. If there was a band that I was really into, I'd try to make a song that sounded just like that band. And I went through so many different phases and so many different genres of music where I was trying to do that, that was really how I learned. I think if anybody wants to try to understand how recordings are made, they should just try to re-create them.

So you would listen to a song, and say, "It sounds like they had this kind of bass and this kind of drum sound."
Yeah, exactly. And I took this class senior year at Columbia called Jazz Transcriptions, where we used a computer program that would let you see the spectrum and you could isolate like a single part. It's called Transcribe [from Seventh String Software]. I use it with pop songs, too, when I try to transcribe them.

Does it actually do the transcription?
No, it doesn't. You have to do the hard work yourself [Laughs]. But in that jazz transcription class, it was like Billie Holiday and Thelonious Monk songs. It's not easily apparent, even using that program, what the chord voicings are. Like in a Thelonious Monk chord, there are all these overtones happening. So the way I had to do it was to play the chord on the piano and then use the transcriber [to] try to match the voicings.



Treefort's live room served as both rehearsal and recording space for the band as they worked on *Contra*.

Back to *Contra*; you guys recorded a lot of drum parts at Avatar Studios.
Yeah, people said it was the best. So I said, "Let's do it."

It has a really big live room. Did you record drums there to get a massive sound?
Yes, and we also used this gated reverb that they had, the [Lexicon] PCM 70, which is this classic '80s thing. I told the engineer, "Let's get that gated '80s thing," and he actually set it up really quickly.

You put that on a separate track?
Yes, and I gated it again. So I gated the gated stuff.

So what did that sound like?
It sounds like a flash of being in 1986.

Phil Collins, for a second.
Just for a second.

At what point in the process did you figure out the arrangements?
We started in January. We were at this rehearsal space in Greenpoint. We had five songs somewhat arranged, and we said, "Let's go for it." So we started that way. And from there, there are really different [production scenarios for the] songs on this album. There are songs that we made essentially here at Treefort. We had the seeds for it, but we really made it and arranged it in the recording process. That was kind of different from the first album. The first album, we could play every song live before we recorded it.

Why did the release of this album get delayed? Did you decide you wanted more time in the production process?
I think a lot of it had to do that even if we'd turned in the album a week ago, we would have missed deadlines for press and for setting it up right. We wanted to take our time and be relaxed about it and do all the things that we wanted to do.

Do you mix everything yourselves?
On the first album, I mixed all the songs on my Pro Tools LE system except for three of them, which we did here.

You mixed them in your apartment?
Yeah. With this album, we went to Avatar for the mixing. I mixed it with an engineer named Justin Gerrish.

The mixes on the first album sound really good.
I wonder if this album is going to sound better. I hope it does.

What was the difference mixing this time at Avatar? Obviously, you had a treated room and everything sounds really flat.
I don't know. It's stressful to think about it because we haven't really finished mastering it, and things always change when you're mastering.

Was the whole band in there when you were mixing?
No, just me and Ezra. We send them [the other bandmembers] mixes and definitely take their input.

What's your basic approach to mixing?
My approach is: Drums and vocals should be up front. That's what makes a hit song.

How do you start your mixes?
I know people have said you can do it many different ways, but the way that it happens with me is that everything is slowly getting EQ'd here and there.

So you have all the tracks up to start with?
Yeah. On the first album, it would get really loud and it would start to go into the red on the master fader, and my response was to put a compressor or a limiter on the master fader to keep it from going to the red. And that was just me trying to do problem-solving. But later, I found that's actually how you're supposed to mix—with a compressor on the master fader.

But didn't you end up going over on the individual channels?
I used the VintageWarmer a lot [on the channels] because it's a brick wall limiter. It's really a great plug-in because it can keep you from going into the red but keeps things loud. It only colors them if you really want to.

Let's talk about the Discovery album *LP* (XL Recordings, 2009), which came out last summer. It's very synth-oriented, and it features lots of drum machine sounds as well as handclap samples instead of snare drums. It's a lot different musically from Vampire Weekend.
Here's the story with Discovery: I was 19 or 20, and I wanted to make music that didn't follow the rules of what I was used to. I thought that handclaps were so cheesy. I thought if, what if you could make a record, or even an album, that was confined to synths and handclaps and low bass; [one] that is unlike anything else, that is thick and big and powerful? That's kind of what I was going for. I think pop music has a way of cannibalizing itself—you know, the trends in pop music. Like snare drums, big snare drums, I noticed were slowly [disappearing] in Top 40 and R&B and rap. What was taking over was handclaps, and I wanted to push myself to do music with handclaps, not snare drums.

Well you did a good job.
So that was the beginning of the project, so it took five years.

And you were working with Wes Miles from Ra Ra Riot [another Brooklyn indie band]. Who did most of the vocals?
We both sang. It kind of goes even odd, except for one song, like the eighth song, it's a Jackson 5 cover, "I Want You Back," and it's sung by Wes.

Batmanglij teamed up with Wes Miles (right) of Ra Ra Riot for a synth-infused side project called Discovery.

But I sing all the even-number songs and he sings the odd-number songs.

Do you do any of the singing in Vampire Weekend?

I do all the vocal harmonies, but Ezra sings all the lead vocals. There's one song on the new album where I sing the bridge.

There are a lot of neat synth sounds on the Discovery record. There was one in particular, "Osaka Loop Line," there's this kind of arpeggiated cool sound going through it.

Every synth sound on there I made from scratch. In [Propellerhead Software] Reason, there's this synth called Malström, which is my favorite one to use. For instance, "Osaka Loop Line" is a pure sine wave. I didn't use an arpeggiator. I actually typed all the individual notes into the Reason sequencer. That's how almost all of that album was written.

In Reason?

With me typing in individual notes.

The first record was pretty organic, right? Did you use more synths on *Contra*?

On the first record, I used a lot of Chamberlin samples.

I know it was a vintage keyboard, but what kind of sound did a Chamberlin have?

It's not a synth. It's a keyboard that when you depress a key, it starts playing a piece of tape.

So it's like a Mellotron that way?

Yeah. Each strip of tape is a recording of a flute player or a cellist playing one note and holding it.

The string parts on Vampire Weekend were all real, right?

It was a mixture. A lot of people think that they were real strings, and there are tons of

Not-Quite-Overnight Sensation

Although it only took a couple of years from Vampire Weekend's inception in 2006 to when they hit it big in 2008, theirs is not the sudden success story it appears. The reality is that the band put themselves in the position to be discovered through a lot of hard work doing live performances and building a following, and finally creating enough interest to get the record labels' attention. "People have said, 'They came out of nowhere,'" says keyboardist and guitarist Rostam Batmanglij, "but we feel like we did things the old-fashioned way."

As an unknown band, they began by playing wherever they could. "We played shows in Brooklyn with 10 people in the audience. We played in front of 30 people, and then 50 people, and then 80 people, 100 people, 200 people," Batmanglij says. "We did everything, I think, the way that you have to do it. We didn't skip any steps. It was a slow climb."

As their audiences grew, so did the buzz. They were helped by a good review on the online culture site Flavorpill. "Someone at Other Music, the music store, read something that someone at Flavorpill had written and checked out our music and liked it, and he talked to other people and word sort of spread slowly, organically," Batmanglij says.

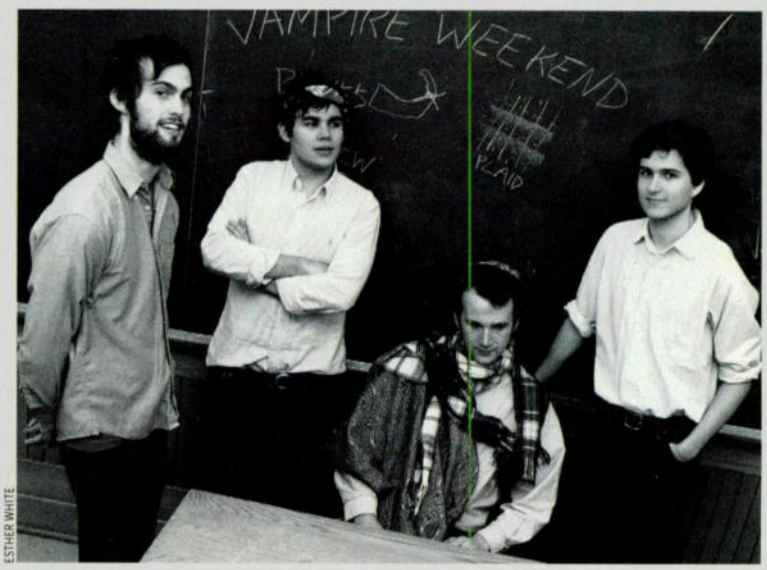
They did have most of what ended up being their first album recorded before they began negotiating with record labels. "I thought it was important that we have 10 songs before we did anything like trying to get a record deal," Batmanglij says. "So we finished that album in February 2007, 10 songs. Then we added two after we signed the deal."

As typically happens, the band got different responses to their demo from the different labels they met with. "One guy said, 'I'd put this out tomorrow, the way it is. I think it's ready to go, it's perfect,'" Batmanglij says. Others told them they'd need to re-record the whole thing.

Eventually, they found a good fit with the label XL Recordings, whose roster includes such acts as the White Stripes, The Prodigy and M.I.A. "These are bands that control the vision of the sound of their own music," Batmanglij says. "We just felt like that was right [for us], and at our first meeting with XL, they said that they were excited about not just our band and our songs, but our production."

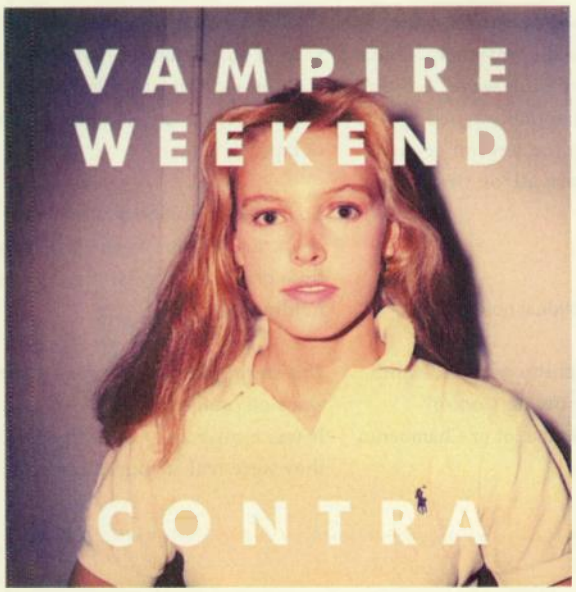
Another advantage to having done the production prior to signing the deal was that they kept ownership of the masters. "A label will be able to own the master if they paid for the recording," Batmanglij says, "whereas we actually license our masters to XL. We get them back in 15 to 20 years."

—Mike Levine



ESTHER WHITE

The band is pictured here in the early days, before they were signed.



Contra was scheduled for release shortly after this issue went to press.

real strings, but there are also Chamberlin. What's also cool about the Chamberlin is that because it's old tape, and because those samples were made in 1950, they're going through these old compressors and they have this really great tapey, tubey sound.

Are there tuning troubles like with a Mellotron?

There is a little bit. On [*Contra*], we used the Chamberlin trumpet, too.

You said in some previous interviews that you were going to throw some new sounds into *Contra* that weren't in the previous ones. What were those?

They were all new sounds, it feels like. There's the Chamberlin trumpet, that's on one song. There's a lot of synths that I build myself in Reason. There's kalimba and there's marimba. We had Mauro Refrosco, who plays in David Byrne's band, come play some Brazilian drums to layer on the first track; it's called "Horchada." So there's a lot of different sounds. EM

Mike Levine is EM's editor and senior media producer.

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Remix Clinic

An expert remixer shares his tips and techniques

By Vincent di Pasquale

A remix is so much more than its name implies. In many cases, it is an entire reworking of a song; the only parts that remain from the original are the vocals—and even those are re-arranged and edited to be different. The word *remix* is an insufficient term to describe a process that incorporates all aspects of music production from start to finish.

Being creative and producing music is my passion, but it is also my business, so I always need to work efficiently and stay on task. Even though every project is different, I try to approach my workflow in a standardized way to keep me organized and moving forward. I have three main phases in my workflow: First is the basic song prep and discovery phase, second is the creative writing phase and third is the final mixing and mastering phase. In my new DVD course, *The Art of the Remix*, I demonstrate step by step how I do this. In this article, I'll cover some of the most important concepts involved in remixing.

ONLINE BONUS MATERIAL

Getting Going

The first thing I do when starting any remix is to analyze the original song and see what parts I have available. The main goals of this phase are to identify the tempo, line up the vocals and find the key of the song. In some cases, I am given all the

Photo: Xander Snell

>> Multi-platinum producer and remixer Vincent di Pasquale's discography includes songs by Madonna, Nelly Furtado, Mariah Carey and many others.

original project files so I can immediately get the tempo and also have control over which vocal and musical parts, if any, I want to use from the original mix.

Most of the time, though, I only get the original stereo mix and various a cappella files. I then bring those into a new project and find the tempo. This is easy in Apple Logic Pro, the sequencer I use, as well as in most other DAWs. What I do is cut out a one- to two-bar region at the beginning of the song and edit that region to start right at the downbeat of a measure and end right before the downbeat of the measure that would follow the section. This is easiest during a part of the song where there's a beat with easily recognized transients. Then I make the timeline conform to the region by adjusting the project's global tempo control until the start and end of the audio file lines up with the corresponding bar markers (see **Figs. 1a** and **1b**).

Once I've matched the tempo, which is a nondestructive edit, I simply drag the start and end of the region to reveal the rest of the song file. This works great for tracks that were originally sequenced or recorded to a click, but even in more live recordings, it gets me close enough that I can make fine adjustments later if needed.

Next, I line up the vocal parts, and this again varies from project to project. Sometimes, the stems line up on the downbeat, allowing me to place them on adjacent tracks to the original mix and slide them into place. If the vocal stems don't seem to line up easily on a downbeat, then I will trim the region before the start of the vocal waveform, line it up by hand and nudge it until it is right. One trick I like to use when lining up the vocals is to pan the original mix reference hard-left and the vocal files hard-right. This allows me to raise and lower the original, in and out, to make sure the a cappella is precisely lined up.

The next thing I do is spend a little time critically listening to the original song. My main goals here are to explore the key of the song and to dive into the overall feeling of the lyrics and music as I begin to get creative. Finding the key of the song is, of course, critical. There are some simple methods you can use to quickly do this. First, I will bring up a simple piano patch and find the root note of the downbeat. From there, I will identify whether it is major or minor by playing scales of both types against the original mix.

Once I have found the tempo and key and have all the vocals lined up, the last technical step I do before I start getting creative is to change the tempo. This is one of the easiest ways to immediately

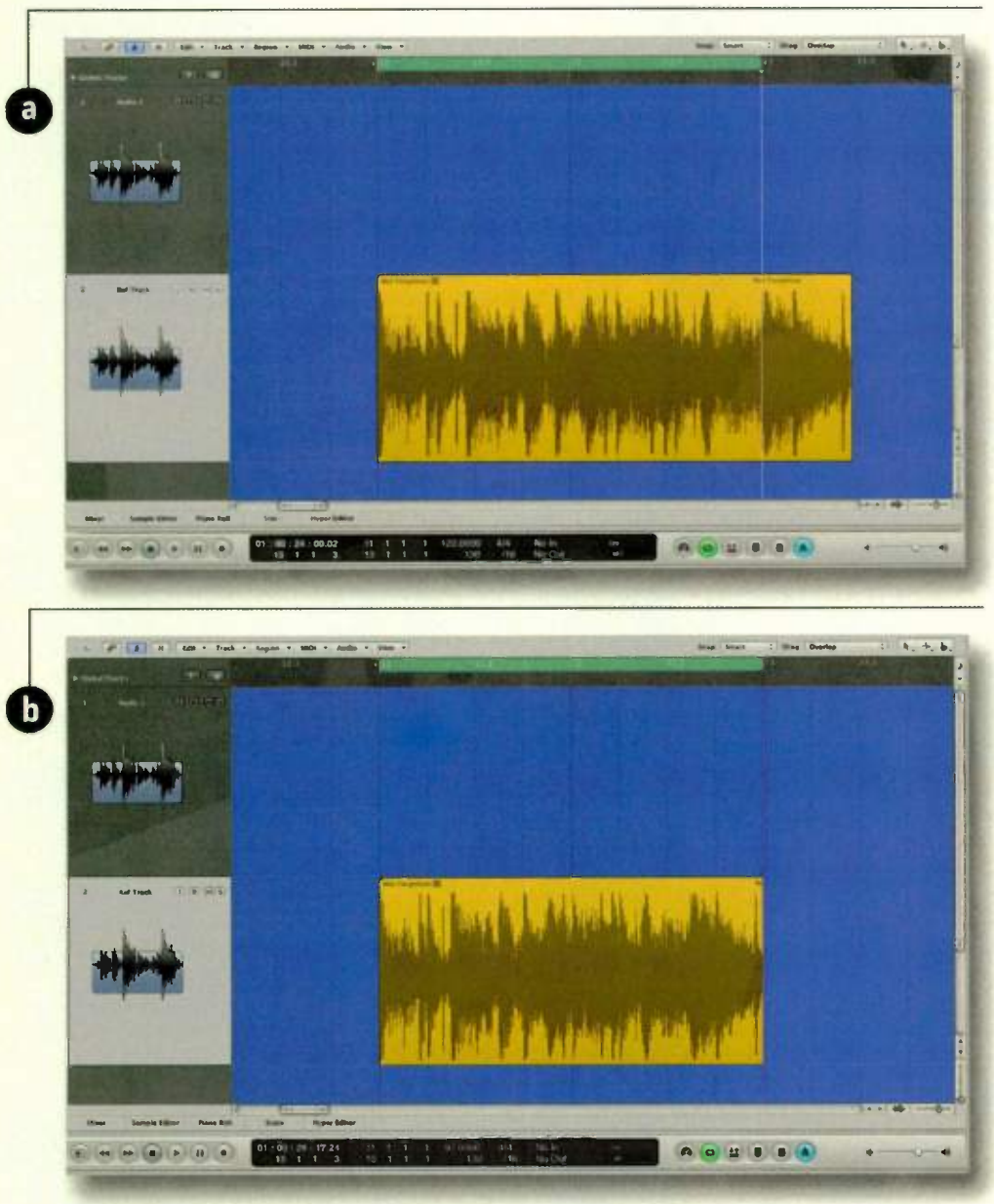


FIG. 1: To find the tempo, the original track is cut into a 2-bar section and placed at the beginning of a measure (a), then the sequence tempo is changed until the end of the section lines up with the bar line (b).

give the remix a new feel. Even if the song is already in the bpm range in which I plan to work, I will usually still change it just to make it different. Changing the tempo with Logic's new Flex Time feature is simple. Once I have the tempo map of the original mix and my vocals are all lined up, all I have to do is turn on Flex View and analyze each vocal track. After that, I can simply change the tempo of my project and everything automatically follows along (see Web Clip 1). Other DAWs with time-stretching capabilities, such as Digidesign Pro Tools with its Elastic Time feature, make the process equally simple.

FIG. 3: Sometimes adding distortion to the bass helps it punch through the mix better.

Creative Writing

After I have spent a bit of time organizing the parts and getting familiar with the original song, it is time for the fun part: getting creative. The first thing I will do is come up with a basic beat with a kick, snare and maybe a hi-hat or some other simple accents. The genre I am going for will dictate the kinds of sounds and patterns that I'll start to experiment with. For projects aimed at the clubs, it is critical to create a DJ-friendly drum pattern, typically built around a foundation of a "four-on-the-floor" kick drum.

After I construct the basic foundation, I will spend some time creating or editing loops and other accents to make the groove have a signature feel. I will add such things as percussion elements, reverse claps and other sounds to create something unique. Because the foundation usually revolves around a simple kick/snare/hat pattern, these loops and percussion parts allow me to get creative with the beat.

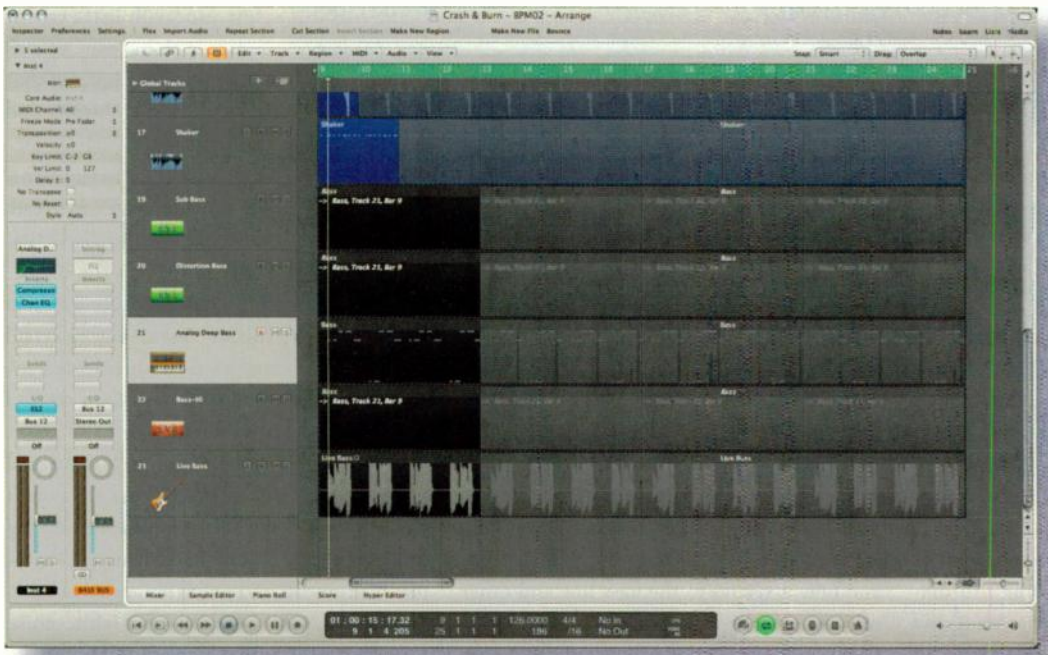


FIG. 2: The bass sound on this remix comprises four different MIDI bass patches and a live electric bass.

On the Bottom

Once I am happy with the initial groove, I quickly move on to the bass line. While writing the instrument parts, I will usually loop an eight- or 16-bar section as I build up the music. (I usually choose a section from tracks underneath the verse or chorus parts of the original vocal so I can simply mute the vocal tracks and constantly reference my instrumental ideas against the vocals.)

In modern electronic club remixes, the bass line is one of the most important elements. It carries the weight of the record, and in many cases it can

be a feature of the mix. There are two things that make up the bass line: the musical pattern and the actual sound or sounds.

In some cases, I will begin my work on the bass line by focusing on its sonic characteristics. Other times, I begin by working out the pattern and deal with the sounds later. It depends on the flow of the session, and the most important thing is to stay in a creative frame of mind.

Probably the most important thing I do when constructing bass lines is to layer the sounds. One of the easiest and best ways to make signature sounds—and this goes for all of the elements, not just the bass—is to blend multiple layers from a number of synths or instruments (see Fig. 2). By using differing layers, I can create complex textures and better control the frequency spectrum.

For example, to sound massive in the club, I like to use synths with a solid low end that can really drive the subs. In the studio and in the club, this works great. However, as a second layer that has a higher frequency range or I will duplicate the main bass patch and insert a highpass filter and distortion, or a fuzz plug-in, to add some gritty high end that complements the low end of the bass and helps it punch through in the mix (see Fig. 3 and Web Clip 2). My goal when layering is to make what sounds like one cohesive complex sound. I also like recording live electric bass as a layer because it gives the part a nice, live swing feel.

The subject of frequency masking is another important one relating to layered bass lines and the use of layered sounds in general. You have to be careful that the layers are not fighting each other for the same frequency range. If I first use a lower sub-synth patch, I will complement it with another sound with a higher frequency. As I add layers, I will do so in a way that helps to expand the soundscape and avoid too many sounds concentrated in one part of the spectrum.

above it or vice versa. If I love the kick and bass patches but they're fighting each other frequency-wise, I will put a compressor with a sidechain input on the bass and trigger it with the kick drum. This will cause the bass part to duck down when the kick hits—to what extent is dependent on your compressor settings—thus helping the bass drum punch through the mix better.

Getting Musical

After the bass line is solidified, I then begin to flesh out the other musical elements of the track. At this point, I am still working in a loop of eight to 16 bars and usually building around a section of the vocals. I try to experiment with as many musical ideas as I am hearing in my head and just let the vibe of the track take over.

I try not to get locked into one thing and usually construct at least two or three contrasting musical sections that I can use as different song parts when I do the arrangement. I listen constantly to make sure each musical part works well with the vocals.

Bang, Zoom!

Sound effects are another critical aspect of a modern remix, especially in the case of electronic club music. Effects are the finishing touches that create certain emotions and add contrast to various sections of the arrangement. This is where you can create that tension and release that works so well on the dancefloor. Sound effects will also work to create that powerful energy flow during transitions from one song section to another.

Some of the main types of sound effects I use are sweeps and fills. I have collected my favorites over time and have many EXS sampler instruments and sound libraries that I use. Sometimes I will just pull up a white-noise tone generator with a flanger and automate in and out with it throughout the mix (see

FIG. 4: Organization is the key. Here, all the tracks are arranged and color-coded with mix subgroups (in orange).

when the track is played back on smaller systems, that really low bass line can disappear altogether. So when choosing my bass patches, I will do one of two things to compensate. I will either pick a synth patch

You also have to factor in the kick drum and how it relates to the bass line and other musical parts. For instance, if I have a sub-heavy kick with a lot of extreme low end, I may choose a bass that can sit slightly

Web Clip 3). One technique that is popular now is to use a sidechain to duck down such effects. For this, I will create a global sidechain track by duplicating the kick drum part and having it play constantly throughout the whole song. I will then set its output to Logic's No Output setting, which ensures that it only acts as a trigger for the elements I want to sidechain.

Getting Organized

One of the most important parts of my workflow, as I turn the corner creatively and begin to transition into the arrangement and finish the mix, is the organization of my project. Up to this point, I work as quickly as possible and focus primarily on the creative musical aspects of the project. After getting the main musical sections added, I will spend a little time getting organized.

I always organize my projects in the same way so that I can find things and work quickly. I reorder and color-code the tracks and set up my subgroups. I like to arrange the tracks in the following order: I put the vocals at the top, followed by the drum tracks, the bass layers, the musical elements and the sound effects. I will create subgroups for each of those track categories by sending the outputs of the tracks within them to a corresponding aux track, which serves as subgroup fader. That's a key part of my workflow and speeds things up as I start to mix. I will put the subgroup aux channel strip for each group underneath the corresponding groups of tracks in Logic's Arrange page. This keep things organized and allows instant access to each subgroup (see Fig. 4 and Web Clip 4).

It Will Be Arranged

Up to this point, I have usually been working in sections and have arranged at least two contrasting sections, both around eight or 16 bars long. If I am doing a more commercial remix that will use a verse/chorus type of song form, these sections will allow me to follow that format. If I am doing a more underground mix with fewer vocals, then I may keep a more consistent groove and use breakdowns and sound effects for contrast.

As mentioned, for club mixes it is imperative to have DJ-friendly intro and outro sections. These typically comprise about a minute of drum elements. Once I get into the main section of the track, my arranging approach depends on what the music and vocals are doing and what type of energy I want to create in the early part of the song. Maybe I will want a groove-based vibe with the vocals coming in with more of a verse-type feel. Maybe I will create a breakdown after the intro and build some emotion and energy so when the beat drops back in, the impact really grabs some attention.

Primed for Mixdown

How to prepare your tracks for a mix engineer

By Steve Skinner

With a good DAW, mic and mic pre, you can record master-quality tracks. A master-quality mix, however, often requires more expensive gear and the specialized skill set of a mix engineer. For this reason, many producers record tracks themselves and then send them to a mix engineer.

As a producer/arranger and a mixer, I've had engineers grumble about technical or organizational issues with the tracks I've sent them, and I've done my share of grumbling about tracks sent to me. In this story, I'll offer tips and advice that will lessen the grumbling and make your finished product sound better. Even if you're doing the mixing yourself, these tracking and editing tips will make your job a lot easier.

ONLINE BONUS MATERIAL

On the Level

Digital distortion, or clipping, is a big problem. It adds noise to the mix, which reduces its clarity. It makes the tracks that are distorted sound small and undefined. And there's nothing that can be done to fix it. When clipping occurs, any part of the waveform that goes over the limit of the recording equipment is chopped off, leaving a signal that looks like a mesa rather than a mountain (see **Figs. 1a** and **1b**). If the clipping is severe, it's audible as an unpleasant noise. If it's less severe, the track loses audio quality. There is never a good reason to overload a digital recording at the tracking stage. If you want digital distortion in your music, you can always add it later simply by overloading any stage of the signal chain.

The best way to avoid distortion is to always use 24-bit audio in your recordings rather than 16-bit, and record at more moderate levels. A 24-bit recording uses 50-percent more disc space, but gives you 256 times the headroom of 16-bit recording (see **Online Bonus Material** "Do the Math").

It's particularly tempting to record vocals hot because singers want to hear themselves clearly in the headphones while recording their parts, and the easiest way to satisfy them is to simply turn up the input level on the mic pre. But it's much better to keep the level on the mic pre down and boost the singer's monitor levels. If that's still not enough, lower everything else in your mix and raise the headphone levels. If that's still insufficient, you need a more powerful headphone amplifier.

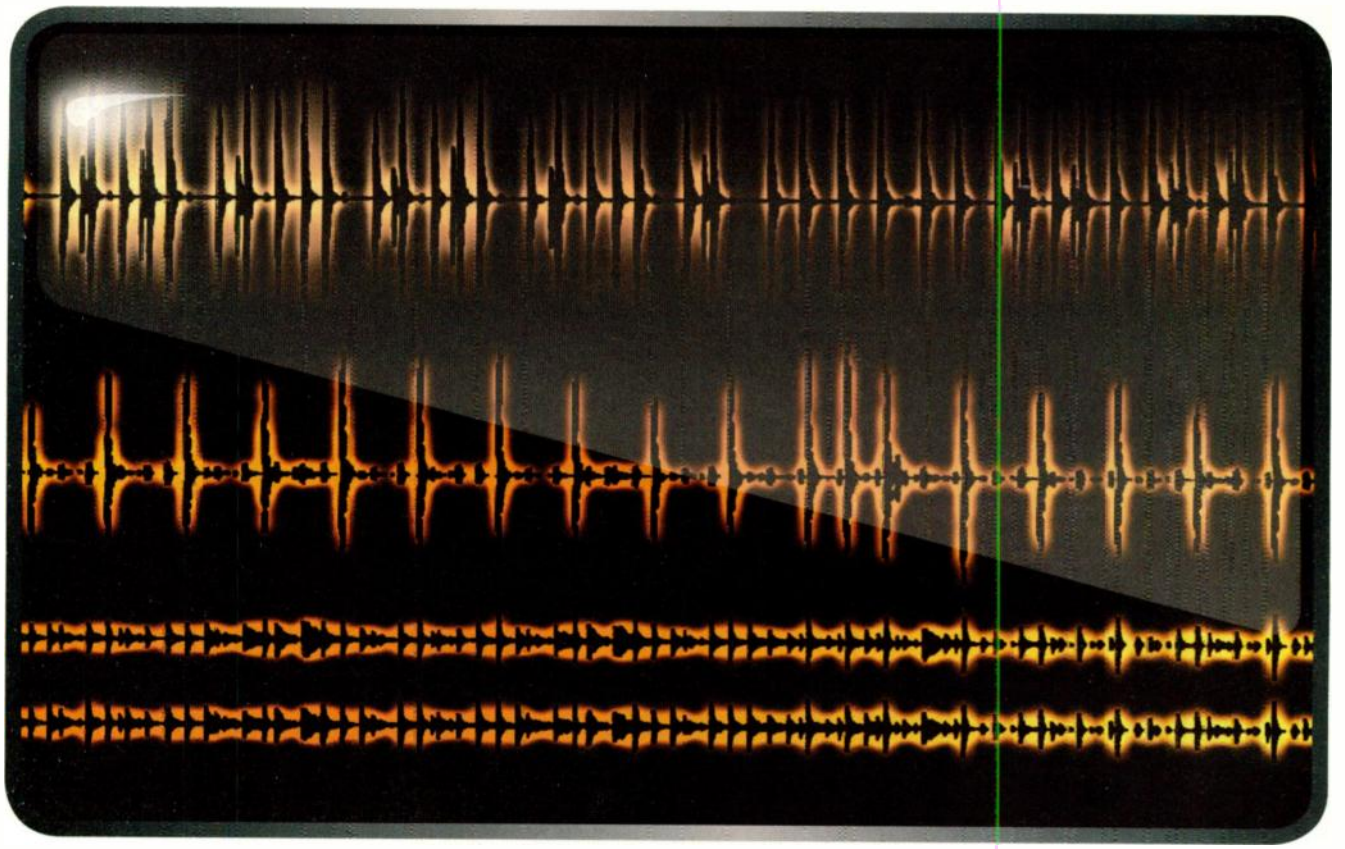
It's also tempting to record drums and synths with a little clipping because they can sound edgier that way. Again, that edginess can be added later. Clean tracks give the mix engineer a lot more flexibility. So if you see clip indicators anywhere in your tracks, go back and record them again at a lower level. If you are recording live performances, or if you know that you won't be able to re-record a clipped take, keep your levels conservatively low, -6 dB or -12 dB, so you don't come close to going over.

Click Click

A mix engineer will generally brighten and compress tracks, and both of these actions raise the level of clicks and pops. Digital clicking, particularly, will cut right through a mix. Before you send a track to a mix engineer, listen to each of the individual tracks, soloed, and get rid of clicks and pops. Most often they will be the result of bad punches or edits. Move the edit points around, and use crossfades until the clicks and pops disappear (see sidebar "Eradicate Clicks and Pops" on p. 52).

Virtual instruments can also make digital clicks if the computer's CPU is overtaxed. If you hear clicks on a track that was recorded from such an instrument, disable all other virtual instruments and re-record the track.

A singer's mouth noises are difficult to eliminate. They can sound like digital clicks and, in a



quiet song, they too will cut right through the mix. If a singer is making a lot of audible mouth noise, I sometimes ask them to put mineral oil on their lips. If that doesn't work, a judicious use of audio restoration plug-ins, or the restoration features built into your audio editor, can help eliminate the clicks after the fact.

Organizing Principles

As a general rule, and to keep confusion to a minimum, you want to combine tracks that belong together onto a single track (see Figs. 2a and 2b). For instance, I'll sometimes get tunes that have the verse backup vocals on one set of eight tracks, the chorus backups on another set of eight and the bridge backups on yet another eight. If there are no overlaps in the parts and you don't want a different sound for each section, these tracks should be combined into one master set of eight.

On the other hand, if you programmed or recorded the strings in separate instrument sections (vc, vla, vl2 and vl1, for example), keep those separated to give the mix engineer maximum control. Drums should also be split out as much as possible. If you are using a drum plug-in such as FXpansion BFD and you want a realistic drum sound, print all the outputs on separate tracks—including the top and bottom snare mics, inside and outside kick mic, room, overhead and ambience. Mix engineers who mix live drums treat these tracks differently to get their sound.

Tracks that contain many separate audio files, punches and crossfades can sometimes get corrupted as you send your song file over the Internet. It's best to consolidate (or merge) those tracks, but only after you've carefully checked them for clicks, pops, funny breaths and bad punches.

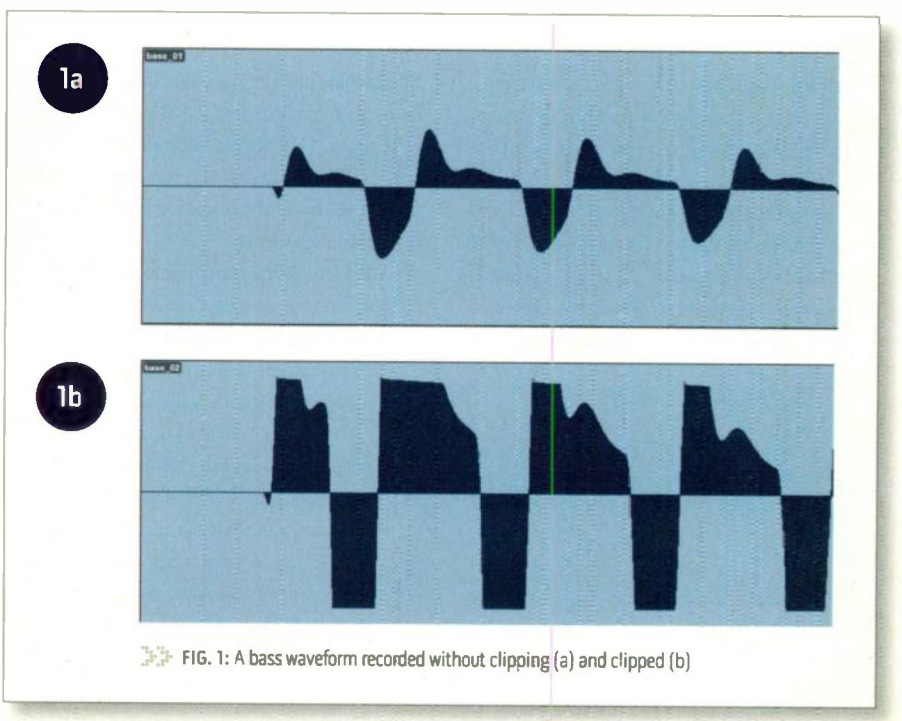


FIG. 1: A bass waveform recorded without clipping (a) and clipped (b)

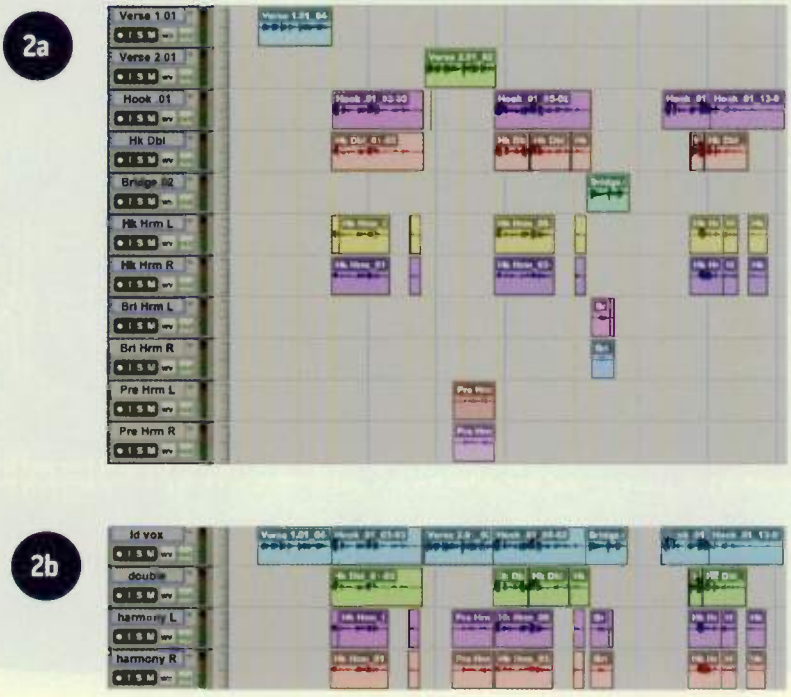


FIG. 2: Vocal tracks where the parts in different sections of the song were recorded on separate tracks (a).The same song with sections grouped onto single tracks for each vocal part (b).

Free Samples

Audio quality increases as the sampling rate goes up, so audio recorded at 48 kHz will sound a bit better than audio recorded at 44.1 kHz. The upper limit of recordable frequencies, aka the Nyquist limit, is 24 kHz for 48kHz audio and 22 kHz for 44.1kHz audio. However, if the final product is going to be at 44.1 kHz, the finished mix will need to be converted, and that can negatively affect audio quality. Having done many comparisons, I've observed that the quality of audio that's been recorded at 48 kHz and then converted to 44.1 kHz is slightly worse than that of audio that has been at 44.1 kHz all along.

If your final product is to be at 44.1 kHz, such as a CD or download, I recommend recording your basic tracks at 44.1 kHz. If the final result is to be 48 kHz, such as music for broadcast, then record your tracks at 48 kHz. If, however, the final mix is to be converted to analog for the mastering process, or if the mix engineer will be using analog gear across the mix bus, then use the highest sample rate that you and your system are comfortable using.

Inboard, Outboard

If an effect is an integral part of a particular sound—such as with an amp simulator, auto-

Eradicate Clicks and Pops

A click or pop is usually caused by a waveform that moves instantly from one level to another (see Fig. A). If this is due to a punch or edit, a crossfade is the easiest remedy. If the crossfade doesn't work or sound good, then the solution can be to match the two files manually. Trim the ends of both files to zero-crossings (where the waveform crosses the center line when zoomed into the sample level) at spots that appear to be matching parts of the cycle, then move them together (see Fig. B). This generally will not affect the timing noticeably, but you should just move a small section of the file, leaving the rest in its original spot.

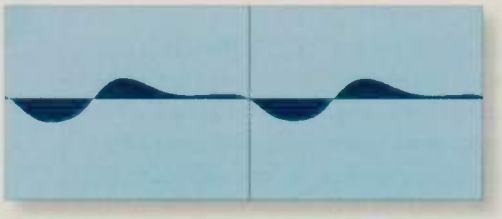


FIG. B: An edit where the cycles are better matched

It's more difficult to find zero-crossings at the same place on both sides of a stereo file. A combination of close matches to zero-crossings combined with crossfading will generally do the trick.

If the pop or click is not at an edit or punch, then the easiest solution is to use the click-removal tools in audio-restoration software. If the software alters the sound of the file noticeably, you may need to remove the click or pop manually. Method one for doing so is to erase the pop or click. The erased area must go from one zero-crossing to another or two more pops will be created. Method two is to redraw the waveform. This works well with short clicks created by virtual instruments. Method three is to cut out the section that contains the click or pop, and re-join the sections with a crossfade. This will change the timing of the track, and should only be used in non-timing-critical spots, such as sustained vocal notes, pads or string lines.

—Steve Skinner

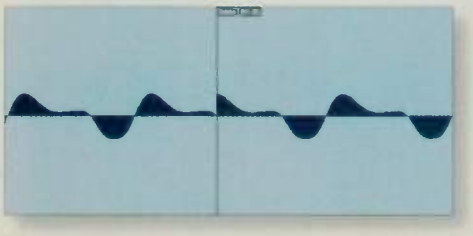


FIG. A: The waveforms cycles on the left and right side of the edit point dont match, which can cause clicks or pops.

FIG. 3: It's best not to print your reverbs onto the tracks you're sending to a mix engineer. If you really like the sound, print the reverb only onto an additional track.

mated filter, tremolo or chorus—then by all means print the effect along with the sound on the track you're giving to the mixer. It's a different story with reverb, however. If there's a particular reverb you like with a particular track, print it, too, but do so on a separate track (see Fig. 3). If you combine the reverb with the dry signal, the compression that the mixer will likely use will bring up the apparent level of the reverb. When it comes to compression and EQ, it's best to print tracks without or with very little. You want to leave the mixer with as much flexibility as possible.

When you're printing stereo tracks, keep the panner (or panners, depending on your DAW) at the default position (so the sound is fully left and right). If you want your stereo track panned to one side or the other, tell the engineer that. Printing a panned track restricts the amount of stereo information available to the mixer.

Timing Is Everything

If the DAW software you are using is different than that of the mix engineer, it's best to send audio files rather than session files. Each file should start at the same place (typically bar 1, beat 1, tick 1), and it should have a timing reference on it. A short click placed one bar before the start, or a 4-click countoff, should be on every track. The click should be the same audio copied or bused onto every track.

Do not count on your DAW to start each track at exactly the same time just because they're set to do so. For example, in Digidesign Pro Tools, a bounced track can start at a slightly different time than a consolidated track, even though they were both set up to start at the same time. This is important because even slight differences in timing can play havoc with the phase relations in a mix. Having a countoff will allow the mix engineer to precisely align the tracks if there are any problems.

Use Your Ears

It's a good idea to talk to your mix engineer before you send tracks to find out how he/she wants them delivered, and then heed the advice you get. Also, check in after the tracks have been sent to make sure everything arrived intact.

Whether somebody else is mixing your project or you're doing it yourself, making sure your tracks are clean, well-recorded and well-organized will help ensure a better final product.

Steve Skinner is a producer, mixer, arranger and programmer based in New Jersey. See his record credits at steveskinnermusic.com.

Take a Load Off

Sync up your old computer to run legacy software | By Michael Cooper

After buying a new computer, you may be tempted to retire your old one. But there's still life left in that old horse: You can use it to run your legacy software, including virtual instruments. By simultaneously running separate DAWs—each playing its own virtual instrument tracks—on your new and old computers, you split the workload and gain power.

The trick is to get both DAWs to play their tracks in synchronism with one another. I'll show you how to do this using two Macs running MOTU Digital Performer (see **Step-by-Step Instructions** below). For clarity, I'll cite using DP 6 on a Mac Pro and DP 4.61 on a G4. The process is similar using other DAWs with PCs.

See Me, Hear Me

Each computer will need an I/O box and possibly a card to interface with the box. Route the audio output of your G4's DAW (by way of its I/O box) to an input of the I/O box connected to your Mac Pro's DAW. If the routing between the two I/O boxes is by way of a digital connection such as S/PDIF, the two boxes will need to be locked to a common (or master) digital clock. That won't be necessary, however, if you plan to route only analog audio between the two I/O boxes.

You'll also need a separate video monitor for each Mac. Alternatively, set up screen sharing for the two computers so that their DAWs can be viewed on the same monitor.

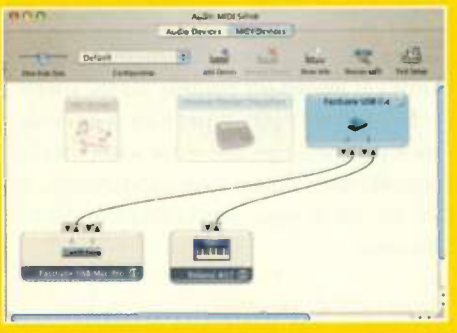
Each computer will need its own MIDI interface to record MIDI from a controller and to transmit (Mac Pro) and receive (G4) MIDI timecode (MTC) to synchronize the two DAWs. The MOTU FastLane USB is an extremely cost-effective, cross-platform MIDI interface for this purpose, so I'll use it in explaining the necessary setup. The dual-port FastLane USB provides two MIDI ins and two MIDI outs, MIDI thru functionality and 32 MIDI channels.

Connect a FastLane to each computer and install the necessary drivers. Then route a MIDI cable from the Port A MIDI output of the FastLane connected to your Mac Pro to the Port A MIDI input of the FastLane connected to your G4. (Port B will also do; just be consistent in subsequent steps when choosing the port.)

STEP-BY-STEP INSTRUCTIONS

STEP 1: Set the tempos of both DAWs to be the same.

STEP 2: Configure Audio MIDI Setup for your newer computer, including the routing between the two MIDI interfaces used with both computers.



STEP 3: In Audio MIDI Setup for the DAW used with your older computer, configure the same routing between MIDI interfaces as you did for your newer computer in Step 2.

That Synching Feeling

Open your project in both versions of DP and set their tempos to the same bpm value. On your Mac Pro, select Audio MIDI Setup from the Setup menu in DP 6. You should already see the icon for the FastLane (the one connected to your Mac Pro) in the MIDI Devices view. Click on the icon and choose Show Info to view the FastLane's properties. In the dialog's Device Name field, type *FastLane USB Mac Pro* to distinguish this interface from the FastLane connected to your G4.

Close the Show Info dialog for the FastLane USB Mac Pro and select Add Device in Audio MIDI Setup. Click on the new device and open its Show Info dialog. Define the newly created device to be a MOTU FastLane and name it *FastLane USB G4*. Under the Properties tab, enable the FastLane USB G4 to receive MTC on all MIDI channels (see Fig. 1).

In Audio MIDI Setup's MIDI Devices view, route the output of the FastLane USB Mac Pro's Port A to the input of the FastLane USB G4's Port A (virtually reproducing the physical cable connection you made earlier).

Next, we'll create a similar MIDI setup in DP 4.61 on your G4. Open Audio MIDI Setup and rename the FastLane for the G4 *FastLane USB G4*. Create a new device named *FastLane USB Mac Pro* and set it to transmit MIDI timecode on all MIDI channels. In the MIDI Devices view, route the output of the FastLane USB Mac Pro's Port A to the input of the FastLane USB G4's Port A.

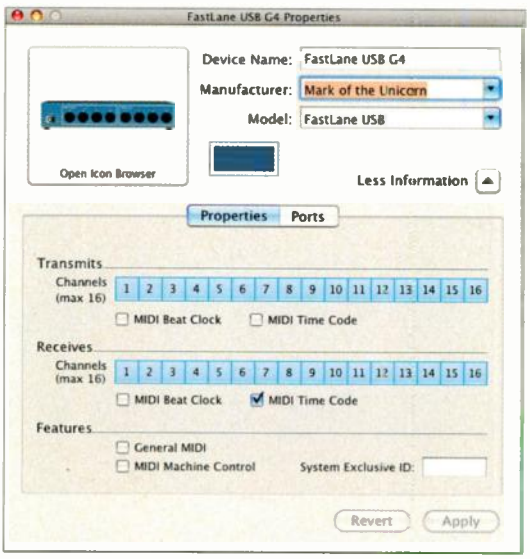


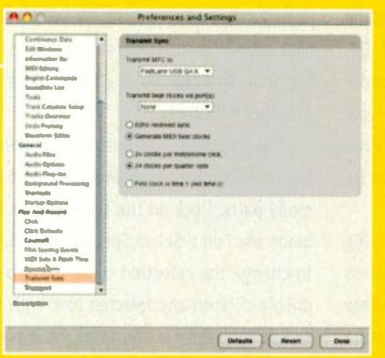
FIG. 1: The Show Info dialog in Audio MIDI Setup is where you name a MIDI device and set its properties, including which MIDI channels it will send and receive data on and whether it will transmit or receive MTC.

Open to Receive

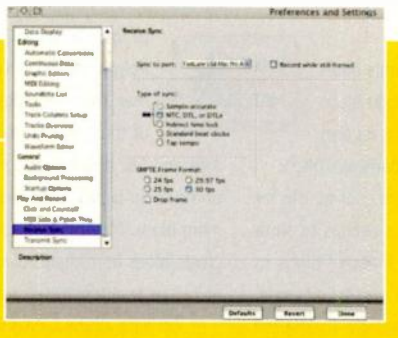
On your Mac Pro, open the Transmit Sync dialog in DP's Preferences and select FastLane USB G4 A in the Transmit MTC To menu. On your G4, open the Receive Sync dialog in DP's Preferences. Click on the radio button for MTC, DTL or DTLe, and select FastLane USB Mac Pro A in the Sync To Port menu.

The two FastLanes should now see each other. On your G4, activate DP's Slave To External Sync button and click the Record or Play button to respectively prepare to record or play back new tracks. When you press Play or Record in DP 6 on your Mac Pro, DP 4.61 will follow in perfect synchronism on your G4.

EM contributing editor Michael Cooper is the owner of Michael Cooper Recording in Sisters, Ore. Visit him at www.myspace.com/michaelcooperrecording.



STEP 4: Set your newer DAW to transmit MTC to the MIDI interface connected to your older computer.



STEP 5: Set your older DAW to receive MTC from the MIDI interface connected to your newer computer.

STEP 6: Slave your older DAW to external sync and press the Play or Record button to ready it for respective playback or recording in synchronism with the DAW in your newer computer.

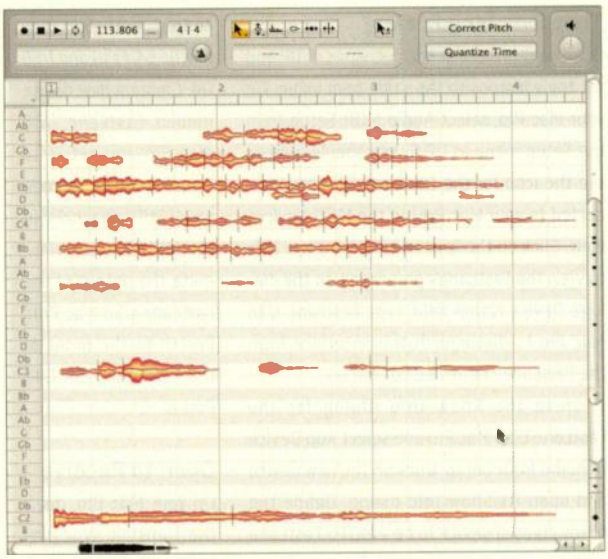


FIG. 1: Celemony Melodyne's polyphonic analysis reveals hidden harmonic structure (Cmi11) in this ambient clip.

Xtreme DNA

Use Melodyne Editor as a sound-design tool | By Len Sasso

Celemony's new Direct Note Access (DNA) technology, available in the most recent Melodyne editor, opens a host of heretofore difficult sound-design processes. I'll discuss a few ways to stretch DNA beyond unraveling and remapping polyphonic material. Not surprisingly, it takes some effort to get worthwhile results, but the time is well spent.

The Blob

The heart of DNA is the new polyphonic note-detection algorithm. In Polyphonic mode, blobs can overlap in time, and each blob has its own complex frequency spectrum and fundamental pitch.

Selecting the Note Assignment tool at the far right of Melodyne Editor's toolbox switches to Note Assignment mode, revealing gray inactive blobs in addition to the orange active blobs shown in Edit mode. Inactive blobs represent spectral energy distributed among the active blobs. Activating an inactive blob (by double-clicking it) separates that energy from the other active blobs, allowing you to manipulate it in Edit mode. Conversely, deactivating a blob distributes its energy among the other active blobs. You can't audition the changes in Note Assignment mode, but affected blobs shrink and expand to give you some indication.

For sound-design purposes, you'll often want to activate blobs to change the sound of other blobs and then move or mute the newly activated blobs in Edit mode. I'll start with a simple example that reveals most of the relevant ideas.

Pulling Strings

Record the C two octaves below Middle C of a virtual or acoustic piano and then load the recording into the stand-alone Melodyne editor, where it will appear on the C2 line. Choose Polyphonic from the Algorithm menu to force Melodyne to re-analyze the note in Polyphonic mode. Select the Note Assignment tool. You'll see blobs, mostly inactive, for some of the lower harmonics: C3, G3, C4, E4, G4, A#4 and C5. If necessary, move the Crescent handle of the slider beneath the toolbox to the right to reveal more blobs. Moving it all the way right lets you even create blobs from clouds of spectral energy too dim for Melodyne to automatically interpret as blobs.

Activate all the harmonic blobs by double-clicking them, then select the Amplitude tool (F4) to return to Edit mode. Click and hold on each of the blobs to hear its contribution to the piano note (see Web Clip 1). Mute some blobs by double-clicking on them, then play the file to hear what's left. You can capture the results by simply saving the project as an audio file (see Web Clip 2).

Use this technique—applying the same process to each sample—to change the character of sampled instruments. Then use the new samples in a new instrument or in velocity, keyswitched or crossfaded layers.

Inside the Blob

At the other end of the spectrum, you can use Melodyne to process sounds it was never meant to handle. Any harmonically rich sound is fair game, and polyphonic analysis often reveals hard-to-hear harmonic structure. In Web Clip 3, I've started with a bubbly, ambient clip from Wave Alchemy SFX Collection 01 (see Fig. 1).

One of the quickest tricks is to export a MIDI file and then use that to create synthesized chords, arpeggios and melodies to use with the clip (see Web Clip 4). To make the MIDI file less busy, select all the blobs and click any of the note separators with the Note Separator tool (F5). That eliminates all the separators and results in longer MIDI notes.

Auditioning individual rows of blobs lets you pick out useful timbres from which to build melody or harmony parts. Click on the scale axis to select a row of blobs, use Edit > Select Special > Invert Note Selection to change the selection to all other blobs, and then double-click on any selected blob with the Amplitude tool to mute them all. Audition the remaining unmuted row, and if it has an interesting timbre, use the Note Separation and Pitch tools to create a melody. Then export the project as audio to mix in with the original clip (see Web Clip 5). em

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Len Sasso is associate editor of EM. For an earful, visit his Website, swiftkick.com.

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"If you're recording demos, then use any amp modeling software. **When I make albums, I use ReValver.**"

— Devin Townsend

Hear ReValver on "Addicted" from InsideOut Music

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As the host of NPR's *All Songs Considered*, Bob Boilen listens to a lot of new music each week.

Q&A: Bob Boilen

Considering the state of music: now and in the future

Radio consolidation has helped create an ironic new reality: There are fewer places on the dial to get new music played at a time when it's easier than ever for musicians to produce their material. Still, some media outlets do seek out and play new music, and a standout is National Public Radio's *All Songs Considered*. Bob Boilen is the show's creator and host, and he listens to a huge amount of new releases every week. He is also an accomplished musician in his own right, with his band Tiny Desk Unit. With these credentials, we knew he'd be well-suited to comment on the state of music today, its future and how material is selected for the show.

By Jason Feehan and Randy Chertkow

How much of what gets on the show is from independent artists?

Unsigned music is an enormous part of what gets sent in and played on our show. Today, it's both easier to make music and easier to get it into the hands and ears of a lot more of people. The groundswell of home recording and the quality that can be achieved thanks to the computer is amazing. The ability to have so much at your fingertips now, to put something down while you are inspired and capture it in decent quality is such a part of this revolution.

Some would say that it's not good that technology allows everyone to make music—that it reduces the quality. What's your opinion on that?

It's good, absolutely. Some people would disagree with this, but for me this is the best decade for music, at least for the qualities that I like in music and feature on the show—which is personal music made from the heart. These are qualities that recording at home gives you. Think about it, musicians used to have to pay $250 per hour to record music in a new, strange environment, all while playing their best often in front of people they've never worked with before, and often in ways in which they weren't used to. But the home studio has changed this. Technology now allows you to record when inspiration strikes in the comfort of your own home, on your time. And that's a huge difference I hear in music today.

What do you say to people who think that technology dehumanizes music?

True, technology is technology. It's not like picking up a guitar and strumming. But the way I look at it

is, there's always some unseen collaboration that we do with machines and software. I am of the mind that when I work with Native Instruments' Kore 2 synth or when I play with [Apple] Logic, I am actually collaborating with engineers and programmers. And when that collaboration is successful, it's absolute magic. So it depends on the musician. For me, when I make electronic music, I'm not rigid about it. I let accidents happen. And that's what humanizes it, and to me that's when the music really works. It's like that string buzz you get from the guitar that can sound awful or excellent depending on how you work it into the song.

Technology not only makes it easier to create music, it also makes it easier to distribute it. This has opened up the floodgates. Do you see that as a good thing?

Yes, definitely. Think back to before the year 2000 when most artists who made music weren't heard by anyone outside of their local bar or coffee shop. They were limited because they didn't have the right connections to get a record contract and get heard on the radio. It was one big filter after another and those filters let only a very small percentage of what was happening in music into the ears of the population. When I was a kid, back in 1967, I could go to the store and there were probably 50 albums a whole year available for purchase. But now, today, there's so much. We receive a constant avalanche of music at our show—some 200 to 300 CDs a week. And that's just a fraction of what's out there. All this does is highlight the importance of the curators who have to sift through all this music and discover the good stuff. But the good news is you don't need any experience to be a curator. It doesn't have to be NPR where you discover your music. With music blogs and such, anyone can do it.

What is it that you are looking for when you choose music for your show?

I like hearing stuff that is put together in a way that I've never quite heard before. I like to hear adventure and mystery. Lyrics are really important, but they have to speak to me in some way that is not clichéd—lyrics that tell me something in a new light that I hadn't thought of. If it feels like it's slightly different than anything I've heard before, then I'm intrigued.

Can you tell us your process of choosing music for the show?

Every week, I have to find six to eight songs for *All Songs Considered*. I listen until I find 10 of them. The first thing I do is have an intern go through all of the mail and put all the press releases in the recycle bin so I just have the CDs. Then I go through them one by one. When I find my 10, I then see which ones go together and put them on the show.

So it's still about listening to CDs?

Yes, for me at least. I do get lots of e-mail with electronic downloads, but I like those less. I know I shouldn't love the plastic so much, but it is a very handy way to hold in your hand the artist's vision. You see the artwork, the titles and the notes. Seeing a live show is another—I see a lot of live shows. So in order it would be CDs, live events and then digital downloads.

What would you tell musicians who want to make their CDs and music stand out?

First, you want to be sure you are proud of what you have done. Make sure that you can objectively sit back after a month of doing it, listen to it, and say, "Yeah, this is it. This represents what I love and what I love to do."

Second, make the first song really good. For someone like myself who goes through lots of material, that is usually where I start. So don't begin the disc with a spoken-word piece or a song that takes 14 minutes to build up. This is kind of awful because I'm a fan of music and I wish I could listen to every CD I get from beginning to end. I know there is a lot of heart and soul that goes into these things, but making the first song really representative of what you do is a real good way to get our attention.

Third, artwork is important. Make sure it conveys your vision. I find in the world of CDs and music, you can, in fact, judge a CD by its cover, and I'd say it's about a 95-percent hit rate. Interesting CD art is going to be an interesting CD. When I see a CD with a woman in a cocktail dress, maybe that's her vision, but it tells me an awful lot. It's very staged, preplanned, doesn't show the kind of adventure and mystery that I personally seek in music.

Fourth, you have to be persistent. I shouldn't say this, but if I get an e-mail from somebody that says, "I have been making music for this many years and what I do is unique. Here's why I think it is unique, please give a listen to my record," I generally go and listen to it. If they just say, "I made a record, please listen," I generally won't.

Lastly, find the right venue to play your music. I get some CDs in, and I'm thinking, "Why did they send this to me? Do they not listen to the show?" So a big, flat-out, I'm-going-to-send-it-to-everybody is silly. You've just got to put yourself in the shoes of the person who is going to listen to it and ask if this is something that they would show interest in.

Where do you see the future of music?

If you are asking me where the music business is going to go, I frankly could care less. But for music, I think it's just going to get more fascinating as more and more nonmusicians play with this art form and get heard. I think you'll hear stuff that you just wouldn't have imagined. That's what I am excited about every time I pop open a new CD, download a song or gc see a band. I'm hoping that I am going to find somebody who is approaching this audio art form from a completely different perspective. In the end, it's really about the art. And it's better now than it absolutely ever was. eM

There's always some unseen collaboration that we do with machines and software.

Randy Chertkow and Jason Feehan are authors of The Indie Band Survival Guide: The Complete Manual for the Do-It-Yourself Musician *and* The D.I.Y. Music Manual, *and founders of the open and free musician resource IndieGuide.com.*

Ableton and Cycling '74

Max For Live (Mac/Win)

A whole new ball game for computer performing

By Jim Aikin

>> PRODUCT SUMMARY

plug-in design software
$299
$99 for Max/MSP 5 owners

PROS: Seamless integration of two powerful music apps. Unprecedented live-performance options. Great included plug-ins.

CONS: Steep learning curve. No run-time version. No audio sidechaining between Max patches.

FEATURES	1	2	3	**4**	5
EASE OF USE	1	2	**3**	4	5
DOCUMENTATION	1	2	3	4	**5**
VALUE	1	2	**3**	4	5

ableton.com

ONLINE BONUS MATERIAL

GUIDE TO EM METERS
5 Amazing; as good as it gets with current technology
4 Clearly above average; very desirable
3 Good; meets expectations
2 Somewhat disappointing but usable
1 Unacceptably flawed

When doing live performance with computers, two of the most important music programs are Ableton Live and Cycling '74 Max/MSP/Jitter. Both are capable of producing great music in a variety of styles, but Live tends to appeal more to the dance-music crowd while Max/MSP/Jitter (which we'll refer to in this review simply as "Max") is used more for experimental music and video. Both are highly developed, but they couldn't be more different. To vastly oversimplify, Live is about running loops through effects while Max is about building your own real-time algorithmic audio and MIDI processes, as well as video and matrix data processing.

Max for Live is revolutionary: It meshes the two programs seamlessly, and the implications are far-reaching. The new tools built into the Max side provide Live users with an extraordinary level of real-time control over Live's clips and mix parameters. If you want to build a Max patch that will trigger Live clips using some visionary semi-random process that you've dreamed up, just roll up your sleeves, turn off the phone and go for it. Plus, with Max for Live you can build your own synthesizers and audio and MIDI effects from the ground up as Max patches. Your new devices will then be fully usable in Live.

If you're a Live user and you want to send your music into translunar orbit, Max for Live may be just the ticket. But be warned: Although Max is point-and-click, it's a deep, full-featured programming language. Doing even simple things with it will require days of studying and experimenting. Fortunately, Max has a massive set of tutorials. These are augmented by another hefty set of tutorials for Live. Just select Help View from Live's Help menu and dig in.

Live itself is a complex DAW. For details, see the review of Live 8 in the July 2009 issue of *EM*, available at emusician.com. Here I'll focus strictly on the features in Max for Live.

Up and Running

After downloading and installing Live 8.1 to my Windows XP machine, I had to download and install Max 5.1 separately. Having done both, I then entered my authorization code in Live's User Account Licenses dialog, and I was ready to go.

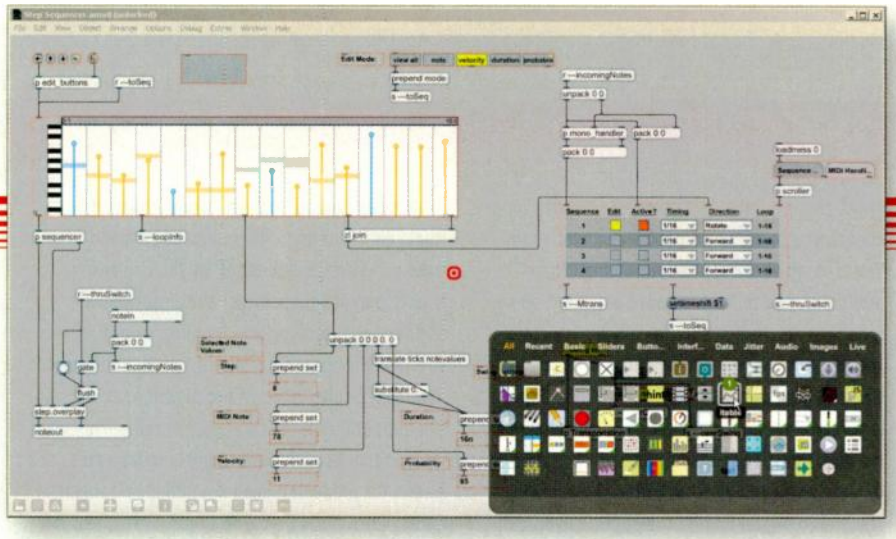

FIG. 1: The step sequencer included with Max for Live as it appears in the Max Patcher window in Patching mode. The pop-up palette for adding new objects is at the lower right. The sequencer control panel (upper-left) is a complex object, something that only an expert Max programmer will want to tinker with.

If you don't own Max, you'll find that the Max download is available for 30 days as a standalone program. After that, it will continue to be fully functional only within Live. Max for Live includes all of the Jitter video-synthesis objects in Max/MSP/Jitter, but some Jitter objects will not display correctly while patches are being edited in the Max for Live Patcher window. Owners of the full Max/MSP/Jitter license don't have this limitation.

Max has a free run-time version that allows you to sell your Max creations to people who don't own Max. However, Max for Live provides no run-time-only widget that will play Max for Live patches in non-Max for Live versions of Live. As a result, if you want to share your own Max for Live devices with other musicians (such as your bandmembers), they will need to own full copies of Max for Live. In addition, Max for Live devices can operate as plug-ins only within Live; they can't be exported. This is rather unfortunate as it will probably reduce the number of third-party developers who create cool devices for Max for Live.

Editing Max Devices

After dragging a Max device into a Live track, you'll see an extra button in its title bar to the left of the Hot Swap and Save buttons. Clicking this opens the Max Patcher window for the device (see Fig. 1). You can then switch the patcher from Presentation mode (which looks identical to what's shown in Live) to Patching mode.

While editing Max patches, you'll notice a small amount of latency, but you will immediately hear the result of your patching. When you save the device and return to Live, the latency goes away.

The Max for Live Patcher window includes a handy horizontal rule that shows the limits of the control panel that will be displayed in Live. If you park all of the Presentation mode controls within this area, they'll show up in Live. This arrangement of objects is necessary because Live's devices have a fixed height. Max for Live has some standard Live user interface devices, such as Live's familiar knobs. I was pleased (though not surprised) to find that when I returned to Live, all of these controls could be assigned to MIDI Control Change messages, just like other Live controls. You can even add hint text to your user interface objects, which will be displayed in Live's Info view when the mouse hovers over the object.

Max's standard send and receive objects are global within Live. You can put a send object in one Max for Live device and a corresponding receive object in a different device, even one that's inserted into a different Live track, and messages will be sent and received correctly. But as cool as this feature is for passing modulation or user interface data back and forth, it can't be used with audio signals. In the current release of Max for Live, it's not possible to use send and receive objects to sidechain audio from one Max for Live device into another. I'm told Cycling '74 is aware of this limitation and plans to address it in a future update.

> If you play gigs with a laptop, Max for Live may be a dream come true.

To create patches that respond to or control events in Live's user interface, you'll need to explore the myriad methods of the Live Object Model. In a nutshell, this involves setting the path that a command will use to reach a particular track, clip or device, and then sending the command. Paths are set using Max's standard messaging system. Because the messages' text can be assembled interactively within Max, you can do tricks such as create a single knob and a drop-down menu that controls where the knob's output will go.

Max can start and stop clips and scenes, mute and unmute mixer channels, and much,

New Plug-Ins in Max for Live

Being able to use Cycling '74 Max within the Ableton Live music production environment is a great thing, and fortunately for those who aren't proficient Max programmers, Ableton and Cycling '74 have included a suite of plug-in Max patches. You can use these as is or modify them in whatever way you have the courage to attempt. In particular, you'll find a variety of handy tools and building blocks in the Max MIDI Effect and Max Audio Effect folders of the Live library.

Buffer Shuffler (see Fig. A) is an audio effect that slices and dices loops to produce animated rhythms. It's set up to process one-bar loops in 4/4, and it seems to work best with loops that have a riff played by a whole band, though I also got good results with loops containing pads, world percussion and so on. The first playback of the loop (which loads audio into the buffer) is heard as is, but as the loop repeats, Buffer Shuffler will play the slices (normally, eight or 16 of them) in any order. You can change the order on the fly, either with manual editing of the grid or by clicking the Randomize button. Steps can be muted or played backward. The left and right sides of the stereo signal can be the same, or you can process each side separately for unsettling stereo grooves. Activate the Auto-Dice button and every bar is different.

The Step Sequencer MIDI effect (see Fig. B) is actually four monophonic step sequencers that run in parallel. Their loop lengths and step rates are independent, so you can easily create polyphonic patterns that interweave. Bidirectional looping and random reshuffling are allowed. For each note, you can program the note number (pitch), velocity and duration, as well as the probability that it will play or remain silent. The probability and loop length settings are useful for producing good-sounding patterns that never quite repeat, as **Web Clip A** illustrates. It's too bad the Step Sequencer doesn't have a couple of modulation outputs, but if you have a handle on Max patching, you could add them.

Loop Shifter (see **Fig. C**) seems to be designed for weird scratching and effects rather than for ordinary music. This plug-in loads a sample directly rather than receiving it from a Live clip; in fact, it operates in a MIDI track, not an audio track. For every key on your MIDI keyboard, you can program the start and end points of a different zone within the sample, which will loop for as long as you hold the key. Each zone also has filter settings, transition rates for gliding into the zone from some other key and so on. Several of the sample playback instruments in Native Instruments Reaktor use a similar concept. Processing Loop Shifter's output with Live's Grain Delay effect gave me a more organic, less mechanical-sounding performance.

The Pluggo plug-ins are a mixed bag. They're not all world-class, but there's plenty here to explore. The Pluggo synthesizers are mostly far less capable than Live's own suite of synths, so I haven't found much reason to use them. I loaded one Pluggo instrument that was monophonic, had no tone controls and went out of tune in the higher octaves. Some of the Pluggo effects, however, are remarkable. The Auto-Feedback effect produces an endless stream of random gurgles, howls and squeaks. By processing Auto-Feedback through Live's Resonators and Filter Delay effects, I created the endlessly changing harmonic drone heard in **Web Clip B**. And I got a lovely and mysterious sound by running a bell-tone synth called Dee Tune through a multidelay line called Ancient Bowls.

—Jim Aikin

FIG. A: Buffer Shuffler slices and dices an audio loop. The orange spots on the grids show which slice will be played on which beat in the left and right channels (separately). The buttons at the bottom can reverse or mute any slice.

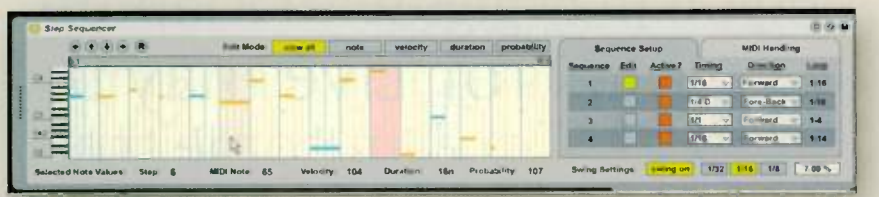

FIG. B: The new four-track Step Sequencer can produce complex patterns. Each track is monophonic and limited to 16 steps. Step length is programmed in the drop-down menus at right.

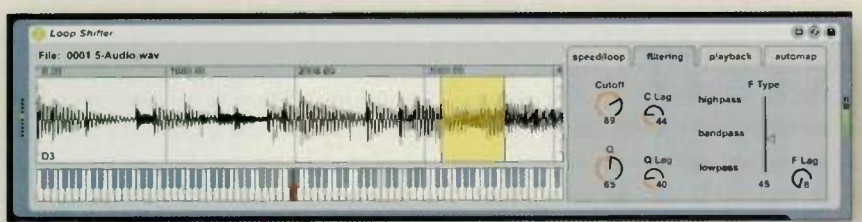

FIG. C: Loop Shifter produces its own signal rather than processing audio. After loading a loop, you can program each MIDI key to loop a separate section of the audio. Filtering, pitch and transition are separately programmable per key.

much more. You can even make a patch that will edit single notes within MIDI clips. There are a few limitations, however. Max can't load or delete clips, for instance; you still have to do that from the browser with the mouse.

Included Devices

In addition to all of the goodies in Live 8, Max for Live gives you three new devices (Buffer Shuffler, Step Sequencer and Loop Shifter), a slug of instruments and effects drawn from Cycling's Pluggo library, and a variety of utility MIDI and audio effects. To be clear, Max for Live doesn't add any editing capabilities to Live's standard devices that weren't there already. But you can pop open the hood and modify the new Max-based devices in arbitrarily complex ways—or break them if you're not careful. After editing a Max patch, use Save As, not Save! For details on the included devices and a couple of audio clips that I produced with them, check out the sidebar,"New Plug-Ins in Max for Live" (opposite).

Live Wire

If you play gigs with a laptop, Max for Live may be a dream come true, thanks to the new ways of processing control data. Using the Jitter video-processing features, you can run a mind-blowing video show onstage from within Live. But all this power comes at a price. Max for Live is not cheap—and to make full use of it, you'll need to learn Max programming. If you already own and use Max 5, though, the cost is considerably lower and the learning curve not nearly as steep.

Ableton has partnered with other companies in the past to lift Live to a new level, notably Applied Acoustics Systems, whose Analog, Electric, Tension and Collision instruments are part of the Ableton Suite. But Live is far from the only DAW that has gone a similar route with standard synthesizer plug-ins. Ableton's partnership with Cycling '74, however, is a radical innovation. It opens up the functionality of Live in a way that no other DAW can match. This development is a welcome step forward in the world of electronic music-making. em

Jim Aikin makes music in his PC-based home studio, writes magazine articles and fiction, and plays a lot of cello.

FIG. 1: The computer's F-keys open and hide the mixer and browser panels in PreSonus Studio One Pro. Note the fade-in on the first drum loop (upper left). Buttons are clearly labeled.

PreSonus

Studio One Pro (Mac/Win)

The new kid on the DAW block

By Jim Aikin

PRODUCT SUMMARY

DAW
$399

PROS: Fast, easy-to-use user interface. Superb audio time-stretching. Multiple-song CD mastering tools. Integrates well with PreSonus audio hardware.

CONS: No REX file import. No movie window. No surround mixing. Included software instruments are weak.

FEATURES	1	2	3	**4**	5
EASE OF USE	1	2	3	4	**5**
DOCUMENTATION	1	2	**3**	4	5
VALUE	1	2	3	**4**	5

presonus.com

ONLINE BONUS MATERIAL

PreSonus, long known for making audio interface hardware, has gone soft. With so many great multitrack recording programs on the market, it must be a little scary to introduce an entirely new one. PreSonus has no reason to worry: Studio One is a solid and superbly designed DAW. Sure, it has room to grow, but even Version 1 is full-featured and easy to use. Studio One Pro has a separate Project window in which you can assemble multiple songs for a CD or online distribution. This powerful feature is not integrated into any other DAW that I'm aware of.

PreSonus audio interfaces now come bundled with a second-tier version called Studio One Artist, which is also available separately for $199. (Studio One Artist owners can then upgrade to Studio One Pro for $199.) The Artist version does not support ReWire, 64-bit audio nor third-party plug-ins, but it does include a large collection of PreSonus plug-ins. PreSonus hardware is not required for either version.

I reviewed Studio One Pro on a MusicXPC laptop running Windows XP and on a MacBook Pro running OS 10.5.7. (For a discussion of how the PreSonus FireStudio Mobile interface worked with the Mac laptop, see the **Online Bonus Material**.)

The Big Picture

Studio One uses a modified all-in-one-window workflow. The computer's F-keys open and close the editor panel, browser and mixer (see Fig. 1). The mixer is detachable, allowing me to leave it open at all times on my dual-monitor setup. Single-key commands are used throughout the program. For example, Q quantizes MIDI notes, M mutes the current track, N switches snap editing on and off, and A opens the automation display. Drag and drop works exactly the way I like: When I wanted to copy an insert effect with its current settings to a new mixer channel, I just grabbed it with the mouse and dragged it to another track.

Changing a song's tempo after you've already recorded some audio works extremely well. Because time-stretch technology is similar to pitch correction, I'm glad PreSonus plans to add pitch correction to a future version.

A checklist of the features musicians expect to see in a DAW would fill pages. Studio One Pro has most of them, including ReWire, one-click audio clip crossfades (with handles you can drag to change the fade curve) and control surface support with several modes for real-time automation recording. (see the Online Bonus Material "Automation"). Version 1 lacks a few amenities that some users might like to see, however. There's no QuickTime movie window for soundtrack work, no traditional notation editing or printout, no surround mixing and no template-based groove quantizing. Because I have a large collection of REX files, I was disappointed to find that they can't be imported into audio tracks, but PreSonus says that capability will come sooner than video sync or groove templates.

Studio One comes with a huge bundle of drum loops—so many that it would take weeks just to audition them. The ones I checked out sounded useful. The loops are bundled into files that can be read only by Studio One, though it can export them as WAV or AIFF files. Also included is a copy of Native Instruments Guitar Rig LE. Combine this with a fast computer and a low-latency audio interface (such as PreSonus FireStudio Mobile), and you can rock out with an electric guitar and headphones.

The reference manual is clearly written but could be expanded. Despite numerous references to numbered figures, the figures themselves are not numbered and have no captions.

On the Right Track

After laying down a few backing tracks using soft synths, I plugged in a mic and recorded a cello melody (see Web Clips 1 and 2). I put the transport in Loop mode and recorded six takes without stopping. I then used the handy Unpack Takes to New Tracks command so that I could look at all of them in a stack down the screen. I created a submix bus in the mixer and routed all of the take tracks to that so I could apply EQ and reverb in only one mixer channel (see Fig. 2). Then I started slicing up the takes and dragging good bits around in the tracks. Throughout this process, I didn't even need to crack the manual. Studio One just did what I expected, painlessly.

Studio One's time-stretching is jaw-dropping. I was able to change my song's tempo by more than 10 bpm, and on soloing the cello track I heard only the most microscopic artifacts (see Web Clips 3, 4 and 5). Plastic audio has arrived! However, when I tried loop-recording an audio track in a MIDI-based song that had tempo changes, the takes went completely out of sync with the MIDI tracks. I had to get rid of the tempo changes temporarily to do the audio recording. (PreSonus is working on a fix.) If your music depends on tempo changes, you should check with PreSonus to find out whether this issue has been resolved.

Working With MIDI

After dragging a few VST instruments into the track list from the browser and selecting patches, I started laying down MIDI tracks. The process was completely transparent. The piano-roll editor has dual controller strips for editing velocity and other parameters. You can mute and unmute individual notes if needed. Standard quantize values and variable amounts of swing are available, and quantization is always undoable.

I had intermittent problems with MIDI in the Windows version. On a few occasions, new notes recorded into MIDI tracks would lag by about a 16th note. In one song, the patch I had selected for Native Instruments FM8 failed to get saved in the song file, but in a different song an FM8 patch was saved.

The VST synthesizers included with Studio One are not inspiring. SampleOne is a multisampler, but a very simple one: You can quickly create multisample keymaps, but the same global ADSR envelopes and lowpass filter process everything. Presence is a SoundFont player that comes with some basic content suitable for songwriter demos and such (see Web Clip 6). Impact is a drum-style sample player, and Mojito is a frankly inadequate one-oscillator, one-ADSR, analog-style synth. Bundled instruments are an area where Studio One is going to have to catch up with the competition in future versions.

FIG. 2: Studio One's Room Reverb has a rich sound and can be edited in subtle ways. I cou dn't get a cheap, twangy sound out of it even when I tried.

Projects

Like the rest of Studio One, the Project page works exactly the way you'd expect. To create a CD master, I opened the browser and dragged in a bunch of stereo mixes of pieces I've done over the past few years. They appeared in the track list, and also in the timeline as waveforms. To change the amount of separation between songs, I just grabbed a song with the mouse and dragged it. Crossfading between songs is just as easy, and you can reorder the songs by dragging them up and down in the track list.

Large meters displaying overall level, frequency content and phase are permanently in view in the Project window. Each song can have its own insert effects, which can include level adjustments and EQ. Tracks can be tagged with songwriter credits. There's currently no way to edit index markers or insert sub-indexes within long songs (though the latter feature is seldom needed).

You can import audio from any source (including MP3 and OGG files), and the Project page integrates well with Studio One's multitrack recorder. If you've updated a song mix (for instance, to boost the vocal so it will match other songs), the Project page can automatically create a new stereo mix of the song and import it, replacing the old mix.

There Can Be Only One

I've been using another DAW for many years as my main creative platform, but Studio One Pro is so good that I'm tempted to switch. The time-stretching will be a lifesaver for vocalist/songwriters, and the Project page could save you hundreds of dollars on CD mastering software. True, the competition in the DAW software world is intense, but PreSonus is going to shake things up with Studio One. EM

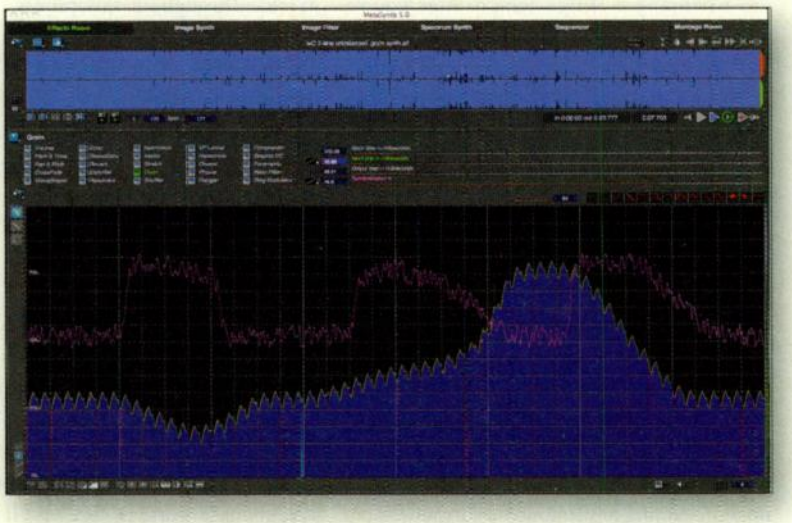

FIG. 1: U&I Software MetaSynth 5's work areas are divided into six rooms. Here you can see the Effects room, which provides drawing tools (far right) for creating parameter envelopes.

U&I Software

MetaSynth 5 (Mac)

More power to you in this major upgrade

By Dennis Miller

PRODUCT SUMMARY

sound-design, signal-processing and composition software
$499

PROS: High-resolution audio format support. New drawing tools. Expanded multitrack capabilities.

CONS: New features not extensively documented.

FEATURES	1	2	3	4	5
EASE OF USE	1	2	3	4	5
QUALITY OF SOUNDS	1	2	3	4	5
VALUE	1	2	3	4	5

uisoftware.com

ONLINE BONUS MATERIAL

With some programs, updates appear on an annual basis like clockwork. For U&I Software MetaSynth, new releases are few and far between, and each new version is received as a major event. MetaSynth (MS) 5, recently released by its developer, is the first update since 2005, and it offers new features or enhancements in nearly every area of the program. Among the major advances are support for higher-resolution and longer audio output, new recording options, the ability to modify many more parameters in real time and a large number of new instruments. MS 5 is also now multithreaded and universal binary. All told, this is one of the biggest releases in the program's history.

MetaSynth is a Mac-only synthesis, sampling and sound-processing powerhouse that offers some unusual and unique approaches to working with sound and sound control. At the core of its interface is a screen on which you draw or import bitmap images to control parameters that generate new sounds or process existing audio, but that's just the start. There are synths, samplers, effects, spectral processing, custom tunings and a vast array of other features that you can use to mix or mangle audio in numerous ways. The program offers endless options for composition, sound design and a host of other uses, and it is especially well suited for experimentation.

MetaSynth was the winner of a 2006 *EM* Editors' Choice Award for best sound-design software. You'll find a thorough overview of MS 4 in the October 2005 issue of *EM* (available online at emusician.com). Here I'll focus primarily on the new and updated features of MS 5.

In My Room

MetaSynth provides six work areas (called rooms): Effects, Image Synth, Image Filter, Spectrum Synth, Sequencer and Montage. A separate area called the Sample Editor appears at the top of every screen and shows any loaded sound file (a synthetic waveform is loaded by default; see Fig. 1). New in the Effects room is a convolution

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option that will convolve the currently loaded sample or waveform with a sound you designate as the Auxiliary Sound. Convolution is great for creating unusual reverb and filtering effects (see the article "Audio Alchemy" in the April 2008 issue of *EM*, available at emusician.com). Many programs include features that allow you to offset or delay the impulse response, or perhaps alter its length, but MS only has settings to control the input levels of the two sound sources and a third option for setting the convolution level. Unlike other implementations, however, MS offers a number of graphical tools for creating envelopes to control the available parameters, and these are guaranteed to produce convolution effects you won't find elsewhere (see **Web Clip 1**).

Image Synth has always offered a massive range of synthesis modes and parameter controls, and Version 5 adds 11 new synthesis configurations, as well as a number of new ways to work with them. In the Multiwave category (Multiwave instruments incorporate three wave generators), you'll find new FM instruments, several waveshapers, new synths for pulse-width modulation and phase distortion, and a few synths that combine different synthesis methods. There are new modulation options to vary the parameters of the synths as they play and several new Filter options including a parametric EQ and Vox Enhancer.

WaveSynth instruments now benefit from 10 new Attack modes, which are also available for use by samplers and multisamplers. The impact each has depends on the type of instrument you have loaded, but I especially liked the results different Attack modes produced when using the instruments in the Future category from Galbanum, a third-party developer that makes add-ons for MetaSynth (see **Web Clip 2** and the **Online Bonus Material**, "Even More Meta"). You'll also find a new Edit menu in the Wavetable editor that offers six ways to quickly modify the wave your synth is using. Added to the very capable existing synths, these new resources make MS one of the most versatile synthesis tools around.

Making Grains

Granular synthesis has long been one of MetaSynth's fortes, and this version adds a set of tools for modifying the grain shape in ways that I haven't seen elsewhere. Open the Grain synth, and you'll find a menu listing various types of balanced and unbalanced modes, each of which alters the grain shape in a different way. Like some other areas of the new-features documentation, the details on this new option are not extensive, but with a little experimentation, I found that the modes produced distinct effects (see **Web Clip 3**). Fortunately, you can switch between modes in real time so it's easy to compare them until you find a sound you want.

As always, you can generate control data for your synths by importing a graphic, but MS can now work with any file format that QuickTime supports. (PICT was the only option in previous versions.) This is especially good news for me as I have thousands of TGA files on my system. Each of these could now become a score for a synth or sampler or even a filter for processing an audio file. There are also plenty of new graphics tools for drawing control information directly on the screen.

One of the most useful areas for creating extended compositions is the Montage room, where you layer any of MetaSynth's sound-generating or -processing functions and arrange them in time (see Fig. 2). The new Montage now supports as many as 24 tracks, up from 16 in previous versions. There are also five new track effects, and most importantly, you can now apply multisegment (up to seven segments) volume envelopes to any event. (Previous versions allowed only three segments.) All of these changes can save you vast amounts of time because you don't have to use other software to do a lot of your post-production work.

FIG. 2: The Montage room is useful for composing extended multilayered compositions. There are new effects and additional tracks available in version 5 of MetaSynth.

I/O Options

Prior to V. 5, I never thought of MetaSynth as a go-to application for recording. I typically recorded and tweaked my source material elsewhere, and if I were working on my PC, I'd have to convert the files to AIFF format, as well. MS 5 offers a host of new options that now make it far better suited for handling the various audio formats and recording operations you're likely to work with. For example, you can record directly into both the Sample Editor and Montage room, taking advantage of the new and more flexible choices for picking your audio I/O hardware. (Earlier versions were limited to the default settings in your System Preferences.)

There's support for new audio file formats—CAF and WAV have been added to AIFF and SD2, and MP3 is supported for input only—and you can also save files with up to 32-bit resolution. Because MS 5 has a new Render to Disk option, you can create sounds that are much longer than the previous 6-minute limit, and V. 5 will also import files of nearly unlimited length.

MetaSynth is a deep program. To help you get your bearings, U&I has put together a collection of online tutorials that cover different aspects of the program (these are in addition to the many online tips, examples and lessons). The user's manual is also excellent, and the numerous included presets will definitely come in handy, no matter what type of music you're doing. (A huge collection of new multisamplers and custom tunings for the Image Synth and Image Filter became available as I was writing this review.)

MS has enough tools to keep you busy for eons. Its sound design potential is vast, and the Sequencer and Montage rooms provide a great environment for working with longer compositions of any style. The ease with which you can create music that uses highly complex stereo positioning is amazing, and its room-based architecture offers some unique options. You might, for example, analyze and graph the spectrum of a sound in one room, then use that same data elsewhere as a custom tuning table or filter. I can think of no single program other than perhaps Symbolic Sound's hardware-based Kyma system that offers so much in the way of working with sound. There's no doubt where I'm getting the score for my next film. EM

Dennis Miller teaches at Northeastern University in Boston and is a composer and animator. Check out his work at dennismiller.neu.edu.

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NOVATION

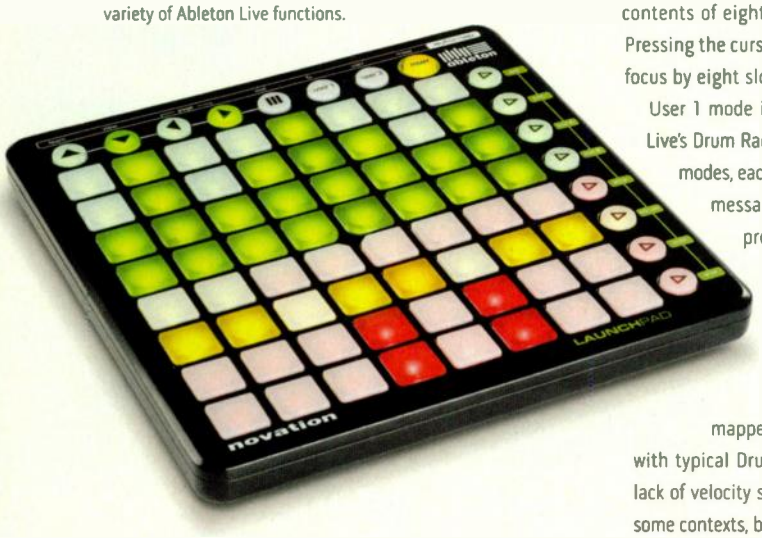
Launchpad (Mac/Win)

By Len Sasso

The Novation Launchpad ($199) is the second control surface designed in collaboration with Ableton primarily for use with Live. (You'll find a review of the first, the Akai APC40, in the July 2009 issue of *EM*, available at emusician.com.) About half the price of the APC40, the Launchpad differs significantly in both size and design philosophy. If you happen to own an APC40, don't stop reading—one or more Launchpads (you can run as many as six) would make an excellent addition to your rig.

The Launchpad comes with roughly 1 GB of loops in various styles from Loopmasters and Mike the Drummer (MTD). It also includes a fully functional but limited edition of Live, from which Ableton offers an upgrade path to the full version. If you already have Live installed, setting up the Launchpad is as simple as installing the driver from the included DVD, connecting the USB-powered unit, launching Live and selecting the Launchpad as a MIDI control surface in Live's preferences. The unit also supports Novation's Automap for use with other software, but I didn't test Automap operation for this review.

Novation's compact Launchpad fits neatly beside a keyboard or other control surface and lets you access a variety of Ableton Live functions.



BUTTON DOWN

The 9.45x0.79x9.45-inch Launchpad is solely a button box. Sixty-four soft, drum-controller-style square pads take up most of its surface. Sixteen round buttons along the top and right sides select modes and trigger special functions. The right four buttons in the top row select among Launchpad's four modes: Session, User 1, User 2 and Mixer.

Session is the primary and undoubtedly the most used mode. Pads trigger clips in Live's Session view and light up to show each Session slot's status—dark for no clip, green for clip playing, amber for clip stopped and red for clip recording. My biggest complaint about the design is something that's conspicuously missing: a separate row of clip-stop buttons along with a stop-all-clips button. To perform those functions, you need to temporarily switch to Mixer mode.

In Session mode, the buttons in the right column launch Scenes. The left four buttons in the top row cursor through the Session view slot matrix. Holding the Session button changes the pad lighting to reflect the contents of eight-by-eight groups of slots. Pressing the cursor buttons then jumps the focus by eight slots at a time.

User 1 mode is intended for controlling Live's Drum Rack virtual instrument. In all modes, each pad sends a MIDI note-on message with velocity 127 when pressed and a MIDI note-off message with velocity 0 when released. In User 1 mode, the notes are passed through to the selected track and are mapped starting with C1 to align with typical Drum Rack layouts. The pads' lack of velocity sensitivity is a hindrance in some contexts, but this mode is still handy.

SLIDE AROUND

In User 2 mode, the pad notes are not passed through to tracks, but as in all the modes, you can use Live's MIDI-learn implementation to map them to any control. Live lets you map note ranges to incrementally control a single parameter; in User 2 mode, the pad rows are contiguously assigned to accommodate this so that you can set up rows or row segments to control knobs and faders. With Ableton and Cycling '74 Max for Live, you can also send commands to Launchpad to control each pad's lighting, among other things. (For more on Max for Live, see the review on p. 60 of this issue.)

Mixer mode is set up to control Live's mixer. Pressing the Mixer button activates a mix overview for the focused eight tracks. The top four pad rows indicate volume, pan, send A and send B status: dull green for the default value (0 dB for volume, for example); and bright green otherwise. Pressing a pad resets to the default value. The bottom four pad rows function as clip-stop and track-mute, track-solo and track-arm buttons. The top four right-column buttons turn the columns into bar-graph-style controls for volume, pan, send A and send B. Pressing the Mixer button returns you to the mix overview.

Once I became accustomed to the display protocol and to using pad rows or columns as bar-graph controllers, I found all the Launchpad modes useful. The mixer overview is a great quick-reset tool and visual aid, even when used with other control surfaces. It's nice to have a large array of drum pads rather than having to constantly switch banks. But most of all, being able to control 64 clip slots at a time and easily navigate through the entire Session view matrix is a huge improvement over mousing around or making your own fixed-map keyboard assignments.

Overall rating (1 through 5): 4

novationmusic.com

AVANT ELECTRONICS

Avantone BV-1

By Eli Crews

The Avant Electronics Avantone BV-1 ($999) is a large-diaphragm multipattern tube microphone with style for days and a sound to match. It's a hefty cylinder with a butter-cream (soft-yellow) enamel finish, about the size of a large beer can and twice as heavy, with a lollipop-type capsule housing extending from its top. Two mini-switches under the body's top rim engage a 10dB pad and an 80Hz highpass filter. Inside the mic body resides a Russian-made 6072A tube and a custom-made CineMag output transformer. Inside the capsule housing is a 1.34-inch 3-micron, dual-diaphragm assembly.

The mic comes with a high-quality Gotham cable to attach it to the power supply, where you switch the polar patterns. The cable fits nicely at a 90-degree angle into the 7-pin connector at the mic's base. The power supply is as solid as a brick and about the size of a shoebox. A large, basket-style shockmount screws securely onto the mic's base, but the thumbscrew couldn't quite tighten down enough to hold the heavy mic in place reliably. Fortunately, the folks at Avant Electronics report that the company fixed this problem about the same time that I began my review.

The pop screen gets fitted onto the capsule housing's neck with two long nut/screw assemblies. Attaching the pop filter was a little cumbersome, but once in place, it did its job nicely and looked pretty darn cool, to boot. Speaking of looking cool, the mic and its accessories come in a tweed case with alligator trim. The case is rather large and appropriately retro.

THE GAUNTLET

I employed the BV-1 in everyday session work in my studio (New, Improved Recording in Oakland, Calif.) for about a month, giving me opportunities to try it on vocals, saxophones, clarinet, electric and upright bass, electric and acoustic guitars, piano, and drums. It excelled in almost every scenario. On male vocals, I heard a more forward midrange and a smoother, less-hyped top end than on either the Blue Microphones Bottle mic with a B6 capsule or the Mojave Audio MA-200. In this case, the BV-1's sound fit the song better. The only time I took the (identical-sounding) pair of test mics down was over a particularly bashy drummer, where they sounded somewhat harsh.

In general, the BV-1 is a trifle more well endowed in the 3kHz-to-5kHz range than those other mics, which made certain otherwise dark instruments, such as clarinet and upright bass, sit nicely in the track. It also really delivered on our old Chickering 6-foot grand piano, which has a woolly, dark sound that I love, but usually needs a little EQ dip in the boomy lower midrange. Recorded in mono with a BV-1 in cardioid, the piano sound didn't need that treatment, as the mic accentuated the presence of the piano while still sounding natural.

RECOGNIZING PATTERNS

As with all multipattern mics, the BV-1's frequency response changes depending on the pattern selected. This was clearly illustrated when I set it up as a drum-room mic: As I changed patterns, it sounded like I was EQ'ing the channel. In cardioid, I got what I would consider the most neutral sound, and as I notched the selector switch toward bidirectional figure-8, the sound thinned out a bit, emphasizing the snare drum and de-emphasizing the bass drum.

The opposite was true as I approached the omni pattern: The kick became much beefier, the snare receded a bit, and the mic's overall output came up a notch and had a little more roominess. All the patterns sounded good in their own ways, and each could be useful depending on the role of the room mic in the track. I really like this kind of tonal preshaping that happens before any EQ or compression, as it sounds more natural to my ears. The BV-1 proved mighty versatile during this test.

The Avantone BV-1 is an excellent-sounding multipattern tube mic that proved its versatility in a variety of applications.

I have zero qualms reporting that the BV-1 is a high-quality mic at a great price, and it stood up squarely against a few of my favorite standbys. It wasn't always my top choice, but when it was, it handily fulfilled its job of capturing the sound of whatever was in front of it. I have nothing but praise for this beautiful-looking and -sounding mic.

Overall rating (1 through 5): 4

avantelectronics.com

SAMPLE LOGIC

EM HOT PICK

Morphestra (Mac/Win)

By Marty Cutler

> Almost any given patch in Morphestra can paint a thousand pictures.

As sampling and synthesis evolve and convolve, more composers for film and games rely on a nontraditional palette of sounds in their orchestrations. Sample Logic has been producing imaginative sample libraries for years (see my Sample Logic Synergy review in the April 2009 issue of *EM*, available at emusician.com). The company's latest palette of tones and colors is Morphestra, a 27GB library of instruments, atmospheres, stings and pulsating rhythms.

At $699, the library is not inexpensive, but it ships pre-installed on a 160GB Glyph Technologies SATA II hard drive with FireWire 800 and USB 2 interfaces, and a one-year guarantee of overnight replacement should anything happen to the drive. Consequently, the drudgery of installing 27 GB of data is unnecessary (unless, of course, you want to move the data to another drive).

ONLINE BONUS MATERIAL

You must install the included Native Instruments Kontakt Player unless you already have it or have the full version of Kontakt 3.5 or 4. Thanks to the Service Center application, installing the software and authorizing the library are quick and easy. I ran Morphestra with Kontakt 4.0.2.

MORPH FOR YOUR MONEY

At the top level, Morphestra instruments comprise three main categories: Atmospheres, Instrumentals and Percussives. Each harbors two to four subfolders arranged by function, such as melodic instruments or pads. Most often, these also contain nested subfolders such as wind-instrument-based or synth-derived pads. Melodic instruments further subdivide into arpeggiated and gated categories, bells, mixed ensembles, loops and more.

The Atmospheres category holds Ambience and Stinger folders. Ambience is conveniently subgrouped by application; folders titled as Blurred Emotions, Dark N Scary, Disturbed, Electronic, Euphoric and the like should tell you all you need to know. That said, almost any of the patches could easily cross over into other evocative territories. Many of the sounds, although not identified as such, have rhythmic components running in tandem with shifting and evolving timbres and harmonic and melodic motifs (see **Web Clip 1**).

Programs using the Mod Wheel are identified with an MW prefix, and many go beyond simply sweeping filter-cutoff frequencies. Some add subtle amounts of resonance, add a bit of distortion or change the rhythm of the arpeggiator (see **Web Clip 2**). Most of the arpeggiator patches create complex and captivating syncopated rhythms with an assist from tempo-synched delay. There's plenty of leeway to create your own arpeggios and gated rhythms; tabs at the bottom of each patch access all the tools you need to create your own rhythmic patterns. Additional tabs open parameters for reverb and delay, EQ and filter, and distortion and modulation-driven effects.

Morphestra instruments cover a broad sonic panorama from sweet and evocative to turbulent and bone-crushingly distorted tones. Samples derive from acoustic sources including instrumental, vocal and even animal sources, and yet, despite their extensive processing, they remain infused with their original organic qualities, allowing them to integrate well with more obviously acoustic sources. In addition, Morphestra includes a sweet and lush set of orchestral ensembles, including string and woodwind variations.

The Percussives folder holds loops, sequences, kits, percussion-kit elements and more. Some of the sounds offer subtle pre-recorded room ambience so you may not need the additional effects used in a patch. Other sounds are bone-dry. Either way, there's punch to spare. Be sure to try the arpeggiator in conjunction with the kits (see **Web Clip 3**).

MEET THE COMPOSER

As good as the single patches are, Morphestra's multis furnish supremely inspiring sounds, thanks in part to contributions from top-flight film- and game-score composers and sound designers. Folders in the Multi section include patches created by Bill Brown, David Lawrence, Mark Isham, Rupert Gregson-Williams and Tom Salta, in addition to scads of imaginative and expressive sounds from the Sample Logic staff.

Among a uniformly musical and impressive lot, my pick of the litter is Mark Isham's multi Little People, with what sounds like a tremolo Wurlitzer piano melding with a gauzy synth pad as gamelan-like motifs fade in and out, trading places with an arpeggiated synth figure. This one halted my review dead in its tracks for a few hours (see **Web Clip 4**).

Morphestra places Sample Logic at the topmost standing, along with an intensely creative handful of sound designers of instruments for film and games. It's been said that a picture is worth a thousand words; almost any given patch in Morphestra can paint a thousand pictures. For anyone interested in the cutting edge of imaginative composition, I give Morphestra my highest recommendation.

Overall rating (1 through 5): 5

samplelogic.com

Sample Logic Morphestra is a massive collection of imaginative sounds derived primarily from acoustic sources.

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EM HOT PICK

PSPAUDIOWARE

PSP oldTimer (Mac/Win)

By Michael Cooper

Here's a riddle: What has multiple personalities yet is uncomplicated and sounds rich but is a pauper's best friend? The answer is the superb PSP oldTimer compressor plug-in. Costing only $99 (and even less for existing PSPaudioware customers), oldTimer offers an idiot-proof interface and a surprising variety of compression curves reminiscent of vintage analog hardware models.

PSP oldTimer comes in three flavors: AU (Mac), VST (Mac/Win) and RTAS (Mac/Win). I used Version 1.1.6 of the AU version in MOTU Digital Performer 6.02 on an 8-core 2.8GHz Mac Pro running Mac OS 10.5.4.

IN MY SLEEP

PSP oldTimer is so easy to use, you hardly need to be awake to produce outstanding sounds.

> You hardly need to be awake to produce outstanding sounds.

A three-way switch engages (Valve mode) or bypasses (Clear mode) convincing tube-circuitry emulation (compression is active in either mode) or deactivates all processing (Off). The Ratio control ranges from 1.2:1 to 10:1, with lower ratios also providing a gentler knee to the compression curve.

Although attack and release times are heavily program-dependent, you can alter both simultaneously by adjusting the Time control. Low settings (0 to 3) produce fast attack and release, perfect for squashing drum tracks. Midpoint settings (4 to 7) are slower and remind me of the way opto and Vari-Mu compressors act. For long values useful in leveling, set the Time control between 8 and 10.

ONLINE BONUS MATERIAL

As you turn up oldTimer's Compression control, the threshold is lowered and compression depth increases. A VU-style gain-reduction meter aids your adjustments. Adjust the makeup gain in 0.5dB steps (up to 30 dB) using the Output control.

You can store presets and recall them from your hard disk. That said, there is currently no way to permanently store custom settings in the GUI's default preset bank.

Internal processing is 64-bit floating, and both 32- and 64-bit floating-point audio input—at sampling rates up to 192 kHz—are supported. In plain English: oldTimer is an extremely high-resolution plug-in.

PSP oldTimer's simple interface belies its ability to produce a stunning variety of sounds.

SOUNDS FAMILIAR

Although oldTimer isn't modeled on any specific piece of gear, its widely varying compression curves reminded me of vintage favorites at different settings.

Switching oldTimer to Valve mode, 4:1 ratio and a midpoint (5) Time setting, I cranked the Compression control for 12 dB of gain reduction on a lead vocal track. Set thus, oldTimer sounded similar to my Teletronix LA-2A in how it transparently made the vocal sit perfectly in the mix (although the timbre was different). Clear mode produced a subtly more open and detailed sound that was stunning on stereo-miked strummed acoustic guitar; oldTimer deftly leveled the widely dynamic performance to create an in-your-face sound. By lowering the Time control to between 0 and 0.5 on the same track, I got a hyperventilating sound close to that of a cranked SSL Buss Compressor. At such extreme settings on this instrument, oldTimer produced slight distortion but nevertheless sounded terrific.

PSP oldTimer sounded absolutely phenomenal on room mics for drums, rivaling or surpassing my other favorite processors (both plug-ins and analog hardware) for this application. Set to Clear mode, 4:1 ratio and the fastest attack and release times, 9 dB of gain reduction produced an explosive sound (see **Web Clip 1**).

A slightly slower Time setting and 12 dB of gain reduction clamped down hard on a bass guitar track immediately following the finger-plucks' attacks. Soloing the track, it sounded somewhat tappy, but folded into a dense mix the unsoloed track's percussives were masked. What endured was a beautiful sustain that made the bass sound louder and fuller. Much lighter compression and a Time setting of 10 subtly leveled the same bass track, making it sound a tad more pillowy. For both applications, the Valve setting was my favorite. Valve mode also subtly warmed up glassy percussives on a slowhand Strat track.

MAGIC BUS

PSP oldTimer is a friend to more than just individual tracks. The plug-in also sounded outstanding used as a 2-bus compressor. A 1.5:1 ratio, with Time set to 4 and 2 dB of gain reduction on peaks transparently provided wonderful glue and added volume to an entire mix.

Are you getting the idea that oldTimer is a versatile compressor? Combine its chameleon-like dynamics processing with its beautifully voiced emulation of high-end tube circuitry, and you can only conclude oldTimer is a classic in the making. At the rock-bottom price of less than one Benjamin Franklin bill, the verdict is obvious: PSP oldTimer offers the best value of any compressor plug-in on the market. em

Overall rating (1 through 5): 5

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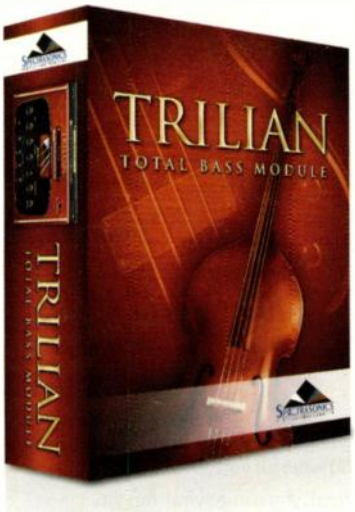

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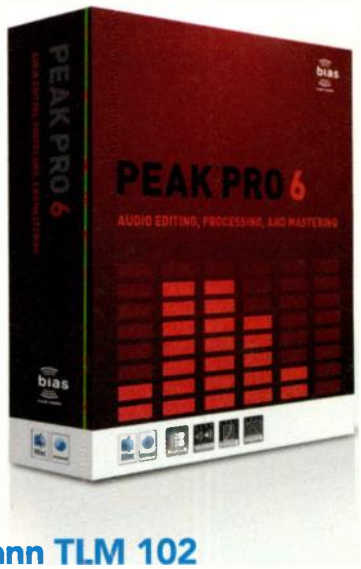

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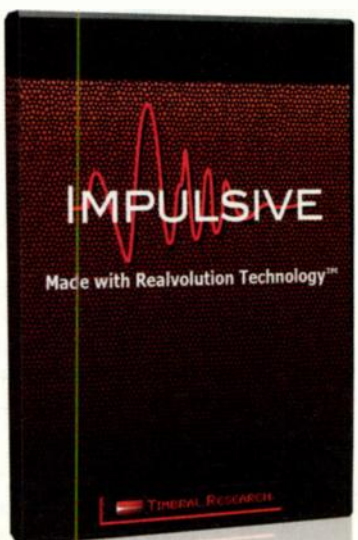
Don't let its small size fool you — only 4.5" tall — the new TLM 102 large-diaphragm microphone makes a perfect addition to any studio, from project to professional. Featuring transformerless circuitry, a foam-lined grille to reduce 'p' and 's' sounds and an SPL rating of up to 144 dB, the TLM 102 brings the legendary Neumann sound home at a price everyone can afford.



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The Big Squeeze

By Nathaniel Kunkel

Here in early 2010, I am in some ways more optimistic about music than I have ever been, but at the same time I'm dubious at best about the economic prospects for the industry.

I am excited about where technology is taking us, not because we can now edit anything, but because we can now get our music out there without anyone else. We have a cyber playground where if you write a smash song and post it on YouTube, you can get heard by millions of people. If you are great, you can go viral. But I'm concerned that the mechanisms to pay artists, musicians and producers—even those making music heard by millions of people—are antiquated and becoming more dysfunctional by the day. As the artists get squeezed, they squeeze back. Hence the growing disconnect between what production services actually cost and what people want to pay. These chasms need to be bridged, but it is getting harder to do so. I have clients that range from those who spend lots of money to those who spend little; many of you have probably experienced this as well. The spread between the two extremes is getting larger, and as it does, so do the problems.

I can't pay my bills if I don't serve my best clients; the situation is identical for my lower-paying clients. I can't afford to say no to anybody. But is that fair to my clients who pay the full rate? Why should they pay three times as much for the same service?

Until recently, the answer was: It's not the same. Or we would get compensated in other ways. Perhaps some participation or publishing; there were options. The idea was that as engineer/producers, we understood that budgets were smaller and we were willing to gamble along with the artist that we could make a hit. Less pay now, bigger potential payoff later. It created an environment of mutual investment.

But now, people are expecting the same or lower rates than ever, with the same services and no sharing of future income. If they do agree to share profits, they often want to sunset it so that that the revenue sharing expires after a couple of years. So now we do exactly the same job for everyone, and we get paid different amounts by everyone.

Putting aside how fundamentally unfair that is, it creates another nasty issue. It's not going to take long for the full-rate clients to realize they're getting the short end of the stick and demand that we charge them less, too. And to be honest, can you blame them? How would you feel if you went to a deli and the dude in front of you paid $3 for the identical sandwich that you paid $9 for? That would tick me off.

And when artists ask for favored-nations billing, what happens next is obvious: We close up shop—we can't afford not to. If we don't get paid a living wage on the front end and are cut out of any participation on the back end, how do we pay our bills?

Maybe we should try the old-school approach of compensating the people that make art for us with what they are worth, not just what they will take. It is in the best interest of the artist anyway; if you take care of your team, they will take care of you. And besides, how smart is it to low-ball the person who backs up your work every night? em

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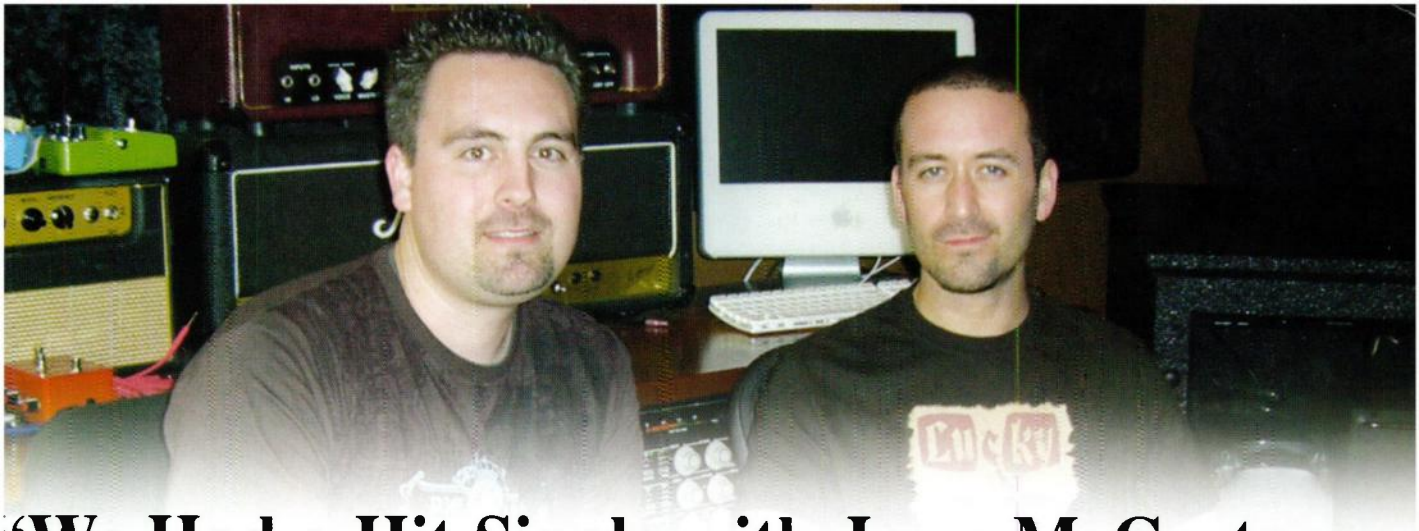
Nathaniel Kunkel (studiowithoutwalls.com) is a Grammy- and Emmy Award–winning producer, engineer and mixer who has worked with Sting, James Taylor, B.B. King, Insane Clown Posse, Lyle Lovett, I-Nine and comedian Robin Williams.



"We Had a Hit Single with Jesse McCartney, and it all Began with TAXI"

Andy Dodd and Adam Watts – TAXI members
www.reddecibelproductions.com www.adamwatts.com

Adam and Andy's success through TAXI is a little bit different from all the other stories you've probably heard. They got their *biggest* deal after their membership ran out!

Here's how it happened: "We joined TAXI in 2001 and found that it was a great motivator for us. We were members for two years. We learned a lot, wrote a ton of songs, and got a few film and TV placements -- some through TAXI, and some on our own.

We submitted a song we wrote with Jenn Shepard called "You Make Me Feel" to one of TAXI's Industry Listings. We didn't hear anything back for a while and eventually our TAXI membership ran out. Thankfully, we began to get so busy with production and writing gigs that we decided to wait and renew our membership at a later date.

Little did we know that TAXI had sent our song to a production/management company that was looking for material for a young, male Pop artist they were developing.

Later that year, Jesse McCartney's managers called us saying they had just heard "You Make Me Feel" on a CD they got from TAXI and wanted to have him cut the song. Although Jesse decided not to record "You Make Me Feel", his managers asked us to write more songs for him. We wrote a handful and they ended up putting his vocal on two of the tracks we produced, "Take Your Sweet Time" and "Beautiful Soul".

"Beautiful Soul" got played on Radio Disney, and Jesse's management got the song to a label executive at Disney. Soon after, Jesse was signed to Hollywood Records. "Beautiful Soul" became his first single, and we both signed publishing deals with Disney Music Publishing.

Jesse McCartney's album (entitled "Beautiful Soul") has gone Platinum in the U.S. and Australia.

"Beautiful Soul" went to #3 on Radio and Records CHR Pop Chart, #5 on Billboard's Top 40 Chart, #19 on Billboard's Adult Top 40 chart, it's a Platinum Digital Single Download, it's on the Gold-selling 'Cinderella Story' Motion Picture Soundtrack, the Gold-selling 'That's So Raven' TV Soundtrack, and the video was nominated for Best Pop Video at a 2005 MTV Video Music Awards."

All of this came about because Adam and Andy sent a song to TAXI. Call for our free information kit!

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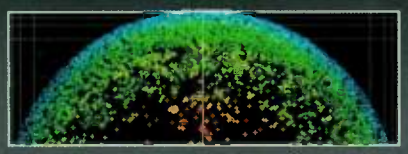

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