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JANUARY 2011

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ELECTRONIC MUSICIAN

JANUARY 2011 VOL. 27 NO. 1

FEATURES

30 2011 EDITORS' CHOICE AWARDS

Every year, *EM* editors pick the best products—both hardware and software—that we've encountered during the past 12 months. This year, we serve up awards in 15 categories. Read about the winners here.

22 J.R. ROTEM: PRODUCING IN THE FAST LANE

Having produced artists such as 50 Cent, Dr. Dre, Rihanna, Lil' Kim, Jason Derulo, Sean Kingston, Lindsay Lohan, and Britney Spears, J.R. Rotem knows what he wants in the studio and how to get it. In this interview, he talks about his all-digital approach, his favorite plug-ins, what the current trends are for processing and arranging vocals, and plenty more.

36 TUNE UP, BOOT UP, PLAY

Using a laptop as an effects-processing engine for a live guitar rig opens up a whole new world of sonic possibilities but does present some technical challenges. The story includes a look at one guitarist's odyssey through myriad setups, plus advice from a number of laptop-based players.

REVIEWS

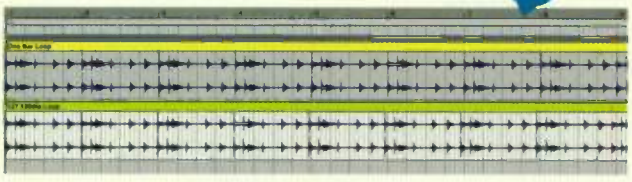
58 QUICK PICKS

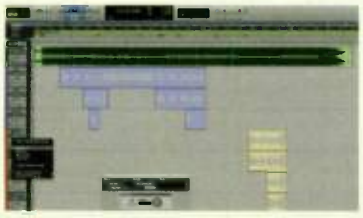
SYNTHOGY IVORY II GRAND PIANOS (MAC/WIN)
virtual piano collection

DAVE SMITH INSTRUMENTS MOPHO KEYBOARD
analog synthesizer

ARTURIA BRASS 2.0 (MAC/WIN)
physical-modeled horn software

NATIVE INSTRUMENTS GEORGE DUKE SOUL TREASURES
Kontakt sample library





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 27, Issue 1, January 2011. 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.

FIRST TAKE

It's January Again

Although many of you might be reading this before the end of December, this is our January issue, so I'll start out by wishing all of you a Happy New Year. What will 2011 bring from a gear standpoint? It's hard to say, but NAMM is just around the corner (January 13-16, 2011), so you can count on a lot of new-product action soon. As usual, *EM* will be in Anaheim to cover the show with breaking product news, videos, blogs, and more (available at emusician.com).

Even before NAMM, there's already been a lot of big news, including Avid's bombshell Pro Tools 9 announcement on the eve of the AES show. That release could have wide-reaching effects in the gear world, both among users and manufacturers. We are in the process of reviewing Pro Tools 9 and will have coverage in *EM* soon.

Photo by Marla Cohen

Another recent major product announcement, also in the DAW space, was Cakewalk's SONAR X1. SONAR, a key Windows DAW, has had a total redesign. (You can find more info about SONAR X1 and Pro Tools 9 in this month's "What's New" on p. 12.) With the introduction of SONAR X1, Cakewalk has added a great deal of functionality into the program, especially from a user interface standpoint. Interestingly, one of the reasons we just gave our Editors' Choice Award to MOTU Digital Performer 7.2 (see p. 30) was for its many useful productivity enhancements. Perhaps we're seeing a trend, who knows? Contemporary DAWs have so many features that it seems to me that making them easier and faster to use is a fertile area for developers to focus on.

You can read about all the Editors' Choice winners in this issue. As usually happens, the awards went to products from a broad range of companies, from tiny one- and two-person operations to large international corporations. I'd love to hear your thoughts about our award choices or any other *EM*-related subject. Drop us an e-mail or post a comment at emusician.com.

Also of note is the interview with producer J.R. Rotem ("Producing in the Fast Lane," p. 22). I really enjoyed talking to him because he's incredibly knowledgeable about the gear in his studio, and he offered a lot of production tips, especially some cool arranging ideas for recorded vocals. Rotem's biography is an interesting one. I was surprised to learn that when he started at Berklee College of Music, his performance experience was strictly in classical music, yet he majored in jazz performance, and after graduation launched his career as a jazz pianist before changing over to pop and hip-hop production. Talk about switching gears—wow. At least in Rotem's case, musical talent has totally transcended genre.

In "Tune Up, Boot Up, Play" (p. 36), guitarist Michael Ross looks at the potential and the challenges of integrating a laptop into a live-guitar setup to take advantage of its superior effects-processing capabilities. He went on quite a gear odyssey as he searched for a setup that combined extreme portability with DSP power. He also talked to a number of other pro guitarists about their experiences with laptop-based rigs.

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FRONT PANEL

DOWNLOAD OF THE MONTH *

NATIVE INSTRUMENTS REAKTOR 5 PLAYER

By Len Sasso

Native Instruments (native-instruments.com) recently expanded its series of free players to include Reaktor 5 Player. You can download it separately or as part of the Komplete 7 Players bundle (also free), which includes Kontakt 4 Player, Guitar Rig 4 Player, and Kore 2 Player. Each player comes with some quite usable content illustrative of the offerings available for the full instrument. Beyond that, there are commercial packages priced from $59 available for each of the players. The one downside is that the players are save-disabled; as a workaround, you can save modified plug-in settings as part of a DAW file.

The Reaktor 5 Player is a great way to get your hands on some of Reaktor's highly unusual instruments and effects (called Ensembles). The download includes three of my favorites: the Newscool beatbox based on John Conway's computer simulation Game of Life, an atmosphere generator called SpaceDrone, and the full-featured subtractive synth, Carbon2. All three come with banks of presets that will keep you busy for a while.

Of course, Native Instruments' motivation for developing the suite of free players is to entice you to buy the full versions or some of the content packages. For Reaktor 5 Player there are currently four: two incredible synths, Spark (subtractive with lots of feedback options), and Prism (physical-modeled and organic-sounding), developed by Native Instruments' founder, Stephan Schmitt, along with two performance-oriented effects, The Finger and The Mouth, by British performer Tim Exile. The Finger is like having an array of stompboxes that you can activate and re-order in real time from your MIDI keyboard. The Mouth transforms (and optionally pitch-corrects) incoming audio and then uses that to drive lead and bass synths, as well as a vocoder. The processed source along with the synth and vocoder outputs are then passed through a final effects section. All the processes that involve pitch correction can use preset scales or real-time MIDI input to set the allowed pitches (see **Web Clip 1**). *

OPTION-CLICK

Fig. 1: Organize sounds quickly in Spectrasonics Omnisphere by sorting by star rating (a). Gather sounds into groups with the Project button (b).

BIG BUTTONS OF THE STARS

Playing Favorites in Omnisphere

Before starting any composition project, I like to round up my ensemble. In the case of electronic music, that's usually a set of favorite patches. Two new features in Omnisphere (spectrasonics.net, $479) make collecting favorites easy. First is the ability to sort by star ranking.

HEAR AN EXAMPLE OF REAKTOR 5 PLAYER IN ACTION * EMUSICIAN.COM/BONUS_MATERIAL

THIS MONTH'S SOUNDTRACK

By Mike Levine

This month, we span the world with artists from such disparate locales as Portland, Ore.; Berlin; Moscow; Boston; and Addis Ababa, Ethiopia.

COPY: *HARD DREAMS* (AUDIO DREGS RECORDING)
Copy (aka Marius Libman), a Portland, Ore.–based artist, offers up a hypnotic set of electronic dance music full of arpeggiated and catchy melodies.

Photo by Michael Mann

SONIA BREX: *NAIF* (PIRANHA)
This arresting collection from the Italian-born Brex, who is a longtime Berlin resident, comprises a diverse group of songs, which could loosely be termed "electro-pop," but that bring together influences as varied as bossa nova and Chinese opera.

VARIOUS ARTISTS: *INÉS LP* (CLOWN AND SUNSET)
The debut from 20-year-old Nicolas Jaar's label is a compilation of three artists from across the world: Jaar is New York City-based, Nikita Quasim lives in Moscow, and Soul Keita hails from Addis Ababa, Ehtiopia. The common theme is a mix of sound design, and electronic and acoustic textures. The material is unusual, as is the delivery medium for the physical album: a USB memory stick.

FREEZEPOP: *IMAGINARY FRIENDS* (ARCHENEMY RECORDS)
The Boston-area quartet offers a sound that is in many ways a throwback to '80s synth pop. The band's songs have been in a number of videogames, and are anchored by Liz Enthusiasm's vocals.

UKAB MAERD: *THE WAITING ROOM* (HC PRODUCTIONS)
Chuck Oken Jr. and Gayle Ellet present an impressive album of electronic explorations that feature a huge array of synths. Much of it was recorded live, with additional overdubs and loops from French guitarist Richard Pinhas added later.

Photo by Jed DeMoss

Click to the right of a patch name to assign it from one to five stars. Then click the Sort menu button and select "Ratings" (see **Fig. 1a**). Your favorites shoot to the top.

You can also assign favorite sounds to Project groups. Click the Project menu button and type a name for your project (see **Fig. 1b**). When you find a patch you want to add to that project, click the Project menu button again and select the project name. Use the Category menu to browse your saved projects.
—DAVID BATTINO, BATMOSPHERE.COM

THIS MONTH ON EMUSICIAN.COM

ALL NEW// EMBOOKS
The all-new *EMBooks* give you in-depth tutorial tips and techniques for any recording project. Now available: ***MIDI, A to Z; EM Onstage: Soundcheck at the Club*** at mixbooks.com.

BLOG// ROBAIR REPORT
Our intrepid former editor blogs about all issues relating to music technology and offers periodic updates as he rebuilds his studio from the ground up.

VIDEO//IN THE STUDIO WITH MING (VOL. 15)
Ming shows the networked storage system that allows him to access his music data from both his main studio and his home studio.

LISTEN// 2011 EDITORS' CHOICE WINNERS IN ACTION
Hear audio examples from many of the winning products.

BREAKING NEWS// WINTER NAMM
EM covers the NAMM show with product videos, blogs, and more.

WHAT'S NEW

By George Petersen

AVID

PRO TOOLS 9

PT GOES FULL NATIVE

Far beyond a simple software update, Avid (avid.com) Pro Tools 9 offers the choice of working with the DAW in a $599 software-only, stand-alone configuration or with a choice of Avid or third-party (Core Audio and ASIO) audio interfaces, and with Avid Artist and Pro Series controllers. The new software replaces Pro Tools LE and spans upward to Pro Tools 9 HD TDM. All versions now include Automatic Delay Compensation and EuCon support. Other features include support for 96 mono or stereo voices in the new software-only version of Pro Tools (192 voices with Pro Tools HD systems), 256 internal buses, and 160 aux tracks. In a related announcement, Universal Audio (uaudio.com) is now an RTAS developer, and its UAD-2 platform is now compatible with Pro Tools 9 systems.

CAKEWALK

SONAR X1

THE NEW FLAGSHIP SURFACES

X1 is the next evolution of Cakewalk's (cakewalk.com) SONAR series DAW software for the PC platform. The $399 flagship SONAR X1 Producer bundle (also offered in a $199 SONAR X1 Studio and $99 SONAR X1 Essential versions) includes native 32-bit and 64-bit Windows applications, unlimited tracks, pro effects, world-class virtual instruments, and creative production tools. X1 has Skylight, a revamped user interface supporting multiple monitors and widescreen displays, and faster workflows, such as customizable Control Bars and MultiDock for tweaking the screen to user preferences. The new Pro Channel brings re-creations of classic FET channel and bus compressors, musical 6-band equalizers, and a variable Tube Saturation stage to every mix channel.

SOLID STATE LOGIC

NUCLEUS

THE AFFORDABLE SSL

Solid State Logic s (solidstatelogic.com) Nucleus ($4,999) is a desktop I/O and controller with two banks of eight channel controls, center-section controls, 100mm moving faders, digital scribble strips, assignable V-Pots and soft-keys, user-customizable key-command mapping, and communication via HUI and MCU. Also featured is a SuperAnalogue output with separate +4/-10dB connections, a stereo USB record/playback path to DAW, two combo XLR mic/line/instrument inputs, and a Duende Native Essentials plug-in bundle.

TASCAM

US SERIES USB INTERFACES

MAKING CONNECTIONS

Tascam (tascam.com) expands its recording products line with three new multichannel USB 2 interfaces. The $249 US-800 has eight inputs, six outs (including six XLR mic channels with phantom power), two headphone outs, and MIDI in/out. The $299 US-1800 (pictured) has 16 inputs, including eight XLR ins, six balanced line ins (two are switchable to instrument level), two digital ins, and four simultaneous outputs. The top-end US-2000 ($499) also features 16 inputs and four outs, but offers improved audio specs and a 100-LED meter bridge. All are bundled with Steinberg's 48-track Cubase LE 5 software.

NOVATION

ULTRANOVA

POWERFUL AND PORTABLE

Novation's (novationmusic.com) UltraNova ($699) combines a 37-key wavetable synthesizer, an audio interface, and MIDI controller with Novation's Automap capabilities. Its single-part synth engine can employ wavetables alongside conventional subtractive synthesis, and it has three oscillators with Density and Detune controls, two ring modulators, a noise source, two filters, six envelopes, three LFOs, five assignable effects slots, and more. Among its built-in effects are distortion, chorus/phaser, delay, reverb, compression, and EQ; an onboard arpeggiator, vocoder (with mic), and patch librarian software round out the package.

IZOTOPE

NECTAR

SWEET VOCAL SUITE

IZotope's (izotope.com) Nectar ($299) is a plug-in processing suite with 11 vocal production effects, including breath control, compression, de-essing, doubler, EQ, noise gate, limiter, delay, reverb, saturation, and pitch correction. In addition, a manual note editor lets users capture a segment of audio into its editor, with piano-roll-style editing of pitch and timing. Onboard presets offer fast access to 110 style settings in 12 genres, such as '60s Motown sound, the early '90s grunge rock, radio-ready podcasting template, jazz vocals, or a modern pop sound, ranging from delicate improvements to highly produced robotic effects. It's PC/Mac-compatible, supporting Pro Tools 7 or higher (RTAS/AudioSuite), VST, MAS, AU, and DirectX hosts.

ARTURIA

ANALOG LABORATORY

THE SYNTHESIZER WORKSTATION

Arturia's (arturia.com) Analog Laboratory ($299) combines a dedicated MIDI controller keyboard with a collection of 3,500 tweakable preset sounds from its range of software emulations of classic synthesizers such as the Minimoog V, Moog Modular V, CS-80 V, ARP 2600 V, Prophet 5, Prophet VS, and Jupiter-8V. It can be used as a stand-alone app or as a plug-in within popular sequencers such as Cubase, Pro Tools, Live, Logic Audio, Digital Performer, and Cakewalk. Analog Laboratory is also offered as a $249 software-only version.

KORG

LEGACY SYNTH DOWNLOADS

CLASSIC SYNTHS—A LA CARTE

Korg (korg.com) is now offering its Legacy Collection with software emulations of its most coveted synths—including the M1 Music Workstation, the Mono/Poly, Wavestation, Polysix, and MS-2—either separately or as a bundle. All can operate as stand-alone instruments or as VST/AU/RTAS plug-ins on PC or Mac hosts, and are $49.99 direct downloads from korguser.net/shop/software. Also offered is the $19.99 MDE-X Effects suite, or all six can be purchased for $199.99.

SOUND ADVICE

By Len Sasso

GALBANUM
SYNTHESISM 01

Galbanum (galbanum.com) founder Andrew Souter introduces a companion to his Abstraction Series of atonal percussion libraries with Synthesism 01, a collection of synthesized melodic and harmonic loops, and one-shots. The library is sold in three parts—Apple Loops, Acidized WAV loops, and single hits—at $39.95 for the first part and $14.95 for each additional part (your choice). The 1GB collection of 24-bit, 44.1kHz audio files comprises 768 loops and 768 single hits. The loops are split between 106 bpm and 128 bpm, and easily stretch to accommodate tempos from 90 bpm to 140 bpm. They are all in minor keys, distributed equally among C, D, F, G, and A.

The loops in Synthesism 01 are all two bars long. The hits are of various lengths and are grouped in batches of 32 samples. They are named after MIDI notes for easy auto-mapping in samplers such as Native Instruments Kontakt that support that. Tonal hits are often grouped on four consecutive keys with the same sound outlining a minor-seventh chord (C-Eb-G-Bb in the C-minor collections, for example). The material especially suits dance, urban, and electronic subgenres, and it mixes well with the percussive material in the Abstraction Series (see **Web Clip 1**).

WAVE ALCHEMY
DEEP TECH AND PROGRESSIVE

Wave Alchemy's (wavealchemy.co.uk) latest sample pack delivers 950GB of acoustic and electronic drum, synth bass, and combi (pitched and synthy) loops aimed at house, progressive, and tech producers. Deep Tech and Progressive (approximately $63, download) starts with 654 WAV and REX-format 24-bit, 44.1kHz loops. All loops are at 125, 127, or 130 bpm, and they easily mix and match. You'll also find 592 drum and percussion hits and 62 sound effects, along with drum kits formatted for Battery, Kontakt, Reason NNXT, Halion, and EXS24. Those offer a perfect complement to Wave Alchemy's Drum Tools 01 collection.

To fashion this collection, Wave Alchemy started with 11 classic and modern synths, including Future Retro XS, Roland TR-808 and TR-909, Waldorf Pulse, and others. Along with those are versions with analog sound-shaping using such gear as Empirical Labs Fatso, Sherman Filterbank2, and Thermionic Culture Vulture. The production quality is outstanding, and having both hits and loops lets you easily fashion your own material (see **Web Clip 2**). Ableton Live, Propellerhead Reason 4, Apple Loops, and Drums-only versions are available separately.

THE LOOP LOFT
REFILL BUNDLE

Boston-based The Loop Loft (theloop loft.com) has recently teamed up with Propellerhead Software to create ReFills that take advantage of the new features in Reason 5. The ReFill Bundle ($79.95, download) contains its first three releases: two percussion libraries and a comprehensive collection of sax loops. Each of the collections starts with an assortment of REX files, which are also cleverly arranged in Dr. Octo Rex and Kong presets. The Dr. Octo Rex versions let you quickly mix and match eight loops in the same key, tempo, and style. The Kong versions use Kong's NurseRex module to assign cohesive fragments of the sax loops and single hits from the percussion loops to Kong's 16 pads. This makes it a snap to create your own loops or to substitute slices in their loops—it's much quicker than hand-editing REX-derived MIDI files.

Loop Loft's first release, World Percussion Vol. 1 ($29), features ethnic hand percussion from West Africa, India, and Latin America. The Art of Brushes ($39) samples vintage drums and hand-hammered cymbals played exclusively with brushes. The grooves span jazz, funk, and hip-hop. The Bob Reynolds Collection ($39) culls loops with a soul and jazz flare from 13 studio sessions. The material in these three ReFills ranges in tempo from 60 bpm to 220 bpm, and the sax loops cover a variety of major and minor keys and chords. They may seem disparate, but these three collections work well together (see **Web Clip 3**).

IMPACT SOUNDWORKS
KOTO NATION

Koto Nation ($99, download) is the second meticulously sampled ethnic-instrument library from Impact Soundworks (impactsoundworks.com). Like its predecessor, Sitar Nation, Koto Nation is a 24-bit, 44.1kHz sampler library for Native Instruments Kontakt 4. It comprises more than 4,000 samples (8.8GB). Twenty-five instruments deliver a variety of traditional tonal and atonal articulations: glissandi, mutes, slides, tonal and atonal hits and scrapes, harmonics, mordents, and more, including a selection of traditional phrases for the Koto-challenged. Three instruments are represented—koto, bass koto, and shamisen—all performed by renowned instrumentalist Masayo Ishigure. All the Kontakt instruments are provided in close- and room-miked versions. The library is particularly well-suited for film scoring, anime, and ethnomusicology. *

HEAR EXAMPLES FROM THESE SOUND LIBRARIES * EMUSICIAN.COM/BONUS_MATERIAL

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"Hollywood Strings is one of the most ambitious and detailed string orchestra libraries to date. The results are fabulous. EastWest set out to capture the sound we have grown accustomed to in movies and on commercial recordings, and they succeeded. The sound of Hollywood Strings is lush, rich, powerful, and poignant. A product this detailed, thoughtful, well-recorded, and ambitious deserves to be heralded. Hollywood Strings is an extremely capable tool." - ELECTRONIC MUSICIAN

"Expertly recorded and programmed. Extremely flexible and musical. Impressive range of articulations and playing styles. Appropriately, the producers recorded in a legendary Hollywood facility: East West's own Studio 1, where decades of hits were recorded. Shawn Murphy did the sampling sessions—his film score engineering credits read like a list of blockbusters from the past 15 years. So yes, the sound quality is superb." - KEYBOARD

"Everyone knows that the quality of orchestral samples continues to get better and better. As the hardware and software get more robust, the producers of these libraries take full advantage of it all, creating sounds that are sonically richer; and are better than ever before. Such is the case with HS. This thing is a monster, and it has quickly set a new bar in what you can get out of a library of orchestral string samples." - FILM SCORE MONTHLY

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By Geary Yelton

The Minimoog, which celebrated its 40th birthday last year, was the first synth to be considered a real musical instrument rather than custom-built studio equipment.

Moog Minimoog Model D

One small synth, one giant leap

The Minimoog wasn't Bob Moog's idea; in fact, he was skeptical at first. After all, R.A. Moog had a reputation for building handcrafted modular instruments, and mass production sounded less than appealing to the man who is considered the father of modern synthesizers. Until that point, synthesizers were made-to-order studio gear, not musical instruments in the traditional sense—much too specialized to consider being sold in music stores. Besides, as the '60s came to a close, Moog was deep in debt and couldn't afford to tool up a production line.

Fortunately, one of Moog's forward-thinking engineers, Bill Hemsath, began tinkering with designs for a compact synth in late 1969. Calling it the Min, Hemsath cobbled together Model A using spare parts from modular synths. He assembled several modules into a portable rig connected internally rather than by external patch cords. Other Moog engineers contributed ideas, and by the time Hemsath and rest of the design team had built two prototypes, Models B and C, Moog was leading the group effort.

Shortly thereafter, Moog sold the company and began working for its new owner, ensuring that production of the Minimoog Model D continued. Industry response was initially lukewarm at best, but once musicians began playing them onstage, Moog Music eventually sold about 12,000 Minimoogs between 1970 and 1980.

OUT OF THEIR MINDS, INTO THE STREETS

The Minimoog was the first synth whose signal path was hardwired rather than left up to the player, making it much easier to use than its predecessors. Its voltage-controlled circuits helped establish an architecture that soon became standard in other portable synths. The Minimoog had three relatively stable oscillators, each with a range down to one cycle every 10 seconds—hence, no need for a separate LFO. Moog's patented 24dB-per-octave lowpass ladder filter and two contour (envelope) generators—which were hardwired to the filter and VCA—were adapted from the company's modular instruments and simplified to cut costs. Jacks for processing external audio and external control sources, such as a sequencer or footpedal, furnished inputs from the outside world.

After its initial pre-production run, the Model D had several features lacking on previous Minimoog prototypes, including one of Hemsath's innovations: wheels to control pitch bend and modulation. Moog, short on cash and not realizing what a significant contribution to real-time playability that wheels offered, never bothered to patent the design. Those wheels, along with the 44-note keyboard's single triggering and low-note priority, gave the Minimoog an expressivity that eluded its competitors for years.

Today, used Minimoogs are still in demand. Most Model Ds still work perfectly—testament to their build quality. If you prefer soft synths, you can get emulations from Arturia, GForce, and other developers. The deluxe choice now, however, is the last synthesizer Bob Moog completed: the Minimoog Voyager (moogmusic.com). ✱

Former senior editor Geary Yelton has reviewed synthesizers for EM *since its very first issue in 1985. He lives in the heart of the Blue Ridge Mountains in Asheville, N.C.*

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By Kristi Kates

Home base: Ottawa, Ontario, Canada
Primary software: Steinberg Cubase SX 3
Favorite mics: Shure SM57 and SM58
Website: theacorn.ca

Photo by Jeff Garneau

The Acorn, from left: Jeffrey Malecki, Jeff Debutte, Rolf Klausener, Pat Johnson, Steven Lappano

Into the Woods

The Acorn adopt spontaneous, experimental production techniques

No Ghost (Bella Union/Paper Bag)—the new album from Ottawa-based band The Acorn—blends indie folk with occasional jabs of post-punk and is pointedly happier-sounding than previous Acorn efforts thanks to the band's new approach. "We spent a long time conceptualizing and researching music styles for *No Ghost*," says Rolf Klausener, the band's singer/songwriter/guitarist. "But for the actual recording, it was all about spontaneous sessions and committing to what happened during those sessions."

For its latest effort, The Acorn, with engineer Jarrett Bartlett, rented an A-frame cottage in northern Quebec and brought along an old Toshiba Satellite laptop computer. The tracks on *No Ghost* sonically absorbed parts of this beautiful but remote locale—from the walls (literally) to the insects humming along outside. "The cottage's hardwood floors and wooden walls absolutely affected the sound of the recording," Klausener says. "There was a ¾-second natural reverb and decay in the room."

With neighbors that included grasshoppers and other rustling wildlife—some of which can be faintly heard on several tracks—the isolated setting contributed to the band's focus. "We had no phone, TV, or Internet," Klausener says, "so it was all about getting up in the morning and working on music.

"For these sessions, we used Cubase SX 3, a slew of fantastic API preamps, and the new Mackie Onyx FireWire board with 12 inputs, which is a lot of ins for us" [Laughs]. The results of these sessions offer far more complex, textural listens than their humble origins might indicate.

A few songs, such as the bed track for "Cobbled From Dust" (see **Web Clip 1**), were partially recorded on an iZ Technology RADAR system: "RADAR's A/D converters are top-notch and allowed us to dump to Cubase for additional overdubbing," Klausener says.

The band recorded the rest of *No Ghost* in Montreal's Treatment Room, with Klausener, engineer Kees Dekker, and Bartlett at the helm. The title track (see **Web Clip 2**) begins with what sounds like a drum/synth loop, but, according to Klausener, "It's not a loop; it's a live drum track. Our drummer is amazing. The weird electronic line is me holding an A note on the standard setting of a MicroKorg run through the step filter in Cubase."

Bartlett also experimented with mic placement to capture the natural, woody reverb of the live room. "Jarrett's into binaural engineering," Klausener says. "He set up a tripod in the middle of the live room with a Styrofoam head mounted on it. He drilled holes where the ears would be, fitting small omnidirectional mics within. Then he glued prosthetic ears [pinnae] to the head to approximate a person's hearing. He uses that as an in-room mic and the sound is startling. It works especially nice on 'I Made the Law' [see **Web Clip 3**], where you can hear the slap of palm-muted acoustic guitar ringing all over the room. Its contrast with the dryness of the vocals and bass is one of my favorite sonic elements of the track."

Also startling, perhaps: the band's choices of mics for these sessions. "We used Shure SM57s and 58s," Klausener says, "although the strange mic winner for this project was the Shure SM7. I did most of the vocals with it through this old Russian preamp that Jarrett has, which added the nicest warmth. We didn't need to commit to $3,000 Neumanns for vocals; if it sounds good with a 58, it sounds good with a 58." *

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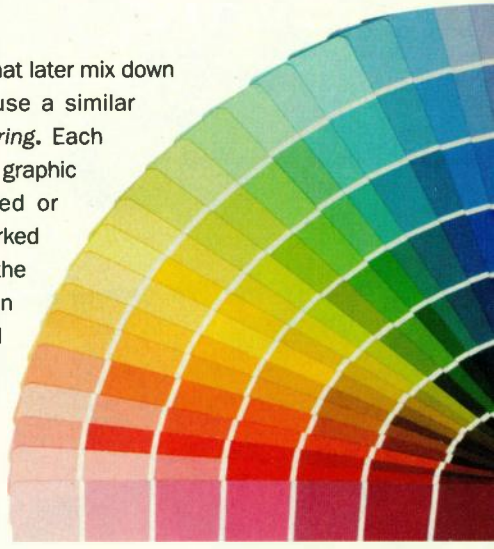

The logos and graphics you create (or have created for you) as a musician are used on websites, albums, T-shirts, and posters. But the formats and color requirements of these items can vary significantly. As anyone who has tried to do a run of T-shirts can tell you, you can waste a lot of time adjusting images for each type of use. Here's a short guide on colors and formats so that you can do it right from the start.

First, the colors available on commercial merchandise and CD runs are not the same as those on computer screens. The latter uses a color format called RGB (red/green/blue). This is an additive method, meaning it adds colors from the light source to produce colors. Printed items don't have a light source like that of a computer screen, so they use a subtractive method called CMYK (cyan/magenta/yellow and black "key"). Unfortunately, there are a limited amount of colors that can be produced with CMYK, even though home printers can approximate RGB colors in printed form. Also, commercial printers for mass production don't usually use these techniques.

When making a CD or T-shirt run, you might look at it on your screen, print it out at home, and think you're fine. But a graphic artist will begin by converting the images to CMYK, which can result in colors that are jarring. To avoid this, use CMYK colors when creating key graphics such as your logo. To make this easier, if you choose CYMK colors that have a Pantone number, commercial merchandise houses will know exactly which color tones to use, making the conversion much more accurate.

In addition to the color scheme, you'll also need to make format choices. Similar to how recorded music has multiple source tracks that later mix down to stereo, images use a similar concept called *layering*. Each layer in an advanced graphic image can be added or removed, or even worked on separately from the others, just like an individual track. You'll want to make each element in your image a different layer to maximize control so you can adjust them later. Some elements are also *vectored*, meaning that they can be enlarged, shrunk, stretched, or transformed without any loss of quality—similar to a MIDI track that can be transformed, transposed, slowed, or changed without affecting the sound. The layered, vectored formats are the most flexible but usually result in large file sizes. If you work with a graphic artist, always get the "masters" of your images in a format that allows layering (TIFF, AI, PSD) in case you need to adjust your images in the future.

Once you're happy with the images, you will need to do the graphical equivalent of a stereo mixdown: The images become *flattened* and *rasterized*. Flattened, rasterized images don't resize well, but because you've eliminated the layers, the file sizes are smaller. These images can be turned into popular compressed formats such as JPG, GIF, and PNG. It's inflexible formats like these that most musicians send off to commercial merchandise houses and T-shirt manufacturers and expect great results, even if adjustments are needed. This is similar to asking the mastering house to change the volume of the vocals on a track that's already been mixed down to MP3. Instead, give these manufacturers layered, vectored versions of your logos and graphics so you can get the best product possible.

If you know these details before you get started, you'll save a lot of time and be ready to order and create new merchandise easily, which is important, as merch is still one of the primary ways musicians make income from their music. *

Randy Chertkow and Jason Feehan are the authors of The Indie Band Survival Guide *(IndieGuide.com).*

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J.R. Rotem produces for some of the biggest names in hip-hop and pop.

Producing in the Fast Lane

J.R. Rotem on the gear and techniques he uses to make hit records

By Mike Levine

Thriving as a producer in the ultracompetitive L.A. pop and hip-hop music scenes is no easy task, but J.R. Rotem has proven himself more than equal to the task. Between his freelance production work and his work for his own label, Beluga Heights (which is affiliated with Epic/Sony), Rotem has produced a host of major artists including 50 Cent, Dr. Dre, Rihanna, Lil' Kim, Jason Derulo, Sean Kingston, Lindsay Lohan, and Britney Spears, among many others.

Born in Johannesburg, South Africa, Rotem spent much of his childhood in Canada before moving to the San Francisco Bay Area when he was in junior high school. He began his musical life as a student of classical piano but moved on to jazz when he enrolled in Berklee School of Music. After graduation, he embarked on a career as a jazz pianist in the Bay Area. At that point, producing was only a sidelight for him. "It just kind of seemed like a hobby," he says.

But after a while, Rotem decided that playing jazz might not be what he really wanted to do. "I just felt like there was a ceiling or a wall, or maybe it wasn't the ultimate perfect fit for my creativity. So I decided to start making beats and didn't really have any contacts; I was still in the Bay Area. But somehow my beats got in the hands of Dwayne Wiggins of Tony! Toni! Toné!, who was affiliated with Destiny's Child, and one of my beats was bought by [Destiny's Child] and ended up on their *Survivor* album. And then when that happened, it was a sign that there was a future for me in this."

Rotem has built his career to the point where he is now finding and breaking artists himself through his record label. I had a chance to talk to him recently about his production techniques, his console-free studio, his choice of instruments, and a lot more.

Do you have your own setup or do you work in a commercial studio?

We have our own wing in a commercial studio. I'm the type of person who doesn't like to travel or bounce around, so I don't do my setup in different locations. I have one location that I come to every day. Essentially, I have a residency in a commercial studio. I do everything in the same spot, every day.

Is it a studio based around a large-format console?

No. In my particular room, we don't use an SSL at all. The epicenter of the entire thing is really just a Pro Tools rig and my keyboards.

You just find that's an easier way to work?

Much easier as far as opening sessions and recalling them. I don't use any hardware or outboard gear. Everything is digital. You can open up a session at 3 a.m. and it's the same as it was before; no knobs to turn or anything like that.

No recall sheets, none of that stuff.

Exactly, it's completely a digital thing.

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What are some of your "go-to" instruments and plug-ins?

As far as hardware first, I'm still very much a keyboard person. I could never fully rely on soft synths. Me being a jazz musician, I'm very sensitive to latency and timing. And, obviously, nothing could be like playing a real piano where there's an acoustic connection, but I find that even keyboards are more like playing something real than a MIDI controller triggering soft synths from a computer. The keyboards that I rely on are the Yamaha Motif, the Access [Virus], a Korg Triton. I use the Roland Fantom-G8 and a few other more analog-type keyboards.

And then, I definitely have a very, very wide selection of soft synths that I also use. I'll use Ivory for real pianos, Miroslav for real strings, and [Spectrasonics] Trilian for real bass. My drums are a combination of samples I have on an MPC and also [Native Instruments] Battery. I'll use [XLN Audio] Addictive Drums for acoustic-sounding drums, and then I have [Native Instruments] B-4 for organs. I have a big variety of different soft instruments, and a lot of synthy analog stuff: [reFX] Nexus, [Native Instruments] Massive, [Korg] Legacy—stuff like that.

So when you're recording a keyboard part, do you just record the audio directly or do you also record the part via MIDI?

Everything is recorded into MIDI first. I'll have all of my instruments kind of setup on a template; I'll record into MIDI. I'll build the base of the track, usually quantize everything in MIDI unless something is specifically supposed to happen with a more natural feel. And then I'll track from MIDI into audio. Sometimes the beat will be a 4- or 8-bar loop that's simply tracked and copied and pasted. Other times, if I'm working in more of a song format—I'm playing different sections and kind of editing it and maybe for the full duration of the song, whatever it is—then I'll track all of that. And once that's tracked, I'll always add the bells and whistles on top of it. But it's definitely a process of first recording it into MIDI and then playing back that MIDI and bouncing it into audio.

So the keyboard sound is mainly just for when you're recording the part?

Just for the feel of what I'm playing.

FIG 1: For most EQ and compression chores, Rotem's plug-ins of choice are the Waves Renaissance Compressor and Renaissance EQ.

So you'll add soft synths later when you're layering and when you're choosing your final sounds?

Yes. I'll either use them at that point or, you know if I really need inspiration and I'm really sick of all the sounds on my keyboard, I might start with a soft synth, but mainly because I feel like I'm going to get to a sound I've maybe never heard on a soft synth. I have a lot of sounds on soft synths and a lot more undiscovered sounds. I know my keyboards so well that it's very rare that I'm going to stumble on a patch or a sound that I haven't heard, whereas on soft synths I might hear a sound first and the newness of it will be the inspiration for a new beat or a new song. Otherwise, like you said, I'll go to the soft synth afterward to replace.

How involved do you get in the mixing and processing on your projects?

Very heavily involved. On many of my songs, I'm actually the one who mixes; I don't always rely on an outside mixer. And even when I do, the song is usually 90-percent mixed already, from the process of recording it and tweaking it.

Let's talk about working with the artist. Another role of a producer is to try to coax the best performance out of an artist. What's your basic approach to working with people and trying to make them do their best?

I guess I try to tailor it to who I'm working with because different people want different things. Some people really want a solid framework, they want me to tell them the exact vocal arrangement, to tell them every harmony to sing, to tell them "this section is the lead," "this section we're going to double." For the most part I do work with people who allow me to do that so it's very hands on. So what I'm doing is having them keep singing stuff. Keep telling them, "No, do it with a little more personality here," a little softer, that kind of stuff. And I'll do a bunch of takes, and when they're not there, I'll comp all the takes into one that sounds like a magical take. That's usually the way I work.

Do you do a lot of experimenting with different mics to see which one works best with the artist, or do you have a particular vocal chain that typically works well with vocals?

Yeah, I'm a creature of habit. I don't do too much experimentation with different mics. We have basically relied on two mics for the most part. I think a Neumann U 67 was what we usually use. But lately, for the majority of vocalists, we've preferred to use a Sony C-800, a very popular mic that a lot of people are using. It cuts through. It seems to have a lot of high end. It sounds very current and very radio, and makes things pop without needing to EQ them as much. We do that through, I believe, an Avalon M5 preamp.

What about processing vocals? What's your favorite compressor to use?

The plug-ins that I rely on are the Waves Renaissance package. The Waves Renaissance compressor and the Waves Renaissance EQ

Keith McMillen
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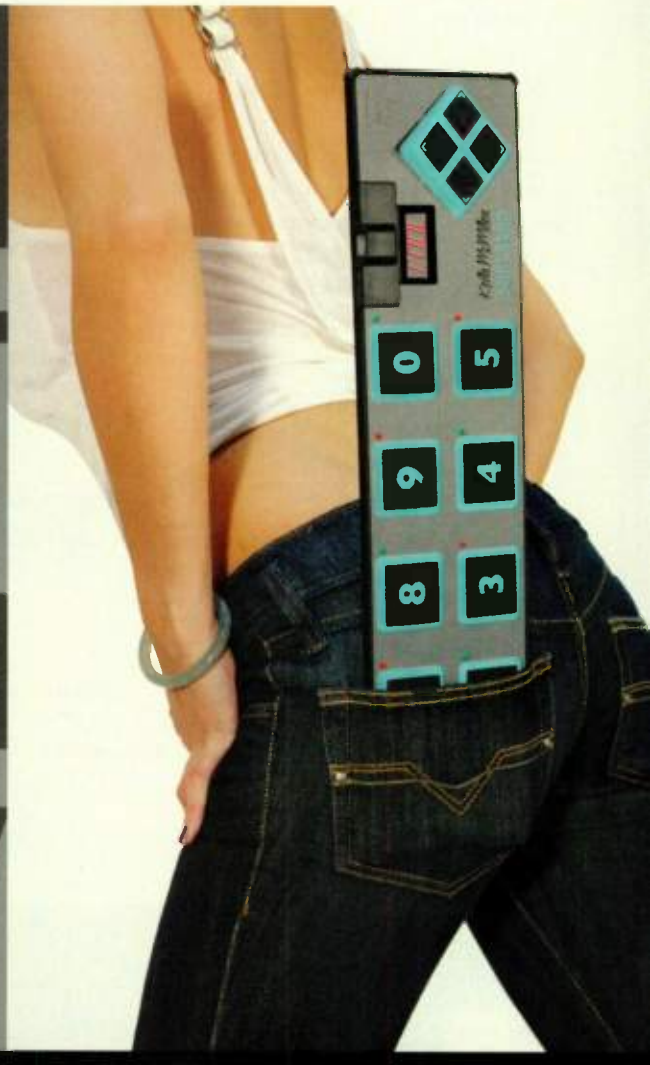

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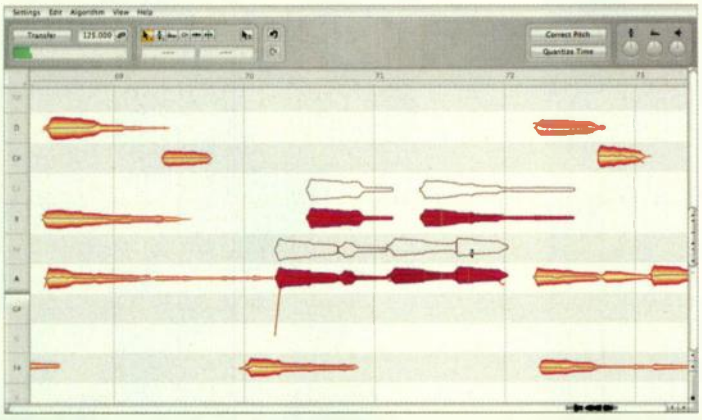
(see **Fig. 1**) I would say are on almost every track for me, vocals and instruments.

What is it about them in particular that you like?

First of all, I'm just really, really used to them and know how they sound, and I know how to get what I want out of them. And I think in general they're well-balanced between easy to work with and understand, along with giving you a certain kind of character, a certain kind of warmth, but not too much color. When I want to do things a little bit more dramatic, I have the SSL kind of stuff that I use for EQ and even for some compression, when I'm going for a more severe sound. And I have a compressor that I use, the Bomb Factory, that emulates the 1176. It kind of just depends—when I'm really trying to process a track, trying to get a piano to sound crazy compressed and I want a very severe sound, I might not rely on the Renaissance stuff. But the Renaissance stuff is kind of my go-to. I'm always cutting lows with it, I'm always compressing. I would say I use those about 90 percent of the time.

FIG. 2: When Rotem wants to correct pitch without it sounding corrected, he uses Celemony's Melodyne editor.



Rotem records all his keyboard parts to MIDI, putting his final sound choices off until later, but likes the feel of the keyboards' internal sounds when he's playing.

Photo by Joe Magnani for J Squared Photography

And what about [Antares] Auto-Tune and the issue of the T-Pain effect. Do you see that as something that's going to keep going for a while?

I think at this point it's safe to say that it's dying in popularity. I think it's also safe to say that everything in music is cyclical. Sometimes cycles last even longer than you expected. But the T-Pain thing was very weird. Just T-Pain was doing it and it was very popular and it was his sound, and then, you know, somehow everybody started doing it and it became industry standard, and it became a very popular sort of sound at the time, and it's lasted a long time. But I would say at this point there's a bit of a movement for things to sound more organic than they were.

Definitely, I still use Auto-Tune extensively. In fact, most people are so used to that sound that [they like to hear it] even while they're recording scratch vocals. I never record through Auto-Tune. Everything I record is unprocessed so that I can do whatever I want to it afterward. I never color it when I record, but they definitely want to hear in their headphones their vocals being played back through [Auto-Tune]. The same way a vocalist wants to hear a little bit of reverb and delay on the vocal.

Beyond its role as a mixing tool, vocal tuning is now being used for tracking?

The way people work is influenced by the technology. In the '60s and '70s, if you couldn't sing on pitch, then it's not likely that you'd have a career as an artist. Nowadays, with technology, it's not a prerequisite [to sing on pitch]. I'm not saying that to talk badly about anybody. There are very, very talented people who can write very hip songs, who have identities as an artist, and while they're recording they want to hear their pitch being corrected. It is a crutch in a way; it makes them so that they don't have to focus on singing in tune, but they almost want to hear that correction as they're singing it. It influences them to feel more confident and almost write and work in a different way.

So it's opening things up in a way. What else is hip right now as far as processing a vocal goes?

I kind of feel like lately it depends on the artist. More in terms of doubling and quadrupling—

[vocal] stacks. I think there's been a trend of things sounding a little more organic. It sort of became standard for a while that every time you were hearing a vocal, you were quadding it, you were hearing four vocals. I think a lot of people now—whether it's Kanye, whether it's rappers, or other people who are more into an organic sound—sometimes you're just hearing a lead vocal on a hook. And it's weird. You get into a habit like, "Oh, yeah, it's the hook, I have to stack it." But there are no rules to it. Sometimes it is refreshing to hear just a single lead vocal on a hook and maybe it can be super-dry without reverb. I think a lot of people are pitch correcting with Melodyne [see **Fig. 2**]. It corrects pitch in a way that you can't tell that it's been corrected. So it's the opposite of the T-Pain thing. It just makes someone sound like they actually sang it in pitch as opposed to hearing that digital thing. I think a lot of people are doing that. And like I said, with more organic-sounding music, people are opting to not stack things as much.

And when you talk about stacking, you're not just talking about the background vocals, but also the lead vocals? Just doubling and doubling and doubling?

Yes, sometimes. For instance, if I want a lead vocal that's not overly processed yet is still a little bit thicker than just the verse, I might have a lead vocal for the hook and then I'll triple that. So I'll have one lead vocal in the middle, which is the main one, and then I'll have two other doubles, panned left and right that are much softer than the lead. So it doesn't sound like you're hearing three vocals that are all at the same level, you're hearing one, but there's almost a little bit of wideness from the panning and a little bit more texture because you're hearing three. But it's the balance. The levels of those doubles are less than the lead.

Other times, if I'm looking at a section as, okay, this is definitely background, a call-and-response thing. One part is like a background singer and he's responding to the lead. I might stack the background with four vocals and pan them completely around like 100, 100, 50, 50 and have the lead [in the center]. And then it serves more like: Okay, there's a lead vocal and then he has his background singers. Obviously, he was the one who sang the backgrounds. It's not like I brought in other singers to do that, but that's kind of the effect of like one person standing at a mic with background singers.

The background singers are in unison at that point, not harmonized?

They could be in unison. I might have four voices in unison, and then I might stack harmony notes on top of those and just blend them. So then the overall texture of those backgrounds is that they sound like a distinct lead vocal that's in your face, but they sound very full and very wide. They work really well against the balance between them and the lead vocal, which is right in the middle and right in your face. *

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

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By Mike Levine and Len Sasso

Another year has flown by, and it's once again the January issue, where *EM* traditionally makes its picks for the best products of the preceding year by bestowing its Editors' Choice Awards. This year we are doling out awards in 15 categories, but are actually giving out 16 awards because, as usually seems to happen, there was a draw: Audiobro's LA Scoring Strings and EastWest/Quantum Leap Hollywood Strings tied in the Sound Library (Orchestral) category.

For those who are counting, of the 15 awards this year, 10 are for software products and five are for hardware. That's roughly equivalent to the ratio from last year. In case you're wondering, we don't necessarily give awards in all the same categories year in and year out. We do have a core group of perennials, like DAW, software instrument, microphone, signal processing software, and so forth, but categories come and go, depending on the products themselves. If there's an award-worthy product in a particular category in a given year, that category will, naturally, be active for that year.

All the products receiving awards were reviewed in *EM* during the course of the year. To be eligible for this year's awards, products had to have started shipping between October 1, 2009, and October 1, 2010.

The awards are presented here, alphabetized by category. We've placed links to audio examples and, in some cases, videos of the various products in our "Online Bonus Material" section at emusician.com.

Okay, enough with the procedural stuff, let's start handing out awards.

AUXILIARY SOFTWARE
STEVEN SLATE DIGITAL
TRIGGER PLATINUM (MAC/WIN, $299)

In most areas of music production, you're likely to run into situations where you could really use a drum-replacement plug-in, whether you need to change the sound of a drum you recorded or just beef it up with some layered sounds. One of the handiest of all drum replacers is Steven Slate Digital's Trigger Platinum. The cross-platform plug-in offers both accurate triggering and excellent quality sounds, both essential ingredients in this type of product. For the former, you get several adjustable parameters that allow you to tweak the triggering to be as accurate as possible for a given part. There's even a Leakage Suppression control to help isolate a drum track with a lot of bleed.

As for the sounds, they were recorded at NRG Studios in North Hollywood and offer a range of ambience, from dry to heavily processed. Our reviewer, Michael Cooper, was quite impressed. "Trigger is one of the biggest upgrades to the drum sounds in my productions," he said in the review. The plug-in also comes in an EX version ($129), which offers the Trigger plug-in with a smaller library.

DAW
MOTU
DIGITAL PERFORMER 7.2 (MAC, $499)

Digital Performer is a DAW with a long-held reputation for combining quality, breadth of features, and ease of use. In Version 7.2, MOTU concentrated on workflow enhancements that make Digital Performer an even more intuitive and productive work environment. Some of the highlights include the new Themes feature, which lets you choose from a variety of different looks and color schemes. While that might not sound so important, when you consider how long you stare at a DAW every day, choosing a Theme that suits your taste really helps.

Beyond the cosmetic, V. 7.2 introduced contextual menus that offer relevant data for the specific object you're working with (for instance, a mixer channel or a track in the Tracks window), eliminating the need to search through the main menus and thus speeding up workflow. Some of the other enhancements include search boxes for the Soundbites and Key Commands windows, saving of plug-in chains from mixer channels, and mini-graphic displays that show up in the Mixer window. When added together with Digital Performer's legacy features, the amp-and-effects modeling plug-ins added in V. 7, and the rock-solid performance of this latest incarnation, you've got yourself a winner.

em 2011 EDITORS CHOICE

HARDWARE CONTROLLER
NOVATION
LAUNCHPAD ($150)

Like last year's winner, the Akai APC40, the Novation Launchpad is a controller designed primarily for use with Ableton Live. Unlike the APC40, the Launchpad is strictly a button box—it has no knobs or sliders—but its cleverly designed Mixer mode lets columns of buttons approximate those functions. What you get is a compact and lightweight (1.58-pound) controller with 64 multicolor backlight clip-launch pads bordered on two sides by round navigation, mode-select, and global-function buttons.

At roughly 9.5 inches square, the Launchpad fits comfortably next to a laptop, and you can run as many as six units to gain simultaneous control of additional 8x8 banks of clip slots. You can also use the pads to send MIDI note messages to virtual instruments so that you can, for example, control a drum plug-in. Its light weight, larger pad array, and USB bus power make it an ideal on-the-road and compact studio controller for Live, and you can use Novation's Automap software to control other applications with the Launchpad.

HARDWARE SYNTH OVER $500
ROLAND
GAIA SH-01 ($699)

The Roland Gaia SH-01 is an enhanced re-creation of Roland's well-regarded '80s synth, the SH-101. It's like having three SH-101s (here called Tones) with a lot of interplay, and it's easily programmable by ear—there is no display of any kind. To put that in perspective, *EM*'s reviewer raved, "This is how programming a synth should be!" For example, you can assign the front panel to control one or several Tones, which greatly simplifies tweaking a sound to your liking. The Tones follow the subtractive-synth model with some added bells and whistles, such as multiple filter modes, seven waveforms with variations, and oscillator sync or ring modulation between Tones 1 and 2. Four effects slots with different complements of effects round out the signal path.

The Gaia is no slouch in the control area either. You'll find a joystick for pitch-bend and mod-wheel functions, transpose buttons, a Key-Hold button (think infinite sustain), and a D-Beam controller, which you assign by simply pressing a button and then twisting the desired target knob or slider. An arpeggiator with 64 preset patterns and a phrase recorder that captures both notes and knob tweaks further enhance Gaia's playability. A USB port lets Gaia exchange MIDI and audio with your computer and even function as a basic audio interface. But at the end of the day, it's the sound and Gaia delivers big time.

HARDWARE SYNTH UNDER $500
KORG
MONOTRON ($60)

Although easily mistaken for a toy, the Korg Monotron is a synth worth considering if you like quirky sounds and are willing to suspend disbelief. It's a pocket-sized analog synth that runs on AAA batteries and has a tiny built-in speaker—perfect for clearing the seats in your row on a crowded flight or, after plugging in headphones, ignoring your seatmates. It packs a switch, five knobs, and a ribbon strip with keyboard graphic, which you can play with your fingers or a plastic stylus. The ribbon shows 16 keys, but the range is adjustable.

The Monotron sports a sawtooth oscillator, 2-pole resonant lowpass filter, and a sawtooth LFO that can modulate either. Best of all, an audio input lets you apply the filter to external audio, and the results are especially interesting when you crank the resonance and run the LFO in the audio frequency range. As reviewer Gino Robair suggests, point the 1-inch speaker at your mouth and

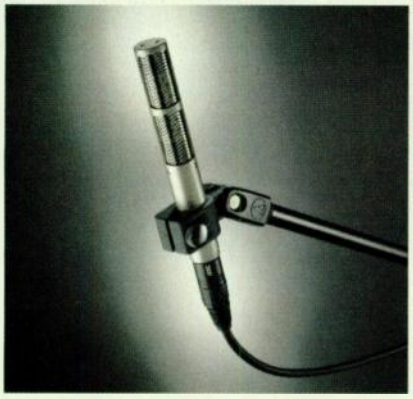
you have the cheapest talkbox on the planet. And like the Gaia, it's a winner here because of its great sound.

IPHONE/IPOD TOUCH/IPAD APP
WIZDOM MUSIC
MORPHWIZ ($9.99)

There are countless music apps available for Apple's iOS platform (iPhone/iPod touch/iPad), with more appearing on the iTunes Store every day. But while quantity is not a problem, quality is. Only a miniscule percentage of the music apps out there are even targeted at musicians—most are designed to appeal to consumers, at least on some level, and many are basically toys. Not so with MorphWiz, the app co-developed by Dream Theater keyboardist Jordan Rudess

and Kevin Chartier. MorphWiz is a touch-screen synthesizer that sounds amazing and is surprisingly easy to play. It also has eye-popping graphics and gives you visual feedback in the form of moving shapes and changing colors to help you as you play it by sliding or tapping your fingers on the screen. It's a universal app that runs on both the iPhone/iPod touch and the iPad, but it's particular suited to the latter, whose larger screen makes MorphWiz a really playable instrument.

From a sound standpoint, MorphWiz offers a mixture of wave sync and FM synthesis, and sounds rich and full. It offers a diverse collection of presets and a ton of programmability. MorphWiz takes advantage of the iOS' multitouch interface with great success, and its combination of great sound, ease of use, and originality gave it a win in this category.



MICROPHONE
AUDIO-TECHNICA
AT4081 ($699)

Ribbon mics have seen a resurgence over the past few years, with numerous models coming out in a variety of price ranges. From miking guitar cabinets to recording drums, vocals, and more, ribbons give you a more round tonal response than condenser and dynamic mics, offering a different flavor for capturing audio sources. Audio-Technica released the AT4081 at the same time last year that it released the larger and more expensive AT4080 ($999), which is also stellar. However, we particularly liked the 4081, not only compared to its sibling but to the other mics released last year. Our reviewer found the AT4081, which is phantom-powered to give it higher output, to have "extended high end, accurate mid-range, and a lack of muddiness or proximity effect bass boosting." He loved using a pair as drum overheads, and found that it held its own with more expensive ribbon mics.

THE CROSS-PLATFORM PLUG-IN OFFERS BOTH ACCURATE TRIGGERING AND EXCELLENT QUALITY SOUNDS.

MOST INNOVATIVE PRODUCT
MODARTT
PIANOTEQ PRO (MAC/WIN, $540)

Modartt Pianoteq got our attention as soon as it was released in 2007, and V. 2 won the 2008 Editors' Choice Award in this category. In addition to a host of GUI refinements; improvements in the physical models of many of the instruments; new effects and an improved reverb; player-perspective and surround miking; and a bunch of new free and premium add-on instruments (electric piano, clavinet, mallet instruments, and more), the new Pro version offers note-by-note editing of most of the physical model's parameters.

In the extreme, you can use note-by-note editing to create your own John Cage–style prepared piano, and that's a great deal of fun. But the technique has much subtler uses; for example, slightly altering the hardness of the hammers as you move up and down the keyboard, an effect you couldn't quite replicate with filters. If click-dragging individual settings for multiple parameters for 105 keys (the expanded size of the Pianoteq keyboard) sounds daunting, there are many shortcuts to create smooth parameter transitions across any area of the keyboard. (For details, see the review in the April 2010 issue, available at emusician.com.) Note-by-note editing is what really sets Pro apart from previous versions of Pianoteq and is what earned it this year's award.

SIGNAL PROCESSING HARDWARE
API
527 ($895)

API is one of those companies whose name brings words like "vintage," "analog," and "quality" to mind. So suffice it to say we were excited to discover the 527, a 500 Series module that offers a single channel of VCA-type compression of a similar type to what's found in API's 225L compressor and its 2500 stereo bus compressor. It gives you knobs for ratio, attack/release, threshold, and output. You also get switches for knee

(hard or soft), meter status (output level or gain reduction), and stereo link. You can also flick a switch to turn on API's patented Thrust circuitry, which applies a sidechain filter designed to preserve low-end punch on heavily compressed sources. Another switch lets you choose between New (feed-forward) and Old (feedback) VCA functionality; the former provides transparent compression while the latter squashes with more obvious color. Our reviewer tried the 527 on a variety of sources, including kick drum, bass guitar, and electric guitar, and was impressed with both the unit's sound quality and versatility.

SIGNAL PROCESSING SOFTWARE
FABFILTER

PRO-Q (MAC/WIN, $199)

There's no shortage of high-quality EQ plug-ins out there, but when *EM* reviewer Michael Cooper, who is a mastering engineer, touts "sky-high sound quality and an ocean-deep feature set," it's time to take notice. FabFilter Pro-Q delivers 64-bit processing (virtually unlimited headroom) with a light CPU load. You get 24 EQ bands (bell, lowpass, highpass, low-shelf, or high-shelf) that you can assign to either or both channels in stereo (dual-mono) and mid/side modes. You can use Pro-Q as a zero-latency EQ or dial in one of four linear-phase alternatives to best suit your application. Other niceties include multiple undo/redo, A and B workspaces, and real-time spectrum analysis. Pro-Q delivers a pristine but decidedly analog sound, along with the precision that accompanies digital processing.

SOFTWARE INSTRUMENT
SPECTRASONICS

TRILIAN (MAC/WIN, $279)

When the third shoe finally dropped in Spectrasonics' major upgrades of its flagship virtual instruments, it was instantly clear that it was worth the wait. Trilian far outshines its predecessor, Trilogy, which was already at the top of the class of sampled bass instruments. Start with 34GB of exquisitely sampled acoustic and electric basses, including some special instruments like the Chapman Stick and the Epiphone Viola bass. Add Spectrasonics STEAM Engine's deep processing architecture, and you won't run out of sounds anytime soon. But where Trilian especially shines is in playability. Everything you need is under your fingertips, such as extensive velocity layering and all manner of artifacts: slides release noises, finger squeaks, etc. A robust selection of keyboard layering and keyswitching performance options brings it all together. Trilian puts the feet on the music.

EVERYONE LOVES A BUNDLE. YOU GET A BUNCH OF ITEMS FOR A LOWER PRICE THAN YOU WOULD PAY IF YOU BOUGHT THEM INDIVIDUALLY.

SOFTWARE INSTRUMENT BUNDLE
AVID

PRO TOOLS INSTRUMENT EXPANSION PACK (MAC/WIN, $459)

Everyone loves a bundle. You get a bunch of items for a lower price than you would pay if you bought them individually. When those items are the five software instruments that have been designed by the highly regarded AIR division of Avid, you've got something to talk about. That something is the Pro Tools Instrument Expansion Pack. In it, you get Structure, a sampler that comes with 18GB of content and lets you drag and drop content into

it directly from a Pro Tools track. Hybrid gives you a combination of subtractive and wavetable synthesis, and each instance of the plug-in gives you two parts, each with three oscillators and a sub-oscillator, three LFOs, a resonant filter, four envelope generators, and a 4-track step sequencer. That's some serious synthesis power. Also included is Velvet, which gives you very realistic modeled Rhodes and Wurlitzer sounds, and synthesized classic FM synth piano sounds. Strike is a virtual drummer that can function as a MIDI drum sound source (with some impressive acoustic-drum kit samples) or play its own patterns to allow you to construct parts in a wide variety of styles. Transfuser provides serious loop manipulation for beatmaking and electronica-influenced synth sounds. The pack offers power, a diverse array of sounds, and a very reasonable price.

TIE

SOUND LIBRARY
SAMPLE LOGIC
MORPHESTRA (MAC/WIN, $649)

Starting with a huge array of acoustic samples—natural sounds, vocals, orchestral and percussion instruments, and more—adding top-flight scripting and sound design in Native Instruments Kontakt (free Kontakt Player included), and pre-installing it all on a Glyph Technologies hard drive eliminates a lot of drudgery and lets you get straight to the music. Sample Logic has done that with Morphestra to deliver an imaginative 27GB library of instruments, atmospheres, stings, and rhythms for film and game composers.

Whatever the sound category, from sublime to satanic, the sounds retain an organic feel that blends well with more traditional material. Beyond assembling a huge array of instruments, Sample Logic has solicited a number of high-profile composers and sound designers such as David Lawrence, Mark Isham, and Tom Salta to fashion imaginative multis for diverse genres. As usual, the competition among cinematic libraries was fierce, but Morphestra delivers that extra edge to make it our Editors' Choice.

SOUND LIBRARY (ORCHESTRAL)
AUDIOBRO
LA SCORING STRINGS (MAC/WIN, $1,099)

EASTWEST/QUANTUM LEAP
HOLLYWOOD STRINGS DIAMOND EDITION (MAC/WIN, $1,495)

After carefully weighing the pros and cons, we were still left with two superb sampled orchestral libraries so we decided to honor them both. For these libraries, you'll need a healthy budget and a fast computer (both manufacturers recommend a dedicated system), but the results will be commensurate.

Audiobro's LA Scoring Strings (LASS), which was created by film composer Andrew Keresztes, turns the divisi approach to dividing large string sections on its ear by giving you a single first-chair player along with four groups of one to 16 players for each string section (violins, viola, cello, and bass)—you assemble the group from the parts. This 40GB library for Native Instruments Kontakt and Kontakt Player (included) was recorded dry on a large film-scoring stage. It is accompanied by a variety of excellent impulse responses for Kontakt's IR reverb. You'll find a large selection of articulations and some excellent Kontakt scripts—Real Legato, Trill, Anti-Machine Gun, Tuning (variations), and Delay and Humanization—for implementing string-playing techniques from the keyboard. In the words of *EM* contributing editor Geary Yelton, "In addition to a terrific sound, LA Scoring Strings delivers startlingly faithful phrasing and articulation."

EastWest Quantum Leap's stated goal in creating Hollywood Strings was to capture the Hollywood sound we've all grown accustomed to in movies and commercial recordings, and it did an admirable job. EastWest founders Doug Rogers and Nick Phoenix, along with composer Thomas Bergersen and Academy Award–winning engineer Shawn Murphy, assembled a 57-piece string orchestra in EastWest Studio 1 and recorded 312GB of samples using a variety of modern and vintage mics in five setups. The results are delivered on a hard drive in EastWest's proprietary Play format. The Play software lets you freely mix the five miking perspectives; provides a plethora of performance options, including elaborate keyswitching and crossfading; captures numerous articulations; and includes a great-sounding impulse/response reverb modeling a variety of cathedrals, halls, studios, and rooms.

VIRTUAL AMPS/EFFECTS
LINE 6
POD FARM 2 (MAC/WIN, $49 TO $299)

Flexibility and ease-of-use are the name of the game with Line 6's release of V. 2 of its industry-standard amp-and-effects modeling software, Pod Farm 2. The complement of amps, cabinets, effects, and mic preamps is unchanged, but you can configure and manipulate them in many useful new ways. You still get two Tones (complete signal paths), but a new onscreen A/B/Y box lets you switch between individual and parallel operation. With the addition of MIDI support, you can now use any footcontroller or desktop controller to manage amp and effects parameters. Eleven Element plug-ins let you zero in on individual categories (guitar amps, bass amps, tuner, and individual effects types) rather than using several instances of the full Pod Farm 2. Beyond that you have complete graphical control of the setup: When you want to rearrange the order of effects or move an effect before the amp, just drag them around in the GUI. Line 6 has always had a winner with Pod Farm, but the usability enhancements in Pod Farm 2 make it especially noteworthy this year. ✱

FIG. 1: Norwegian guitarist Eivind Aarset (left), who plays with Jon Hassel among others, incorporates a laptop into his live rig for looping and effects processing.

Tune Up, Boot Up, Play

Adding a laptop to a live-guitar rig opens up a world of processing power but presents its own set of challenges.

By Michael Ross

As a musician who primarily plays electric guitar, I have always been concerned with getting the best sound out of my rig—be it the ideal overdrive for blues or the proper twang for country. Performing pop music has led me to a larger world of effects and an attempt to re-create pop's multiple guitar overdubs by looping additional parts. This interest in sound and loops eventually pointed me toward electronica, with its virtually limitless world of textures and noises, and Ableton Live, an intuitive software application that inspired me to compose and perform electronic music while playing guitar through a laptop.

Plugging my Fender Stratocaster into a Mac computer opened up a world of guitar processing and control. Much of this new sonic manipulation was unfeasible in hardware form with my budget and portability constraints, and some—like spectral (see **Web Clip 1**) and granular effects—are flat-out impossible to achieve without the power of a dual-core computer.

I soon found myself onstage at Warper Parties, which are sort of like open mics for electronic musicians, running my Fender Stratocaster through a MacBook Pro, using amp-modeling software such as IK Multimedia AmpliTube, Native Instruments Guitar Rig, and Overloud TH1, while at the same time employing Live for its sound-mangling plug-ins and ability to trigger various accompaniment loops. I used a Native Instruments Audio Kontrol interface to send the output of this setup to the mixing board.

My preoccupation with guitar tone instigated a search for a rig that would retain the sonic character and physical responsiveness that impelled me to play guitar in the first place while pushing the limits of noises that a guitar can make.

In this article, I'll discuss the evolution of my laptop-equipped rig and talk with a number of like-minded guitarists about their live laptop experiences. Among those are Leo Abrahams, who often uses a laptop in his work with Brian Eno and Bryan Ferry. He accurately describes melding the physicality of the guitar with the abstract ambiences available with plug-ins. "When I use very complex chains of effects, I love the feeling of the guitar being a kind of super-sensitive analog controller of sound, a kind of tone generator," he says. "It's a tactile sort of synthesis, and electric guitar seems uniquely suited to this hybrid approach."

THE QUEST FOR TONE

As enjoyable as the Warper performances are, the majority of my playing involves backing singer/songwriters. In those situations, using

FIG. 2: The new Keith McMillen SoftStep pedal offers foot-control features such as multitouch pads and silent switching, which are ideal for guitar/laptop live setups.

a laptop with a guitar presents some issues. For starters, as good as amplifier and effect modeling has become, I find it, as yet, unable to provide a certain analog warmth and "bloom." Slightly broken-up amplifier sounds and mild overdrive effects remain difficult to achieve digitally.

This is not normally a drawback in the recording studio, where everything is ultimately compressed and mastered, and modeled guitar sounds can often slot right into the mix. Nor is it an issue when performing electronica, where the sound is most often morphed into something unrecognizable as a guitar anyway. But in the intimate setting of a duo or trio accompanying a singer/songwriter, a drier, more natural sound is often required. In short, I missed the tone and feel of a responsive guitar, through cool pedals, into a harmonically rich amp.

This attitude is echoed by other laptop guitarists. "Pedal and amp software-modeling simply aren't as good," Abrahams says. "In my view, software is best used for things that would only be possible with that software. Using it to 'pretend' to be something else seems like a waste and a misapplication of technology. I still use pedals and an amp with the laptop most of the time because I like the contrasts in tone. There is an excitement and immediacy to hardware, which influences my playing in a certain way. Having both feels like a sort of schizophrenic luxury."

Whether performing and recording with avant-trumpeters Jon Hassell and Nils Petter Molvær, or as a solo artist, Norwegian guitarist Eivind Aarset (see **Fig. 1**) mixes magnificent analog amp and pedal tones with hardware modulation and eerie, laptop-modulated loops. He, too, prefers real pedals to software emulations. "I feel that there is more energy and more contact with the sound," he says. "I worked with pedals for a very long time, so I would be uncomfortable without them."

Given the huge range of increasingly exotic boutique pedals, why do these performers add a laptop at all? "Software opens up access to many more frequencies and allows long chains of effects that are simply too esoteric or complex for hardware," Abrahams says.

When not performing his own computer-enhanced music, Seattle-based Vance Galloway helps other laptop guitarists put together these complex chains. "The ability to change settings or patching between devices allows a level of flexibility that was formerly available only in custom patching guitar rigs costing $10,000 or more [custom Bradshaw pedalboards, for example]," he says. "Computers also offer effects that deal with time and audio buffering that are very difficult or impossible to create using pedals or even rack effects, like granulation, stuttering, shuffling, complex reverbs, or even multiple delay lines. Then there are effects such as spectral delays and other spectral- or convolution-based processing that don't really exist in pedal form.

"There are pedals that loop, but how many do you know that can do 16 20-minute loops, four playing backward and three playing at double-speed—this is easy for a computer," Galloway says.

CONTROL ISSUES

Galloway is also familiar with the wide range of control possibilities that set laptop effects apart from traditional guitar effects. "Stompbox pedals have the advantage of a physical knob or switch pre-assigned to a parameter on the effect," he says, "The laptop user has to purchase a separate physical controller [a MIDI fader box, MIDI footswitch, or toucscreen controller]. But once the controller has been selected, a single physical controller—a pedal, for example—can be assigned to control several parameters simultaneously: i.e., turn up a reverb send, change a filter setting, and increase delay time. More importantly, the guitarist is not stuck with someone else's concept of which parameters are most crucial to control or which physical controller type to use for any given parameter—a MIDI footpedal sends out the same information as a fader."

For experimental improviser Guillame Girard, the computer removes the need for any physical control over some parameters. "The computer made it possible for me to create random effect variations, for example: fluctuating the delay feedback while morphing the modulation of a flanger," he says (see **Web Clip 2**). "Thanks to this technology, I don't have to manage this and can play freely with my guitar."

THE CIRCLE GAME

My personal controller odyssey traveled in something of a circle. For electronica performances, I began by using Guitar Rig with Rig Kontrol, its combination footcontroller and audio interface. This was fine until I realized that I needed my hands free to play guitar while still being able to trigger accompaniment loops. Rig Kontrol could not trigger Live loops because it is not a MIDI controller.

I then switched to Overloud's TH1 modeling software, turning its effects on and off by track pad while using X-Tempo's Pok footcontroller to trigger clips and scenes. Small, light, and rugged, Pok employs a USB wireless receiver to send keyboard commands from your feet to your computer.

I soon felt the need to do some real-time controlling of effects with my feet, as well, such as turning TH1's virtual stompboxes on and off (the Overloud software doesn't receive

keyboard commands, so Pok wouldn't work), and adjusting Live's volume and filtering plug-in with expression pedals.

I had also added a Korg NanoKontrol, which let me easily modify up to 144 parameters without having to use the trackpad or a mouse, but with only two USB ports, I had to use a USB hub to accommodate the NanoKontrol, Pok, and the USB interface I was using at the time—more stuff than I wanted to carry.

I discovered Line 6's FBV Shortboard controller, which had just become MIDI-compatible. It easily linked to Live and fits in a carry-on suitcase. With an onboard expression pedal, an external expression input, and 13 switches, it let me control a wide range of parameters—including Live 8's new looper. At that point, I left the NanoKontrol at home and was back to two USB devices, a footcontroller and an audio interface, removing the need for the hub.

In an effort to further reduce my load—and because I am now using more hardware pedals with their own switches—I have come full-circle, back to just hand controllers. I returned to the NanoKontrol, using the sliders to control computer levels, buttons to turn effects on and off, and knobs to adjust parameters. Using a FireWire audio interface has freed up my laptop's other USB input for a Korg nanoPad, which controls Live's looper. If I ever need to do time-based looping, with some care I could actually manipulate the pads with my feet. For ambient looping, my hands work fine.

> I surmised that part of the problem was the old computer bugaboo: GIGO —garbage in, garbage out.

I share Italian laptop guitarist Luca Formenti's concern with footcontroller designers who "don't see the point in making noiseless switches so you can use the pedal board when playing and recording with acoustic instruments." I too work with acoustic instruments, and one reason I had to abandon the FBV Shortboard was the noise of its mechanical switching. At press time, I have only had a short time to work with the new Keith McMillen Instruments SoftStep MIDI pedal, but with its small size, silent switching, and the multi-axis sensitivity of its footpads, it appears to have enormous potential (see **Fig. 2**).

SIZE MATTERS

If many of the aforementioned decisions seem based on portability rather than ultimate performance, they are. It is the compactness of a laptop that attracts many guitarists. Aarset, who often flies to his gigs, enjoys the fact that using a laptop "means much lighter luggage than when using an effects rack." He has been able to eliminate rack processors from his load by substituting Sound Toys plug-ins and the Live looper.

Dutch guitarist Bram Stadhouders uses computer-housed soft synths to create his soundscapes instead of floor- or rack-based modules. "If I needed a pedal for every effect or synthesizer that I use on my laptop, I'd fill the whole stage and there wouldn't be space for the other bandmembers," he says.

I was also attracted to this benefit of using a laptop. Stage space is always an issue when playing in New York City clubs, and a laptop on a chair replaces many stomp boxes on the floor.

AMPLIFIER OR P.A.?

I run the laptop through a guitar amplifier for a number of reasons that I will soon explain, but I found that the artists I interviewed preferred sending the laptop's output to the P.A., even if, like Abrahams and Aarset, they also use an amplifier.

"There is a clarity to the way the sound is reproduced once an amp is taken out of the setup," Abrahams says. "Software like the Michael Norris Spectral suite opens up access to many more frequencies; amps are very directional and quite restricted in terms of bandwidth. I've found playing through computers straight into the P.A. [to be] very useful, not only for electronic music, but also when playing with classical ensembles. It becomes possible to blend much more sensitively with acoustic instruments. The soundman blends the laptop and

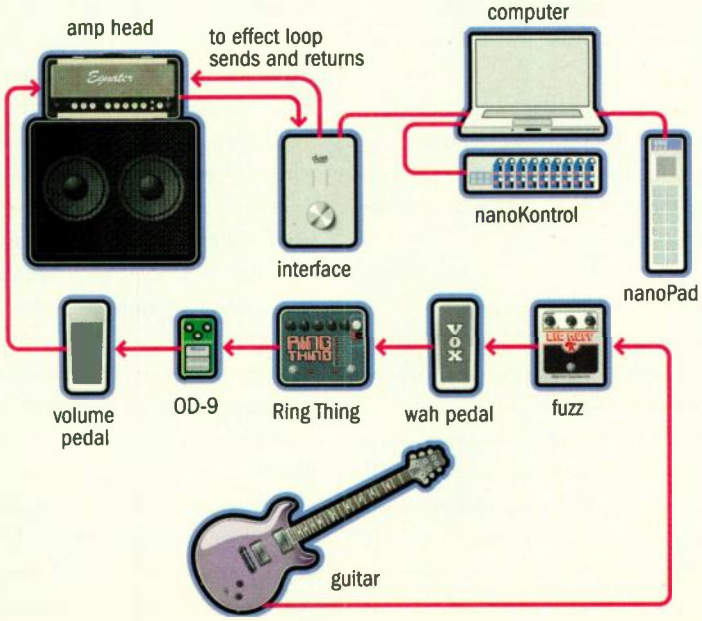
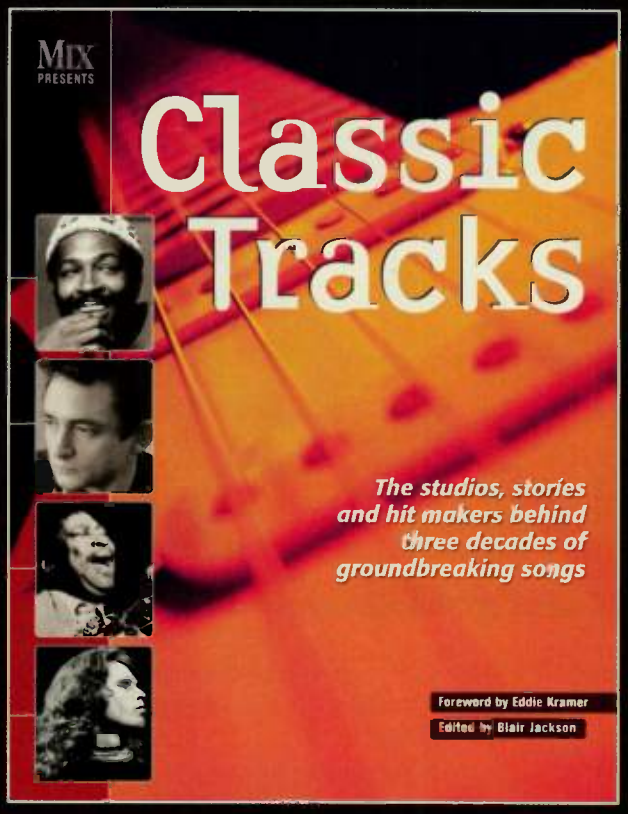


Illustration by Chuck Dahmer

FIG. 3: The author's setup, when using an amp with an effects loop, allows for the output from the guitar and pedals to go straight into the amp for maximum tone, while the laptop and audio interface are connected through the amp's effects loop.



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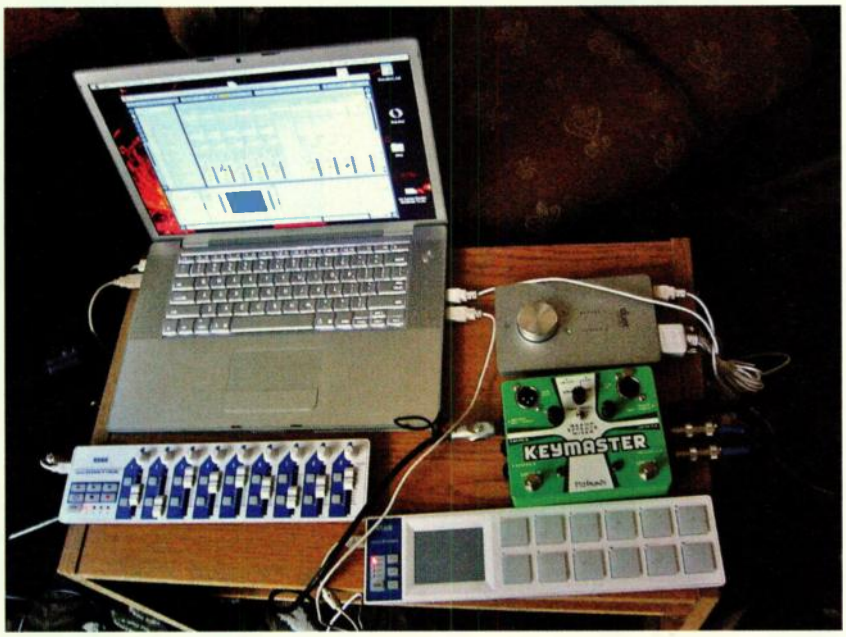

FIG. 4: The green pedal in the foreground is the Pigtronix Keymaster, which provides a pair of effects loops, allowing integration of the laptop with an amp that has no effects loop.

the amp, but I make it so that certain sounds are in equal volume, then he doesn't touch the faders."

Stadhouders uses only a computer as he wants his sound unsullied. "I always go [straight] to the P.A.," he says. "I like to keep my sound as natural as possible; I don't want it to be affected by certain brands [of amps]."

Though I see their points, it was just this sullying that I sought. Running the digital plug-ins from the computer into a tube amplifier added considerable warmth, helping them blend with the sounds from my pedals. I was also dealing with unique monitoring issues. Playing with a singer and other accompanists, I need to hear them and they need to hear me. Unlike Aarset and Abrahams, who play with name artists on big stages where they are afforded long soundchecks, I often find myself in "no-soundcheck" situations where the chances of getting a balanced monitor and house mix—equally suited to my cohorts and me—are slim. Introducing the idea of a laptop onstage can be problematic to more traditional artists; seeing a combo amp helps allay their anxiety.

GIGO

Latency is another concern for laptop-based guitarists, but my Intel chip-equipped MacBook offers enough processing power to make that a non-issue. On an older machine you still might be able to perform ambient music, but rhythmic synchronization could prove problematic. The problem that I did encounter was, while the computer effects sounded great, the dry guitar sound lacked the depth and harmonic complexity, even though I was using a quality guitar and amp. While I might have been able to live with the clean tone, the sound of subtle overdrive pedals going through the computer was unacceptable.

Eventually, I surmised that part of the problem was the old computer bugaboo: GIGO—garbage in, garbage out. When dealing with digital audio, it is all about the conversion from analog to digital and back. I found that switching from inexpensive USB audio interfaces to higher-quality FireWire interfaces such as Apogee's Duet and MOTU's UltraLite Hybrid went a long way toward improving the sound coming out of the amp. At this point, I was running a chain that went guitar > Electro-Harmonix Big Muff with Tone Wicker > Vox Cry Baby Wah > Electro Harmonix Ring Thing > Maxon OD-9 overdrive > Boss Volume pedal > Apogee or MOTU interface > guitar amplifier.

While the sound was vastly improved, something about the feel was still missing. The way an amp reacts to the direct input of a guitar or pedal is a complex thing that makes a subtle but important difference in the way it sounds and the way it responds to pick attack and volume pedal swells.

Placing the audio interface in the series-effects send loop of an Egnater Rebel 30 head overcame this last hurdle (see **Fig. 3**). Now my pedals were going into the front of an amp and not the interface, which created the critical response to my playing, while the buffered effects loop made the plug-ins sound amazing.

Unfortunately, expedience reared its ugly head: For a subway-riding guitarist, hauling an amp head and separate bottom is not an option. Most often I am carrying a ZT Lunchbox amp or playing through a club-provided backline—in either case, an effects loop is usually not an option.

The ultimate key to my solution turned out to be the aptly named Pigtronix Keymaster (see **Fig. 4**), a solid-metal pedal housing a pair of true bypass effects loops that can be run in series or parallel. I place the audio interface in Loop A, while running my pedals into the input of the Keymaster and its output into the Lunchbox or house amp. The device's impedance matching ensures that my guitar pedals see the appropriate input impedance while the amp receives the proper signal impedance.

THE BEST OF BOTH WORLDS

At last, this is the sound that had started me on my quest: the warmth, character, and monitoring ease of pedals into an amp, combined with the compactness, flexibility, and unique tones available with a computer. It was a long haul, but well worth it for the looks on the faces of audience and bandmembers as they hear alternately familiar and unearthly sounds emanating from my guitar. *

Michael Ross is a New York City-based guitarist and music journalist.

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By Len Sasso

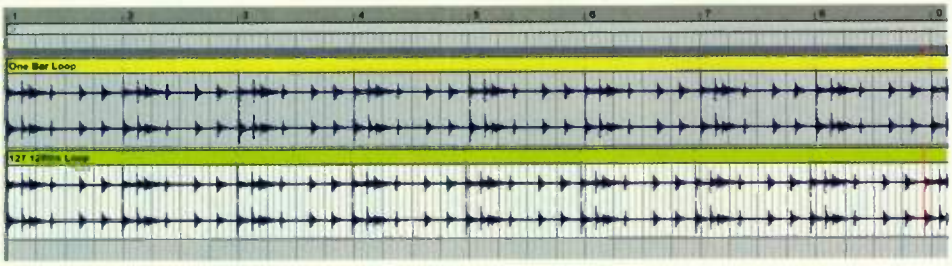

FIG. 1: The top (yellow) loop is one bar long whereas the bottom (green) loop is a 128th-note shorter. They slowly drift out of sync as they loop until, after eight bars, they are a 16th-note out of sync (red marker). They come full cycle and are back in sync after 128 bars.

Serendipitous Acts of Synchronicity

Layering loops of slightly different lengths

Layering a phrase over itself with a time offset is as old as the canon, but the technique took a giant leap forward in the '60s with the use of tape-loop techniques pioneered most notably by American composer Steve Reich. In addition to being a fascinating and well-explored process for composition in many genres, *phasing* is a powerful sound-design tool that you can use with material as diverse as percussion, speech, pads and ambient sounds, and rhythm tracks (guitar, keyboards, etc.).

The most basic tape process amounts to using two loops of slightly different lengths or two loops of the same length running at slightly different speeds. The results, when reproduced digitally, can be manipulated in different ways. I'll start with the loop-length approach, which is a bit simpler and easier to reproduce. (In the days of tape-loop splicing and analog tape machines, neither length nor speed was absolutely precise, so both processes were always in play.)

LOOP AND COUNTER-LOOP

Start with a fairly active 1-bar electronic-percussion loop and copy it to two tracks of your DAW. You can do this with audio or MIDI, but choose an audio loop so that you can visually compare the waveforms. Set your DAW's tempo to match the loop's, shorten one of the loops by a 16th-note, and then repeat both loops for 16 measures. Notice that at each measure, the shorter loop falls behind by a 16th-note until, at measure 16, the loops are back in sync (see **Web Clip 1**). Among the 16 1-bar segments you'll find some interesting variations on the rhythm, which you can then render as new loops.

Repeat the process, but this time shorten the loop by a 16th-note triplet. Now the process will cycle after 24 measures but, depending on your material, fewer of the 1-bar segments will be usable. The ones that are useful will often introduce some syncopation and swing into the pattern (see **Web Clip 2**).

Large offsets in loop length, like a 16th-note or 16th-note triplet, tend to preserve rhythm, whereas much smaller offsets bring out interesting aspects of pads, ambient sounds, and speech. Start with two 1-bar sound effects loops (they don't need to be the same) and shorten one by a 128th-note (30 ticks in DAWs that use a 960-tick-per-quarter-note clock). The loops will now come back into sync after 128 measures. Unlike the previous examples, any rhythmic elements will drift in and out of sync rather than presenting cohesive rhythmic shifts. Listen to the whole cycle (roughly 4:15 at 120bpm of 4/4) and drop markers at interesting points to render as individual elements (see **Fig. 1** and **Web Clip 3**).

You can use a delay send-effect to simulate loops playing at different tape speeds. The key is that the delay time, which should not be synched to tempo, needs to increase linearly over the entire process. Unlike using different length loops, using different speeds causes the loops to continually drift further apart rather than jump at each iteration of the loop. Automate the delay time with a straight line starting at 0ms and ending with a delay time equal to the length of the loop (see **Web Clip 4**). Linear automation emulates the classic tape-loop process, but there's no need to limit yourself to that. Stopping the automation for a while, introducing slight up and down drifts, and using nonlinear curves will produce interesting results. ✱

Len Sasso is a freelance writer and frequent EM *contributor. For an earful, visit his website, swiftkick.com.*

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By Vincent di Pasquale

In the Beginning

Today's music production process is highly technical. It takes a fluent understanding of recording and sequencing techniques to get a musical idea into the computer and then ultimately mix it back out for the world to hear. Despite all of the technical processes, the most important part of any project is the overall creative idea and how successful you are at achieving it. So where do these initial ideas come from and what creative paths should be considered? In this month's column, I'll discuss how I start each remix and how I explore the possibilities.

STARTING HERE

At first, I spend some time getting familiar with the original version of the song that I'm remixing. I lock in on what the song is trying to say to me as the listener and what the overall emotional feeling is. This comes into play when I decide on a new direction. I wouldn't want to take a happy love song and remix it with a lot of dark, angry-sounding synths or vice versa. Really successful songs have a symmetry between the lyrical and musical content.

Next, I'll continue listening so that I can break down what the rhythm, harmony, and melody are doing. For the rhythm, time signature is important as a vast majority of the remixes, especially the club mixes, are in 4/4 time. Luckily, most commercial music today is written in 4/4 so it is rarely an issue.

Beyond the time signature, I listen to what the beat is doing, especially the kick and snare, and how that relates to other parts of the song. For example, is it a straight beat or is there some sort of atypical pattern? Also, what is the bass line doing, and is it really locked in to support the beat or is it supporting more of the harmony or melody parts? For the harmony parts, I will figure out what chords and what progression(s) are being used for each song section. And last, what melodies are happening in any musical parts and what is the top-line melody of the vocal?

It is important for me, as I break things down, to identify any feature or signature parts that "make" the song. It could be an atypical drum pattern or bass line that really defines it. That's important because I have to decide whether to retain those parts in my remix. If I choose to use a featured part from the original, it may restrict me a bit on creating new musical parts. I rarely like to simply re-create the same parts from the original. However, the benefit in maintaining a signature part is it can help the listener recognize the record and, if done creatively, add to the strength of the remix. Sometimes I will explore both paths as the project starts to take shape. In the end, I always trust my musical instincts and go with what sounds best to me.

> The emotional mood of the song is crucial, and so is the musical inspiration I get from the vocals.

Next, I'll start to deal with the vocal files and any other parts from the original that I have. I tend not to use anything except the vocals for most remixes unless, as mentioned, there is just that undeniable feature that I want to keep around. In those cases, I try to somehow put my own twist on it. The best-case scenario is when I have access to the original project or at least all of the various vocal stems. When I have the ability to isolate the leads, the background vocals, and any ad-lib tracks, it gives much more freedom and flexibility when creating new arrangements and parts.

STRETCHING OUT

Once I have created a new project and lined up the vocals and any other original parts in my DAW, the next step is to alter the tempo and time-stretch the files (see **Web Clip 1**). Because the vast majority of the remixes I do are electronic/club remixes, the tempo needs to be in the upper 120s to be viable for DJs in the clubs. Even in the cases where the original song is already in the right tempo range, I will still change it even if it's only a few bpm. Because a remix is performed to put a new interpretation on a song, a new tempo can help you turn in a new direction creatively.

For the actual time-stretching, I start with the built-in feature of whatever DAW I am using, be it Flex Time in [Apple] Logic or Elastic Time in [Avid] Pro Tools (see **Fig. 1**). Ableton's Warp features are very useful, too. Even though I may need some fine-tuning later, time-stretching the vocals right away lets me get started quickly. If I have to stretch something very far or if I want to play with some new harmony parts or creative pitch changes, I will then switch over to Celemony Melodyne.

FIG. 1: Getting the vocal track—and any of the other tracks from the original version—time-stretched to your new tempo is an important, early step in a remix project. In this instance, the stretching is being done with Pro Tools' Elastic Time feature.

CHOOSING A PATH

Once the vocals and any original parts are lined up and time stretched, I'll start creating tracks in the new tempo. There are several factors I consider when choosing a direction. As mentioned, the emotional mood of the song is crucial as is the musical inspiration I get from the vocals. I try to experiment with designing and choosing sounds that convey a similar musical message, but in a completely fresh way. I also factor in the direction the label/artist may be looking for and combine that with what I think would be the strongest direction.

Music is a highly subjective field, but at the end of the day this is my career and it is a business. It's my job to be on top of current sounds and production tools that I can use to create something special and new for each project within my target genre. Even though I may make a remix that's more "house-y," "tech-y," or "trance-y," I always try to balance what the label/artist is looking for, what I am trying to say musically, and what I think will have the biggest impact on the dancefloor. It is very important for people looking to remix to not only have technical chops, but a strong understanding of the target genre.

When I'm at the point of creating new tracks to supplement whatever I'm keeping from the original, I'll start experimenting with parts and treat the project at that point like a big jam session. I'll write several ideas and just have fun with them until something really starts to stand out and grab my attention. I will usually mute the vocal tracks and just write as if I am creating a whole new song. Once I have something that I like, I'll reference it against the vocals to make sure it works. If it does, I'll tweak it some more, keeping in mind that symmetry with the song's emotional feel. I may start with a sound and shape, something that I think is cool and build up from there, or I may just start by sitting at the piano working on new harmony or melody parts, really focusing on the musical aspect first.

When I am first arranging a remix, I focus on the song's main sections such as the verses, choruses, and breakdowns. If the final product is going to end up in the pop/commercial direction, I'll create sections that are in stark contrast with each other. If it's destined for the dancefloor, I'll create sections with only slight variations.

These initial steps are crucial to the project's final shape. By spending the time to analyze the original song, you gain an understanding of it, which will help you explore new directions for your remix. All the technical processes of recording, production, and engineering can come in later after the initial idea is developed. But if you don't have that great, raw musical spark, no production trick can make up for it. As always, the bottom line is to stay in the studio and stay creative. ✱

Vincent di Pasquale is producer/remixer who works out of his project studio and has remixed songs for artists including Madonna, Mariah Carey, Nelly Furtado, and many others. To check out his work, log on to www.vcdstudios.com. To learn more about remixing, check out The Art of the Remix, *a comprehensive interactive remixing course taught by di Pasquale and available at www.faderpro.com.*

REVIEWS

FIG. 1: The four different EQ filter styles are used on different bands of a MasterWorks EQ placed on a female lead vocal track, combining corrective precision with broadband sweetening.

MAC

PRODUCT SUMMARY

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PRODUCT/VERSION 1.0.X
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PROS: Great modeling and sound. Interesting and unique features. Excellent interapplication preset compatibility.

CONS: No Bypass button for ProVerb's compressor section. Some important Leveler parameters are hidden. Could use more presets for EQ and ProVerb.

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

MOTU.COM/PRODUCTS/SOFTWARE/MWC

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

MOTU The MasterWorks Collection

Three plug-ins that are not just for DP anymore

By Eli Krantzberg

Third-party EQ, dynamics, and reverb plug-ins are arguably the most ubiquitous and oft-used effects processors. MOTU now enters this crowded playing field with its MasterWorks Collection, three plug-ins that were previously available solely to Digital Performer users. We all have favorite "go-to" choices, so should we care about these? Do they offer anything new or different? The answer is a hearty "yes" on all counts.

The MasterWorks Collection bundle has an EQ, a leveler, and a convolution reverb, and each brings something new to the party. They ship in MAS, AU, RTAS, and VST 3 flavors for use in mono, stereo, or multichannel surround configurations with any DAW that supports these formats. The package also includes a preauthorized USB iLok key, saving you from having to purchase one separately. (Thanks MOTU!) Installation and authorization is a breeze, and the included hard-copy manual is comprehensive without being overwhelming.

THE EQ

The MasterWorks EQ emulates the look and sound of British large-console EQs. There are five fully parametric bands, with the outer two doing double-duty as low- and high-shelf filters. Additional high- and lowpass bands make this a fully versatile 7-band equalizer. Each

of the main five bands offers a choice of four different EQ filter types. This is where the action is, and having tried these different filter styles, all I can say is, "Wow!"

I was skeptical at first. It seemed like simply altering the Q width would achieve the same effect as switching between the four different filter types, but that wasn't the case. Each filter type has a unique and dynamic nonlinear relationship between the Q and gain settings. The Type-I and -II filter types are great for traditional, corrective surgical EQ tasks. But there is something magical—dare I say musical—about the Type-III and Type-IV filter styles that give them true star quality for subtle wideband adjustments. The shape of the Q reacts differently depending on how much gain is attenuated or boosted. Subtler amounts of gain with the Type-III and -IV filter styles yield wider curves, generating stunning, colorful results.

I tried the EQs on a drum kit recorded with five mics. Types I and II were great for pulling out resonances. Boosting or cutting with bands set to Type III or IV sculpted the sound in pleasing ways by subtly coloring the frequencies surrounding the center points (see **Web Clip 1**). A couple of corrective Type-I and -II bands combined with some wideband sweetening using Type-III and -IV styles worked wonderfully on a female lead vocal recorded with a RØDE NT1A microphone (see **Web Clip 2** and **Fig. 1**).

The interface is also nice. Each band is represented with its own unique color used on the controls, as well as in the filter response and parameter displays. The parameter display updates to show the precise values of the band you're working with or hovering your mouse over. When I tried controlling it from my Mackie control surface using Logic 9.1, however, fader or knob movements wouldn't update the parameter display until I first touched a parameter in that band with the mouse. The adjustable dB gain scale and colored vertical Q lines

FIG. 2: Leveler's memory-management menu lets you save the "warm" state of the T4 cell after a waking stage where it's "primed" by the underlying program material that is played through it.

make adjusting the parameters right from the filter display elegant and clean. It would be nice if the Q lines remained visible for all bands rather than just the one currently selected. The ability to hold the Shift key in the filter-response display to constrain movement to either gain or frequency is a nice touch. And the Audition button, which generates pink noise when parameters are adjusted, is great for objectively hearing and learning the effects of the different filter types.

ON THE LEVELER

The Leveler is modeled on the legendary Teletronix LA-2A optical compressor, and it is legendary for good reason. Notions of typical compression parameters don't apply here. You won't find any attack, release, threshold, or ratio parameters. It's all about the dynamic nonlinear interaction between the Automatic Gain Control (AGC) circuit and the T4 opto-coupler. Leveler faithfully captures the nuances and relationship between these components as faithfully as the different EQ filter types capture the big-board-style, nonlinear relationship between Q width and gain.

Don't be fooled by the relatively simple interface; there's a lot going on under the hood of this LA-2A emulation. Just using the parameter knobs and opto-coupler buttons on the front panel is like driving your Cadillac to the corner store. The real action takes place when you click on the meter for the T4 cell memory-management menu (see **Fig. 2**).

Like the LA-2A, the Leveler goes through a "waking" stage where the algorithms react to the program material as it is first played through it. This is known as "priming the cell." Once this "warm state" is established, the state of the T4 cell can be saved and recalled from this menu uniquely for each of the four opto-coupler model options.

To get a feel for how this works, I looped some program material with the memory-management menu open, the gain-reduction knob fairly high, and continually "retrained" the cell every couple of bars using the "Save current T4 Cell memory" command and then erasing it from memory. The sound changed dramatically with each new save as it responded to the program material at that moment. According to MOTU, this has been fixed in the current version.

Save a warm state you like, and then you can easily recall it from this same menu. MOTU thoughtfully included a Standby button to bypass the plug-in temporarily without losing the T4 cell's warm state. Each of the four models has its own personality, but all have a long release. Using it on some drums and vocals offered interesting results from each model (see **Web Clips 3** and **4**).

The relative simplicity of Leveler's interface makes it inviting and simple to use, but it would be nice if the T4 cell-memory controls were a little more obvious. It's too easy to overlook what is really a defining characteristic of this unique leveling amplifier emulation.

> The 4-band EQ is a nice touch, but the dynamic mixing section really makes this reverb special.

PROVERB

Convolution reverbs digitally capture the reverberations of a physical space by using a prerecorded audio sample—an impulse response (IR)—of the space being modeled. Convolution reverb plug-ins are generally judged on the quality of the included IRs and the controls available to shape and sculpt them. ProVerb gets high marks in both areas, but there's a lot of power lying below the surface of this simple and elegant interface.

FIG. 3: ProVerb's dynamic mixing section is set to "duck" the level of the reverb within the plug-in's internal mix, based on the level of the dry signal.

ProVerb's ability to drag and drop any audio file to create an IR is simply brilliant and encourages worry-free experimentation. The first thing I tried were some downloaded shareware IRs. Real-time drag-and-drop worked flawlessly, and the flexible IR-management scheme in ProVerb lets you easily copy imported IRs to User, Shared, or Project-based locations.

In the next maintenance update (shipping at press time), MOTU plans to add the ability to drag-and-drop entire IR libraries into ProVerb in a single operation that replicates the library's folder structure in ProVerb's hierarchical menus.

MOTU optimized the ProVerb algorithms so that modifying the IRs with the pre-delay, damping, and length knobs is almost instantaneous. This feature, along with the availability of negative pre-delay values, makes sound-design experimentation very inviting.

The 4-band EQ is a nice touch, but the dynamic mixing section really makes this reverb special. When enabled, it lowers the level of the reverb in the mix based on the level of the dry signal. So, effectively, it acts as a ducker being fed with the dry signal, acting on the reverb, before the effects return. This all happens within ProVerb's internal signal chain. I liked using a low threshold setting and high compression value for dramatic results (see **Web Clip 5** and **Fig. 3**). Here, I would like to see MOTU add a Bypass button for this whole section to easily A/B the signal with and without the ducking effect.

PRESETS

MOTU has done an excellent job with all three of these plug-ins but could add to the "wow" factor by including more presets. (Note: According to MOTU, more presets will be added in a forthcoming maintenance update.) Granted, these types of effects are so program-dependent that factory presets are generally not a high priority. But they could spotlight the unique features lying beneath the surface—particularly of the EQ and ProVerb. I found myself using the EQ's Type-IV filter type with very wide-band slopes and subtle gain in ways that I never usually do with other EQs. Some presets pointing in this direction might have led me to this approach sooner. ProVerb would also benefit from some presets showing off its unique sound-design and ducking capabilities by showing users unconventional ways of using the parameters.

Saving presets between formats is absolutely seamless, and I could perfectly and reliably drag-and-drop presets between RTAS and AU versions. This is an incredible step forward in inter-application compatibility.

All three plug-ins are definitely worthwhile additions, and if you take some time to experiment with these, you'll be richly rewarded. I know I'll be reaching for each one of these in my next mix. ✱

Eli Krantzberg creates instructional videos for various DAWs and plug-ins at groove3.com. Special thanks to Montreal singer Nancy Lane for her vocals.

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Fig. 1: The hardware component of the V-Studio 20 features audio interface and control-surface capabilities.

MAC/ WIN

Cakewalk by Roland V-Studio 20

It's an interface, it's an effects box, it's a control surface

By Mike Levine

PRODUCT SUMMARY

AUDIO INTERFACE/CONTROL SURFACE/ EFFECTS PROCESSOR
PRICE: $299

PROS: Very portable. Lets you track with COSM-modeling effects with no latency. Fader and transport controls on hardware unit. Nice integration of hardware and software.

CONS: Only two inputs (one XLR) can be used at a time. Re-amping feature requires multiple steps.

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

cakewalk.com

Since Roland acquired a major stake in Cakewalk, the two companies have developed products together using Roland's hardware experience and Cakewalk's software savvy. The combination of the two has resulted in products such as the V-Studio 700, a comprehensive hardware/software recording system. The V-Studio 20 is less ambitious but is still an intriguing product. It combines a USB audio interface that has some control surface functionality and Roland's VS-20 Editor software, which lets you access the unit's BOSS COSM modeling effects for guitar, bass, and vocals. Cakewalk's Guitar Tracks, a guitar-oriented recording software (Win), is also included.

IT'S THE HARDWARE

The V-Studio 20's hardware component (see **Fig. 1**) is a plastic-housed unit that has dimensions of 11.8 x 5.7 x 2.2 (WxDxH) inches. On its face it has eight small faders, each with a corresponding Track Select button. It also has transport controls. Each fader's throw is less than 2 inches, but they have a decent feel—not too stiff and not too loose. The plastic construction makes the VS-20 lightweight and therefore easily portable, although likely not as durable as a metal-housed unit.

On the left side-panel, the VS-20 has a USB port, RCA output jacks, a Foot Switch input (for remote control of record and playback with an optional footswitch), an expresion pedal input, and a ¼-inch headphone jack. The right side-panel has an XLR mic input (phantom power is switched on and off in the VS-20 Editor software), a pair of ¼-inch line inputs, and a ¼-inch hi-Z guitar/ bass input. A pair of mics in a stereo configuration is built into the unit, with one mic on either side of the back part of the front panel.

HEAR EXAMPLES RECORDED WITH THE V-STUDIO 20 * EMUSICIAN.COM/BONUS_MATERIAL

Other front-panel features include an Output Level knob that controls the headphone and main outs, an input control, and switches to activate the various inputs, turn on and off the COSM modeling, and change COSM patches. The DAW output controls the sound of tracks playing from your DAW, while the Direct Monitor knob controls the level of input source that you're hearing.

IT'S THE SOFTWARE

Installation of the required software was quick and painless. For Mac and Windows (XP/Vista/7), install a driver and the VS-20 Editor. On the Windows side, you can also install Guitar Tracks. The only copy protection is for Guitar Tracks: You get 30 days to register the product with a serial number. On the Mac, the interface functions will work with any Core Audio software once the driver has been installed. The control surface is premapped to work with Guitar Tracks on the Windows side. On the Mac, the Cakewalk site offers a download of a plug-in that configures the V-Studio 20's control-surface features to work with Apple Logic and GarageBand. Those control features will also work with any other DAW that supports the Mackie Control protocol, although you'll have to manually configure it.

After installing the driver and control-surface plug-in on my Mac, I tested the V-Studio 20 in Logic 9. When I opened a session and tried out the VS-20's faders, they controlled my onscreen faders right off the bat. As there are only eight faders, you can switch them to control successive banks of eight (referred to as Track Groups). There are LED status lights on the V-Studio 20 for groups 1 through 4, and Logic's onscreen mixer also shows a red line under the group that's active. The track-group incrementing appears to be unlimited. I set up a blank session with more than 70 tracks and was able to easily jump around between them.

As an audio interface, you can set the VS-20 to record from any of its inputs (XLR, onboard stereo mic pair, stereo line, or guitar/bass), but only through one at a time. There is one exception: By selecting the SIMUL input setting in the Editor, the guitar and XLR inputs are enabled simultaneously. If you're using the COSM effects, they will only be applied to audio from the XLR input when in SIMUL mode.

I recorded acoustic instruments and vocal tracks through the V-Studio 20's mic pre, and found it to be relatively transparent (see **Web Clip 1**) and commensurate in sound quality with other audio interfaces in this price range. If you have an external pre that you want to use with the V-Studio 20, you can connect it through one of the line inputs. The unit's built-in stereo mic pair sounds decent (see **Web Clip 2**) and is useful to quickly capture ideas without the need to set up an external mic.

Fig. 2: The VS-20 Editor software is made to look like a BOSS multi-effects guitar pedal.

Fig. 3: The VS-20 Editor's Settings window offers several different routing options, the phantom power switch, and other preference settings.

IT'S COSM-MIC

The VS-20 Editor software looks like a BOSS multi-effects pedal (see **Fig. 2**), replete with virtual footswitches for turning on and off the various effects. The upper-left-hand corner is the Preamp section, which offers amp models when in Preamp mode and a vocal harmony processor and pitch corrector when in Vocal mode.

The preamp section sports virtual knobs for gain, bass, middle treble, presence, and level. There are 12 different amp-model types (presumably, each with a matching cabinet model, although those aren't specified). You get JC-120, Full Range, Clean Twin, Tweed Crunch, VO Drive, Big Lead, MS Vintage, MS Modern (MS presumably is a Marshall), R-Fier (Mesa/Boogie), Ultra Metal, and Bass Amp.

Below the preamp are four virtual

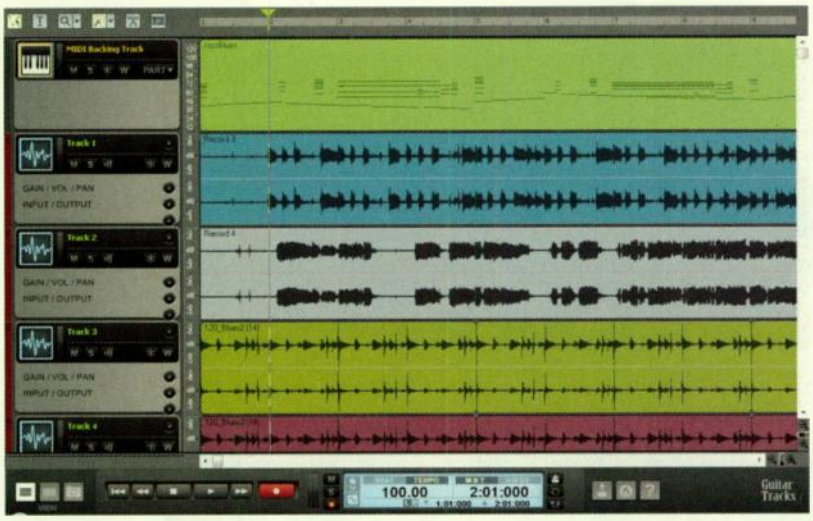

Fig. 4: The included Guitar Tracks software (Win) is premapped to work with the VS-20's control-surface features.

effects switches: Comp/FX lets you choose a compressor, a limiter, an auto-wah or a pedal wah (which can be controlled with an expression pedal plugged into the VS-20), and several other effects including a nifty Radio Voice algorithm for vocals. The second switch controls the OD/DS section, which gives you everything from a gain boost to overdrive to metal distortion, as well as bass overdrive. The Modulation section lets you choose from eight different effects, including Chorus, Flanger, Tremolo, and Uni-V. The final virtual footswitch turns on and off a variety of delay types. Reverb is controlled from a single knob, with both room and hall varieties available.

I found that the COSM-modeled amp and effects sounds yielded good but unspectacular results, and were best for overdriven and crunchy sounds (see **Web Clip 3**). Clean and extremely distorted tones were less realistic to my ears. Overall, the COSM guitar sounds in the V-Studio 20 were not as rich or detailed as what you get in the contemporary generation of amp/effects-modeling plug-ins on the market.

SINGING ITS PRAISES

When you switch the preamp section to the Vocal tab, you get a harmony processor that has adjustable parameters for Key, Interval, and Gender. The latter changes the timbre but not the pitch of your voice, and can give it a different sound at subtle settings or more of a devilish or chipmunk-like sound at extreme low or high settings, respectively. You have level and pan controls for both the direct and harmonized vocals.

If you set the vocal section to Pitch Correct, you can dial in a range of pitch correction from subtle to robotic. This section gets a little noisy when you turn the Pitch-Correct level up to high settings, but overall it works pretty well.

Whether you use the guitar or vocal processing, the COSM effects are added before the V-Studio outputs to your DAW, which means that the effects get printed onto your track. This method has some advantages and drawbacks when compared to recording with a modeling plug-in inserted onto your playback channel. One big advantage is that you can monitor directly with effects without latency. In the same way that it would be if you were miking an amp, the sound you're hearing is the sound being recorded. The flip side is that you're committing to that sound, whereas with a plug-in you can change it later if you wish.

If you'd prefer to re-amp an existing track, there is a re-amping option available among the routing choices in the Settings window of the editor (see **Fig. 3**). Basically, it routes the output of your DAW through the COSM section. The problem is that you can't apply it on a track-by-track basis, so you can't, say, add some distortion to a guitar track and hear it in context because that distortion will be on all of the tracks coming out of your DAW. So you'd have to solo the track you want to re-amp, add the effects, then, if you want to keep everything in the box, send the effected version of the track to an aux track, bus it to another track, and record it.

STRING THEORY

The included Guitar Tracks software for Windows (see **Fig. 4**) seems to be aimed at novice recordists. It's a spin-off of Cakewalk SONAR, but with a much more limited feature set. (Although, surprisingly, it has a video track.) If you have a fully featured DAW already, I doubt you'd opt for Guitar Tracks.

That said, you can record, edit, and mix audio in it, and on the MIDI side it has a Roland TTS-1 GM/GM2 instrument built in. However, it has no other MIDI instruments, although you can access other DirectX and VST instruments that reside in your system. It also comes with a collection of audio loops and MIDI backing tracks.

V IS FOR STUDIO

Overall, the V-Studio 20 is an appealing product, especially if you're a guitar player. It's quite versatile and cost effective, and handles the duties of multiple devices in one. For me, it doesn't have enough inputs or a good enough mic preamp to use as my main studio interface. However, it would work well as an interface for a portable laptop songwriting rig, as an auxiliary unit for tracking through the COSM models, or for its controller features. Cakewalk and Roland have shown here, as with other products, that their collaboration is a fruitful one. ✱

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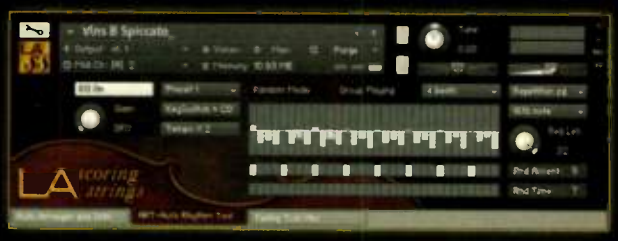

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HOOKED ON SMACK

SMACK, a processor module, is the show-stopper of the lot. SMACK is not an acronym, but somehow it's descriptive of a drastically mangled guitar signal, and that's exactly what it does. Envision a number of synthesizer modules controlled by the string envelope for each string. That's a rough, albeit virtual, description of how SMACK works. It can produce sounds as diverse as a growling synth bass, a scatting wah-wah pedal, or a set of steel pans being attacked by angry, ring-modulated bees (see **Web Clip 2**).

Its Notation module is a basic 6-channel audio recorder combined with an Analysis window to parse audio data into MIDI notes. You can set a count-off, tempo, a time signature, metronome gain, quantization, and recording sensitivity. Next to Record, Stop, Play, and Clear buttons is a button to analyze the audio when you have finished recording. At the bottom of the module, you can choose to save the audio data and MIDI rendered from the analysis of your recording.

FOR THE RECORD

Of course, you can use StringPort to record audio and MIDI data into a full-blown DAW. StringPort leverages the concept of a divided pickup, allowing you to record audio from each string on its own channel. You can also route synthesizers and processors to independent tracks. Alternatively, and more simply, you can record everything from the main outputs to a stereo track.

As a unique hardware and software package for guitarists, StringPort is hugely successful. StringPort's shortcomings are trivial compared to the advances it confers and those it promises. The user interface could stand some consolidation and refinement; its modular nature can become cluttered and bewildering when shuttling back and forth between modules. The processing and synthesis sections could use more varied and useful patches, and the synths could stand a bit more complexity. MIDI response is exceptionally clean, but it needs to be more responsive (see the Online Bonus Material at emusician.com for details).

The tactile, responsive nature of AIM promises new and expressive musical protocols, yet despite the newness of the medium, StringPort has gotten so much right that I had no sense of a bleeding-edge technology. Even with its few rough edges, I unequivocally recommend StringPort to anyone looking to explore new and exciting trails to guitar's future. ✱

Marty Cutler is co-author of MIDI for Guitarists. *He's also a well-known bluegrass banjo picker—go figure.*

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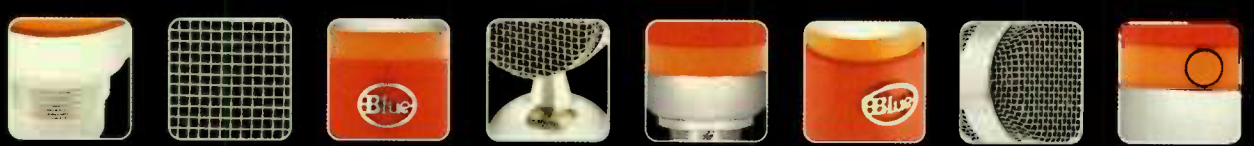

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QUICK PICKS

SYNTHOGY ✱ IVORY II GRAND PIANOS (MAC/WIN)

By Geary Yelton

Ivory II Grand Pianos is the first of three new virtual piano collections from Synthogy.

Opinions about sampled pianos vary, but Synthogy Ivory has long been my go-to virtual piano. In my August 2006 review of Version 1.5 (available at emusician.com), I concluded, "Ivory is without a doubt the finest sampled piano that I have ever played." After using Ivory II Grand Pianos ($319; upgrade $89) for some time and noting an obvious uptick in authenticity and playability, I can enthusiastically reaffirm that impression.

With 11 double-density discs, installing Ivory II on my 2.3GHz 8-core Mac Pro took a while, but you don't have to install all the pianos. I used the AU plug-in with MOTU Digital Performer 7.21 in addition to the stand-alone version. My keyboard controller was a Yamaha CP5 with local control turned off.

SIMPLY GRAND

Like previous versions, Ivory II Grand Pianos supplies detailed multisamples of a Bösendorfer 290 Imperial, Steinway Model D, and Yamaha C7. Rather than the 40GB of sample data that V. 1.7 supplied, Ivory II comes with almost twice as much content, including more velocity layers, release samples, and soft-pedal samples. Ivory's GUI has changed slightly: The main screen is now called the Program screen, which provides access to 16 Bösendorfer presets, 16 German D (Steinway) presets, and 16 Studio 7ft (Yamaha) presets, along with eight synth pads, any number of user programs (25 are included), and any older Ivory programs you already have installed. The Bösendorfers and Yamahas each have 16 velocity levels, and Steinways have either 12 or 18 levels.

A few parameters have moved to new locations, and the Program screen adds knobs for sympathetic resonance, pedal noise, dynamic range, and trim, as well as for synth gain, decay, and release. The Session screen replaces the prior Velocity screen; in addition to velocity settings, you can change the polyphony and tuning parameters, which were previously on the main screen. Two bands of shelving EQ on the Effects screen have been joined by one fully parametric band, with knobs for gain, frequency, and bandwidth. Chorus and Ambience parameters remain the same as before. On the new Preferences page, you can specify whether knobs respond in a circular or linear fashion, as I requested in my 2006 review.

SYMPATHY FOR THE SOUNDBOARD

Acoustic pianos exhibit sympathetic string vibration, a tendency for undamped strings to resonate at the harmonic frequencies of the strings being played. Because sympathetic resonance is a physical phenomenon rather than just a sound, simply sampling the vibrations isn't enough to reproduce the effect. Synthogy's new Harmonic Resonance Modeling faithfully reproduces this effect algorithmically, making Ivory II sound and respond more like an acoustic piano than any other sampled instrument I've heard. You can test it by lightly playing a chord and then striking a harmonically related lower note to vibrate the strings in that chord. For as long as pianos have been sampled, sympathetic string vibration has been a missing link that is finally in our clutches. One beef I have with most sampled pianos is that, unlike on a real piano, it's impossible to press a key so slowly that it doesn't make a sound. Synthogy corrected this issue by allowing you to adjust Ivory's Silent-Key Velocity threshold, below which you won't trigger a hammer strike. Brilliant!

EM HOT PICK

Ivory II's larger sample library allows it to re-create a broader range of piano sounds. For example, well-trained pianists are accustomed to pressing the damper pedal halfway down to mute the strings only partially, a technique called half-pedaling

or feather pedaling. A few digital pianos allow for this, and thanks to its generous sample set, Ivory II does, too. You'll need a sustain pedal that supports continuous data, such as the Yamaha FC3 or Roland DP-8. (I've had an FC3 for more than 20 years, and it works perfectly for this purpose.) Other new content that enhances realism includes samples of soft pedaling, pedal noise, and five lid positions.

I'm extremely impressed with what Ivory II Grand Pianos delivers: sampled pianos so realistic they're indistinguishable from the real thing. The Bösendorfers are excellent for classical and jazz, and the Yamahas are perfect for rock and country, but my personal favorites are the rich and versatile Steinways. If you own an earlier version and haven't upgraded yet, what are you waiting for? Granted, you'll need a powerful computer to take advantage of everything that Ivory II has to offer, but if you have the horsepower, I suggest you try it without hesitation. ✱

Overall rating (1 through 5): 5
ilio.com

QUICK PICKS **ARTURIA ✱ BRASS 2.0** **By Geary Yelton**

Like the previous version, Arturia Brass 2.0 (Mac/Win, $199; free upgrade from V. 1) models trumpet, trombone, and sax. Brass is now multitimbral, allowing you to load as many as four instrument presets simultaneously and save them as kits (60 are included). In Chorus mode, you can layer as many as four of each instrument preset per slot to quickly build thick, 16-horn ensembles. The new Brass also allows you to automatically harmonize combinations of instruments and to more precisely control nuance using MIDI CCs. In addition, you get an updated sax model and a larger library of riffs and presets. This review will focus on recent enhancements; for a good overview of Brass, read Jim Aikin's review in the May 2006 *EM*.

With no samples to install, Arturia Brass 2 takes less than 68MB of disk space.

AXIS: BOLD AS BRASS

Brass' main window displays either Live mode (for playing notes directly from a MIDI source) or Riff mode, which supplies musical phrases you can trigger and transpose with MIDI notes. Harmonization is Live mode's coolest new feature. When you load more than one instrument, the Harmonization menu lists 25 presets such as 3-octave unison, root and 5th, and sus4+7th. Loading any of three presets named Modern Jazz Triads instantly evokes Miles Davis (see **Web Clip 1**). Harmonies are fully editable, too. Just as in the previous version, Spatialization graphically positions instruments in 3-D. What's new is that you can position different instruments relative to one another.

Brass 2 provides more than 500 riffs, including 160 new ones, in styles as diverse as blues and zouk. Clicking and dragging a riff to the onscreen keyboard intuitively assigns it to a note that can trigger it, with another keyboard zone assigned to transpose it. Riffs are musically arranged for groups of two, three, or four instruments, and they work best in multiinstrument configurations. You can easily edit them on a piano-roll display, changing not only the note data, but also the MIDI CC data that affects the subtleties of articulation. The riff collection is filled with idiomatic horn section clichés, but in this case that's a good thing (see **Web Clip 2**). If you're unaccustomed to creating arrangements for horns, riffs can help you generate convincing parts quickly.

The update has replaced the previous sax with one that models a specific tenor sax from French woodwind maker Buffet Crampon. You can choose between a mouthpiece for jazz and another for classical music, but you can no longer virtualize a sax made of glass or wood, which wasn't terribly realistic. You can choose from 15 real-world sax variations and control more advanced parameters such as expressivity and pitch-bend type. The new sax is definitely more lifelike, especially in its response to MIDI CCs.

MIDI routing is more flexible and logically organized, with user-selectable response curves and depth. You can save MIDI configurations as presets, independent of instrument presets. You'll get the best results using a keyboard with a breath controller or an Akai Electronic Wind Instrument; Brass supplies controller presets for those and for a keyboard alone. With a breath controller, you use your keyboard to control pitch and breath to more realistically control modulation.

BRASS IN POCKET

Brass 2 effectively models performance subtleties you'd be hard-pressed to duplicate any other way, with a great deal of control. You can draw detailed automation curves for parameters such as attack, timbre, noise amount, and vibrato depth and frequency. Combining Brass with a good sample library and paying attention to performance technique will go a long way to create a realistic performance. ✱

Overall rating (1 through 5): 3
arturia.com

When I fired up the Mopho Keyboard ($799) for the first time, I knew better than to expect a monophonic synthesizer with a run-of-the-mill feature set. Dave Smith—who founded Sequential Circuits in the '70s, conceived of MIDI in the '80s, and launched the first commercial soft synth in the '90s—has always been a trailblazer. Like the tabletop Mopho (see the March 2009 *EM* at emusician.com), the Mopho Keyboard is packed with good ideas and thoughtful touches evident of Smith's decades of experience.

Just as many considered the Sequential Circuits Pro-One a monophonic version of the Prophet-5 in its day, the Mopho Keyboard is a monophonic version of the Prophet '08.

LITTLE. YELLOW. DIFFERENT.

The Mopho Keyboard is a true analog synthesizer in a compact, 9.6-pound steel case with wood side panels. The keyboard feels good and has 32 full-sized, semiweighted keys with a choice of four preset curves for velocity and four for aftertouch. Whereas the tabletop Mopho has six buttons, eight dedicated knobs, and four knobs for assignable parameters, the Keyboard edition has 20 buttons and 25 knobs. A Shift button selects secondary functions for some knobs. The Mopho Keyboard's hands-on control panel is streamlined for modifying programs in real time and obviously designed for live performance.

The rear panel houses two outs, audio in, three MIDI jacks, and connections for a sustain/arpeggiator-latch switch and an expression pedal—no shortcuts here. Unlike the Prophet '08 or tabletop Mopho, it also has an all-important USB connection for MIDI data. One MIDI jack doubles as a connection for chaining with other Mophos, Tetras, or Prophet '08s—for example, a Mopho for 2-voice or a Tetra for 5-voice polyphony.

Sticking with tradition, the front panel is divided into functional areas—Oscillators, Envelopes, Mixer, etc. Both analog oscillators—which offer four waveforms, hard sync, and independent glide settings—are paired with square-wave sub-oscillators. The analog lowpass filter (based on a Curtis chip) has resonant 2- and 4-pole modes, but only 4-pole mode is self-resonating. You also get a white-noise generator and a monophonic input for processing external audio. If nothing is plugged into the input, the Feedback Level knob sends the output back through the audio path, inserting it ahead of the filter and enabling a range of distortion effects.

EM HOT PICK

An initial delay stage supplements the three ADSR generators. Envelope 3 has the option of looping, and you can route it to any destination in the Modulators section, where you can assign any of 22 mod sources to 48 destinations for impressive versatility. A dedicated knob lets you modulate filter cut-off with an oscillator signal for FM-like sounds. Switches allow you to change values for both oscillators or all three envelopes simultaneously—a handy time-saver.

Two Misc. Parameters knobs change values in the 2x16-character display to control oscillator drift, note priority (low, high, or last-note, with or without retriggering), and other program-specific parameters that lack dedicated knobs. You can assign the manual trigger button (labeled Push It!) to any of several functions; I found it especially useful for launching the sequencer and for turning drones on and off.

The old-school, analog-style sequencer has four looping parallel sequences or tracks. Each lets you program as many as 16 steps, with different lengths for each track if you like. You can assign each track to any modulation destination so that one track controls melody (including rests) while others control release times, slew rates, and cut-off frequency, for example. Because sequences are gated, you must trigger them manually or with a MIDI note. Though the sequencer synchs to external clock, it doesn't recognize MIDI Start/Stop/Continue commands. You also get a straightforward arpeggiator with standard patterns and a 3-octave range.

SoundTower's Mopho LE (Mac/Win) is a free downloadable application for editing programs and sequences on your computer. The software displays envelopes graphically, and pulldown menus let you choose from lists of parameters. A $39.99 upgrade buys the ability to edit any number of sequencer files, organize programs into libraries, morph between two programs, combine two programs into an entire bank of new sounds, and more.

TAKE TWO. THEY'RE SMALL

If you want a keyboard synth with real analog sound and tons of musical expressivity, nothing I've seen for the money comes close. All 384 program slots (three banks of 128) are filled with mostly excellent factory sounds emphasizing electronic timbres rather than acoustic emulations. Customizing them on the fly is as easy as can be. And like all Dave Smith Instruments, the Mopho Keyboard delivers an array of features that integrate into a whole greater than the sum of its parts. Before you buy any analog monosynth, new or used, you should definitely take this one for a test drive. *

Overall Rating (1 through 5): 5
davesmithinstruments.com

George Duke Soul Treasures ($119, download or DVD) delivers more than 500 phrases played by George Duke, each sliced and mapped as an individual sampler instrument for Kontakt 4 and Kontakt 4 Player. When you consider that George Duke (something of a soul treasure himself) has recorded and toured with musicians as diverse as Frank Zappa, Cannonball Adderley, Jean Luc Ponty, and Stanley Clarke, you know you're in for some extraordinarily played, genre-bending material.

The Sound panel displays the slices of the selected phrase and lets you use bar graphs and buttons to adjust each slice's tuning, volume, attack, time-stretch, and reverse playback.

EM HOT PICK

Further attesting to its authenticity, the project was recorded in Duke's studio on classic keyboards: an early Rhodes (pre-Fender) and two vintage Wurlitzers for electric pianos, a Hohner Clavinet modified with a Whammy Bar, and a Bösendorfer grand piano. But, fine as they are, you have to ask yourself what you can do, besides listen, with a collection of keyboard phrases by someone as recognizable as Duke. Quite a bit as it turns out—these instruments are made to be played.

HOW IT WORKS

Each Kontakt instrument starts with a 2- or 4-bar phrase, and the raw material is also provided as WAV files, which makes it easy to browse the library without having to load each Kontakt instrument. A front-panel switch lets you choose between two versions: unprocessed or run through a chain of outboard analog gear ending in a tube limiter and recorded on Ampex tape. You also get controls for a multimode filter and a convolution reverb.

The phrases were sliced in Kontakt's Wave editor, and Kontakt scripting maps the slices to MIDI notes C3 (middle C) and up. A large waveform graphic in the control panel displays the slices and reflects the playback position. It turns out that's not just eye candy; the visual feedback is enormously useful when you start manipulating the slices to create different phrases, and you can modify individual slice tuning, volume, attack, time-stretch, and reverse playback directly in the graphic. (The details are beyond the scope of this review, but you can add, delete, and move slices in Kontakt's Wave editor and have those changes reflected in the control panel.)

On a second panel, you can toggle three triggering options. The Choke toggle limits you to one slice at a time; you'll almost always want this. The Loop toggle causes successive slices to play as long as the key is held; hold long enough, and the phrase will loop. The One-Shot toggle causes any triggered slice to play to its end, even if you release the key.

The two octaves below middle C are used as keyswitches. C2 through B2 pitch shift the phrase in semitones, with F2 selecting to the original pitch of the phrase (not necessarily F). C1 through B1 activate effects processors (phase, chorus, flange, rotation, cabinet, and some pairs of those). A Latch button for each set of keyswitches causes the selected pitch change or effect to remain active after you release the key.

The instruments can use either Kontakt's Sampler or Time Machine 2 playback engine, as determined by the control panel's Time Stretch button. In either mode, automatic slice changes follow the tempo (just like having the slices triggered by MIDI files), but individual slice playback is time-stretched only in Time Machine 2 mode. The Playback mode also affects pitch shifting. You need to turn Time Stretch on if you don't want pitch shifting (using the keyswitches) to change the slice length. Time Stretch mode (the default) can introduce artifacts, however—the extent depending on the phrase. I found a pitch range of a minor third and tempo variations within 15 percent to be fairly reliable. With Time Stretch off, you can compensate for upward pitch shifts with tempo increases and vice versa.

SOUNDS ABOUND

Electric and acoustic piano dominate this collection; you'll find 203 Rhodes, 100 Wurlitzer, and 170 acoustic piano phrases. Thirty clavinet phrases round it out, and they're the funkiest part of the library so it's too bad there aren't more of them.

The Kontakt instruments are organized by keyboard and tempo, and named by tempo, which ranges from 65bpm to 140bpm. Tempos in the 70s to 90s are predominant. Other than the tempo, the names are whimsical—there's no key information, but most of the phrases are easy to decipher.

I've been listening to Duke for a long time, and a huge number of my favorite hooks are in here—this is truly a comprehensive effort. The slicing is excellent, so once you have a rhythm track, it's fairly easy to play (or sequence) variations of the phrases against that rhythm. Add a few slice variations and keyswitched effects, and you're well on your way to some George Duke-flavored riffs of your own (see **Web Clips 1** through **3**). *

Overall Rating (1 through 5): 5

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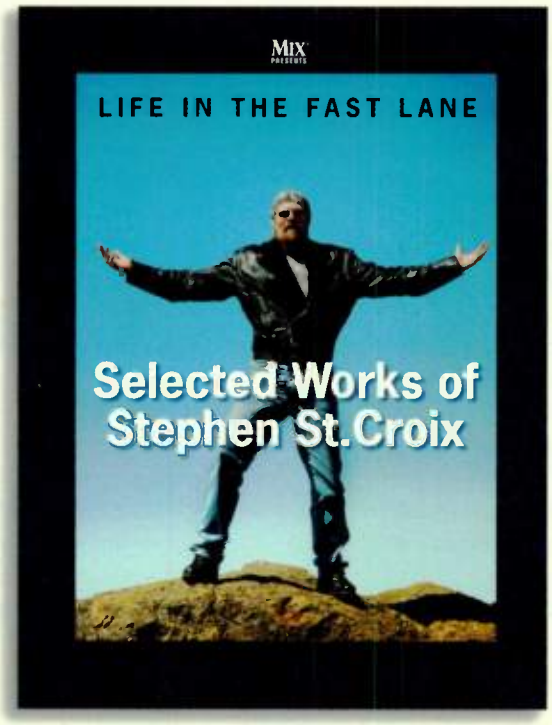

knowledge and vision, as well as a Harley-riding rock-star attitude. Now, two years after his death, the editors of *Mix* have selected the best of St.Croix's columns, presented with never-before-seen photos, notes and drawings from his personal files. This book takes "The Fast Lane" beyond the pages of *Mix* and lends new insight into the life and mind of Stephen St.Croix.

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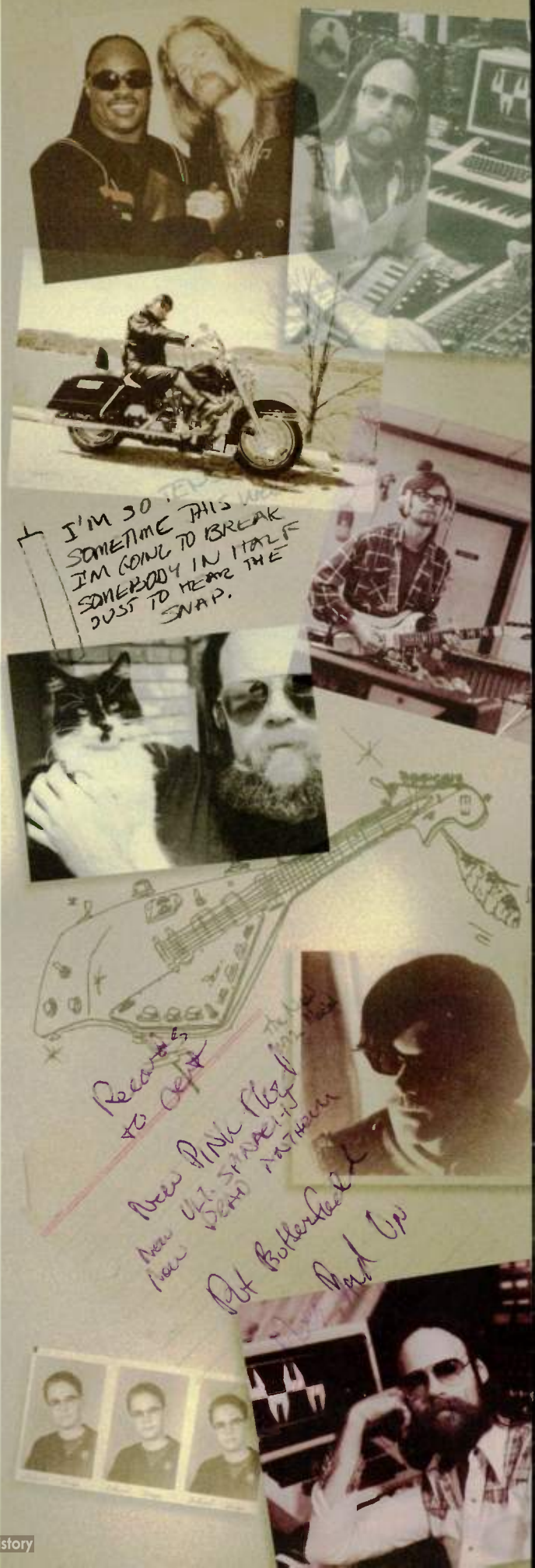

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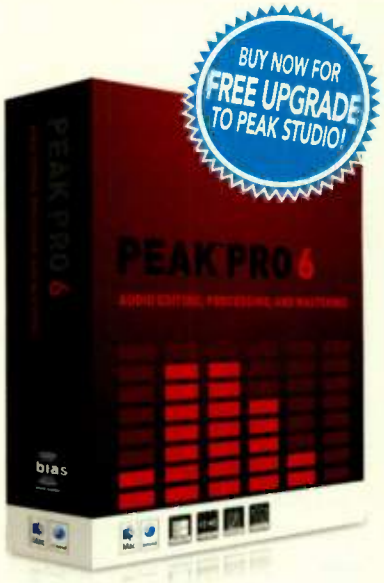

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By Mike Levine

In this photo of the Disco Biscuits, Magner is seated in the foreground.

Q&A: Aron Magner

The Disco Biscuits keyboardist on the "old-style" recording of the band's new album

Born on the jam-band circuit, the Philadelphia area–based Disco Biscuits have been around since 1995 and have recorded 13 albums. I talked to Aron Magner, the group's keyboardist, as they were early in the process of recording their next album, which doesn't yet have a scheduled release date.

How would you describe the band musically? *Planet Anthem*, which you released last March, is pretty eclectic. It's got a lot of rock influence, but also a lot of electronic stuff and various other styles.

We're all influenced by a lot of different types of music. I think our collective musical palette is very diverse. By being in what's technically a jam band, it kind of gives you that flexibility to play in whatever style and whatever genre you want, which is kind of fun, even to the point that there's a "side project" that the Disco Biscuits have that consists of all members of the band called The Perfume, where we actually take our songs, our original songs, then cover them in the style of another musician or another band.

So you're in the studio now and you're working on a new album?

Yes, today is day one of starting a new album. We're only giving ourselves 12 days to do it. For the last album we released in March, we actually gave ourselves three years to do it.

Wow, that's a big difference.

Totally. We're doing it old-school-style. This is like some serious Rolling Stones, Led Zeppelin style of recording right here. Twelve days and we're done.

You're in a commercial studio?

And that right there is the difference. We have a gorgeous recording space in Philadelphia, which is where we rehearse. It's where we did a lot of the tracks on our last album. It's where we come in and conduct everyday operations. Because it's our studio, we feel like we have all the time in the world, and it's our money anyway. So when we're not paying for studio time, what does it really matter if you want to work on something for two days longer or two months longer?

So for this album you decided to change things up?

We basically decided to come into a commercial studio with somebody that we started the album—our previous album—with. We did the first three tracks with the infamous Phil Nicolo of Studio 4 Recordings, in Conshohocken, [Penn.]. He gets some great tones. We're working on a Neve VR, and it's kind of nice working with an engineer that we trust.

How did *Planet Anthem* differ from the new project in terms of how you recorded it?

One of the biggest problems is that we recorded it in so many different studios, it kind of lost its continuity. And I think for a while we tried to rationalize that the album had continuity, but it was really just a rationalization. Because it took so long to get it done, sonically the songs sounded completely different and even the place in our careers that we were at [was different]. We were in a different musical evolution of our careers than when we ended the album. So even just the way that the songs were written and the concepts behind them were completely different from year one to year three.

Good luck with the new album. Hopefully this one won't take as long to finish [laughs].

Most certainly. I owe it to our fans, at least, for that [laughs]. *

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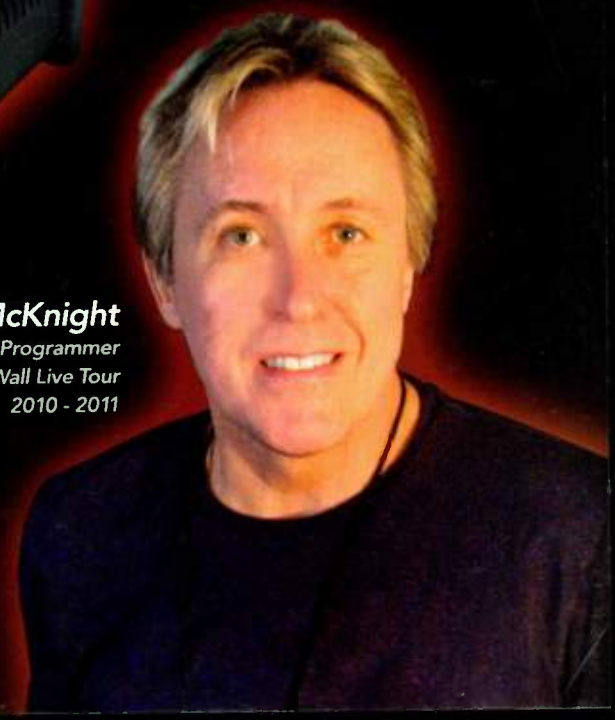

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