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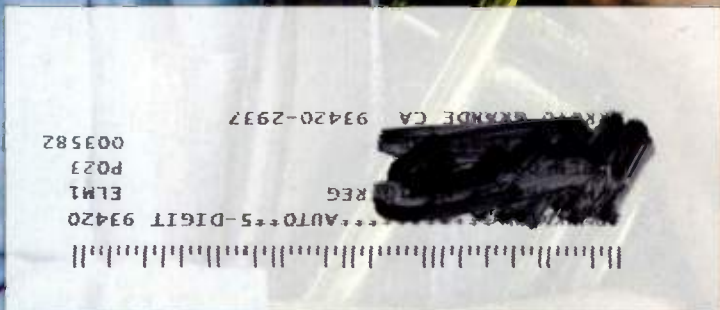
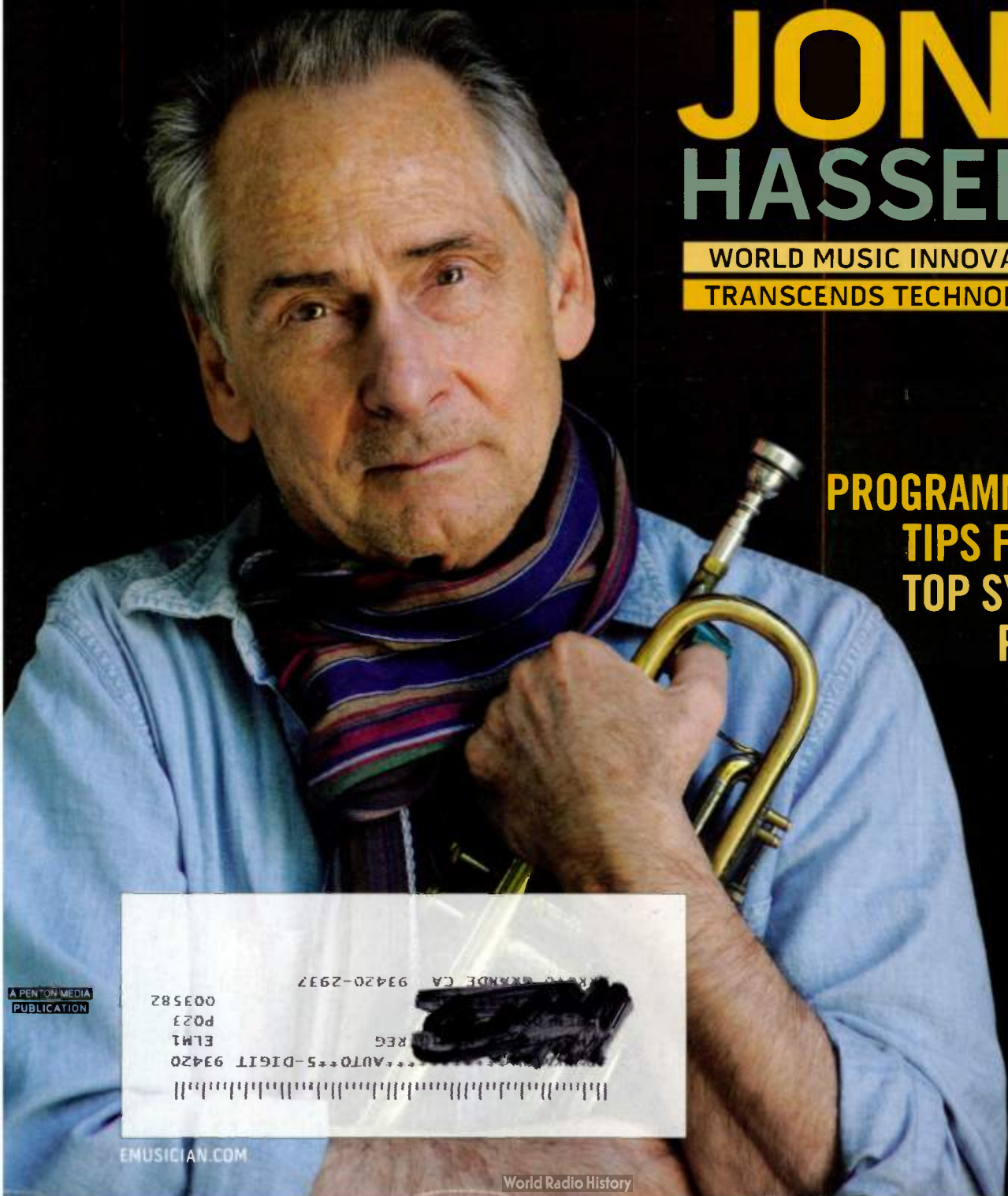
CONTROLLING TIME WITH STYLUS RMX 1.7

JON HASSELL

WORLD MUSIC INNOVATOR
TRANSCENDS TECHNOLOGY



PROGRAMMING
TIPS FROM
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PROS



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World Radio History

SONAR V-STUDIO 700

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"Buying similar components separately would cost the same or likely more, and they wouldn't form this well-oiled a machine right out of the box. I'd go so far as to say the V-Studio 700 is way better than it should be for the price—a clear Key Buy winner." -Craig Anderton

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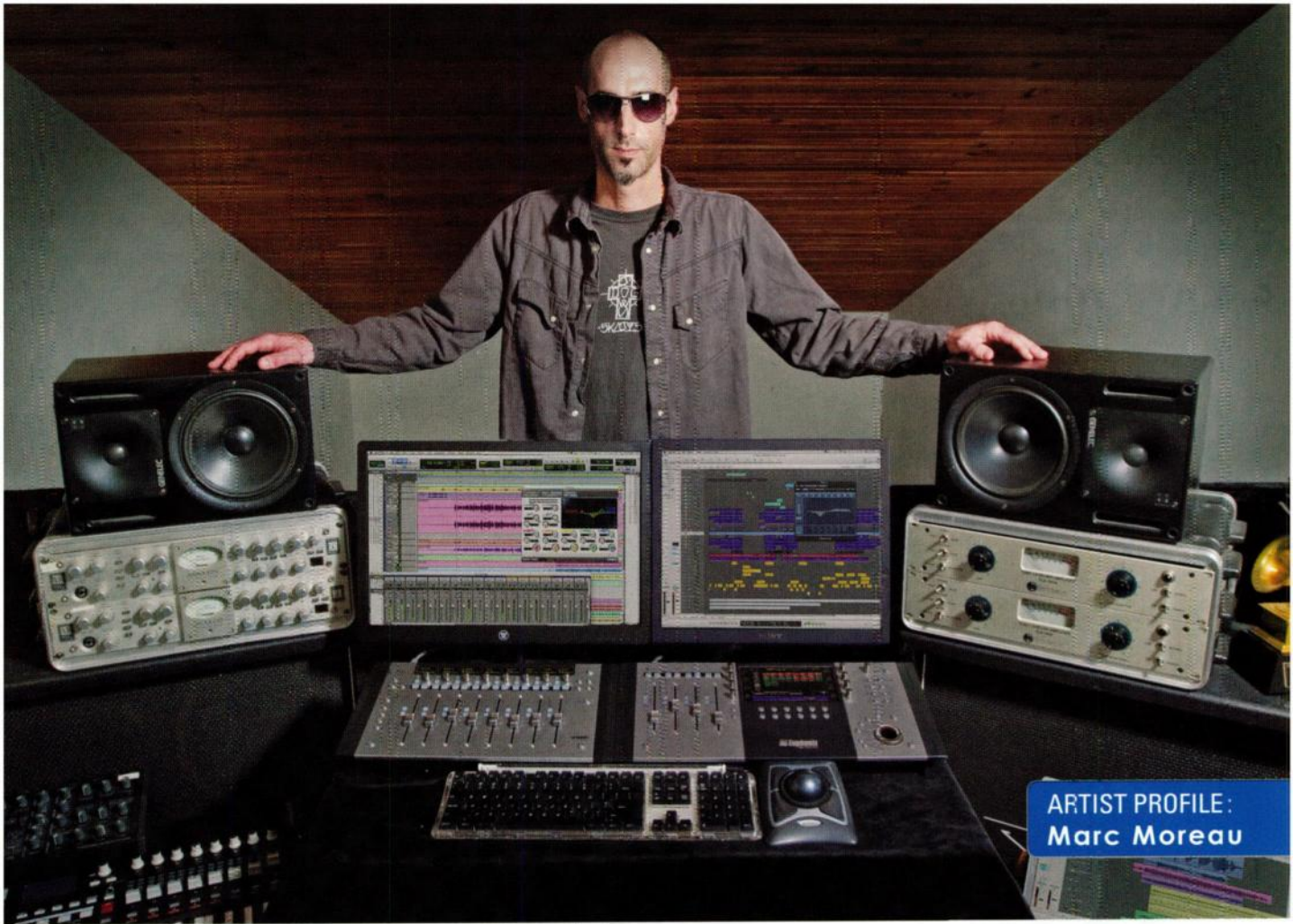
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ARTIST PROFILE:
Marc Moreau

Instant Mix Gratification

Marc Moreau was a sales clerk in a music store when he was discovered by legendary music producer Patrick Leonard. Today, the Grammy-winning musician, engineer and producer works with some of music's finest and depends on his Euphonix Artist Series MC Control and MC Mix for every project.

“I love the portability of the Euphonix Artist Series. I can take them to any studio, set up and immediately start working. I'm basically taking my mixing console with me wherever I go. And I love the resolution and touch response of the faders - other controllers feel like they're asleep in comparison.”

Projects:

Rod Stewart, Madonna, Ziggy Marley, Rage Against the Machine, Roger Waters, Boyd Tinsley, Janis Ian, Dave Navarro, Taj Mahal, W.A.S.P., Michael W. Smith

Marc uses MC Control and MC Mix to control his:

- Pro Tools HD • Logic Pro • Live
- Waves and SoundToys plug-ins



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BY SEARY YELTON

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Organize Thyself

Recently, a friend who runs a music production company called to ask if I still had the individual tracks from a composition I had written for his music library a couple of years back. A client wanted to use the piece for a commercial but requested that he substitute a piano for the lead guitar on the original mix.

My initial thought was, "Uh oh, I bet I don't have those anymore." With trepidation, I started searching my recording drive and was pleasantly surprised to find the original folder for the project containing the sequencer files and all the audio files. Because it had been recorded in the same DAW that my friend uses, it was easy to just FTP him the song file. Then, all he needed to do was open the file, mute the lead guitar and add the piano part.

Fortunately, I had enough foresight to have clearly labeled those files and left them on my hard drive (and my backup drive), though I'd long since finished the project. I say that it was fortunate because, although

I've always been an advocate of organizing one's studio material (including project files, session notes, effects settings and so forth), I haven't always practiced what I preached. Why? Because in the hustle and bustle of a recording session, it's easy to do what's expedient when it comes to naming and storing files, which can lead to an unorganized recording drive with confusing project names and files all over the place.

The best way to avoid this is to establish your own naming and file-saving conventions that you follow with all of your music projects. Naturally, there's more to it because disks fill up and then you're faced with having to archive your material, and that too requires a system. (I'm not even getting into backup and archiving strategies, which are subjects worthy of entire articles.)

Ideally, my approach to song naming is to give the song's original file and each incremental save a name that includes song title, version number and creation date. It might be something like "My Song 1 052409." (Note there are no slashes

in the date because some DAWs don't allow it.) I should mention that the reason I do incremental saves as I go along is to make it easy to backtrack. Whenever I make an important change, I'll save the file with a new number. This is especially useful when mixing, when I sometimes go off in a direction that I don't end up liking and want to be able to easily get back to a previous version of the mix.

It's also important to have a system for naming your audio files or you can create a lot of confusion. For starters, it's crucial to get into the habit of naming audio tracks (e.g., "lead guitar" or "Mike's vocal," etc.) before recording so that the files generated from those tracks are clearly labeled for what they are. Otherwise, they'll all have generic names like "Audio 1" and "Audio 2," and going back and reconstructing a track or finding a particular part could be a nightmare. Though your DAW would likely add its own numbers to the various takes and sections of a particular track, naming the track first would ensure that these files have an identifiable prefix.

It's also key to make sure that you save each song in its own separate folder. If you start a new song without doing so, you could end up with audio files for several songs commingled in the same folder, which is a recipe for confusion. In addition, if you have multiple pieces of music in a single project, save all of those folders in a master folder for the project.

I'm sure a lot of you already have systems in place for file naming and storage. But if you don't, I highly recommend that you institute them. That way, if you do get that call asking for files or a remix from an old project, you can answer immediately and with confidence, "No problem, I can do that."



MARLA COHEN

Mike Levine
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Download of the Month

Elastik Player (Mac/Win) *By Len Sasso*

Elastik Player is a free, cross-platform audio loop player from Ueberschall (ueberschall.com). It comes in Audio Units, VST, RTAS and stand-alone formats, so you can use it in a DAW or by itself. There is no provision for rendering sessions in the stand-alone version, but you can bounce individual loops to WAV files. Elastik plays loops in its proprietary format, but the free 250MB demo library contains plenty of useful material from a cross-section of Elastik Series libraries (see **Web Clip 1**). The full libraries, which typically cost \$99.95, are available from Big Fish Audio (bigfishaudio.com).

Elastik's unusual loop display and setup tools make it extremely easy to mix and match loops from even seemingly disparate collections, and it is designed to let you zero in on sections of a loop either on the fly using a MIDI controller or by assigning those sections to individual MIDI notes. You start by selecting a construction kit from Elastik's Soundbanks menu. The samples from the kit are automatically assigned to consecutive keys on the lower of two 32-note keyboards at the bottom of the GUI; those keys are

mapped to MIDI notes C1 through G3. You mix and match kits by dragging samples from the lower keyboard to the upper keyboard, which responds to notes C4 through G6.

Construction kits initially load at their natural tempo and key, but you can sync all samples to host tempo with a single click of a button, or you can change their tempo, key and other parameters individually or in groups.

The circular waveform display is the heart of Elastik. That's where you graphically set a loop's start and end points. Convenient shortcuts let you automatically map individual slices or chromatically transpose a loop across the upper keyboard. Each key has its own loop settings, including volume pan, direction, looping or one-shot, envelope, filter and output. (Eight stereo outputs are provided.)

Despite its rich feature set, Elastik is so easy to use you'll be creating credible tracks in no time, and should you decide to explore further, the large selection of Elastik Series libraries are of uniformly high quality. Check out the tutorial videos on the Ueberschall Website.



OPTION-CLICK *By David Battino*

A Pocketful of Ambience

Discover cool features lurking inside popular products.

Electronic musicians are blessed with dozens of choices in portable, high-resolution digital recorders. But for years, I've carried a lower-quality recorder everywhere I go. The Olympus (olympus.com) WS Series digital voice recorders capture 16-bit, 44.1kHz stereo, start around just \$50 and slip easily into a pocket. An integrated USB plug offers fast

computer transfer. Sony (sony.com) offers stereo models, too.

The sound isn't great: There's automatic gain control, pronounced handling noise, mid-rangy mics and hiss. (External mics help a lot.) The Olympus recorders save files in compressed WMA format, which requires the free Flip4Mac QuickTime exten-

sion (flip4mac.com) to edit on a Mac. But convenience trumps quality here. Like a cellphone camera, a pocket voice recorder is always with you, ready to capture the wonders of the world. And when layered subtly under music, the thin sound blends well, adding an evocative texture. —David Battino, *Batmosphere.com*



The tiny Olympus WS-311M captures surprisingly useful stereo sound, especially with external mics such as these Sound Professionals SP-TFB-2 binaurals (\$79, soundprofessionals.com).

This Month on Emusician.com



EM CAST: JOE CHICCARELLI

Producer/engineer extraordinaire Joe Chiccarelli talks production and mixing techniques, the impact of home recording on quality and much more.

A VIDEO TOUR STEINBERG CC121 AND MR816 CSX

Check out video demos of Steinberg's CC121 advanced integration controller and MR816 CSX FireWire interface; next month: the review!



THIS MONTH'S SOUNDTRACK

By Mike Levine

Among this month's selections are several that feature hybrid genres, including Turkish-influenced electronica, techno-influenced classical and synth-pop with disco underpinnings. In addition to their stylistic diversity, these releases represent a range of production methods.



COURTESY TOWER OF POWER

TOWER OF POWER: GREAT AMERICAN SOULBOOK (TOP RECORDS)

Anchored by Dave Garibaldi and Rocco Prestia, with the TOP Horns punctuating throughout, the band plays an album of classic soul covers featuring guest artists such as Joss Stone and Sam Moore. What's not to like?



MARK FEDKIN



ULTRAMAX: TECHNOCLASSICA: VIOLINS VS. SYNTHESIZERS (ULTRAMAX)

Penn State professor Dr. Max Fomitchev's concert DVD of his techno-influenced arrangements of classical standards features an orchestra, a DJ, a synthesist and a rhythm section.



CHRISSE PIER



PASSION PIT: MANNERS (FRENCHKISS)

The group's second release combines frenetic synthesizer tones, disco-influenced rhythms and excellent songwriting. Look out for these guys.



S. COURTESY GET PHYSICAL MUSIC



DAMIAN LAZARUS: SMOKE THE MONSTER OUT (GET PHYSICAL MUSIC)

A collection of catchy, original songs from Lazarus, a British DJ and record-label owner. The CD contains an eclectic mix of songs imbued with cool synth textures and effects, and frequently laced with dark humor.



ANDONIS MAMILLOS

RARE ELEMENTS: OMAR FARUK TEKBILEK (5 POINTS RECORDS)

From a series of releases pairing master musicians and remixers, this disc focuses on Turkish multi-instrumentalist Tekbilek, and taps the fertile combination of world music and electronica.



BOB MOOG'S 75TH BIRTHDAY BASH

A video report on the Enter the Mind of Moog event recently held in Asheville, N.C. by the Bob Moog Foundation to celebrate the late inventor's 75th birthday.



BEN WEINMAN OF THE DILLINGER ESCAPE PLAN

A video interview with the math-core guitarist on how he uses Propellerhead Reason when arranging the band's music.

BUILD TO SCALE

SOLID STATE LOGIC X-DESK

Solid State Logic (solid-state-logic.com) makes its SuperAnalogue technology scalable with the introduction of the X-Desk (\$2,899), a 16-channel compact mixer. The unit, which fills a 7U rackspace (rack ears included) or fits snugly on your desktop, sports 100mm faders, comprehensive monitoring with Dim and Cut buttons, stereo or mono aux sends, channel and master insert buses, main and alternate monitoring and talkback, as well as bar graph-level metering. The X-Desk is hand-built in the UK with top-quality components and an all-metal chassis. You can cascade as many as eight X-Desks and X-Racks for up to 160 inputs on mixdown, in whatever combination meets your needs.



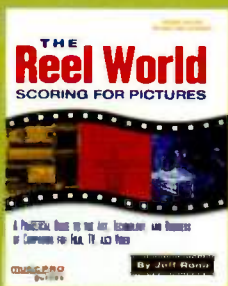
SUBMERSIBLE MUSIC DRUMCORE 3

Submersible Music (submersiblemusic.com) takes a big user-friendly step forward with the release of DrumCore 3 (Mac/Win; \$249, \$59 upgrade, \$599 Deluxe). In addition to the stand-alone program, now called DrumCore Toolkit, you get plug-ins in Audio Units, VSTi and RTAS formats. The Toolkit is still necessary for importing DrummerPacks and for full access to Gabrielizer settings. The plug-ins offer everything else without the bother of ReWire. DrumCore 3 has more than twice the content of the previous version, adding grooves and kit sounds for jazz and basic beats for songwriters. KitCore's LiveDrummer feature has been added, and KitCore users can import their libraries into DrumCore 3 or continue to use KitCore as a separate plug-in.

DOWN TO THE CORE



GET SMART



Hal Leonard's *The Reel World*

In this second edition of *The Reel World: Scoring for Pictures* (\$27.99) from Hal Leonard (halleonard.com), noted film and television composer Jeff Rona gives you the inside scoop peppered with interviews from industry insiders such as John Williams, Hans Zimmer and Mark Isham. In three sections—"The Creative Process," "Technology" and "Career"—Rona describes what it takes and how you can do it. The book covers musical aesthetics, the latest technology and useful techniques, as well as how to

develop positive business relationships. A companion Website (reel-world-online.com) features updates, links and other resources.

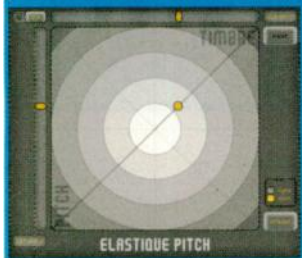


Course Technology PTR's *GarageBand '09 Power!*

Longtime Mac software instructor and professional musician Todd Howard fully explicates the expanded capabilities of Apple's GarageBand '09—part of the iLife '09 bundle (Mac, \$79) and free with a Mac purchase—in *GarageBand '09 Power!* (\$29.99). Its 12 stand-alone chapters are

ZPLANE DEVELOPMENT ELASTIQUE PITCH

IT'S A STRETCH



German audio research firm zplane Development (zplane.de) brings its real-time pitch-shifting technology to Pro Tools with the new RTAS plug-in Elastique (Mac/Win, \$399). Elastique supports simultaneous phase-coherent processing of up to eight audio channels without any offline pre-analysis.

Its algorithms can shift-pitch as much as one octave and can apply equally well to speech and monophonic classical and popular instruments. Formant shifting is independent of pitch shifting, and you can use incoming MIDI for pitch control. The pitch-correction plug-in is geared for sound design, real-time recording and rehearsal, and film and video conversion.

SONIVOX DVI 2

With the upgrade to Version 2, Sonivox's (sonivoxmi.com) collection of 59 downloadable virtual instruments (Win and Intel Macs, from \$19.95) gets a leg up with new DSP and effects processing, including a new EQ section and a reverb and amp simulator from iZotope. The instruments in the collection share a common interface, and come in Audio Units, VSTi, RTAS and stand-alone formats. You'll find a wide variety of both acoustic and synthesized percussion, plucked and bowed stringed instruments, wind instruments and keyboards. Need a Chinese Guqin for your next trance gig? DVI 2 has you covered. Check out the audio demos, download and the latest additions to the series at the Sonivox Website.

INSTANT GRATIFICATION



YAMAHA CORPORATION TYROS3 BY SPECIAL ARRANGEMENT

Yamaha Corporation (music-tyros.com) claims that playing the redesigned Tyros3 (\$3,999) arranger workstation is like controlling a virtuoso musician who happens to play hundreds of instruments. One reason is that it performs complete arrangements in 450 styles. Super-Articulation 2 modeling lets you emulate human playing techniques like note-on and note-off pitch-bend and glissando, correct guitar-chord voicing and strategically placed breaths. The 44.9x5.6x17.7-inch, 33.5-pound Tyros3 houses a 7.5-inch color display, full-sized 61-key keyboard, high-end DSP effects, one-touch hard disk recording to 3.2 MB internal Flash storage and USB connectivity to your computer for data transfer.

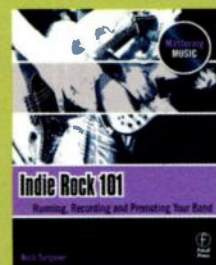


filled with screenshots, tutorials and real-world examples. Howard shows how to install GarageBand, get sound out of it, set up its preferences and work with its interface and free content. He then goes on to show you how to use GarageBand to learn to play an instrument, compose and record music, create a podcast start-to-finish and produce iPhone ring tones. Get full details from Course Technology PTR (courseptr.com).

Focal Press' *Indie Rock 101*

Whether you've just formed your band or have been grinding it out for a while, *Indie Rock 101* (\$29.95), part of Focal Press' (focalpress.com) new Mastering Music Series, will take you to the next level.

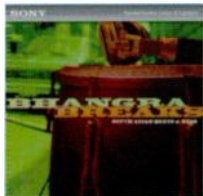
Author Richard Turgeon has been there, producing and managing his indie-rock band through six records and countless gigs. The book breaks the process into its three essential parts—running your band, recording and promoting—and illustrates its advice with industry insider question-and-answer sessions with Derek Sivers (CDBaby founder), Mark Kozelek (Sun Kil Moon) and others. A handy appendix includes a glossary of audio terminology, a gear list for the author's records and links to audio production magazines.



Sound Advice

Sony Creative Software's *Bhangra Breaks*

Bhangra Breaks: South Asian Beats & Bass (\$41.95) from Sony

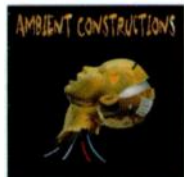


Creative Software (sonycreativesoftware.com) brings the primal music of celebration and rebirth from the Punjab to your desktop. New York City DJ Rekha Malhotra, publisher of the monthly *Basement Bhangra*, teams up with producer Sunil Sehgal to deliver 319 ACIDized WAV files (504 MB) fea-

turing heavy rhythms played on dhol drums, dholkas and tablas, combined with authentic harmonium, tumbis, flute and synth melodies. Bhangra style integrates well with urban contemporary, dance and other streetwise forms. Visit the Sony Creative Software Website to hear examples, as well as purchase the collection boxed or as a download (\$39.95).

Producer Loops' Download Libraries

Producer Loops (producerloops.com) is a British online retailer of an array of services to audio producers.



The company's offerings include training videos, plug-ins from third-party developers and virtual instrument sound banks. Its primary focus is downloadable sample libraries (Mac/Win, from \$10 to \$100) developed in-house and by outside sound designers. Virtually all audio and sampler

formats are available. They cover most styles, but emphasize house, dubstep, hip-hop and electro. Orders are processed instantly and downloadable 24/7. Visit the company's Website to browse the catalog by product type, genre, delivery format or manufacturer, and to grab free demo packs.

Myst Sonic Sampled Instruments

Myst Sonic is a new Chinese developer of sampled instruments for Native Instruments Kontakt 2.1.1 or later. The company offers an expanding collection of ethnic Asian instruments, such as the



Chinese Pipe (GuanZi, \$52) and Chinese Zither (GuZheng, \$65). You'll also find Western instruments like symphonic

strings (Symphony Dynamic, \$45) and electric guitar (AC Clean Modulator, \$52), along with unusual percussion such as a struck crystal goblet (Crystal Mirage, \$65). All instruments make extensive use of mod wheel, velocity and key switching to let you emulate authentic playing techniques on a MIDI keyboard. Check out the instrument descriptions, audio examples and manuals for each product on the Myst Sonic Website (mystsonic.com).

BRAINY SOLUTIONS



BRAINWORX BX_DYNEQ


German plug-in developer Brainworx (brainworx-music.de) puts mid/side (M/S) processing at your fingertips by building bidirectional conversion between M/S and stereo into its plug-ins. Its dynamic EQ bundle, bx_dynEQ (Mac/Win, \$350), comprises four task-specific plug-ins: mono, stereo, M/S and bx_boom!, the last of which is customized for bass drum. M/S processing is a staple of audio engineers, but its application to stereo-recorded audio usually requires manual conversion to and from M/S format. Brainworx puts that under the hood, letting you get on with the task at hand. The plug-ins are fully automatable and incorporate ergonomic features like mouse-over scroll-wheel parameter control and a variety of solo modes.



NOVATION SL MK II

Novation (novationmusic.com) takes its ReMOTE SL Series of USB MIDI control surfaces to the next level with the SL Mk II Series (Mac/Win, \$TBA). The unit comes in 25, 49 and 61-key models, as well as the key-

REMOTELY ACCESSIBLE

boardless ZeRO SL Mk II control surface. All units ship with Automap 3, 1.5 GB of sample content, Ableton Live 7 Lite and the Novation Bass Station virtual instrument plug-in. Enhancements of the ReMOTE SL Series include touch-sensitive dials and faders, illuminated buttons and LED-ringed dials, soft-feel drum pads, a single 144-character LCD augmented by the Automap Heads-Up GUI, and user-assignable Transport buttons. 

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- Auto Limiter
- System weight under 40 lbs.
- Optional YBSP300 roller case



STAGEPAS 300

STAGEPAS 500 Portable PA System

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STAGEPAS 500

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Home base: Los Angeles
 Go-to software: Propellerhead Reason
 Vintage synth: Oberheim OB-8
 Website: www.obibest.com



Studio Escapades

Obi Best's debut features stuffed animals, saws and synths.

When she's not moonlighting as a singer with the retro-pop outfit The Bird and the Bee, singer/songwriter and keyboardist Alex Lilly crafts fanciful pop under the moniker Obi Best. On her debut release, *Capades* (Social Science Recordings, 2008), Lilly conjures up musical bonbons that are as quirky and whimsical as they are clever and provoking.

By Diane Gershuny

Many of *Capades'* offerings—including “Swedish Boy,” “Who Loves You Now” and “Origami”—employ various combinations of live piano, analog synth, programmed beats, sequenced MIDI parts and live drums. The creations were sparked from spontaneous experimentation, or were the result of intentional sonic and gear mash-ups. “It was a fun challenge to legitimize the tackiness of [Propellerhead] Reason sounds with womping Moog sounds and celestial Oberheim pads,” Lilly muses. “I paid many visits to bandmate Bram Inscore’s home, where we’d experiment with this awesome gear. Great sounds, though we had to keep tuning the OB-8! You can also find some interesting sounds on the more reliable Nord Lead. Guitarist

Oscar Schedin found the perfect whiney [lead] sound for ‘Swedish Boy’ using one of those [see Web Clip 1].”

The recording/overdubbing process took place for the most part at the home studios of friends or at her own setup, shared with then-boyfriend Schedin. That studio comprised an older Apple Mac PowerBook laptop (loaded with Digidesign Pro Tools LE and Reason), with a RØDE NTK mic and Universal Audio preamp. “We experimented a lot with mics and mic placement, and when we weren’t sure how to get the best sound, we went to the books to find out how.”

One of the more unusual “recording” scenarios involved a voice-recording

“plush” and a happy accident. “Although there was no sampling on this album, I did record the intro for ‘Origami’ on a Hello Kitty stuffed animal [see Web Clip 2]. It actually played back a half-step higher, so it was like Hello Kitty sampled my song and remixed it!”


And then there was the saw. “Within These Forest Walls’ needed that wistful, Spaghetti Western vibe, so I searched

unusual sight. She wore a very tall high-heeled shoe on one foot to give herself leverage. It sounded as interesting as it looked. We set up a mic about five feet behind her in her small kitchen so as to not pick up the ‘attack’ of the bow on the saw—or the hum of the fridge.”

Lilly used a few different mixers for the project, including Bryan Cook, Pete Min, Kevin Harp and Nate Wood. “Like most songwriters and bands, I’d do a little premixing before I’d hand it off. The mixing process is such a time-consuming balancing act; there are so many aesthetics that you want met and sometimes they can be a little contrary. Some section will sound warm and full but there may be a lack of clarity. We’d tweak this or tweak that until it sounded right. Style is such an important factor, too. Bryan took some chances with a few

The mixing process is such a time-consuming balancing act.

online for a saw player and found the lovely and talented Irina Bjorkland. I took my laptop, preamp and mic to her home to record her playing. I had never seen someone play the saw before; it’s an

of these songs. On ‘Origami,’ he sent my voice through an effect that imitated a keyboard or vocoder sound. I knew I wanted something more robotic and that really made the song.” 



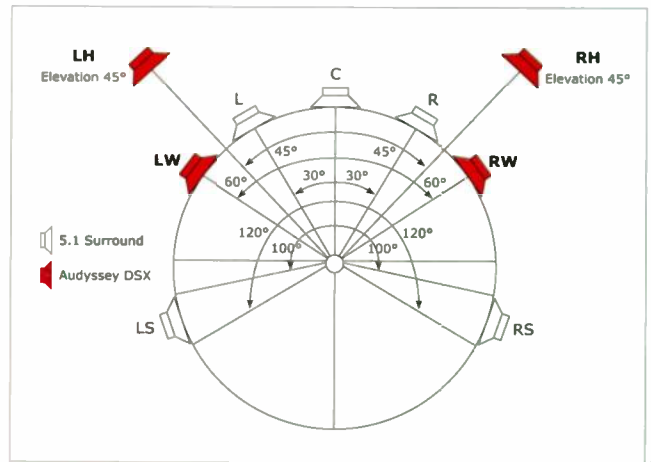
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FIG. 1: Audyssey's DSX lets you add Left- and Right-Wide and Height speakers to a conventional 5.1 or 7.1 multichannel audio system to enhance the immersive experience. You can also add one or two Back-Surround speakers that are not shown here.



You're Surrounded!

Enhancing multichannel audio immersion. | By Scott Wilkinson

When recorded sound expanded from monaural to stereo in 1957, it was a revelation. Forty years later, DVD entered the scene with 5.1-channel surround sound—five main channels and a low-frequency subwoofer—and the sonic landscape expanded again. Today, many consumer A/V receivers can artificially derive two extra channels from a 5.1 source for so-called 7.1, though no one mixes content with seven discrete main channels.

A 5.1 system places three speakers in front of the listener—a center speaker directly in front and left and right speakers at ± 30 degrees—and two speakers to the sides and just behind the listener at ± 100 to 120 degrees from the center (see Fig. 1). A 7.1 system adds two more speakers farther behind the listener, though the angles are not well defined.

Unfortunately, five main channels are insufficient to create a truly immersive soundstage. For example, when panning a sound from the left-front channel to the left-surround channel, the apparent source of the sound becomes quite indistinct between the two speakers. Adding two more back-surround channels does little to improve the sense of immersion because our awareness of sonic directionality

is far less acute behind us than it is in front. Thus, to increase the immersive quality of a multichannel audio system, it's much more effective to add channels in front of listeners rather than behind them.

Tomlinson Holman (the "TH" in THX) is a long time advocate of this approach. His research at the University of Southern California's Immersive Audio Lab (USC IAL) clearly indicates that adding two more front speakers at ± 60 degrees—called the Left- and Right-Wide channels—significantly enhances the sense of immersion, allowing pans along the sides to remain much more cohesive than they are with five channels.


He has also found that adding two more speakers at ± 45 degrees and raised 45 degrees above the plane of the other speakers—the Left- and Right-Height channels—adds a sense of height that further enhances the immersive experience. Finally, putting a single Back-Surround speaker directly behind the listener is all that's needed to complete a truly immersive 10.1-channel surround system.

Unfortunately, no 10.1-channel commercial content exists, nor is it likely to exist anytime soon. So a company called Audyssey Laboratories (audyssey.com), founded by Holman and others from the USC IAL, has come up with an ingenious workaround. Dubbed DSX

(Dynamic Surround eXpansion), this DSP algorithm accepts a 5.1-channel signal and derives the Left- and Right-Wide, Height and Back-Surround channels.

The system is completely scalable so you don't need to install 10 or 11 speakers to enjoy an enhanced surround experience. For example, the first products with DSX are 7.1-channel A/V receivers that let you designate the Back-Surround channels as Left- and Right-Wide or Height channels instead.

I recently heard a demo of DSX at Audyssey's facilities in Los Angeles, and I was very impressed. One clip was a scene from *WALL-E*, the Pixar animated feature about a waste-reclamation robot on a deserted Earth. In the scene, the little robot rolls across the screen from left to right, then ascends a ramp, and the sound panned to the Right-Height speaker. I asked how the system knew that's where the sound should go and was informed that they could tell me, but then they'd have to kill me.

However it's done, the sense of immersion was significantly enhanced as compared with conventional 5.1. DSX represents the next step in the evolution of surround sound and provides an effective bridge to the day when multichannel content will be delivered with 10.1 discrete channels. 

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Going Beyond Presets

Five top sound designers offer tips for getting the most from your synths.

By Larry the O

In the late '60s and early '70s, there were probably fewer than 20 synthesizers on the market, all costing in the tens of thousands of dollars. Today, life is good: There are hundreds of electronic musical instruments available, both virtual and hardware-based, employing a wide variety of synthesis and sampling technologies, and costing somewhere between nothing and a few thousand dollars. Yet, with this embarrassment of riches lying at our metaphorical (and, occasionally, literal) feet, most people barely do more than choose a preset closest to their needs at the moment.

There are, of course, reasons for this. People who are impatient or under deadline pressure (or both) don't have the motivation to spend time programming sounds. With so many presets available, many people don't see a need to learn how to program an instrument themselves. And then there is the double-

edged sword of flexibility: The more options that exist in an instrument, the more parameters there are that must be dealt with. Further, the functions of some parameters are not particularly intuitive, making their uses harder to grasp.

In short, taking on a new electronic musical instrument usually generates tremendous excitement at the possibilities, but that excitement can be dampened by terror at how overwhelming it all seems. Still, while good presets are critically useful, there's more fun, musical richness and distinctiveness in rolling your own sounds.

To get some tips and perspectives that you can take into your own studio and use, I spoke with five experts who make their livings using, programming and, in many cases, even designing electronic instruments. My particular interest was the intersection of theory and practice—the point at which training and knowledge come

in contact with creativity and instinct.

This article takes a fairly broad view of synth programming, but much more material, including instrument-specific tips and tricks, can be found at emusician.com/bonus_material. There you'll also find "EM's Panel of Synth Experts," which offers background on the sound designers who are quoted in the story: Eric Persing, Jack Hotop, Ian Boddy, John Lehmkuhl and Martin Jann.

Start From Scratch

The interviewees were unanimous on several points, the first of which being, as Jann, the founder of Pixelsonic puts it, "Knowledge of technical principles is important. If you have a good camera but don't know anything about photography, you can try to make pictures and may have luck shooting a good one, but you can only make good pictures at a good rate if you know the principles and techniques of





➤ Clockwise from left: Eric Persing, Jack Hoptop, Martin Jann, John Lehmkuhl and Ian Boddy

photography. I think it's the same with these kinds of instruments." Sound designer Boddy seconds the thought, saying, "Being able to dissect a sound into its constituent pieces is important to knowing how to build up patches

from scratch."

Whether you have a hardware or virtual synth, the way to really begin understanding its sonic potential is to turn off its effects, remove modulations and generally simplify the com-

plexity of the signal path to see how much you can get from its raw elements. "I think the way most people learn sound design is that they tweak presets," explains Persing, the founder of Spectrasonics. "That's fine, but then they're working backward: They enter in from the finished sound. That's useful, but if you don't have some time where you do the 'strip it down and see if I can re-create this sound that I heard or this sound in my head,' then it's difficult to really learn the subtleties of what an instrument does or what it's good for, or to be able to apply the sound design knowledge you get from one instrument to another."

Persing recommends Roland's classic Juno 60 synthesizer as a good launch pad for learning to program sounds. "If you look at the spec for the Juno 60, it doesn't have anything," Persing says. "It has one oscillator, a sub oscillator, one Moog-like filter, a preset chorus with two switches and one envelope generator. That's it. There's a finite amount of things you

Better Sounds Through Pitch Stretching

"The problem with a sampled sound is that it's a snapshot," says Eric Persing. In other words, hitting the same key three times in a row produces the exact same sound three times, unlike an acoustic instrument in which every note will have at least slight differences. But Jack Hotop and Persing describe one of the methods for countering this problem.

"There's a great technique called pitch stretching, and there's a couple of ways of achieving it," says Hotop. "If you bend or transpose the pitch of a sample up, it gets brighter in harmonic content. You might do this using an envelope, or a parameter called something like 'pitch adjust' or 'pitch stretching.' What it does is change the tonal and timbral character of the sound.

"If you bend the pitch down by anywhere from

"With synthesizers and workstations now, you have transpose functions, so raise or lower the pitch of the sample, and then use an offset for the transpose function. Some synths and workstations have a parameter you can just adjust and it does that; on others it's a programming trick you can do if you modulate the pitch with an envelope, keep it there with a high sustain level and do offsets that way. That's another way of getting different timbral characters.

"But remember that when, for instance, you lower the pitch of a sample, you're slowing the attacks of the sound down. Since you have the knowledge that the attack is going to be played at a slower rate, you can move the sample start point into the waveform a little bit past that initial attack so you don't get a klunk [see Fig. A]."

Persing describes the same technique as it is implemented in one of Spectrasonics' instruments. "We have a control in Omnisphere where you can shift the timbre of the sound, which works very simply by taking all of the keymaps and shifting them in one direction and then compensating for that by changing the pitch," he says. (Omnisphere's Timbre Shift parameter can be seen in Fig. 4 just above the drop-down menu.) "What happens then is that all of

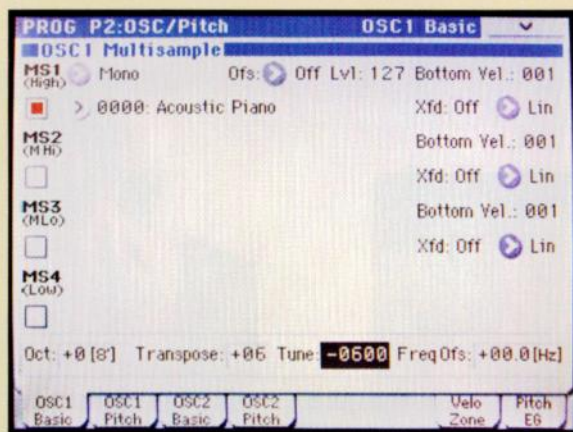


FIG. A: This screen shows how pitch stretching is implemented on Korg's M3 synthesizer: a positive Transpose value and a corresponding negative Tune value.

a half-step to an octave, you'll find that the timbre becomes darker," Hotop continues. "It's just a way of evoking different tones. My first experience with this was back in the days of the Mellotron, where I'd use the pitch control, but then have to transpose the part I was playing and play it in a different key [to bring it back to the desired pitch].

the formants of the sound are changing without the pitches changing. We can modulate that parameter, too, so that every time you strike a key, you can randomize the shift (or use whatever modulation source you want to change it). That way, the instrument doesn't sound the same every time you hit a key. [see Web Clips 1a through 1c]."

Being able to dissect a sound into its constituent pieces is important.

can do with a Juno 60, but it's much more than what most people realize. So you turn off all of the effects and see how far you can go with one oscillator. Then you start to build onto that."

This approach stems, in large part, from these sound designers having started out when there were no presets. "Growing up in the days of the birth of analog synthesis and having modular synths was a good learning experience for me that probably helped me find the niche that I'm in," explains Hotop, a



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Going Beyond Presets

pre-eminent programmer at Korg.

"When I started, there was no title of 'sound designer'; you played the synthesizer," agrees Persing. "If you played the synthesizer, there was some level of sound design knowledge because there were no presets. The idea of separating out sound design as its own discipline is very new."

Take Stock of Your Synth

Understanding your synth's resources can point you in the right direction and help you avoid wasting time trying to make an instrument do something for which it is ill equipped.

"One of the things to look at is the instrument's architecture. Often, that can be found in the materials the manufacturer has online," suggests programmer and PlugInGuru.com



»» FIG. 1: In Native Instruments' Absynth 4, the signal path is user-definable. Each of the three oscillators feeds two modules that can be defined as a filter, modulator or waveshaper. There are two definable modules in the Master section, as well.



Velocity Curves Ahead

in terms of volume. It lets you take control of the sound."

Choosing the right curve for the part is key. "Don't get too technical," advises Hotop. "Try playing a phrase with a couple different velocity curves, or even try

recording it: Do one or two passes with two similar curves or two very extreme curves and adjust your levels accordingly. Use your ear, and ask yourself, 'Do I need a consistent level throughout the track or do I need something with some dynamics that lets me get out of the way of a vocal or support a little stronger in a chorus?'

"Another thing I've done occasionally is vary the velocity curve according to the track or the tempo I'm playing. An alternative to controlling dynamics with a limiter or a compressor is to play the phrase I'm going to record and choose a velocity curve that gives the dynamics I want."

But, Martin Jann notes,

finding the right curve can be tricky. "[Velocity curves] are a difficult issue, and the reason is that we are trying to put many things into one, which should be separated in my view.

"If you're learning an instrument, you usually are playing the same instrument all the time," Jann continues. "If you play violin, you may have the same violin almost all your life and you know this instrument the best. If you apply this view to our realm of using MIDI keyboards with different synthesizers and sounds, you find you can change the velocity curve on your keyboard, within your sequencer, within the sound, in fact, just about everywhere. Every keyboard's velocity response is different as well, so the same preset can sound very different when played with different keyboards or velocity curves." The solution, says Jann, comes, as with the violin, only through intimate familiarity with your controller's response.

"But remember that when, for instance, you lower the pitch of a sample, you're slowing the attacks

of the sound down. Since you have the knowledge that the attack is going to be played at a slower rate, you can move the sample start point into the waveform a little bit past that initial attack so you don't get a klunk."

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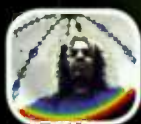
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Going Beyond Presets



FIG. 2: In Native Instruments' FM8, a drop-down menu of column names lets you select "Author" as one of the columns. This allows you to group presets by the sound designer who created them, making it easy to audition everything made by someone whose tastes you find appealing.

host John "Slappy" Lehmkuhl. "With Absynth 4, Native Instruments changed the instrument's signal path. It used to have an oscillator going into a filter, followed by a ring modulator, then a waveshaper at the last output stage that you could run sounds through, and finally another filter. Now it's got this modular concept in which the function of each one of these blocks can be interchanged, so that instead of being an oscillator going into a filter, you could change it to feed the waveshaper [see Fig. 1]. This is the case for each of the three oscillators in Absynth, so that gives you the idea that there's a huge amount of programming power in there."

Familiarizing yourself with the individual character of the components in each instrument is crucial. "One of the first things I do is listen to the oscillators—raw, on their own with no added filtering or effects," sound programmer Boddy says. "This is one of the most difficult things to get right in soft synths. It's not essential for them to be exactly like a Moog or whatever, but I like to hear how they sound as that's the starting point and gives me a good idea of how rich and interesting I can make the sounds."

"After that, I explore the filters to see how they shape the sound," Boddy continues. "These days, most filters in soft synths are pretty good except when it comes to self-oscillating stuff; they still seem to fall down at that hurdle. Once I know how the oscillators and filters sound, I can start to program patches."

Persing also listens for an instrument's essential sound quality. "Is the overall character of an engine glassy or smooth sounding?

Does it have an edge to it? The [Roland] D-50 would be an example where the high end of the synth is interesting: There's a raspiness to it, but it's musical. It's not a particularly fat-sounding synth, so I'm not going to spend a lot of time trying to get really fat synth basses out of a D-50; I'm going to put energy into getting the more glassy kinds of colors and ethereal things. There are other synths that really don't do that kind of stuff at all, but are great at a 'squelchy' thing, or do something wonderful

when the filters are overdriven."

Don't take the D.I.Y. focus of this article, or even Persing's comment about learning synthesis, to mean that exploring presets is not valuable to learning how to make your own sounds. After all, the presets are the result of people like Persing, Hotop and the rest going through the learning process themselves with that instrument.

"Companies usually hire a number of programmers to work on a new synth, and, if it's really a great synthesizer, every programmer that sits and approaches it is going to make it speak in a different way," reasons Lehmkuhl. "It's not documented, but there's a way to set up the columns in Native Instrument's FM8 to list the programmer for each patch. Then you can click the programmer list and it will group all of a certain programmer's patches together, so you can go through, and say, 'Oh, this guy did this really cool sound.' Now you can go and find out what other sounds he did, and, chances are, those are the kinds of sounds that

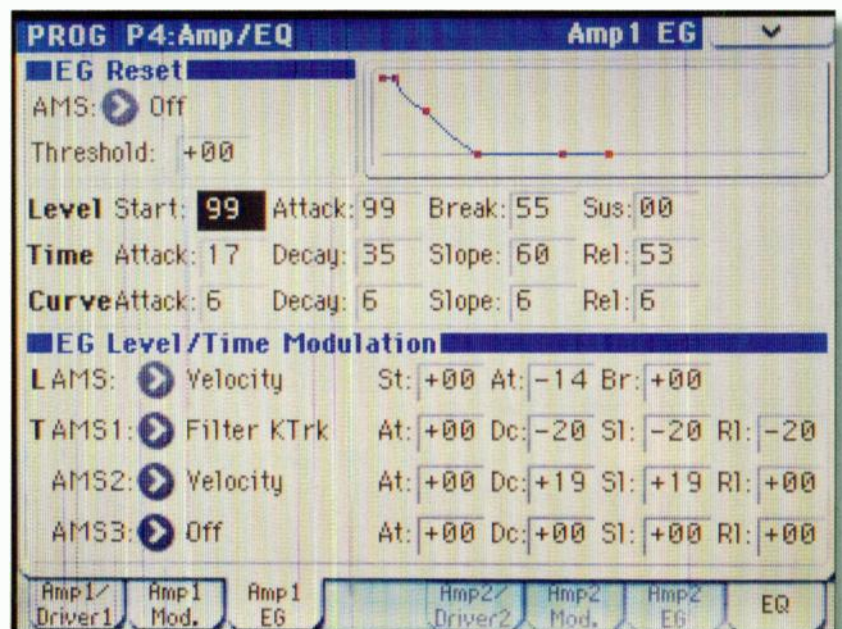


FIG. 3: A screen from the Korg M3 showing, in the second row of the EG Level/Time Modulation section, key tracking (in this case, filter key tracking) being applied to the decay, sustain and release of a marimba sound to give shorter decays for higher notes



FIG. 4: Modulating the time within a sample at which it starts playing back can add life to the sound. This drop-down menu shows the variety of sources available in Spectrasonics Omnisphere for sample start modulation. (The Sample Start parameter itself is obscured by the drop-down menu in this illustration.)

will really speak to you because they rang your bell in the first place [see Fig. 2].”

Hotop emphasizes asking yourself questions from the standpoint of usability. “Does it play well? Does it sound musical? Does it feel good playing it from a keyboard? You make the decision on what the music is calling for,” he says. “Is this sound working for me? Break it down, and say, ‘What aspect do I like about it? What works, what doesn’t work?’ Think in terms of the music, the part that’s being played, and always try to walk a mile in the other guy’s shoes if you’re dealing with emulative sounds. Synth stuff is a whole other strategy.”

Add Life to Sounds

The eternal quest for synthesists is to be able to produce sounds as responsive and expressive as acoustic instruments. As those qualities don’t naturally exist with electronic instruments, there are a multitude of techniques sound designers use to add variation.

“It’s important to understand the synthesizer as a musical instrument,” Jann says simply. “Music itself has been made for hundreds of years with things that generate sound by putting energy into materials that vibrate. A flute has a

column of air, a guitar has a plucked string; it’s always something solid and not variable. People have learned to make music with things that have a certain set of fixed parameters and very few variable parameters—to put it in the language of synthesis.

“So if I create a sound, it’s very important for me to not make it too variable,” Jann continues. “I start with something fixed and add more and more parameters that I can control to make it a musical instrument that I can play. My experience is that if I have a sound that gives me the feeling I can learn to play it as a musical instrument, that helps me use it for my music. Conversely, a sound that doesn’t fall into this category and makes me feel I can’t control it because it has too many variable parameters is probably not as versatile or usable for me as a musician and composer.”


Injecting life into sampled sounds often comes down to making every note sound different. “One of the most important things is enveloping,” Lehmkuhl states. “I’ve always loved Korg’s envelopes because they have separate modulation of the levels and times of the envelopes. For instance, if you’re making a marimba sound, you can change the time of

the decay [with key tracking] to be long at the bottom of the keyboard and short at the top of the keyboard, which mimics the behavior of a real marimba. What’s really critical for me, also, is to apply a little bit of the velocity values to the attack time of an envelope [See Fig. 3].” This tactic involves configuring the modulation such that higher-velocity values produce shorter attack times, so that harder playing results in sharper attack transients and gentler playing makes softer attacks.

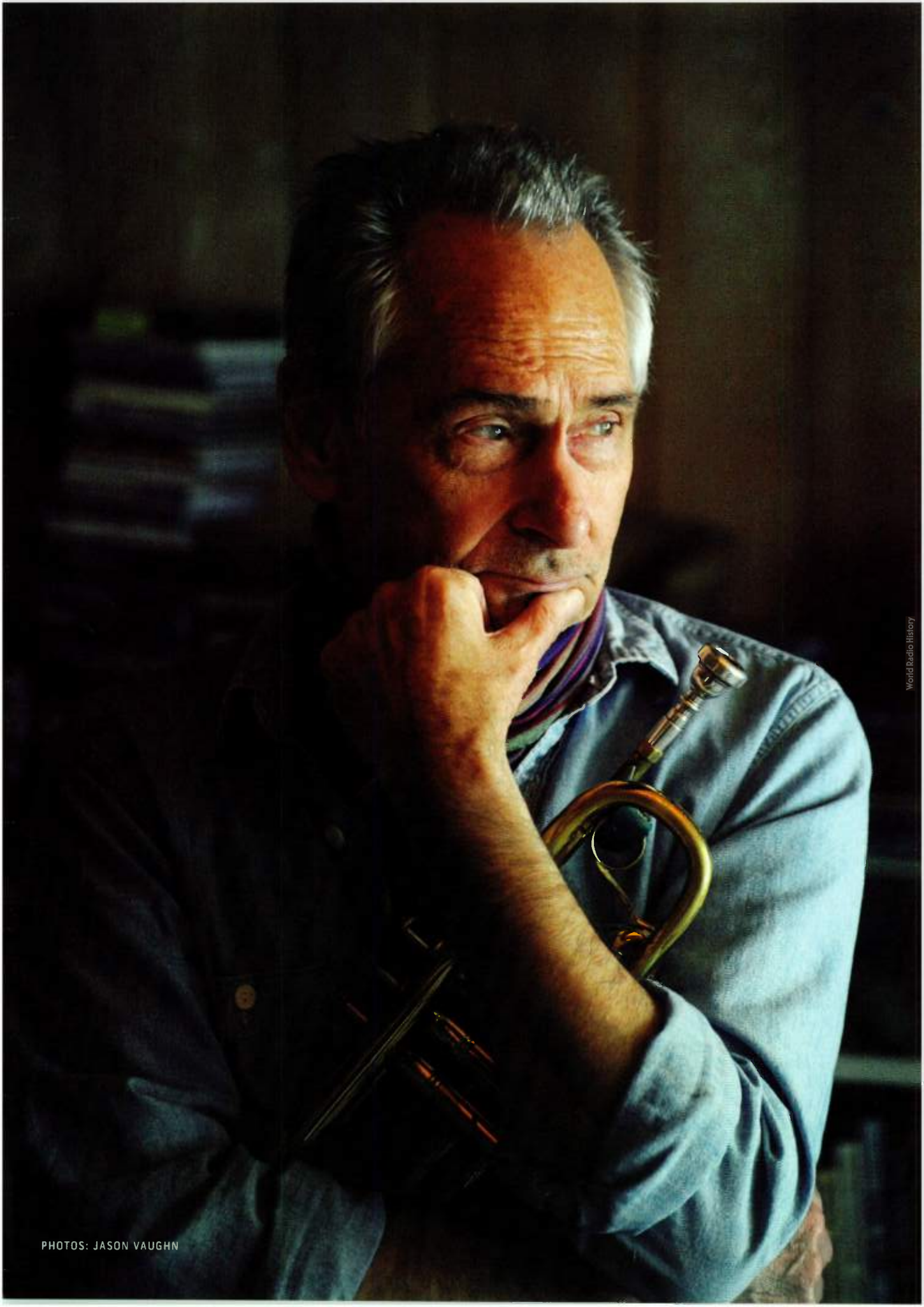
Pitch stretching, as described in the sidebar “Better Sounds Through Pitch Stretching” on page 24, is a technique that employs timbral modulation rather than dynamics processing to make each note different.

Hotop also views envelopes as powerful tools for adding expressivity. “A lot of synths and workstations have sliders and knobs that make it easy to say things like, ‘How about if I extend the release on this patch so that I don’t have to pedal as much and I can play with a legato touch.’ That is often an easy parameter to find these days, and, a lot of times, just a little tweak like that can make a sound work better in a track or fit better in the sound of a band for live performance.”

Persing offers another technique to liven up a sound: “If you modulate the sample start time so that you’re never hearing the same sample playing in the same place every time you hit the key, it puts just a little subtle variation in there and the sound really feels much more alive [see Fig. 4]. The musician may not be able to put his or her finger on it, but when you play the instrument, it sounds good, it sounds alive, it doesn’t have that dead feeling of a ‘boring old sample.’”

Of course, there will always be a place for aimless experimentation and just following your muse. But understanding your instrument and how to maximize what it has to offer is a gateway to finding your individual voice on it and extracting the expressiveness we all seek in making music. 

Larry the O has programmed synthesizers since the mid-’70s, and has contributed to EM since 1986. His company, Toys In the Attic, provides sound design and music composition services. He wishes to give special thanks to John Lehmkuhl for the abundant quantity of materials he provided for this article.



EMBASSADOR

FROM THE FOURTH WORLD

JON HASSELL REVEALS THE FASCINATING MUSICAL HISTORY AND TECHNOLOGY BEHIND HIS LATEST RELEASE.

By Geary Yelton

The first time I heard trumpeter Jon Hassell's music, I thought, "That isn't a trumpet. I don't know what it is, but I know what a trumpet sounds like and that's not even close." The year was 1980, and the album was *Fourth World, Volume 1: Possible Musics* (EG Records), a groundbreaking record that marked the beginning of Hassell's long association with producer Brian Eno. *Possible Musics* changed the future direction of progressive pop music, influencing everything from Peter Gabriel's *Security* to David Byrne and Eno's *My Life in the Bush of Ghosts*, which, in turn, influenced everyone from Paul Simon to Hank Shocklee, Public Enemy's producer. Years later, *TV Guide* named Hassell's sample-laden theme for the television series *The Practice* one of the "50 All-Time Favorite TV Themes."

Like fellow trumpeter Miles Davis, Hassell is a unique talent, a visionary innovator in the first degree. His ever-evolving musical style consistently defies categorization, which has no doubt made the road to widespread recognition virtually impossible, especially in the United States. Yet his reputation with adventurous musicians is immense, as is the debt of gratitude many feel toward his contributions to modern music.

After receiving a master's degree in orchestral trumpet from Eastman School of Music in New York, Hassell got a grant to study electronic music in Germany with Karlheinz Stockhausen. When he returned to the U.S., he attended State University of New York at Buffalo, where he played on Terry Riley's seminal recording of *In C* (1968) for Columbia Records' *Music in Our Time* series. He studied raga with visiting Indian vocal master Pandit Pran Nath, who had a tremendous and lasting influence on Hassell's phrasing, his playing technique and his "diagonal, shape-making" approach to melody, harmony and rhythm.

Though perennially popular on the European stage, Memphis-born Hassell recently completed his first U.S. tour in nearly 20 years. I caught up with him in Knoxville, Tenn., where he performed at Big Ears 2009, a three-day music festival also featuring Philip Glass and many other extraordinary musicians. His concert was absolutely mesmerizing, with the audience silently transfixed for the duration of the performance. During our conversation the next morning, Hassell was accompanied by Peter Freeman, who has not only been his bassist, occasional co-producer and technical right-hand man for nearly 20 years, but has

Ambassador From the Fourth World

also written for *EM* on numerous occasions.

You're known for creating new musical forms, but everyone has a hard time categorizing your music. How would you describe your new album for the ECM label, *Last Night the Moon Came Dropping Its Clothes in the Street* (2009)?

Hassell: I can't describe it. It's not classical, it's not jazz. The word "avant garde" signals thorny, difficult, something you have to take like a bitter medicine of some kind. I could answer your question, and say, "Well, it's Fourth World." Then you'd have to ask, "What's Fourth World?"

That's a good question.

Hassell: It came from knowing that you've got to have some little knife, a quick logo that cuts through, to give journalists something that they can say about [my music].

And you've been using that description for decades now.

Hassell: Yes, and it means a combination of

third-world, traditional, spiritual and first-world technology—hopefully, a blend that's respectful of the third-world sources it came from.

What can you tell us about your use of live sampling onstage?

Hassell: It goes back to *Possible Musics*, the record I did in 1980. If anyone happens to be doing their doctoral thesis on the origin of live sampling, I'd like to know whether anything ever predated what we did there. Michael Brook was playing guitar then, but he was also mixing live, and we had the Lexicon Prime Time.

That was what you were using to sample?

Hassell: Yeah. He would snag some trumpet phrases and things like that.

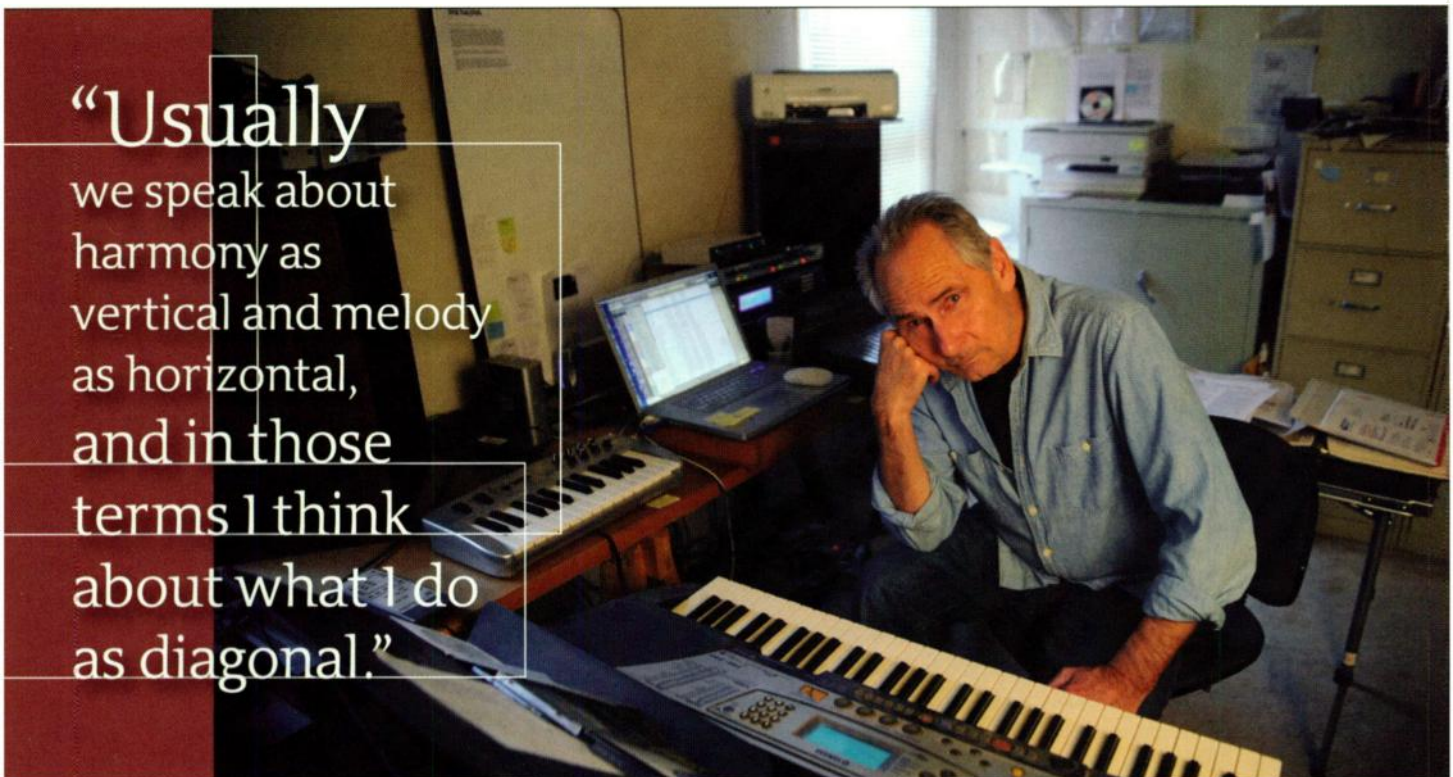
Freeman: [We now have] probably the two premier live sampling guys in the world, [Jan Bang and Dino J.A. Deane]. Dino is a bit older; he was a pioneer of that. He was on some of Jon's earlier recordings from the '80s.

What do they use for onstage sampling now?

Freeman: Jan's got a completely hardware-based system with some older gear. He knows Ableton [Live], but he doesn't like that whole laptop-onstage thing. He has an Akai Remix 16, an old '90s DJ sampler and a sample player. He likes interacting with the buttons, and he plays the thing. There's some hard-disk capability so he can play back existing tracks, as well as effects. I think he uses a [Korg] KAOSS Pad KP2, too.

What about Dino's sampler?

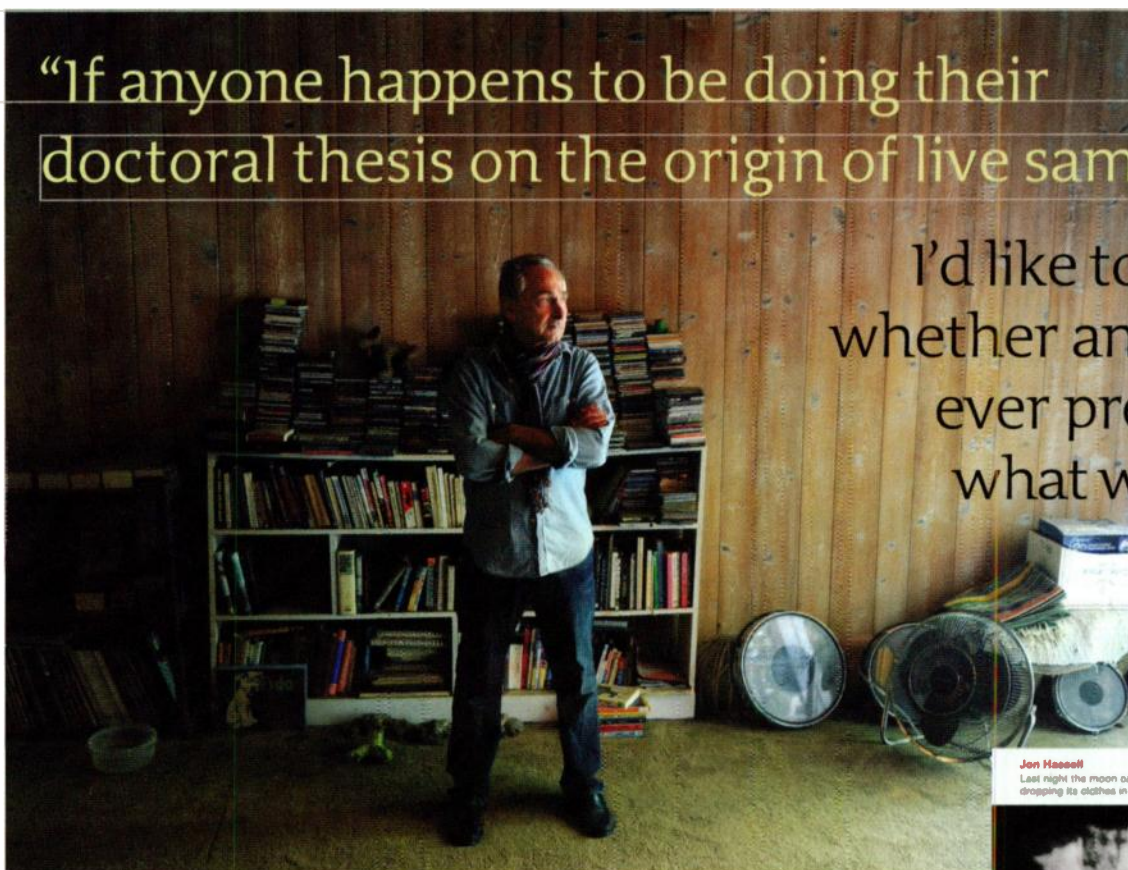
Freeman: Dino's running [STEIM] LiSa and Ableton together on a super-elaborate setup with an [M-Audio Evolution] UC-33. He's using every knob on the UC-33 to control LiSa and Ableton in an amazingly efficient way. He's the king of efficiency when it comes to equipment. He will squeeze every last ounce of functionality out of a piece of software or hardware and have the smallest, most compact, most easily transportable rig of any of us. He's really made that a priority. He takes



“Usually we speak about harmony as vertical and melody as horizontal, and in those terms I think about what I do as diagonal.”

“If anyone happens to be doing their doctoral thesis on the origin of live sampling,

I’d like to know whether anything ever predated what we did.”



Jon Hassell
Last night the moon came dropping its clothes in the street



great pains to set things up in advance to allow himself great flexibility between playing pre-existing material for the pieces of music that we’re doing [and] integrating live sampling at the same time. He chooses to do that on a computer and he gets great results, where Jan does not use a computer onstage. There’s a lot of conceptual similarity between them, but the way they do things is very different.

Hassell: In the title track of the new album, we used a lot of samples and harmonic ambience from the title track of the previous record, *Maarifa Street* (Nyen, 2005). When we went into the studio, we said, “Let’s just make this into a super-weird, slowed-down remix of *Maarifa Street*.” So that’s the way that began. [Guitarist] Rick Cox, who works with [film composer] Thomas Newman a lot, had this string phrase that might have been something recorded at a full-string session. He and Tom still don’t know exactly where it came from.

Freeman: He had a handheld recorder, and he went out in the room with the orchestra. He just grabbed these two beautiful chords, and it had this magic thing about it. That became crucial to the fabric of the other

elements that Jon introduced [to the track “Last Night the Moon Came”].

It’s a very lovely atmosphere.

Hassell: If you look back to *Possible Musics*, the track called “Charm” is built the same way: a repeating string motif (it’s synth, but it’s strings) in the background that’s built over that. Instead of thinking like in traditional jazz, for example, in terms where it’s this chord and the next chord, it’s more like creating a kind of harmonic atmosphere, harkening to my Indian raga study, where the foreground is the musical calligraphy of the voice or the instrument, and then the rhythmic background of the tambura. Instead of the tambura, it’s a kind of harmonic atmosphere that came from the previous record, *Earthquake Island* (Tomato, 1978). And that also came from the title track. There’s this long coda, with this loop of a sustained chord, and I was playing chords on top of it. That was what we built “Charm” on.

How did *Possible Musics* come about?

Hassell: I’d done two records before that. *Vernal Equinox* (Lovely Music, 1977) was what

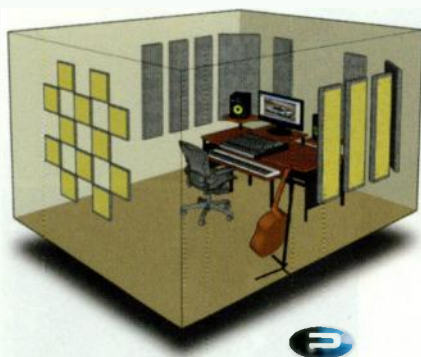
Brian Eno heard when he was in New York. He was living there for a couple of years, so he heard that and he came to hear a live concert that I did at The Kitchen. It was actually just me and a background, which I think was made from 10CC, like a big chord. I played what later became “Charm” over that. After the concert, [Brian] said it would be nice to do something together. And, of course, he was working with David Byrne at the time; they were doing [Talking Heads’] *Remain in Light*.

[For the *Possible Musics* sessions,] we had Naná Vasconcelos, the Brazilian percussionist, and Aiyb Deng, one of Naná’s friends he turned me on to. Brian was brilliant at the console. He brought that whole art-school sensibility to mixing, asking the question, “What would it sound like if you did this instead of that?” He just turned the whole process inside out.

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Did that have much influence on the way you produce music yourself?

Hassell: Well, certainly I learned from it. Anyone who went through that art training knew what questions to ask. Now there's a lot less questioning and more just, "What's the first thought that comes into your head? Why not follow that?" Why do you have to automatically censor the first thing that comes to mind? You'll never know how effective that strategy is unless you actually practice it and wind up with some duds, wind up with some winners. There's more winners than duds by following this intuitive process rather than trying to prethink it too much.

Didn't you have some involvement with *My Life in the Bush of Ghosts*?

Hassell: After *Possible Musics*, Brian came to me, and said, "David and I have been talking, and we'd like to get some basic recording equipment and go to someplace in California or in the desert and make this kind of quasi-ethnic record." What was that group that made that fake arctic thing?

The Residents' *Eskimo*?

Hassell: That was the original idea. The three of us were supposed to go and hole up and do this record together, the one that later became *Bush of Ghosts*, which later caused a great deal of friction because I was left out of the picture. They were the reigning stars at that point. Who was I? Just some unknown avant-gardist. I think we're close enough now to allow it to be put in the frame of a family squabble.

When we did *Possible Musics*, Byrne's friend [was] the editor of this French magazine called *Actuel*, which was a big, big magazine at that time in Europe, and in France in particular. It was like a combination of *Life* and *Rolling Stone* all rolled into one, very music-heavy and art-heavy. Annie Liebovitz did this picture of Brian and David and I for this big fold-out cover. (I happened to be on the inner flap of the cover.) The cover story was called "Coup de Foudre," which means "clap of lightning," as in something catching fire all of a sudden. It was about this infusion of ethnic influences into pop music, with me as a kind of *eminence gris* behind the scenes.

That's something you're well known for.

Hassell: I wouldn't mind being in front of the scene sometime. That seems to be the unpaid version of fame. That opened up a lot of doors in Europe and a lot of interest, so we started playing there a lot. I have a European booking agent, and that's pretty much where everything has been happening. They have a broader view: If we play a so-called jazz festival over there, it can have anything in it from Philip Glass to us. In a sense, it's like the Big Ears Festival here. It could very well be that little Knoxville, Tennessee, becomes a kind of a seed bed for rare plants.

Do you have a personal studio?

Hassell: No, not really. I just got conversant with [Digidesign] Pro Tools in the last year when I was working on this piece for a choral group in Norwich, England, in this beautiful cathedral. Peter will tell you the number of phone calls to him—what do I do here, what do I do there? That's my first multitrack capability.

Everything else before, it started out with two Revoxes, kind of mirroring Terry Riley's early setup. It was all about just putting sound on sound to make a sketch of something, and then getting into a studio and using that. When you say, "I'm going to make a sketch of this and I'll do the real thing later," often the sketch is the thing that has the vibe and is very difficult to achieve in another way.

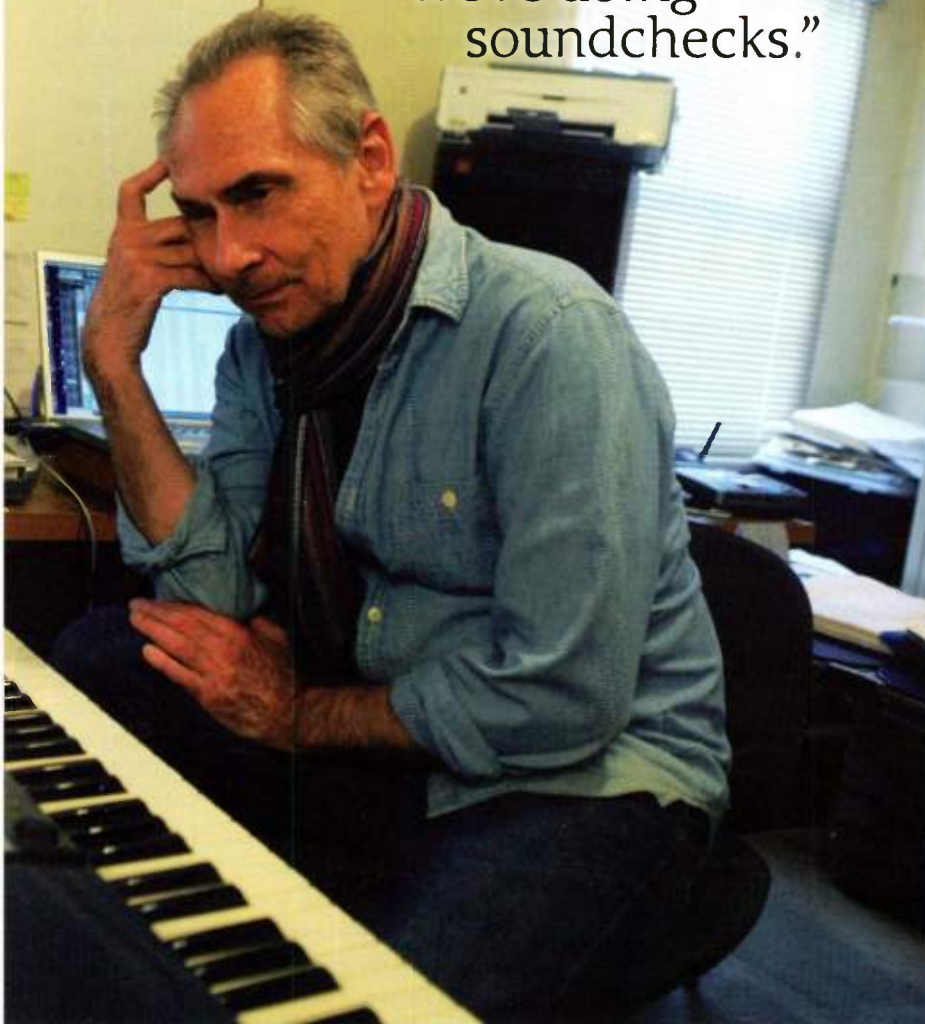
We're always running into accidental things. Yesterday we had a soundcheck where there's no pressure, and I said, "I've got this little cut beginning on my lip. I'm just going to hold back now." But we did this great little three- or four-minute version of "Abu Gil," a big track on the new record. Given the immediacy of superhigh-fidelity stuff, we've become more smart about grabbing things as they happen, so Arnaud Mercier, the technical director and genius who does everything [with us live], is always recording multitrack, even when we're doing soundchecks.

Do you record those sketches directly into Pro Tools?

Freeman: It depends on what we're doing. In France, we pre-arranged the entire session. Not a lot from that session got used in the

“The technical director is

always recording
multitrack, even when
we’re doing
soundchecks.”



final product, but there are elements. I work on a massive TDM system. Sometimes I'm using Pro Tools as the front end for it, sometimes I'm using [Apple] Logic, and occasionally I also like to use Ableton [Live] with the native audio drivers for certain things. In the context of this [album], it's almost always in Pro Tools.

In France, the studio had a basic HD3 system, but it only had one or two interfaces, and we had a large group so we ordered a couple more interfaces. A lot of us had ADAT Lightpipe outputs, so we coordinated everyone to have complete digital connections into Pro Tools live at the same time. [We also had] a certain amount of analog because Rick [had

some analog sources], and of course, Jon [was] coming in through his mic preamp. We had tons and tons of inputs all set up, so we could just go into record and everything [was] all broken out, all coming in on its own channel, all at once, all the time.

Did you decide going into the album that you were going to take that approach or did it just evolve that way?

Freeman: It's just about what Jon wanted to accomplish musically and how we could do that. He'll say he'd like a certain kind of flavor and someone's contribution, and we can find something that musician did and usually make it work. *Maarifa Street* was an extreme



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live performances of the same few pieces of music in different cities. You take a keyboard part [from] the Montreal performance and then use the underlying track from a different city. You have these constant cut-and-paste hybridizations of different performances from different nights, as well as individual tracks from totally different pieces of music getting added into different contexts because they worked really well.

But we didn't really do that [on the latest album]. The basic foundations were there, whereas on the other record, sometimes the foundation of something was a programmed element, and combining that with one of two musicians' performance from a certain concert in Europe would be the basis. In this case, we had the France recordings, we had the London recordings and I would add things. So it was a little more straightforward this time.

Peter, you're credited as engineer and co-producer for *Last Night the Moon Came Dropping Its Clothes in the Street*. What was the division of labor between you and producer Manfred Eicher?

Freeman: Manfred organized us coming over to France and recording in the studio [La Buissonne]. He was very involved in shepherding the process and making comments about things that he liked. When something happened that he really liked, he would jump up and get very involved. He was always listening closely, but when he got really deep into something, he would conduct people and take over the proceedings in a very positive way. He's a really genuinely involved artist. He has amazing ears and really pays attention to what's going on in the studio.


He's also really great at balances during the mix. The first track on the record was actually one of his mixes, even though I was credited as mixer. "Aurora" was the only mix that was done at La Buissonne, and he really balanced that in a way that we liked. If we're working on something and something's not quite right, he can pick out the one element that if you just made [it] softer, everything would fall into place. Seeing him change things for the better just by balancing, without doing any EQ or anything, was really instructive for me. The idea was, before we

start playing around with effects, can this be done with just balancing?

So you did the rest of the mixing on the album?

Freeman: Yeah, I mixed the whole thing other than that. I was the only one who had his hands directly on it other than the guys who recorded the basic tracks at La Buissonne. It's important to note that there were three main sources of elements that got used in what you hear on the final record: the La Buissonne recordings (a group effort with everyone playing in the studio live into Pro Tools), concert footage from a number of places (mostly from London with individual elements taken from elsewhere) and things that we did at my house. I tried to respect the ECM tradition of mixing and sound. Jon absolutely has the last word on all the key musical decisions. He's quite conscious of what he wants in terms of relative balances.

Everything is potentially an element. There are no restrictions on where something came from. Very often there are layers, these two elements from a soundcheck and those things that were done very offhand in the studio without even being "in record," just messing around. Like Jon was saying, sometimes the best stuff happens that way, and even if it has imperfections, you have to work within that because you won't get it again the same way. It's the result of a particular moment and the way everybody was feeling and the circumstance. [For more, see the bonus material, "Jon Hassell's Post-Production," at emusician.com/bonus_material.]

Hassell: I still dream of a concert situation where, instead of having everything go through a mixer, what would happen if there were enough power onstage? It would be like having super-monitors [that] mix in the air. If it were a big hall, you would have one of these super-stereo mics, as if you were recording a string quartet, and that would be the house sound. When I achieve my trumpet-shaped swimming pool [laughter] in the Hollywood Hills, we'll give it a try. 

EM senior editor Geary Yelton gave up trumpet several years before he first picked up an electric guitar at the age of 15. He lives in Charlotte, N.C.

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World Radio History

By the Slice

Creative ways to manipulate audio with step sequencers and arpeggiators.

By Len Sasso

Get added mileage out of your library of sliced audio files by playing their slices using a step sequencer or arpeggiator. Either option is more interactive than triggering the slices from a MIDI file. And because audio file slicing is easily done in most DAWs and sample editors, you can adapt this process to any file in your arsenal.

Step sequencing and arpeggiation are, by their nature, grid-based; steps are timed to note divisions. Therefore, working with grid-sliced audio will most closely align the results with the original, but that's no reason to limit yourself to grid slicing. Event-sliced audio, in which each slice holds a complete audio event such as a note or short phrase, often makes equally good fodder. Here, I'll illustrate both approaches using the step sequencers, arpeggiators and sample players in a variety of software applications.

Within Reason

If you're a Propellerhead Reason 4 user, then you have all the tools for both step-sequenc-

ing and arpeggiating sliced audio, and you have a lot of REX files with which to work in the factory library. The Dr.REX Loop Player is the obvious first choice for playing REX files, although Reason sample players NN19, NN-XT and Redrum offer useful playback options. The RPG-8 arpeggiator and the Matrix step sequencer are the logical choices for slice triggering, but the step sequencers in Redrum and the Thor Polysonic Synthesizer are viable alternatives.

In Dr.REX, slices are triggered in left-to-right order by notes ascending from C1, MIDI note number 36. Dr.REX does not have gate and CV inputs for triggering individual slices, so circumvent that by encasing it in a Combinator and using the Combinator's gate and CV inputs. To make use of those, ensure that Receive Notes is enabled for Dr.REX in the Combinator's Programmer and cable the trigger module's outputs to the Combinator's inputs. (The trigger module does not need to be inside the Combinator.)

Working with Matrix is similar to using a trigger file on a sequencer track—you manage the trigger notes in a piano roll-style display (see Fig. 1). You cannot freely move notes in time, but you can shift them by whatever Matrix resolution (aka, step size) you choose. To ensure that the full slice plays at each step, create tied gates in Matrix by setting their velocity bars while holding the Shift key. Note

that the velocity settings on Dr.REX determine whether the velocity bar values have any effect. Tied gates also ensure that consecutive steps used for the same slice will not retrigger. You can activate the Matrix Shuffle button to apply the song's global shuffle to patterns, but bear in mind that in Reason, shuffle is always 16th-note based.

One advantage to using a Matrix is that it can store up to 32 patterns, and you can automate pattern changes on a sequencer track. If the Matrix is inside the Combinator, you might assign a Combinator knob to select the pattern and then assign a MIDI controller to that knob. Don't forget that each Matrix Note pattern has an associated Curve pattern, which you can use to modulate other Dr.REX parameters such as filter cut-off (see Web Clip 1).

A Chord Apart

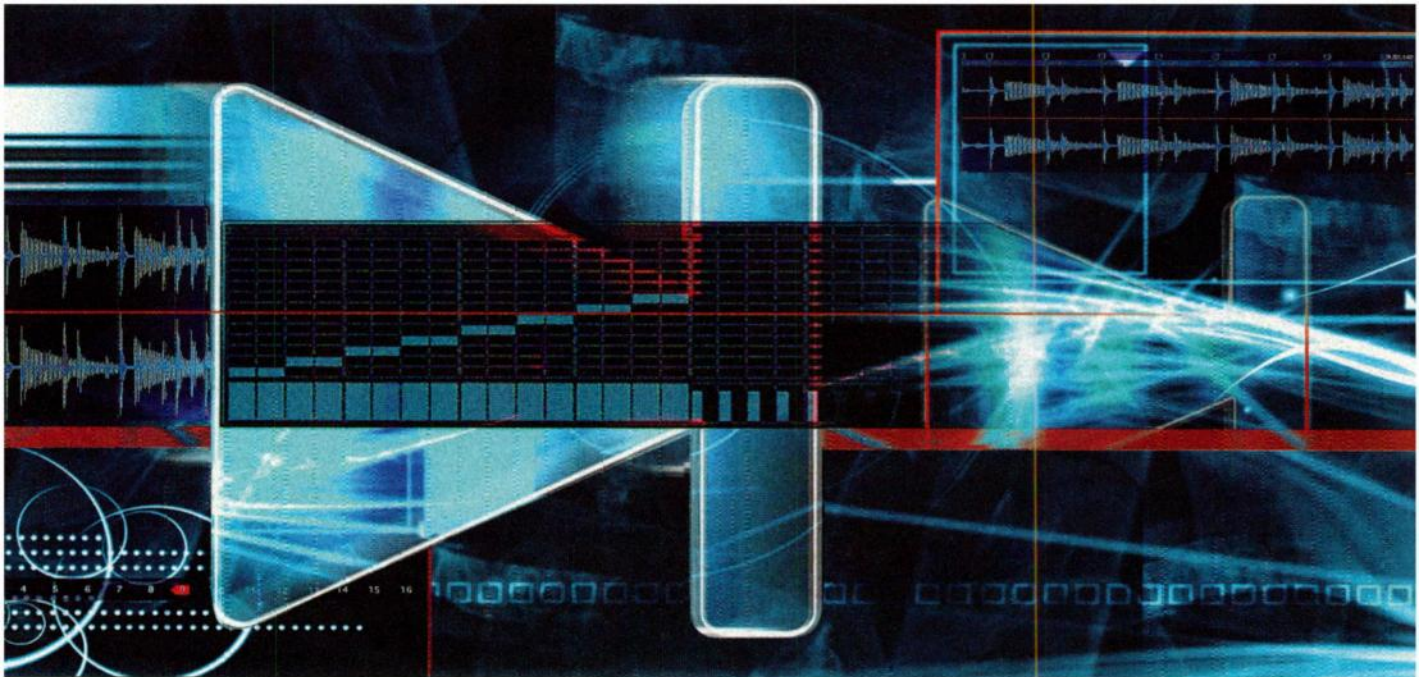
The hookup for the RPG-8 arpeggiator with Dr.REX or Redrum is the same as for Matrix except that if RPG-8 is inside the Combinator, then you need to ensure that Receive Notes for the RPG-8 is disabled (unchecked) in the Programmer. Otherwise, notes played by RPG-8 will be fed back and will prevent it from working properly. You also need to have a sequencer track for RPG-8 to feed it notes.

Redrum presents an interesting alternative to Dr.REX because you can load individual slices from one or more REX files into its pads, and because the individual pad controls differ from each other and from the individual slice settings in Dr.REX. That lets you cull the slices



FIG. 1: This Matrix sequence of tied 16th notes plays the Dr.REX slices in their original order and eighth-note timing, while its Curve pattern (not shown) manipulates the Dr.REX filter cut-off.





that are best for sequencing or arpeggiating and allocate them to the pads with the most useful options. Furthermore, each pad has a pair of effects sends and an optional separate output, greatly expanding the processing possibilities.

RPG-8 offers all the standard arpeggiator features and a couple of helpful extras: some unusual arpeggiation insert modes and a pattern sequencer with up to 16 steps. Insert modes 3-1 and 4-2 modify the chosen arpeggiation pattern by jumping one or two steps back in the pattern for every three or four steps forward. You use the pattern sequencer to insert rests (not to silence steps) in the arpeggiation pattern.

In *Web Clip 2*, I loaded 10 slices from a 30-slice piano loop into Redrum's 10 pads. I used the individual pad controls to shorten each slice to make them staccato; retune some of them; balance their levels; pan odd-numbered pads left and even-numbered ones right; and send the odd- and even-numbered pads to reverb and delay effects, respectively. I then used 4-2 insert mode and a 14-step pattern to create variations on upward arpeggiation.

The RPG-8 also serves as a MIDI-to-CV converter, allowing you to route MIDI mod wheel, pitch bend, aftertouch, expression and

breath controller messages to Reason-device CV inputs. You can route these directly to Redrum, Dr.REX and effects-processor inputs or to a Combinator's modulation inputs, which you would then route using the Combinator's Programmer.

Going Live

Two features make Ableton Live 8 a standout for slice arpeggiation: It will automatically slice your audio files and create a slice-playback instrument with one mouse-click, and it has a high-powered arpeggiator. Live doesn't have a built-in step sequencer, although some are likely to appear when *Cycling '74 Max for Live* arrives. For the time being, you can build your own basic model using Live's MIDI effects (see the Sound Design Workshop "A Step in Time" in the November 2008 issue of *EM*) or use an external software or hardware step sequencer.

Live lets you slice an audio file by transients, gridlines or Warp markers. For grid-based slicing, you'll get better results by converting the transient markers closest to the gridlines to Warp markers and then slicing by those. (Double-clicking a transient marker converts it to a Warp marker.) You may need to move some

transient markers slightly—which you do by Shift-clicking and dragging—to avoid clipping off the beginning of a sound. You don't need to move the Warp markers to gridlines, but triggering them with an arpeggiator or step sequencer has the same quantizing effect on the groove.

Once your Warp markers are in place, select Slice to New MIDI Track from Live's Create menu or from the clip or Clip view's Context menu (see Fig. 2). The ensuing dialog lets you choose the slicing method (choose Warp Marker) and a slicing preset. Slicing presets tell Live how to create the Drum Rack instrument that plays the slices. The two factory choices—Built-in and Built-in 0-Vel—work well; the latter ensures that each slice plays at its original level rather than being influenced by the velocity of the triggering note. Examine the presets and store your own in Library > Defaults > Slicing. I've included the one I prefer in *Web Clip 3*. Keep in mind that Drum Racks can hold send effects, so you can route individual pads to any combination of effects.

In the Event

For event-based slicing, as in the Redrum example, convert the transient markers for the events you want to capture to Warp markers. Again, you may need to adjust some transient markers. When you slice the file, you'll most likely have events that extend into unwanted territory. Fix that by adjusting the length settings for the Simpler instruments used to play each of the clips. Note that warping and tempo synchronization of the audio clip does not transfer to the slices—they play back as recorded. But if you

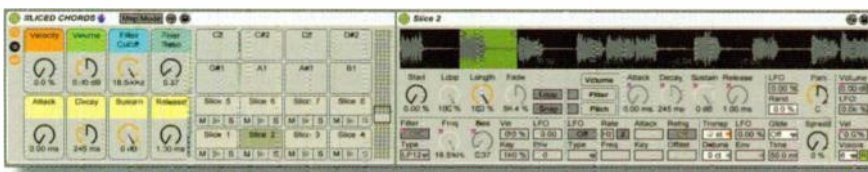


FIG. 2: Live devotes a Drum Rack pad to each slice and inserts a Simpler instrument into the associated chain to play the slice.

move the audio clip to the Arrangement view and consolidate it (Command + J), that will lock in the warping and tempo, and you can then move the clip back to Session view for slicing.

Live's arpeggiator is easy to set up. Insert it before the Drum Rack holding your slices, and then set the Rate knob to match the size of your slices, set the Gate knob to 100 percent, dial in the desired number of repeats and choose from among the 18 styles. The Thumb, Pinky, Converge, Diverge, Random Other and Random Once styles are interesting choices for slice sequencing (see Web Clip 4). Random Other ensures that each incoming note is played before any are repeated, and Random Once repeats the same random pattern until the incoming notes change. If Hold is on (I assign a MIDI footswitch to it) and you continue to press at least one key, playing other notes toggles them in and out of the arpeggio.

By the Numbers

For a full-featured software step sequencer on a Mac, it's hard to beat Five12 Numerology 2 (\$119, Five12.com). It's a stand-alone program that hosts Audio Units plug-ins and can sync to your DAW as a ReWire slave or using MIDI Clock. Pair it with a slice player, and you have a complete multitrack slice-sequencing solution.

Numerology tracks are tied to virtual racks of gear called Stacks. The simplest Stack for slice sequencing comprises the monophonic step sequencer, Mono Note and any Audio Units plug-in that will play sliced audio files. Here, I'll use iZotope pHATmatik Pro (\$149.99, izotope.com), which plays REX files and lets you slice your own audio.



FIG. 3: The drum loop shown in pHATmatik Pro has a quarter-note slice at each end and half-note slices in the middle. The Mono Note Sequencer's StepLen settings ensure proper note-length playback.

Beyond pitch, velocity and gate length, Mono Note gives you four individual step parameters: Groove (nudge the step early or late), StepLen (1/16th to 4x), Repeat (which also lengthens the step) and Divide (like Repeat but shortens the slice rather than lengthening the step). Groove and StepLen are especially handy for slice sequencing because they free you from needing equal-sized slices cut precisely on grid-lines (see Fig. 3 and Web Clip 5).

You can create sequences as long as 128 steps and enter pitches with the mouse or incoming MIDI (step-by-step or in real time). Complete Stack setups (excluding Audio Units plug-in parameters) are saved

tion with its Matrix Arpeggiator module. That module has 12 pitch rows whose pitches are automatically assigned in ascending order to



FIG. 4: The Matrix Arpeggiator sequences the arpeggiated notes in the order you specify using a graphical matrix. In the lower bar graph, alternate notes are adjusted to produce a swing groove.

Pair Numerology with a slice player for multitrack slice sequencing.

as presets, which you sequence on Numerology's multitrack timeline or trigger manually from your computer or MIDI keyboard.

Beyond Monophonic

Powerful though the Mono Note sequencer is, you can go even further with *discrete sequencing*: using separate CV Sequencer modules for gating, pitch and velocity. If you want the gate and pitch sequences locked together—when working with differing slice sizes, for example—it's easiest to start with a Mono Note sequencer and then add a CV VelocitySeq module to generate an asynchronous accent pattern. You might then use the Mono Note's RandJmp lane to introduce some randomness into the sequence. For example, setting the RandJmp slider to 0.50 for a couple of steps causes the next step number after those steps to be selected at random half of the time (see Web Clip 6).

Although step sequencing is Numerology's main function, it has many other tricks up its sleeve. For one, you can apply all the flexibility of its step-sequencing paradigm to arpeggia-

the currently held notes. Matrix is polyphonic, and, instead of sliders, a note matrix is used to choose which note(s) play at each step (see Fig. 4). An accompanying gate and velocity sequencer offer all the step options previously described for the Mono Note sequencer.

The keyboard module visible at the top of Fig. 4 lets you generate chords with the mouse or incoming MIDI. Most important, the current chord is saved in Stack presets, letting you sequence chords on Numerology's multitrack Timeline (see Web Clip 7).

Your options for step sequencing and arpeggiating sliced audio files range from fast and straightforward solutions like using pre-sliced REX files in Reason to D.I.Y. alternatives as described for Live and Numerology. The latter requires more tweaking and, in the case of Numerology, building your sequencer from its modules. But the results are ample reward for the time spent. **EM**

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

The legend **continues**



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Wild Sync

Make everything groovy by turning off that atomic clock. | By David Battino

One of the most common questions on electronic-music forums regards how to sync the tempos of multiple laptops, grooveboxes or synths. Although tight timing is a worthy goal, being close in tempo rather than locked to the beat is much easier to achieve. Surprisingly, this *wild sync* is often more expressive, as well. In this column, I'll explain some sync recipes and how to deviate from them creatively.

Hard(ware) Sync

One of the simplest ways to tempo-sync two electronic instruments is through a MIDI cable. You set one instrument (the master) to transmit MIDI Clock and the other to slave to it; usually, this slave setting is labeled *external sync*. Then you connect the master's MIDI Out to the slave's MIDI In (see **Step 1**). Press

Play on the master and the slave should start, as well. The slave may even sync parameters such as LFO rate and delay time to the beat. You can sync a third device by connecting its MIDI In to the slave's MIDI Thru.

Wired MIDI sync also works with computers. You set the program on one computer to be the master, connect the computer to a MIDI interface, and then connect the interface's MIDI Out to the MIDI In on an electronic instrument or a second computer. The tricky part is assigning the MIDI In and Out ports in software and enabling MIDI Clock. That may require several menu trips (see **Step 2**).

For a more geeky adventure, you can try MIDI-over-Ethernet. Macs now have MIDI networking built in. Launch Audio MIDI Setup, click the MIDI Devices tab, click the

Network tile and enter the IP addresses for other Macs on your network; the Help file walks you through it (see **Step 3**).

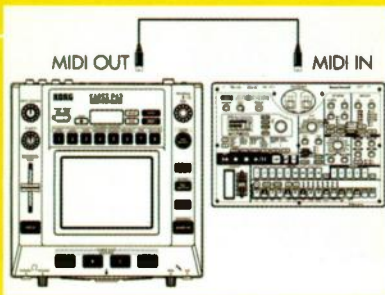
A program called ipMIDI (\$79, nerds.de) is far simpler and also works with Windows and Linux. After installing it, you simply select Ethernet MIDI as an input or output port in your music software. I loaded ipMIDI on my Mac and PC, set the PC to transmit sync and the Mac to receive it, and ran two Ableton Live sessions over Wi-Fi (See **Step 4**). Other Ethernet MIDI systems include Open Sound Control (free, opensoundcontrol.org) and EthernetMIDI (free, linuxsamplers.org/ethernetmidi). Both require more configuration.

Even with hardware, getting access to sync settings can be difficult. (One groove-box I recently reviewed requires you to boot



STEP-BY-STEP INSTRUCTIONS

1



Step 1: To tempo-sync two devices that transmit and respond to MIDI Clock, connect the MIDI Out of the master to the MIDI In of the slave and set the slave to External Sync mode.

2

Step 2: Here, the master computer is running Ableton Live and transmitting MIDI Clock, and the slave is running Propellerhead Reason and is set to receive sync. A single MIDI cable connects them.



3



Step 3: Macs have a network MIDI driver built in; find it from the Audio MIDI Setup program and you can sync multiple computers over Ethernet.

up while pressing certain buttons.) Another hassle is that some devices do not respond consistently to MIDI Clock. I found the Korg KP3 KaossPad, for example, was far more accurate as a master than as a slave. Sussing out sync issues has derailed numerous jam sessions, and that unmusical task starts over whenever a new musician plugs in.

Dare to Drift

Last year at the Project Bar-B-Q computer music conference, we had four nights of seriously fun electronic jams, and part of the reason they were fun was the way we handled sync. One musician always owned the beats while everyone else improvised on top. Sometimes the beatmaster was just a guy calling out changes on his iPod, and it worked great. (Talking to your bandmates is so much more sociable than untangling wires.) I used the Tap-Tempo button on my Korg Kaossilator to keep its rhythmic echoes lined up, and the slight variation humanized the sound.

When I interviewed Ableton founders Gerhard Behles and Robert Henke for my book, they described a laptop duo that concluded its performances were much better without sync because today's computers have suitably sta-


ble timing. Henke noted, "The tempo is in sync anyway, so what they can play with is the phase. If Machine A is at 130 bpm and Machine B is at 130 bpm and you, for a moment, go up to 131 or down to 129, it just changes the phase ratio between the two computers. So you can go from flanging to offbeat things by slightly changing the tempo for a moment. And that, somehow, is way more exciting than having sample-accurate sync."

In fact, Live has two Tempo Nudge buttons that do just that (see Step 5). As Henke concludes, "It's the same as using an analog delay line, dub style, and adjusting it not per calculator and sample accuracy, but just until it grooves. It's a more musical way of thinking" (see Step 6).

You can also experiment with wild sync on the same computer. If you're using ReWire-capable programs, such as Live and Propellerhead Reason, launch the slave program (Reason) first to prevent ReWire sync. Then start a sound or sequence in one program and play with nudging the tempo on the other. On some systems, you may need to use a routing program such as



✚ This excellent Project Bar-B-Q jam featured two laptops, an iPod, an Open Labs Miko, a Korg Kaossilator—and no sync.

Soundflower (free, soundflower.com) to hear both programs at once. 

David Battina co-wrote *The Art of Digital Music* (Backbeat Books, 2005). For the Ableton "wild sync" interview and more tips on quantization see artofdigitalmusic.com/#SAMPLE.

4 **Step 4:** The compact ipMIDI driver adds Ethernet ports to your music programs. Here, I'm controlling Live on my Mac from my PC. The tempo varied slightly, but I was using Wi-Fi.



5 **Step 5:** Live's Tempo Nudge buttons temporarily lower or raise the tempo so you can get back in sync with other players.

6

Step 6: Inspired by dub-style echoes, SoundToys EchoBoy plug-in includes a knob called Rushin Draggin that slides echoes around the beat.





FIG. 1: The Time Designer lets you simplify, re-groove and vary slice loops individually or globally.



It's About Time

From train wreck to buff in 60 seconds with Stylus RMX. | By Len Sasso

Time Designer, new in Spectrasonics' Stylus RMX Xpanded 1.7, is the perfect tool for forcing disparate sliced loops into a congenial stew. With it you can prune, time shift, create variations, match grooves and even change time signatures. Furthermore, you can browse your entire RMX library with these settings dialed in. Time Designer can at first seem daunting, but the best way to get a handle on it is to dive right in. I'll start with eight loops in a complete train wreck and show how to use Time Designer to make them play well together quickly.



interface to reveal the Time Designer control panel, turn on the Global button at the top-right, and then turn on the Power button at the top-left (see Fig. 1). With Global on, changes made to one channel are applied to all channels, and that includes turning Time Designer on. Leave Global on for now.

With all channels playing, turn up the Simplify knob. You'll hear the mix get less busy and see the changes reflected in the Pattern Display area. The light bars in the bottom row indicate the slices that are playing and their positions relative to the Groove Lock Grid on top. The Groove Lock Grid shows the original slicing until an alternative groove is chosen from the menu. Simplifying will get rid of a lot of confusion in the mix (see Web Clip 2).

Next select the groove of one of your beat's channels from the Groove Lock menu. (You need to be viewing a different channel from the one you select.) Depending on how mismatched the feel of your various clips is, the effect will range from barely noticeable to tightening things up considerably (see Web Clip 3). You may want to use the Strength slider to adjust individual channels (Global off); the center position eliminates Groove Lock entirely.

Time and Variation

Changing a part's time signature has a radical impact. For one thing, it rearranges the slices in unpredictable ways—the Variation control lets you select among different rearrangements. Changing the time signature

also affects the length of the loop. Therefore, if you do it for some parts and not for others, their relative alignment will change as they play, which can produce interesting longer forms. In your example, change the time signature globally to 6/8 and then audition each of the variations.

One way to get a handle on how variations differ is to drag their MIDI clips to tracks of your plug-in host and examine them visually. Playing them from the host is an easy way to mix and match variations, but be sure to turn RMX's Host Sync off first (see Web Clip 4). Be aware that depending on how your host handles clips, you may need to trim the clip or adjust its time signature in the host to get it to loop correctly. (It will always loop correctly when played from within RMX.)

Once you've settled on a variation, you'll probably want to tweak the individual parts with Global turned off. Begin with two or three channels, and add channels as you go. Adjusting the Simplify amount, the Variation, and the Coarse and Fine Time-Shift settings are good places to start. For example, if the harmony is not changing, you might use the Coarse control to shift the bass by a few quarter-notes to create a more interesting relationship with the piano or guitar. On the other hand, you'd use the Fine control to tighten up the sync between the bass and the kick drum (see Web Clip 5).

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

Fodder

Start by loading up RMX's eight channels with loops in 4/4. (Time-signature changes, which I'll cover in a moment, affect only 4/4 loops.) Devote a couple of RMX channels to beats with different styles. For example, select a straight groove from the Core library's Electronic section and a looser groove from the Swing section. Load the remaining channels with effects and instrumental clips. If you have some sampled construction kits in REX format, you might want to import some of these because the RMX library is heavily rhythm-oriented. Browse for each channel with the others turned off and just grab interesting parts without worrying whether they work together. When you're done, play the whole mix. It should sound terrible; if it doesn't, start over (see Web Clip 1).

Click the Time tab at the bottom of the RMX

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The Professional's Source



✦ Dave Hampton has worked in a variety of audio engineering positions for a host of major artists.



Q&A: Dave Hampton

A pro's advice for finding engineering work.

Dave Hampton has been an audio engineer for more than 20 years, working in a variety of capacities, both in the studio and on the road. His clients have included Prince, Herbie Hancock, Marcus Miller, RZA, M.I.A. and many others. Hampton also writes about the music business, and in his second book, *The Business of Audio Engineering* (Hal Leonard, 2008), he talks about how to build a career as an audio engineer. *EM* spoke to him about that subject in a recent interview.

By Mike Levine

With today's emphasis on home studios and the diminished size of the commercial studio scene, there's got to be a lot less work out there than there used to be for engineers.

Yes, there's a lot less traditional recording going on, but if you look at a lot of the top albums on *Billboard*, many of them used, at some point in time, a traditional large-format studio. That's not dead. My wife and I work a lot at The Village here in Los Angeles. We go there because the facility has a history of hit-making activity. Their staff is focused on service and we are treated well. I'm telling you this so you can see that even though the recording "scene," as you call it, might be changing, there still is a desired need for large-format commercial studios.

I would guess that it's the middle-level commercial

studios that mainly have gone under.

I think many who did not adjust to the changing landscape of our industry went out of business, both large and small. I also believe that anyone who is blessed to be working is never measuring the size of his or her situation. That middle level just gets referred to as "independent." You've got to look at this fact, too: All over in every city now, there are pockets of people who are doing recordings of all different types. Churches, individuals, barbers, et cetera; and everybody's got a CD because the tools are that prevalent.

You can't talk about the state of the industry without discussing the state of education. We have many schools now offering audio recording arts education. That one fact has given us many more entry-level engineers than jobs to fill. Add to that the experienced engineers who say, "I only mix," and you have the per-

fect environment for total professional job displacement. New younger models willing to take low pay for a shot versus old-guard pro that costs what they cost. I wrote my books so that people can learn the skills that you need to prosper in a business that asks for you to provide service. I truly know the resources in my book are helping many monetize themselves, both in front of and away from the console. That's so important in the present economy we are in. When I started out, many engineers waited for a call to work on a session; they were not motivated to create on their own. Then we went through a time when many said, "All I do is mix." Specialization is great, but unless you are printing your own money, you have to diversify your business, just like the rest of us.

In the book, you talk about the kinds of audio engi-

neering jobs available that are not studio related. What are some of them?

You could be on a cruise ship as audio support. You'd probably work about two to three stages. You'd probably have three or four shows a week, maybe more or maybe less. But you'd make a really good living

me see what it's like after they mix it. In fact, let me go to a big studio to mix." While you might not have the budget to do your entire project in a large studio, you can include that extra edge of creativity in your production to actually engage people who are good at specific things to take your project to a higher

Specialization is great, but unless you are printing your own money, you have to diversify.

and have some great benefits. You could work in the forensic audio profession. You'd have real good work with good benefits. You're not going to get a Grammy that way, but you will get a check. You can work at your local church or synagogue, or any place that has audio. Audio ministries is a paid position in many churches that have over 250 people.

And those churches often have huge sound systems.

And all the same principles apply. It's a viable area to work in, and again you have a great chance to make a consistent paycheck being an audio engineer. You can work at theme parks. I know a guy right now; he's an Emmy-winning engineer. Where did he start? He left school and started at Disneyland. Mixed at two or three stages live, and then later on he ended up working on *Ellen* (the TV show) mixing sound effects. He now also does mixing for *The Price Is Right*.

These days, it's much more common for a musician to also have engineering chops.

I think that musician-to-engineer is a natural progression. Many engineers are musicians or started out as musicians. You can't be involved with music without learning about music.

But there are a lot of us who don't necessarily want to spend the money to go into the studio right away. We work on producing tracks at home using decent gear, and then maybe bring someone in to mix it or bring the mixes to a mastering engineer.

I think that's where the settling point for moving forward is. I think it's about using both small- and large-format studios. Every situation is different, and many times budget drives the production choices. Get your music to a point where you say, "Hey, let me give this to someone who does this for a living, and then let

level. It's a guaranteed result because they're coming from a different sonic perspective and have another experienced creative outlook.

You mention in the book some Websites that people can visit to find out where there is engineering work.

Entertainmentcareers.net is the biggest one; it's a site that comes out daily. It lists entertainment jobs, internships and just general career information. If you want to focus on being engaged in the entertainment world, you can go by location: Chicago listings, New York listings, Northern/Southern California. You can browse by company. If you want to work for a major label, they've got management, graphics, broadcasting, broadcast sound, music, engineering, film festivals—any kind of application. It's not just for engineers, but for anything entertainment related. It's a very good, consistent database that has helped a lot of people kind of home in on what they need. Another one I like is ProductionHub.com. This is a great site with plenty of tools that help you find great work opportunities. This is one of the best sites to create your own profile, too.

So there's definitely info available online.

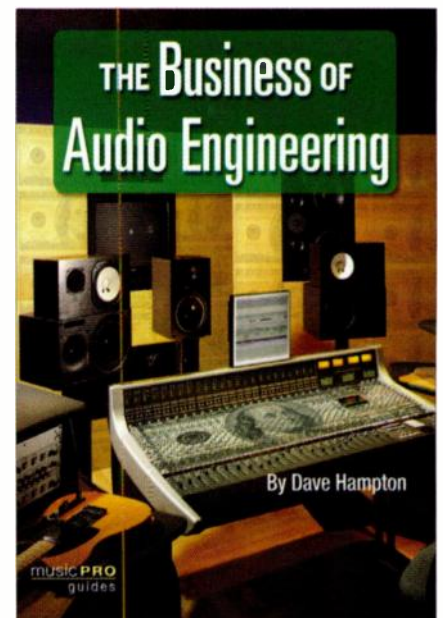
Yes, that one development in technology has really opened it up so that if anybody were to say, "Hey, I really can't find any work," they might not be looking hard enough. I would also suggest that making good use of social networks would greatly increase your chances of finding a work opportunity just for you. Online resources are something you have to use, but don't forget to make relationships in the real world. This is a business of friends. They are the ones that bring referrals—so go make some friends!

In the book, you mention that one way for engineers

to create a market for themselves is to have some really good gear that they can bring to the table.

Have some gear that you have command of that you really know how to work well. I think it helps if you have a system of capturing audio that you are familiar with. Craftsmen need their tools.

Part of what all engineers now have over those of the past is that there was never portability in the game back in the day. Laptops are a great starting place for building a mobile solution. The ability to go to where the work is will oftentimes get you the job. Before the abundance of laptops, we had to walk into any studio, identify any console or automation system, and start the session. We had to get with it or go broke. So get yourself a quality setup where you know that, without a doubt, you can get your work done. As an engineer, the ability to know signal flow and provide solutions will make you extremely useful in any audio situation. One last



Hampton's latest book focuses on how to be successful as an engineer in today's music business.

thing I would say is that you cannot expect to find work and have a flourishing career unless you begin to develop your personal skills. Respect everyone, be solution oriented, pay attention to detail and do good work every chance you get. **EM**

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

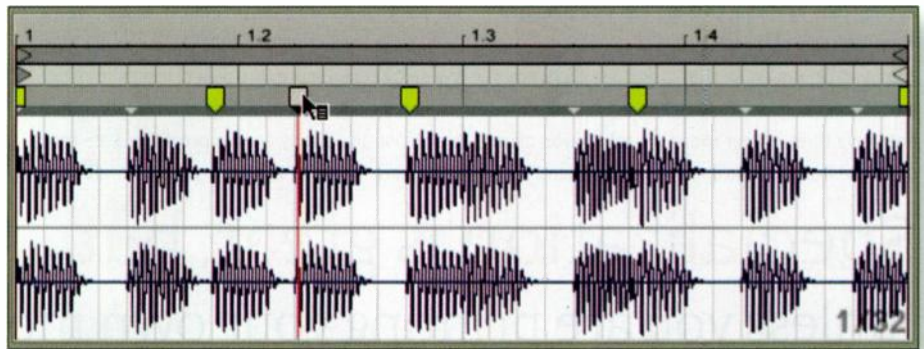


FIG. 1: Convert transient markers (small triangles) to Live's Warp markers by double-clicking.

Ableton

Live 8 (Mac/Win)

A major upgrade to already impressive sequencing and performance software.

By Len Sasso

PRODUCT SUMMARY

DAW

Live 8: \$449 download, \$549 boxed
 Suite 8: \$699 download, \$849 boxed

PROS: Much improved audio warping and MIDI editing. Great-sounding new physical-modeled plug-ins Collision and Corpus. Numerous workflow enhancements.

CONS: No visual feedback for Groove Templates. Lacks auto-advance mode for MIDI step input.

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

Ableton
 Ableton.com

Ableton pulled out all the stops with the release of Live 8 and the premium content in Suite 8. Workflow enhancements, redesigned audio-clip warping, and vastly improved MIDI recording and groove management make it easier, faster and more fun to get the job done with Live. Live's library is bristling with fresh content, and you'll find a bevy of new effects along with some significant improvements to the old standbys. Suite 8 adds six premium instruments and four impressive sampled-instrument collections.

Three coming attractions not covered in this review will impact many users. Live Share, currently in beta testing, lets you quickly upload your Live sets to Ableton's servers for sharing with collaborators. Max for Live, developed with Cycling '74 (cycling74.com), gives Live users and third-party developers the tools to create audio and MIDI plug-ins in Live's format. Look for lots of new tools when it is released later this year. The new Akai Ableton Performance Controller (APC40) is a control surface designed especially for quick

and tactile clip and scene triggering. Check out my Quick Pick review on page 64.

Warped Perspective

Bending audio clips to your song's tempo and groove (called Warping) has always been a Live hallmark, but many users, myself included, found creating and adjusting the associated Warp markers counterintuitive. The process has been completely overhauled in Live 8, and the new process is easier to grasp, more flexible and better sounding.

The new system adds transient slicing to Live's previous time-grid and Warp-marker slicing. That lets you implement ReCycle-style loop slicing and slice sequencing directly within Live (see Fig. 1). And you can quantize audio to the time grid or to the groove of any other audio or MIDI file using the new Groove Pool, a repository within each song for timing templates (see Web Clip 1). Check out the details in the sidebar "Warp Speed," available at emusician.com/bonus_material.

MIDI note editing in Live is now similar to other DAWs, as well as to clip editing in the



Arrangement view. The Clip view's note editor sports a position marker and time-range bar, which you use to focus clipboard operations (copy, paste, cut, insert, etc.). When no notes are selected, the left- and right-arrow keys move the position marker in increments specified by the time grid. When notes are selected, the arrow keys move those and, in a nice touch, holding Shift lets you transpose by octaves.

Ableton has finally implemented MIDI step entry using the insert marker and right-arrow key. When the Preview (headphones) button in the note editor is on, play and hold a note or chord and press the right-arrow key as needed to create notes of the desired length. You can MIDI map the note-advance function but only to a MIDI note, which inconveniently takes that note out of play. Ableton is looking into that problem. Mapping note-advance to a footswitch and implementing an auto-step function would make MIDI step entry much more useful.

Leg Ups

Important GUI improvements include zooming, group parameter adjustment and better macro knob labels for instrument and effects racks. The zoom range is 50 to 200 percent, enough to give you a good global view of a session or arrangement or to zero-in on a minute detail. Unfortunately, the zoom setting is in Live's Preferences, making it a little inconvenient.

Group parameter adjustment lets you select multiple channels to change matching parameters. If you've ever been stuck changing a basic setting such as output routing one at a time for many channels, this will make your day.

When you map a plug-in parameter to an instrument or effects rack macro knob, it shows the parameter name as the macro knob's label and calibrates its units appropriately. That's another huge time-saver.

Third-party plug-ins no longer have preconfigured and fixed automation map-

pings. Plug-ins with only a few parameters have them preconfigured, but you can rearrange them to manage how they appear on a MIDI control surface or parameter list. For plug-ins with many parameters, you configure them one-by-one in the order you want by simply clicking them in the plug-in GUI. Moreover, the Device On button no longer hijacks the first knob on Live-supported control surfaces.

Arranging audio takes a big step forward with the introduction of fades. When fades are displayed, each end of an audio clip gets a handle that you drag to create a fade-in and fade-out. To create a crossfade, you drag the fade handle into an adjacent clip. In either case, a handle in the middle of the fade curve lets you adjust its shape to change the contour of the fade (see Fig. 2).

Track grouping is another major improvement. Select several tracks (not necessarily adjacent), choose Group tracks from the Edit menu and the tracks will be moved to adjacent positions and routed to a new Group track cre-

Looper is an audio recorder optimized for classic tape loop-style overdubbing. You insert it directly on an audio track or as a send effect, depending on how you intend to use it. It can record whether or not Live's transport is running. If Live is stopped, then Looper will either guess the tempo from your playing or set the tempo based on a number of bars you specify (see Fig. 3). Tape-like features include pitch-shifting speed adjustment, reverse playback and feedback amount. A convenient multipurpose button that you can map to a MIDI footswitch lets you cycle through record, overdub and play modes. You can drag audio from Live tracks to Looper's record buffer for overdubbing, as well as drag recorded loops from the buffer to Live tracks.

You insert Live's vocoder in the track that is playing the modulator signal (voice in the standard usage) and then choose another track or an internal source (noise, the modulator or a pitch-tracking oscillator) as the carrier. An additional noise generator provides the source for unvoiced sounds,

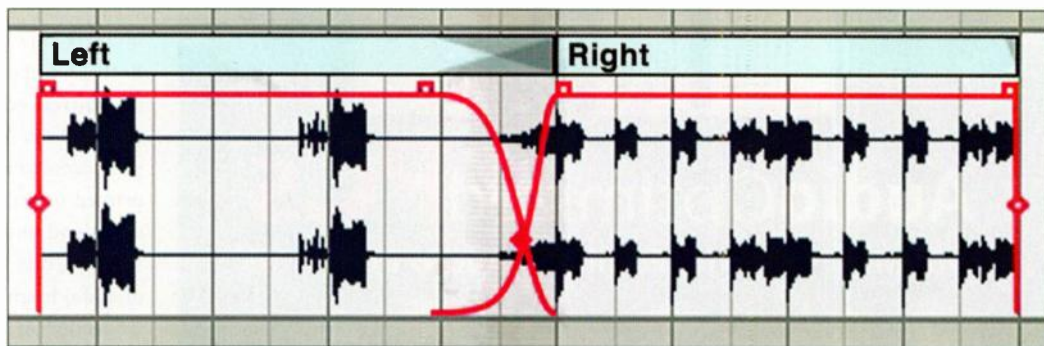


FIG. 2: Drag the top handles to create fades and crossfades. Drag the lower handles to shape the fade contour.

ated on their left. The Group track has master controls, and once you have your submix set, you can fold the group to save space and to suppress the individual track controls in supported control surfaces.

Plugged In

Live 8 comes with six new audio effects plug-ins. The three self-explanatory effects—Limiter, Multiband Dynamics and Overdrive—fill gaps in Live's bread-and-butter effects processing. Looper, Vocoder and Frequency Shifter are new special-purpose plug-ins.

which is essential for speech clarity but often missing in low-end vocoders. You can set the vocoder's resolution from 4 to 40 bands, limit its detection stage's frequency range and threshold and vary the bandwidth from very narrow to broadly overlapping.

The Frequency Shifter (aka, single-sideband ring modulator) performs a linear shift of the frequency spectrum of audio being processed, thereby distorting harmonic ratios and producing dissonant, metallic effects. Live's model doubles as a standard ring modulator with built-in distortion and includes a dual

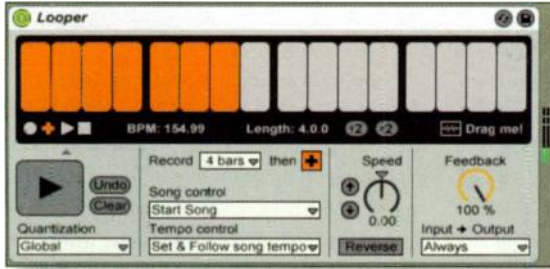


FIG. 3: The audio effects plug-in Looper emulates classic tape loop-style overdub recording.

LFO for modulating the modulator frequency.

Suite Enhancements

Among the virtual instruments in Suite 8, the FM synth Operator has been significantly reworked, adding new filter types, more robust modula-

tion and wavetable synthesis. Four other instruments—Sampler, Electric, Tension and Analog—are carry-overs from Live 7.

The new entrant is the physical-modeled mallet instrument Collision, developed with Applied Acoustics Systems. An expanded version of Collision's resonator section is included as the audio effects plug-in Corpus. Although billed as a mallet instrument, Collision is extremely versatile. Among its presets you'll find keyboard emulations, plucked-instrument models, sound effects and evolving sounds. Corpus is great for spicing up sampled keyboard, mallet-instrument and percussion loops without mangling them beyond recognition (see Web Clip 2).

Latin Percussion is the new addition to the sampled instruments. It comprises a large collection of sampled Drum Racks and 50 Live sets in a variety of styles, along with groove templates for the Groove Pool. The sampled instruments are superb and the sets offer plenty to get you started. Suite also carries over the Drum Machines sampled-instrument collection.

Box It Up

Both Live and Suite come in downloadable and boxed editions, and when purchased directly from Ableton, the boxed editions give you access to the downloads. Aside from the printed manual, the only difference between download and boxed is the audio content. For Live, that includes a substantial selection of audio loops and the Essential Instrument Collection of sampled instruments. To that, Suite adds the sampled-instrument collection Session Drums. The same plug-ins and features come in both editions.

Version 8 is an across-the-boards winner. For Live aficionados, the move up is a no-brainer for the audio-warping and MIDI-editing features alone. Considering the redesigned Operator, the new Collision and Corpus plug-in combo, and the sampled Latin Percussion, the upgrade to Suite 8 is very attractively priced. And for those unfamiliar with Live, the modest entry fee for Live LE merits serious consideration.

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

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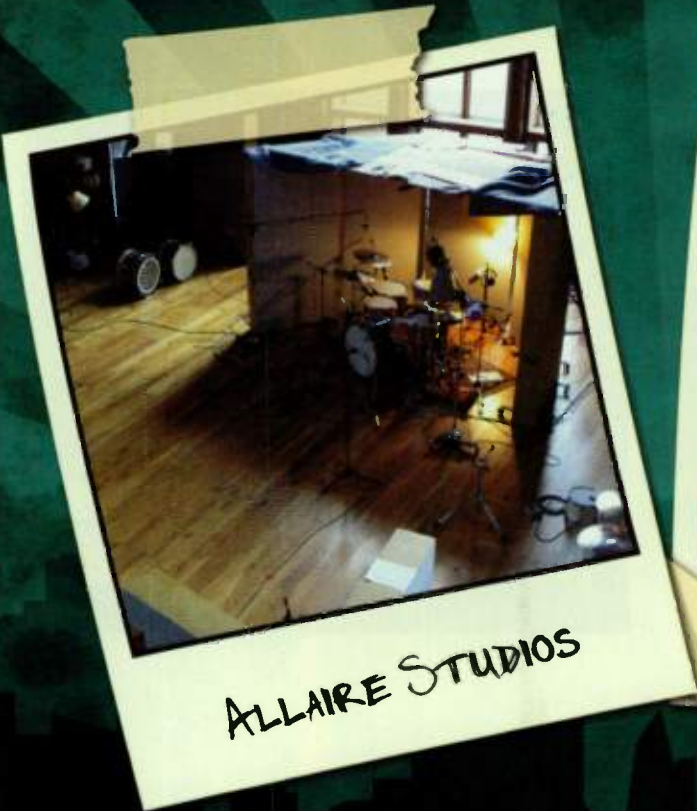
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World Radio History

FIG. 1: Delivering MPC-like control over its software side, Maschine's desktop hardware features 16 high-quality touch- and pressure-sensitive trigger pads; dual backlit graphic LCDs; and 11 rotary encoders.



Native Instruments

Maschine (Mac/Win)

Groove production, performance and control system.

By Jason Scott Alexander

PRODUCT SUMMARY

groove-production software/controller
\$699

PROS: Powerful pattern-oriented sequencing with real-time sampling. High-quality effects. Intuitive control surface. Enormous live tweaking potential. Inspiring to play.

CONS: Can't import Acid/REX/Apple Loops or kits. MIDI beat import/export not supported. No groove quantize from MIDI files.

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

Native Instruments
native-instruments.com



Maschine is a pattern-oriented sequencer (plug-in or stand-alone) that comes paired with a desktop pad controller for MPC-style groove construction. Based on the concept of scenes that you can manage in real time, it allows you to break free from the limits of linear DAW arrangement.

You can have up to eight instrument groups layered at the same time, each containing a kit of 16 drum or instrument sounds, for a maximum of 128 discrete tracks. Upward of 64 patterns can be programmed for each instrument group, and these can be arranged across a maximum of 64 scenes in a song. You can mix, match, truncate and repeat patterns at will over the course of a scene or arrangement—even in real time.

Kit sounds can be loaded from the 5GB collection of built-in samples (more than 16,000 of them) or from your own stash of mono or stereo WAV or AIFF files. You can sample external sounds through your computer's audio interface, as well as perform internal resampling from vir-

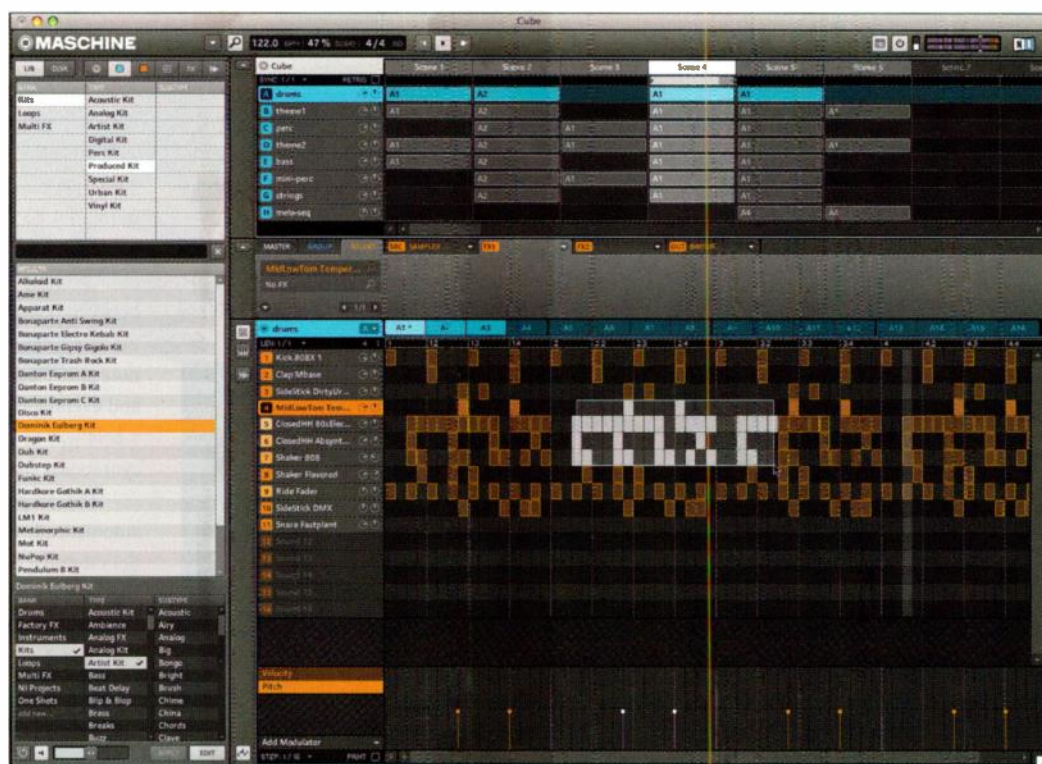
tually any bus on your audio interface or from within Maschine itself. A built-in sample editor with slicing and auto-mapping makes quick work of assembling kits from single or multiple samples and assigning them to trigger pads. Finally, dual stereo effects processors are available to each of the sound tracks, to instrument groups and at the master level.

Check Out My New Pad

When Maschine boots, its USB 2 hardware controller lights up like a pumpkin (see Fig. 1). All 41 buttons and 16 pads are backlit orange; they feature dim, bright and blinking modes to signal various functions or convey pattern status.

Dual LCDs, measuring four inches wide and backlit in soft blue, provide an ample view of parameter data, sample waveforms and ancillary beat information. These work in tandem, with the left display acting as a level/function focus and the right acting as a value/edit display. Four soft buttons sprawled above and four endless rotary

FIG. 2: Maschine's sequencer benefits from real-time manageable scenes and sampling, allowing you to break free from the linearity of conventional DAW arrangement and tweak patterns on the fly without missing a beat.



encoders below each LCD are used for tab navigation and parameter tweaking, respectively.

The 4x4 trigger matrix is one of the best I've felt. The pads are a little softer than those of the Akai MPC/MPD, but they feel more substantial than the Korg or M-Audio varieties. They have just the right amount of snap for tricky finger-bouncing without any fatigue. They're also extremely sensitive (user-tailored in Preferences) and offer smooth aftertouch response. Pressing the Keyboard button converts the pads to trigger chromatically so that you can play pitched drums, melodies or chords. A bank of eight modifiers and instrument group selectors, a dedicated Note Repeat button, looping transport controls, and master Volume, Tempo and Swing encoders fill out the panel provisions.

What a Softie

Across the top of the GUI is the Arranger pane, in which group patterns are slotted into Scene columns along a timeline (see Fig. 2). The bottom

pane contains a zoomable Pattern/Automation editor, allowing you to sequence track parts in grid or piano roll/keyboard views. Sandwiched in the middle is a general control area for tweaking sample and sound parameters, and you can toggle a context-sensitive, Kore-style browser down a pane on the left.

In practice, think of the software as an overview display for the hardware. The only time you need to go there is to precisely edit note events or type in the name of your project.

The included kits and associated loops cover every musical style, from chart-driven hip-hop and R&B to funky house, hard electro and techno, jazzy trip-hop, space rock and downtempo lounge music. Sound quality throughout is typically Native Instruments: clean, punchy and dynamic.

Into the Rhythm

Getting a beat down is pretty straightforward. Simply toggle the built-in metronome (oddly, there's no count-in), hit Record and start play-

ing the pads. Naturally, the plug-in version slaves to DAW transport commands and syncs to host tempo. If Input Quantize is switched on, then notes will snap to grid during recording and layer with each looped pass. Should you make a mistake, there's no need to stop recording: Hit Shift+Undo on the pads, and—*voilà!* You get unlimited undos and redos. Maschine can also act like an old-school beat box, allowing you to enter patterns 808-style, with the backlit pads guiding every step of the way.

You can set different grids and loop lengths (down to 64th-note triplet resolution), making it possible to achieve odd time signatures. Perform quantization at the song level or on any note, including automation events. Quantization can be hard-to-grid or in 50-percent iterations. Sadly, because Maschine can't load (or export) MIDI files, you can't quantize from MIDI groove templates.

For a more human feel, you can nudge sequences and slide notes around freely with Grid mode off. You can also add swing on a part-by-



➤ **FIG. 1:** The Nord Electro 3 is much lighter and more dependable than the vintage keyboards it replaces onstage. It looks similar to previous generations of the Electro, but some new surprises are hiding inside.

Nord Electro 3

Tons of classic keyboards in a lightweight package.

By Nick Peck

➤➤ PRODUCT SUMMARY

keyboard synthesizer
73-key, \$2,199; 61-key, \$1,899

PROS: Terrific keyboard action. Excellent sounds that are easy to customize. Light and portable. Access to full Mellotron library.

CONS: LED numerical display instead of more descriptive LCD. Buttons instead of drawbars for organ. No Leslie speaker output. Less-common power jack.

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

Nord
nordkeyboards.com

The Electro 3 is the next generation of Nord's electromechanical vintage keyboard-emulation instruments. The Electro 3 looks similar to the two previous incarnations of Electros, but according to Nord, it is completely redesigned internally. It is now an amalgamation of its own lineage, along with the best elements of other Nord keyboards, packaged in a simple-to-use, performance-oriented, monotimbral keyboard (see Fig. 1). The Electro 3 comes in two sizes: 61 keys (\$1,899) and 73 keys (\$2,199).

EM published my review of the original Electro in June 2002 (available at emusician.com); this review will concentrate on new features and improvements. The Electro 3 has eight times as much RAM as the original—256MB total—which means much more room for long piano samples. About 180 MB of that RAM is reserved for pianos, electric pianos and Clavinets, which now include all the piano libraries that were designed for the Nord Stage. About 80 MB is reserved for samples, which include sample libraries from the Nord Wave and user samples.

The Electro 3 is just as wonderfully light-

weight and portable as its predecessors, and the semiweighted keyboard action is still superb for electric piano and organ playing. The audio and data connections are the same as on the Electro 2 (see the online specifications table), except for the addition of an 1/8-inch stereo input that passes audio unprocessed to the headphone outputs. This addition makes it easy and convenient to practice along with a portable MP3 player.

New and Improved

The Electro 3's integration of the Nord Stage's acoustic piano library is a massive improvement over the original Electro's thin acoustic piano. Any piano in the Stage's library can be downloaded and placed in the Electro for free. The Electro comes loaded with a couple close-miked Yamaha and Steinway grand pianos, but I replaced them with Nord's 50MB, ambient-miked, velocity-layered Steinway D. That sound is eminently playable, quite realistic and as good as one could ask for in a sampled acoustic piano. The Electro's semiweighted keyboard is not the best match for an acoustic



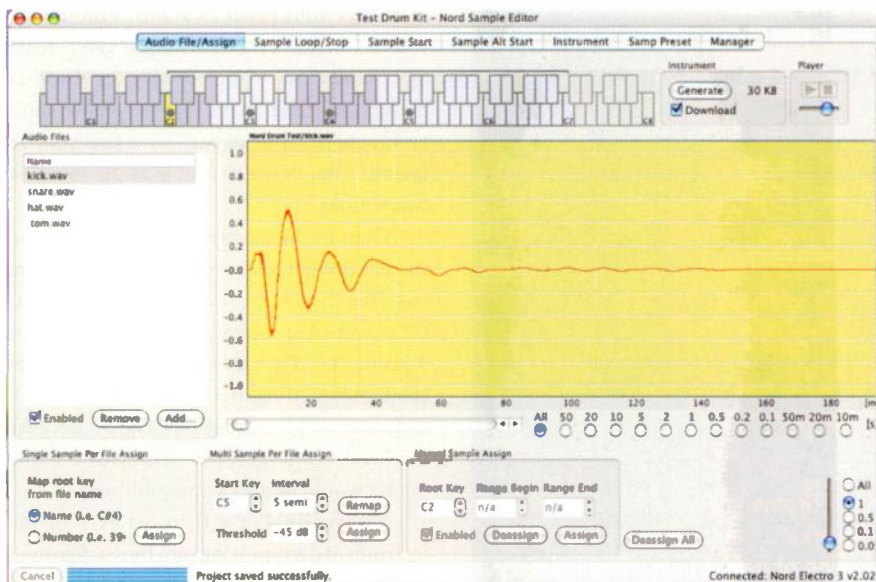


FIG. 2 You can add user-created samples to the Electro 3 with the included Nord Sample Editor.

piano simulation, but it is perfectly acceptable for the occasional piano tune on the gig.

The Electro 3's electric pianos sound just great, too, as they have in earlier Electros (see Web Clips 1 through 4). However, with so much RAM now available, I'd love to see a larger variety of electric piano and clavinet samples—perhaps a Wurlitzer 140B, a Clavinet E7 and a Hohner Pianet, as well.

The organ system is derived from Nord's C1 double-manual organ keyboard. To my ear, it is a significant upgrade from the first Electro's organ model (see Web Clip 5). Small details such as key click have been improved, and the overdrive effect works beautifully, allowing you to dial in enough grit to suit your taste. The rotary-speaker simulation is very good—better than the Hammond XK-3 digital organ's, in my opinion, but still no match for a real Leslie speaker. The simulation now includes a Stop mode to emulate the single-speed Leslie speakers preferred by many jazz musicians. Farfisa and Vox organ models supplement the thick, meaty Hammond tonewheel sound with thinner, transistorized classic organ sounds.

Sample Library and Editor

The Electro 3 delivers a subset of the Nord Wave's sample-playback capabilities, but it does not have the Wave's synthesis features. You can download the entire Nord Sample Library—available free of charge from Nord's Website—into the Electro 3. Plenty of Mellotron sounds are available, which will be of particular delight to the vintage keyboardist. Many of the most famous Mellotron sounds come loaded in the Electro 3's factory bank, including the well-known 3 Violins, boy's choir and, of course, the Mellotron flute (see Web Clips 6 through 8). Additional samples available from the site include a large variety of acoustic strings, winds, brass, tuned percussion, accordion, guitars, pipe organs and synthesizers.

You can use the Electro 3's 80 MB of

sample library RAM for your own samples, too. You can edit and upload user-created samples into the Electro 3 with the included Nord Sample Editor application (Mac/Win; see Fig. 2). Sample programmability is not as comprehensive as in the Nord Wave, but basic sample layout, looping, filtering and amplitude enveloping are available.

An Eye for Effects

For the Electro 3, Nord has added to the effects available on earlier Nord instruments. The previous 2-band equalizer has been replaced with a 3-band system, with shelving treble and bass, and a parametric midrange. The phasing, chorus, wah and tremolo effects are similar to previous incarnations, but the overdrive simulation has been replaced with a speaker emulator that models three different types of amps (a Fender Twin Reverb, a Roland Jazz Chorus and a "small" speaker), in addition to the Leslie rotary speaker.

The Electro 3 supplies a reverb effect, which was missing in prior generations. The five simple but effective reverb programs sound good and are well suited for gigging purposes. Each of the effects has a user-adjustable single parameter; you can change the modulation effects' rate, the speaker emulator's drive and the reverb's wet/dry mix. I would have liked a bit more control over the effects—reverb decay time, for example. The effects amount knobs that were present in the Electro 2 are missing from this model.

Department of Grips

As an organist, I don't think I'll ever get used to using buttons instead of drawbars for the all-important function of changing organ timbre on the fly. Having a 3-digit numeric LED rather than a larger LCD means that you must



FIG. 3 In addition to MIDI In/Out and USB ports, the rear panel has two audio outputs, three control-pedal jacks and an input for routing an MP3 or CD player to the stereo headphone jack. The power connection uses an ungrounded two-prong cord.

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memorize your patch locations. And though you can rapidly switch between organ patches by holding Shift while pressing the drawbar buttons, it would be great to generalize similar functionality to all patches so that your 18 favorite sounds are available at the touch of two buttons.

Gigs are inevitably chaotic, so I rely on standardization whenever possible to minimize risk. The Electro 3 uses the ungrounded IEC C7 power cord instead of the more familiar 3-prong IEC Type-C13 cord, so if the power cable goes missing, it might be more difficult to locate a replacement (see Fig. 3). Because the Electro 3 targets pro organists, a Leslie output would be a welcome addition.

Personally, I'm a firm believer in the instrument disappearing into the background so that the audience focuses on the performer. I know that Nord's red color is a trademark, but I would prefer a more subdued-looking instrument onstage.

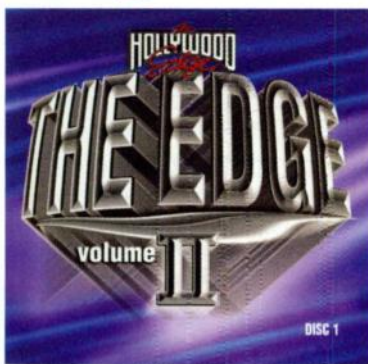
Sum and Difference

For the vintage keyboardist who relies on a bevy of electromechanical sounds, the Electro 3 is a slam dunk. The sound quality is superb, and the comprehensive variety of instruments and ease of programming allow performers to tailor to their taste. The Electro's portability is second to none, making transport to the gig in a compact car a trivial matter. The reverb, piano and Mellotron libraries; improved organ model; and user-configurable sample playback are all terrific improvements.

Small quibbles aside, unless I were playing a straight jazz organ gig that required a two-manual instrument or a piano gig mandating an 88-note weighted keyboard, the Electro 3 would be the instrument I'd take to the job. Though no digital keyboard can ever be a perfect replacement for the originals, the Electro 3 has such an overwhelming number of advantages over carting my beloved war-horses around that there is no longer any contest. My vintage keyboards are staying in the recording studio from here on out.

Nick Peck is a composer/vintage keyboardist/recording engineer in the San Francisco Bay Area. You can check out his music at underthebigtree.com.

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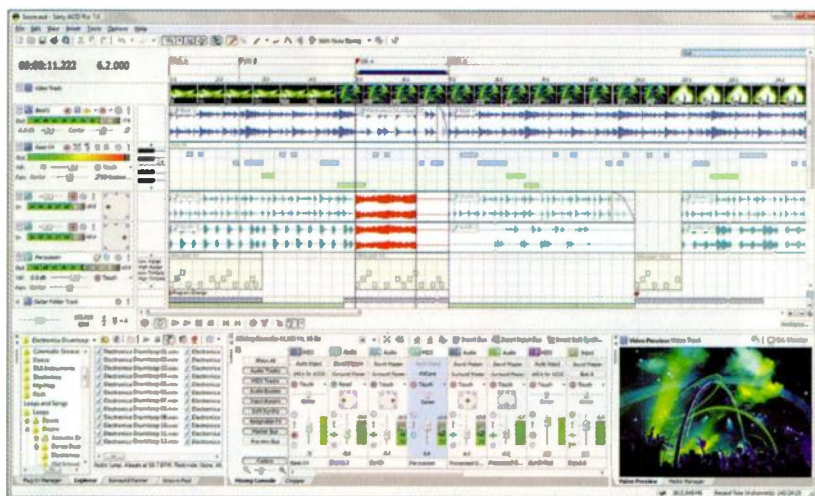


FIG. 1. Acid Pro 7 offers a slew of enhancements, including a more flexible mixer, better Beatmapping, and superior pitch- and time-shifting.

Sony Acid Pro 7 (Win)

Plenty of new features for taking control of your music.

By Jason Scott Alexander

PRODUCT SUMMARY

digital audio sequencer
\$319.95 (boxed, direct), \$299.95 (download, direct), \$149.95 (upgrade)

PROS: Dedicated mixing console for audio and MIDI. Input buses and real-time rendering. MIDI Track Freeze. Enhanced Beatmapping and new tempo curves. Real-time project rendering. Élastique Pro audio time-stretching. Fantastic value.

CONS: No waveform editor. Needs more flexible project views. Not enough native control surface support. PC only.

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

Sony Creative Software
www.sonycreativesoftware.com



Acid debuted more than a decade ago and really defined the way so-called “loop music” is produced. From its humble beginnings as a remixing tool, Acid Pro has matured into a full-blown audio workstation featuring multitrack recording with video sync, a robust MIDI sequencing suite with virtual instrument support, mixdown automation and plenty of other production tricks. With all that fully integrated alongside the legendary looping functionality that first made Acid famous, the application is still a staple with DJs, remixers and game music/video/film post-production houses.

But Acid has had some stiff competition along the way. Programs that once specialized strictly in audio recording, editing, sequencing and mixing stepped into Acid’s kitchen of time-stretching, pitch shifting and other loop-music features. In a marketplace where being everything to everybody often makes the difference between a sale and no sale, even the classics have to reinvent themselves to remain relevant.

Chemical Breakdown

Acid’s greatest reinvention occurred in Version 6.

Whereas Acid Pro 6 delivered core functions that launched it into official DAW territory, Acid Pro 7 (see Fig. 1) takes more of a user-centric wish-list approach. This update is all about control.

For example, an all-new mixing environment includes live input buses, real-time rendering and more flexible monitoring. Enhanced Beatmapping with tempo curves, better plug-in management, more flexible hardware labeling and greater import/export options further highlight the user-control options.

Available in boxed and downloadable versions, Acid Pro 7 comes bundled with a larger assortment of freebie plug-ins and sounds than before. The 3GB content DVD hits you up with more than 3,000 Acidized loops and 1,000 MIDI files; registered users can add to that every seven days with free downloads of Sony’s weekly “8pack” (eight loops arranged into a song) from Acidplanet.com.

Now that Acid is Microsoft Vista-compatible (this version also runs on Windows XP—SP2 or later—and requires a 1.8GHz or faster CPU), I tested it on my fast, new 3.2GHz Intel Core i7 Processor Extreme Edition with 4GB RAM. The

Sony Media Software Preset Manager—which lets you more efficiently save and share Acid projects, loops and effects presets over multiple programs—is strongly suggested for installation.

Drop Beats on a Dime

After my regular daily grind using a typical DAW, building tracks from scratch with Acid Pro 7 was exhilaratingly fast and felt more familiar than in previous versions. Small things can make a big difference. For example, there's finally a metronome count-off that can be set to be always on, on only during playback or on only during recording. There's also a variety of wood blocks, drums, sticks and other sounds for the metronome. Little things.

Though the Beatmapper tool has always been the place to go for adding tempo information to song-length files, you could previously only embed a single set of project information (tempo, signature and key) per file, meaning that audio files that changed over time could not properly conform to session tempo changes. The enhanced Beatmapping in Acid Pro 7 (see Fig. 2) fixes that. Now you can insert Beatmap information anywhere along the timeline for an audio file—perfect for tightening up a drum groove that wasn't recorded to a click. With fully editable Clip Properties at every Beatmap marker, audio files can conform to sessions at countless varying tempos and time signatures, even key changes.

Along similar lines, you can now set gradual tempo changes between two tempo markers using Tempo Curves (see Fig. 3). Fade types include linear, fast, slow, smooth, sharp and hold (curve off). Changes can be subtle or dramatic,

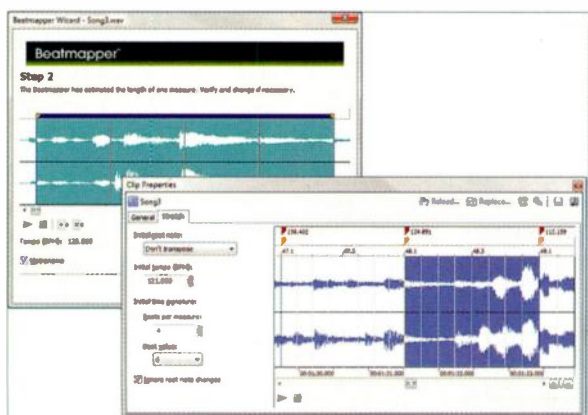


FIG. 2: The beefed-up Beatmapping feature makes it easier to conform audio files to projects that have tempo, signature and key changes within a song.

depending on the duration and degree of the curve, and you can perform them more quickly and easily than before. This really nice enhancement lets you build natural-sounding ritards and accelerando into arrangements that weren't previously possible in Acid Pro.

With all this radical stretching, Sony wisely updated the core time-and-pitch engine with the hot new *élastique Pro* algorithm from *zplane*. Selectable from an audio file's Clip Properties window, *élastique* offers higher-quality time-stretching than the stock Acid algorithm with minimal sonic artifacts. You have a choice between Pro and Efficient methods; Pro's quality reminds me of the time-stretching in Ableton Live, but it doesn't offer the source-material options of Elastic Time in Pro Tools.

Adding to the professional MIDI facilities in Acid Pro 6, V. 7 includes Track Freeze. This feature allows you to render MIDI tracks that are routed to soft synths and as WAV files to save processing power.

At the Post

Although I'm not heavily into video work, I found an extreme-sports montage with very challenging and rhythmic cuts with which to try out Acid Pro 7's new timing features for syncing to picture. I began mapping music cues along the timeline, using styles from techno to metal and So-Cal punk rock. The Tempo Curves were extremely helpful here, letting me lock in patterns with radically varying grooves onto the frame edits and adjust for tempo changes in the visuals.

During an aggressive indie-rock pattern, a skier on a crazy downhill mogul run hits a massive jump and the shot changes to slow motion, so I punched in a downward tempo change over two measures and let the enhanced Beatmapping slow the drums and guitar to a crawl along a gradual tempo

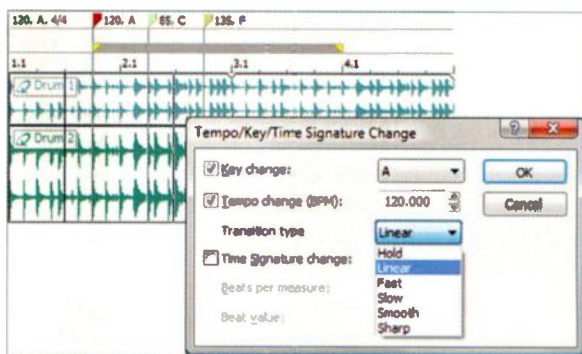


FIG. 3: The Tempo Curves feature allows you to set up tempo changes between tempo markers using a variety of fade types.

curve. By adjusting the start and end positions of that curve around the visual sequence, and by trying different curve shapes, I experimented with the feel of the ramp and how it transitioned into the next music cue in real time.

You can't import OMF or AAF sequences from video editors, but Acid supports numerous video formats in the timeline without conversion, including native support for FLAC, AAC, AC-3 Studio and MPEG-2 formats. This provides more options when working with streaming media and hardware devices—including the Apple iPod—and the ability to export mixes in surround format. While the Dolby Digital AC-3 Studio plug-in is included free, advanced users can upgrade to the Pro AC-3 (which gives you access to all of the Dolby metadata) for \$199.95.

Mix Meister

The previous Acid Mix window had only master, group and effects buses, leaving audio and MIDI mix operations to the tracklist parameter controls. The new dedicated audio and MIDI console in Acid Pro 7 (see Fig. 4) makes a world of difference. It provides an integrated view of all tracks and buses, letting you specify routing, assign inserts and control mixdown automation. You can toggle the scalable and customizable console to show all tracks or only certain tracks and types (audio, MIDI, soft synth, groups, etc.), audio buses, input buses, master bus, sends, I/O meters and so on.

The input buses are a new addition. At their simplest, they may be used for live input monitoring of external devices, such as hardware synths/drum machines or a talkback microphone. They could also mix in turntables and CD decks with Acid. When recording, you can select them as

McDSP

Retro Pack (Mac/Win)

By Nick Peck

McDSP has released Retro Pack (Mac/Win), a suite of three plug-ins for Pro Tools (RTAS/AudioSuite, \$495; TDM, \$995). The bundle comprises 4020 Retro EQ, 4030 Retro Compressor and 4040 Retro Limiter. McDSP has been releasing plug-ins that emulate vintage hardware for more than a decade, but Retro Pack delivers completely new algorithms that don't attempt to ape particular pieces of vintage gear. The plug-ins have a generic old-school vibe, creating ear-pleasingly warm sounds that are perfect for rounding off a bit of digital edge.

Retro Pack has traded McDSP's trademark green color and extensive user control for brushed aluminum, big knobs and a slimmed-down feature set. There is virtually no learning curve—just turn the knobs and play.

4020 RETRO EQ

4020 Retro EQ is a 4-band EQ with two parametric mid bands and high- and low-shelving EQ. It also has separate highpass and lowpass filters, input and output gain, and phase buttons. Each band has a ± 15 dB gain knob and a frequency knob. The plug-in



Along with 4030 Retro Compressor and 4040 Retro Limiter, 4020 Retro EQ is one of three great-sounding plug-ins in the McDSP Retro Pack.

has no bandwidth adjustment, as the algorithm uses gain-dependent variable Q, an important element of many vintage hardware equalizers.

I used 4020 on a large remix project. The original tracks were recorded to tape and mixed using analog consoles. Upon hearing the digital remix, the artist asked me to "take the razor blades" out of his guitar tracks—and to be sure, I heard a lot of harsh buzz in the high end that wasn't in the original. The EQ was the perfect choice for the job. I rolled off 2 to 3 dB around 15 kHz using the high-frequency shelf, and

added a 1dB boost around 1 kHz to add a bit of midrange warmth. That did the trick, rounding the edges and adding power to the sound.

4030 RETRO COMPRESSOR

The 4030 compressor is well suited to a wide range of dynamics-processing tasks. It offers a standard set of user controls: threshold, ratio, attack, release and makeup gain. Light to moderate amounts of compression can sound somewhat transparent, bringing the sound forward, enhancing some detail and smoothing out the transients a bit. But you can also crush the signal flat with 4030, applying as much as 40 dB of gain reduction and as much as 48 dB of make-up gain. You can get some great sounds this way, but you need to be careful with that much gain applied, for if you raise the threshold (and thus lower the gain-reduction amount) without lowering the gain, things can get loud fast.

Retro Compressor also has a wet/dry mix knob that is terrific for drums. You can squash the living daylights out of the kit to get a thick, sustaining sound, and then adjust the wet/dry mix to bring back some of the sharper transients. The 4030 compressor also has a sidechain feature to compress the source material using a key input.


4040 RETRO LIMITER

The 4040 limiter is designed for peak control on individual instruments and drum groups. You can also use it for mastering if you want to impart a bit of color on the master bus. The plug-in has just two knobs: Ceiling and Gain. Under the hood, things get a bit more complex as 4040 combines a look-ahead brickwall limiter with some subtle, proprietary tweaks to bring out a more-vintage vibe.

Retro Limiter is anything but subtle, imparting an exciting amount of heft to anything I ran through it. Drums shined

in particular, becoming fat and rocking with the addition of just a few dBs of gain. Vocals, bass and guitar all benefited from judicious use of 4040, as well. The plug-in's sweet spot was between 1 and 6 dB of gain reduction; anything more sounded too extreme for my taste. When using 4040 on the master song bus, I liked it best when it generated about 1 dB of limiting at the peak levels. This enhanced the song's overall level without flattening the dynamics into oblivion.

TOTALLY RETRO

Some of the most important tools in any mixer's arsenal are equalization, compression and limiting. McDSP has created a terrific new bundle comprising all three. Retro Pack is not exactly inexpensive, but considering how much use you'll get out of these processing tools, I think they are certainly worth the investment. The Retro Pack plug-ins are easy to use and sound fantastic. If your mixes are scunding a bit edgy, thin or brittle, then Retro Pack may just be the perfect solution. 

The Retro Limiter is anything but subtle.

Value (1 through 5): 3
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mcdsp.com

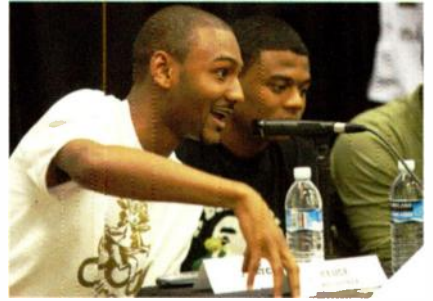
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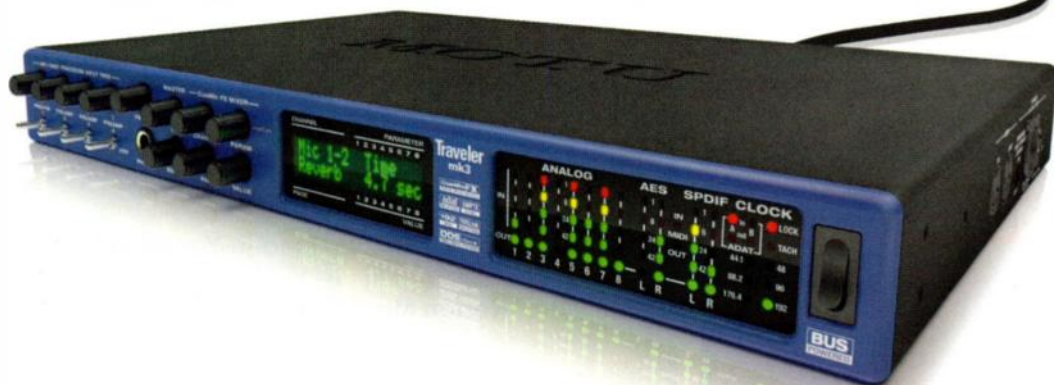
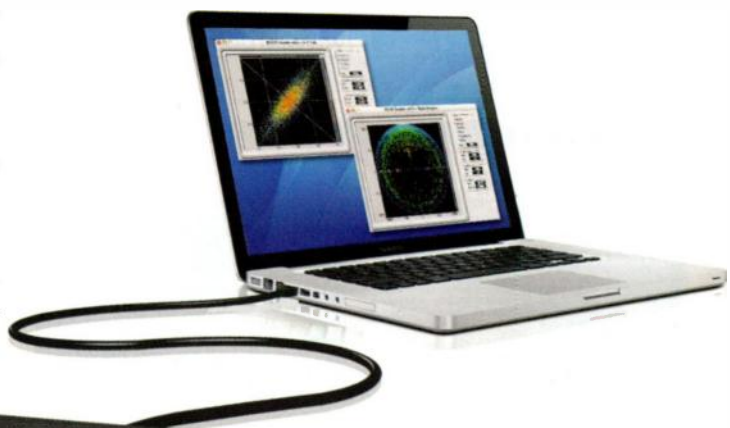
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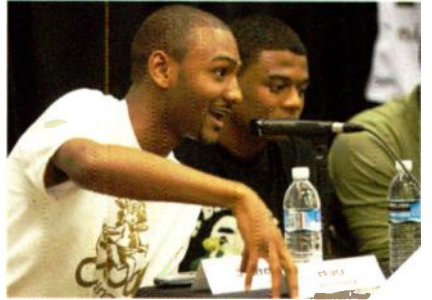


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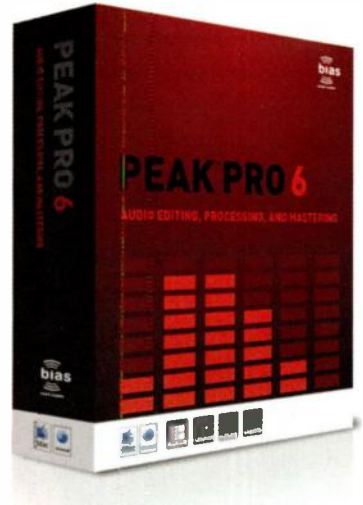
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What to Buy

By Nathaniel Kunkel

This magazine is so full of suggestions on how to spend money on recording gear that I wanted to throw my two cents in, too. It's just my nature, what can I say?

If there is any advice I can give you dear reader, it would be to try to make your purchases last. Buy things you will use for a long time. Throwing away old gear that cost \$10,000 sucks. It truly does. Trust me. If you know you are going to have to buy something again in three years, buy the cheapest one you can get away with. Spend your big money on the stuff that furthers the goal of building your perfect room. Know what your ultimate gear goal is and work toward that.

For me, that mainly means investing in microphones and preamplifiers. Here's why: The major hardware systems in the studio of the future are most likely going to comprise:

1. An assortment of microphones
2. An assortment of external microphone preamplifiers
3. Analog-to-digital converters
4. A digital work surface/DAW combination
5. Monitoring systems.

The preamplifiers, microphones, boutique converters and monitoring systems won't change often, but the computer and "desk" will. That is what has been happening for the past 10 years. One scenario




I see evolving into reality is high-end rooms providing around 40 channels of Neve, API or something like that in racks on the wall, and a work surface in the middle of the room. It will be a "Neve" room, with a huge Digidesign ICON in it. Ironic, no?

And boy will I love it. You see, in my experience, it's the best of both worlds. Once you go digital, it is a drag getting back out to analog in a Hi-Fi way, and audio becomes harder to route. In digital, you can always add another track, provide resettable cue mixes, and there are no noisy switches. That stuff makes such a difference when you are tracking a band—in the same way having a rack

of API or Neve or GML preamplifiers significantly elevates the quality of your recording. You need the right tool for the right job. Right?

And when the new Pro Tools or Nuendo system comes out, you can upgrade the rig and possibly the desk, but your recording chain stays the same, as does your analog infrastructure. And that stuff can cost real money. So it seems likely to me that microphones and preamplifiers will be where analog equipment budgets really accumulate in the future. They will be the only analog recording investments that will be used in perpetuity.

Even if you aren't ready to buy high-dollar microphones and preamps and stuff, don't fret: There are plenty of low-priced keepers you can acquire. For instance, never buy a crappy music stand; you are going to use it forever. The same goes for mic stands and mic cables. I still have some mic cables from high school—it's spooky.

So buy a good cue system, own good speaker stands and don't skimp on your hand tools or your soldering iron. They last a really long time, and you will use them every time you upgrade your work surface. 

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



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

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

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

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

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

Little did we know that TAXI had sent our song to a

production/management company that was looking for material for a young, male Pop artist they were developing.

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

“Beautiful Soul” got played on Radio Disney, and Jesse’s



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

Jesse McCartney’s album (entitled “Beautiful Soul”) has gone Platinum in the U.S. and Australia.

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

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

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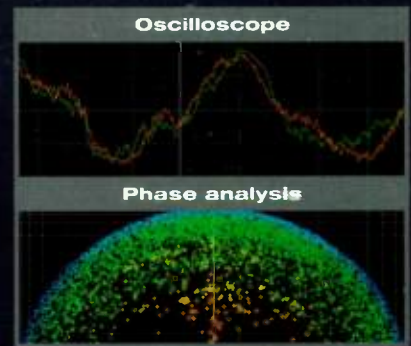
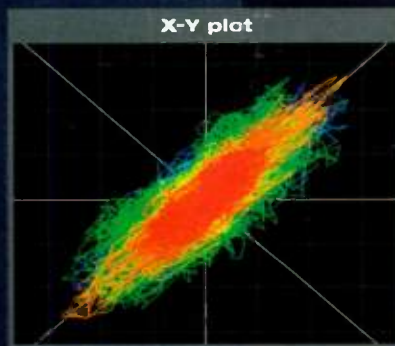
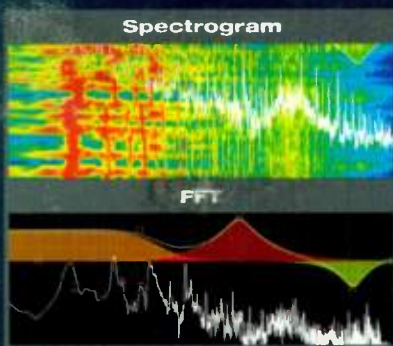
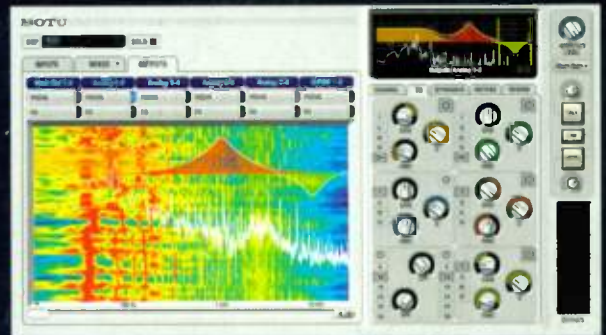
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