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REVIEWS
ROLAND FANTOM-G6 | ARTURIA ORIGIN
CAKEWALK SONAR 8 PRODUCER | MOJAVE AUDIO MA-201 FET | AND MORE

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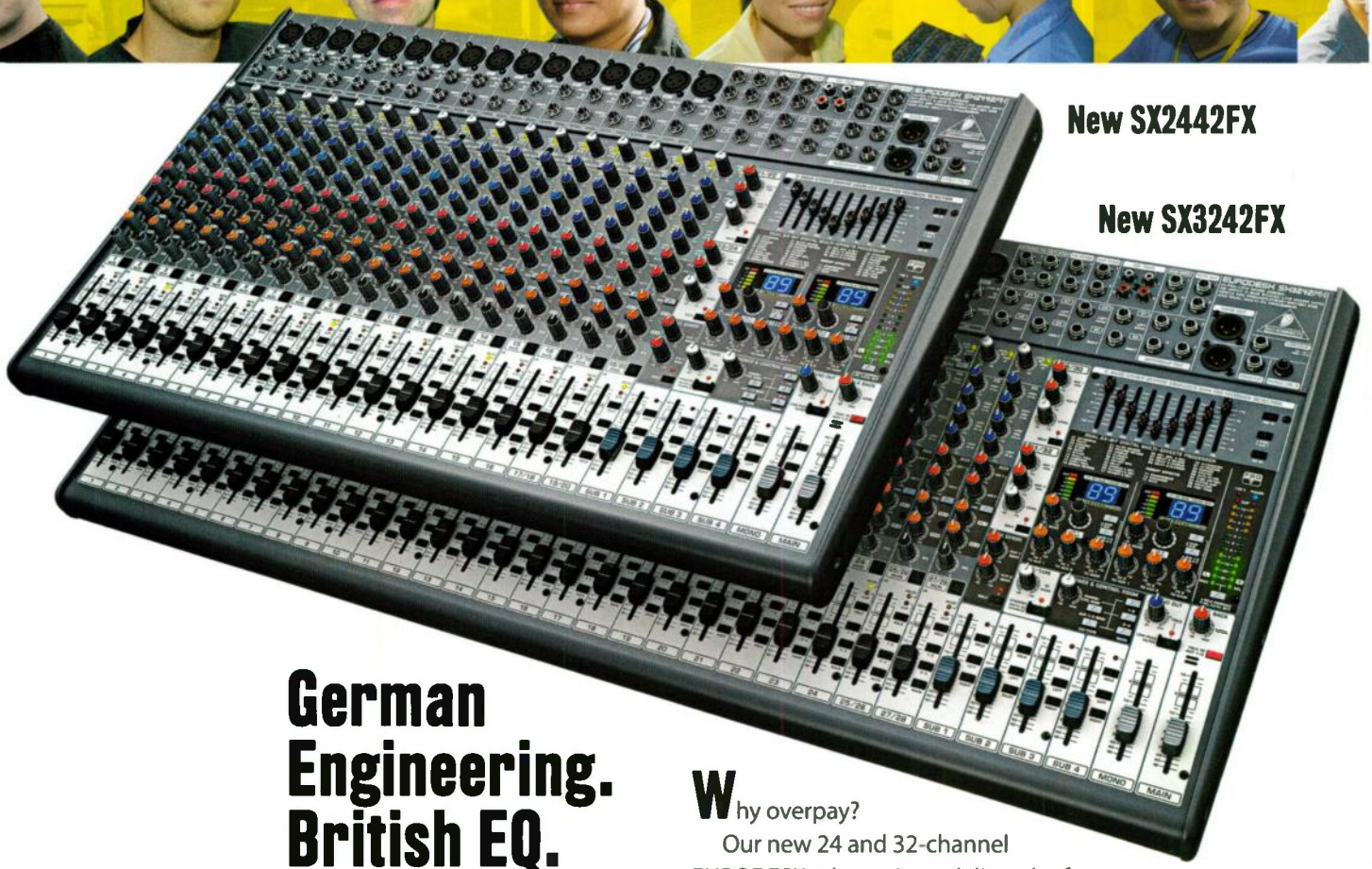

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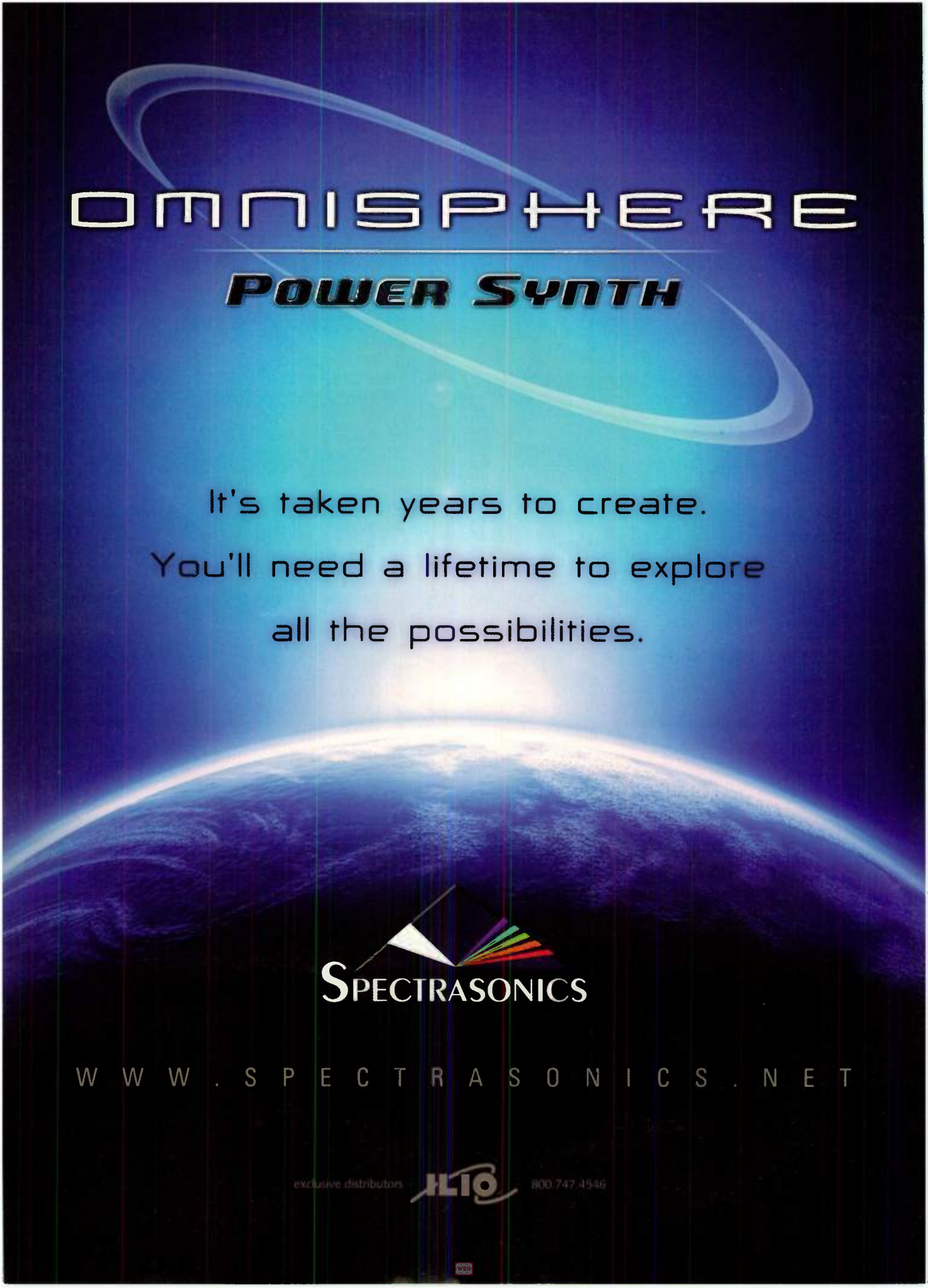
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MARCH 2009 VOL. 25, NO. 3

FEATURES

CHRIS DAVISON

30 QUINTESSENTIALLY STEVEN WILSON

Porcupine Tree guitarist-vocalist Steven Wilson recorded most of his ambitious solo project, *Insurgentes*, in his home studio. He also mixed all of it there—both the stereo and the surround versions. In this interview, Wilson talks about recording the album, making the film that accompanies the project, and having a love-hate relationship with digital technology.

By Mike Levine

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MUSIC IN THE AIR

Add creative flair to your electronic-music performances with Nintendo's popular Wii Remote gestural controller.

By Paul D. Lehrman

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DISCOVERING MAX

Cycling '74's Max graphical programming software is deep and powerful, but you can get started right away with these tips.

By Jeffrey Stolet

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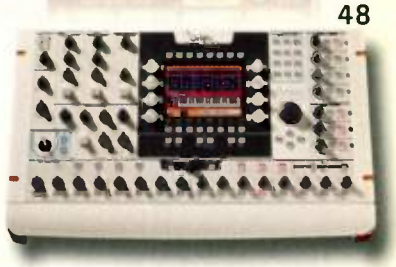

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REVIEWS

QUICK PICKS 60

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A Musician's POV

Despite current economic woes, this year's NAMM show was extremely upbeat. (Visit emusician.com for video highlights from the show floor.) The manufacturers had an overall positive attitude, and there was a dizzying amount of new products. Sure, many of these companies *have* to release something new, if only to boost sales enough to survive these troubling times. But there were plenty of hits at the show.

EM's editors are like kids in a candy store at NAMM. Between meetings and press conferences, we spent our time texting each other with pictures of cool stuff, and then preparing blog and newsletter material. Once we returned, there were videos to edit, convert to Flash, and upload. Today's technological marvels help us get the job done quicker than ever before. Yet for me as a musician, each NAMM show brings up existential issues about computers, software upgrades, and music making. Let me explain.

I have a theremin from the '60s, a Fender Stratocaster from the '70s, and analog synths from the past 40 years. I know them inside and out. Yet I don't use a single software instrument, effect, or sequencer that is more than a decade old. Of course, I use a rev of a few applications that have been around at least that long, but the original versions are still on one of the many legacy computers parked in my garage, few of which will actually boot up anymore.

JANE RICHEY

As much of a hassle as upgrades are, ostensibly they let us get more out of a software product, whether it be higher-resolution audio, more voices, or deeper editing features. We accept upgrades as a fact of life. Why?

With a hardware instrument, you have to replace strings, heads, reeds, cables, or whatever as these parts wear out. But in the computer-music world, the entire system gets replaced with alarming regularity. It seems like we're just renting the software for two to five years at a time, at best. If that's the case, let's do it the right way when technology allows, with something akin to the Software as a Service (SaaS) cloud-computing paradigm, like Google Apps.

Before the personal-computer revolution, we bought an instrument or processor and used it for decades. Now, we feel blessed when the soft synth we've been using for five years (if our computer lasts that long) is supported in the next OS or, conversely, when the new version runs on our old computer. In fact, it's a lucky day when a major DAW rev happens around the same time that a new OS becomes available and when we already have the computer horsepower to handle both.

About every five years, all three line up against me and not only do I have to purchase a new computer and my core apps, but I also have to spend hours loading and registering them. (That's time away from music making.) Then I cross my fingers and hope that the update plays well with the USB dongle for my soft synths. I'd almost rather go through another week of tax preparation. Will someone just hand me a guitar?

Now that I think about it, I have as many guitars as I do legacy computers. The difference is that I can still use each of the guitars.

Don't get me wrong—I enjoy using music technology. But I also want to make music. I don't want to constantly debug my system, nor do I want to learn a new software interface with each upgrade: time spent hunting down an important feature hidden under a new pull-down menu is wasted creative time.

I respect the hard work done by programmers over the last quarter century; we've come a long way in a short amount of time. But I'm looking for a musical instrument in the most basic sense—one that I can spend the rest of my life playing, not reconfiguring.

In a nutshell, I'd like the next generation of software music tools to be inspiring and to stay completely out of the way of the creative process. I want them to be intuitive, conflict-free, hassle-free, and, most important, plug-and-play. And I want to be able to pass them down to my children, just like my Strat. Is that too much to ask?

I look forward to hearing your comments.

Gino Robair
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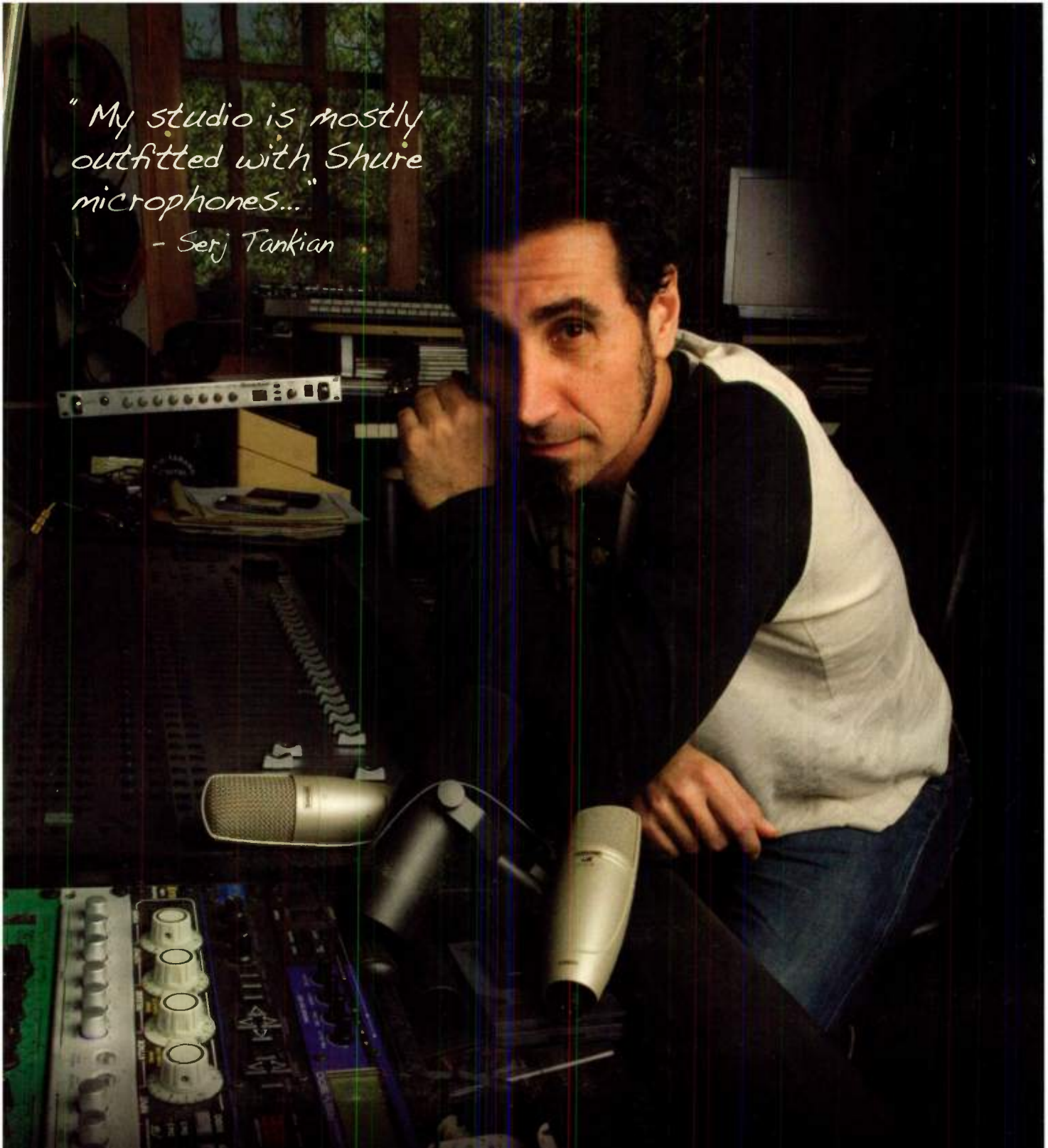

For Serj Tankian, recording music is a passion. That's why Serj chooses Shure recording mics as staples in his studio. From the KSM line, which balances exceptional sensitivity with application flexibility to the legendary and durable SM mics, Shure has a recording solution that will fit your budget and need. Why settle for an ordinary studio session when you can have a legendary one? Check out what Serj knows. Visit shure.com today.

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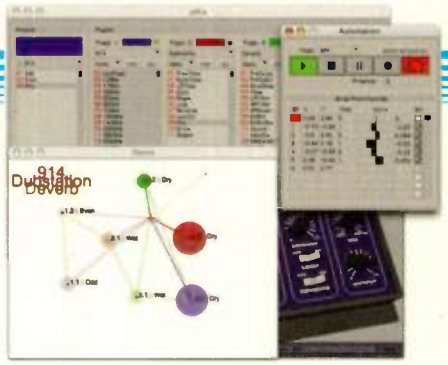
FRONTPANEL

By Gino Robair

Download of the Month

Oli Larkin's pMix 0.7 (Mac) By Len Sasso



PMix (olilarkin.co.uk; donationware), short for "preset mixer," lets you graphically morph between presets for as many as four VST effects plug-ins arranged in series or parallel. Support for virtual instruments and AU is planned for a future release. PMix is a standalone application that accepts real-time audio input, making it a great live-performance tool. But you can use its built-in player and recorder to process audio files, and you can link pMix to your DAW for OSC and MIDI control and for audio I/O using ReWire or a third-part routing utility such as Cycling '74 Soundflower.

You start by selecting plug-ins for one or more of the four layers, and pMix is as useful for one plug-in as it is for several. You then create plug-in setups by selecting from the menu of factory presets, using the plug-in's GUI, or clicking on pMix's Random button. You add setups you like to a 2-D morphing window called the iSpace, where they are represented by circles that are color coded by layer. Dragging a layer's cursor around the iSpace morphs between plug-in settings based on the cursor's proximity to each circle. You select which parameters are affected by morphing, but pMix remembers all settings, letting you add or remove parameters from the morphing list after the fact. You can morph each layer separately or link them so that one cursor morphs all layers. Freehand or breakpoint automation curves affect the selected layer or all layers if they are linked. MIDI and OSC control of morphing is also supported.

PMix is great for simply controlling the wet/dry mix of several plug-ins—a filter, a feedback delay, and a reverb in series, for example (see **Web Clip 1**). Alternatively, you can completely mangle audio by radically morphing parameters such as delay time and feedback, filter resonance, pitch-shift, ring or FM modulation, and so on (see **Web Clip 2**). Grab pMix for effects automation that goes beyond linking up a few MIDI controllers, and you'll never look back.

ONLINE BONUS MATERIAL

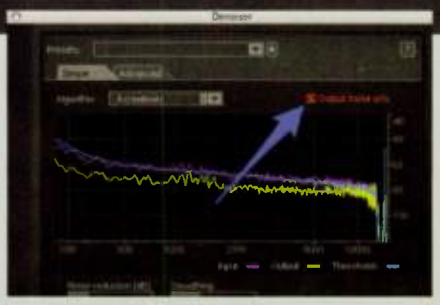
OPTION-CLICK By David Battino

Noise Pro-Duction

Discover cool features lurking inside popular software products

One of my favorite ways to get fresh sounds is to use controls backwards. For example, instead of throwing away the *ums* I cut from interviews, I transform this "garbage" audio into vocal grooves (see "Sound Design Workshop: Um's the Word" in the February 2008 issue, available at emusician.com). Similarly, most noise-reduction software has a button that lets you hear what the program is about to remove. The idea is to ensure that you aren't deleting too much of the signal along with the noise. But often this rumble and hiss has a cool, otherworldly character, particularly if you do cut into the signal a bit. I've used the extracted noise for ambiences and even applied rhythmic gating to create percussion parts that seem to speak.

If your noise-reduction program can preview the noise but not export it, try capturing the output with a *stream ripper* (see the November 2008 "Option-Click") or a virtual audio cable such as Cycling '74 Soundflower (soundflower.com; free).



Programs like iZotope RX (izotope.com; $349) "fingerprint" noise so you can subtract it from the audio file. But sometimes the noise is too interesting to throw away.

From the EM Archives: We Saw Them at NAMM, Part 1

Early 1980s

The Sohler Keyboard
A symmetrical keyboard retrofit for any instrument. According to the brochure, only three fingering patterns needed to be learned to master this instrument.

1989

SGW Co. Solderstat
A handy wrist-strap solder dispenser. Accessory options included a static-control elastic strap and a coiled grounding cord.

1990

Sensor Frame Corporation VideoHarp
An optically scanned MIDI controller that "converts moving images of the fingers into music" using a Motorola MC68000-based microcomputer.

THIS MONTH'S SOUNDTRACK

These releases encompass a diverse range of styles and composition methods, from ambient and avant-garde to electronica and pop.

BRANTLEY GUTIERREZ

LAL MERI: ***LAL MERI*** (SIX DEGREES)
A delicious cross-cultural mix of Carmen Rizzo's modern beats, Nancy Kaye's sumptuous vocals, and Ireesh Lal's post-Miles trumpet stylings.

HIDEKI OTSUKA

SHUGO TOKUMARU:
EXIT (STARTIME/SONY BMG)
A Japanese multi-instrumentalist and singer-songwriter whose virtuosity never overshadows these delightfully quirky and catchy tunes. For fans of Nino Rota and J-pop.

ESTHER LAMNECK:
CIGAR SMOKE (INNOVA)
An outstanding collection of new works for clarinet and electronics, featuring Lamneck's fiery interpretations and dynamic subtleties.

COURTESY THE JOHN CAGE TRUST

JOHN CAGE: ***VARIATIONS VII*** (E.A.T./ARTPIX)
A must-have DVD featuring the 1966 performance of this seminal live-electronic work. Includes performance footage, a documentary, and additional audio. (Distributed by Microcinema.com.)

FRIPP & ENO:
NO PUSSYFOOTING (EG)
This remastered 2-disc reissue is expanded with half-speed and reversed versions of "The Heavenly Music Corporation" and a reversed "Swastika Girls." Yummy!

ANTONIO TIEDRA

1994
Riday Systems T-91
A portable, alternative MIDI controller with a unified fingering keyboard designed to make it equally easy to play in every key.

1994
Simmons TurtleTrap
This multipad MIDI controller offered ten trigger zones and seven inputs for external controllers.

1990s
Jim Corrigan C2P2
A moderno MIDI controller that featured sliding finger levers and fret controllers, as well as many other buttons.

By Len Sasso

MOTU TRAVELER MK3

TRAVELIN' LIGHT

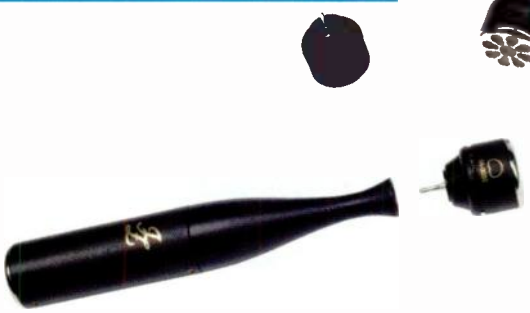
MOTU (motu.com) has updated its Traveler series of mobile FireWire audio interfaces with the mk3 (Mac/Win, $895 [MSRP]). Weighing in at 3.8 pounds, the 14.75-inch-wide Traveler fits nicely into a backpack and under a 15-inch laptop. Its 28 inputs and 30 outputs include 4 combo XLR/TRS mic and high-impedance instrument inputs, each with mic preamps, phantom power, and pads; 4 additional 24-bit, 192 kHz analog inputs and 8 analog outputs on TRS jacks; 2 banks of optical I/O; AES/EBU and S/PDIF I/O; and a headphone output. You also get a sample-accurate MIDI interface and word-clock support. The unit ships with MOTU CueMix FX software for 28-input, 16-bus mixing and effects processing.

IK MULTIMEDIA T-RACKS 3

MAKING T-RACKS

IK Multimedia (ikmultimedia.com) has resurrected its mixing and mastering suite of EQs, compressors, and limiters. The standard version of T-RackS 3 (Mac/Win, $149.99) includes the four T-RackS classic effects: Compressor, Multi-band Limiter, Clipper, and Equalizer. The deluxe version ($399.99) adds two digital processors—a brickwall limiter and a linear-phase EQ—along with emulations of the Fairchild 670 compressor/limiter, the Pultec EQP-1A, and an optical compressor tailored for stereo and mid-side operation. Twelve plug-in slots allow flexible parallel/serial configurations, and the user interface features extensive spectrum, phase, and level metering. The software comes standalone and in the usual plug-in formats (AU, VST, and RTAS).

OUT OF THE BLACK HOLE



JZ MICROPHONES BT-201

JZ Microphones (jzmic.com) extends its line of mics beyond the Black Hole studio series with the introduction of the BT-201 small-diaphragm condenser mic ($545). Designed to accommodate all common studio and live applications, the unit ships with three capsules: cardioid, omni, and open cardioid. An open cardioid with –20 dB pad is available for an additional $109. The mic sports an all-metal body and a magnetic-connection system that makes changing capsules easy. Each capsule is tested in an anechoic chamber, and you can purchase a matched stereo pair for $1,139.

PROJECTSAM SYMPHOBIA

Symphobia (Mac/Win, $1,399 [MSRP]) from ProjectSAM (projectsam.com) takes orchestral sample libraries to the next level by sampling the full orchestra along with various orchestral ensembles. Almost half of this 18 GB, 24-bit, 44.1 kHz Kontakt Player 2 library is devoted to cinematic effects such as violin glissandos, orchestra rips and stabs, clusters, and so on, and these are provided in a variety of orchestrations. The recordings were made in a large concert hall, with both close- and concert-stage miking. Sample mapping, programming, and Kontakt scripting are all unlocked for editing by those who have the full version of Kontakt.

RINGSIDE SEAT

GET SMART

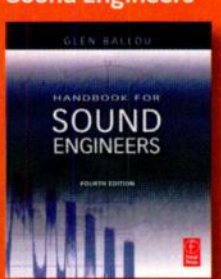
Course Technology PTR's Voice Actor's Guide to Recording at Home

In Course Technology PTR's (courseptr.com) *Voice Actor's Guide to Recording at Home . . . and on the Road* ($29.99), authors Harlan Hogan and Jeffrey Fisher show established and aspiring voice-over actors how to produce professional-sounding tracks in their personal studios. The book shows you how to use a personal computer, a reasonably priced home studio, and the Internet to create corporate narrations, radio and TV spots, and dialog for animation, games, and other projects.

Que Publishing's The Complete Home Music Recording Starter Kit

The Complete Home Music Recording Starter Kit ($34.99) from Que Publishing (informit.com/que), by Buster Fayte, shows you how to set up a studio in your bedroom, basement, or RV as quickly and inexpensively as possible. The book starts with how to choose a computer and set it up for music production using Sony Acid Pro. It then takes you through tracking, mixing, and mastering your music. The accompanying DVD has trial versions of Acid Pro 7 and Sound Forge 9, training videos for important techniques, a library of royalty-free loops, and audio examples illustrating topics in the book. You can get more info online at busterfayte.com.

Focal Press's Handbook for Sound Engineers



Glen Ballou's *Handbook for Sound Engineers*, 4th ed. ($130), reflects current practices that cover the fundamental aspects of sound engineering. It contains essays on more than 40 topics by recognized professionals including Pat Brown, Ken Pohlmann, Ray Rayburn, and Bill Whitlock. Publisher Focal Press (focalpress.com) calls the book the must-have reference for anything related to audio. This new edition adds software-based recording systems, digital recording in various formats, and mobile-audio devices, among other topics.

Home base: Fort Worth, Texas
Sequencer used: Digidesign Pro Tools HD
Favorite vocal mic: Telefunken 251
Web site: cadillacsky.net

COURTESY CADILLAC SKY

Playing Both Sides of the Fence

Cadillac Sky uses pop production techniques on its latest bluegrass release.

Many bluegrass bands are purists when it comes to their sound and the way they record. Everything is tracked live, and some ultra-traditional acts even do so while crowded around a single mic. That's not the case with the Fort Worth, Texas, quintet Cadillac Sky. "Our base of instrumentation is bluegrass," says lead singer and mandolinist Bryan Simpson, "but at the same time, we want to create the sound that we hear in our heads in the studio. We want to record stuff that we would like to listen to ourselves."

By Mike Levine

And what do they listen to? "Our favorite recordings are like *Sgt. Pepper* and Radiohead records and things like that, along with great bluegrass records," Simpson explains. The way Cadillac Sky recorded their second CD, *Gravity's Our Enemy* (Skaggs Family Records, 2008), which the band members coproduced, was in keeping with their eclectic approach. Instead of recording everything together, the group (which at the time of the recording consisted of Simpson, banjoist Matt Menefee, fiddle player Ross Holmes, bassist Andy Moritz, and guitarist Mike Jump [since replaced by David Mayfield]) chose to track the instruments and vocals separately. The instrument tracking took place at their label's facility, Skaggs Place Recording Studio, in Hendersonville, Tennessee. There, the band, along with coproducer Mike Marshall and engineer-mixer Eric Legg, used a relatively traditional live-in-the-studio approach.

But even during those sessions, there was a bit of pushing and pulling between conventional and less conventional bluegrass-recording techniques. Marshall favored a more traditional approach, which Simpson recalls encompassed keeping things warm and not using a lot of compression. However, Legg wanted to go in a different direction. "He recorded for the Dixie Chicks and stuff, and really likes a rock sound," says Simpson. "It was an interesting combination having those two working, because one was looking for one thing and one was looking for another. I think, partially, the band wanted to play both sides of the fence."

When it came time to cut the vocals, Cadillac Sky headed into Nashville to the Velvet Elvis, a home studio belonging to producer-engineer Paul Jenkins. There, they layered their vocals one part at a time—definitely not a traditional bluegrass method. "We could have done it all at the same time; I think we're proficient at that, too," Simpson points out. "But it seemed like it made more sense to layer."

The band members enjoyed the relaxed atmosphere at the Velvet Elvis. "It's got a really cool vibe," Simpson reports. "It feels lived in because it actually *is* lived in." Though the setting was informal, there was plenty of choice gear, including a Digidesign Pro Tools HD system, Telefunken 251 and Lomo 19A9 tube mics, and a Daking mic pre.

During the mix, the band veered away from tradition wherever they saw fit. For instance, the song "Goodbye Story" (see Web Clip 1) features a slapback delay on the vocal. "We did several different things that we thought were appropriate for the song, or we were having fun with the songs," says Simpson, who also cited a laugh track added to "Inside Joke" and a "radio voice" effect on "Everybody's Favorite" (see Web Clip 2) as evidence. "There's doubling of vocals and all kinds of things that are happening that we just felt were appropriate for [that] song," says Simpson, "and whether it was appropriate for a bluegrass purist, we weren't concerned about that." em

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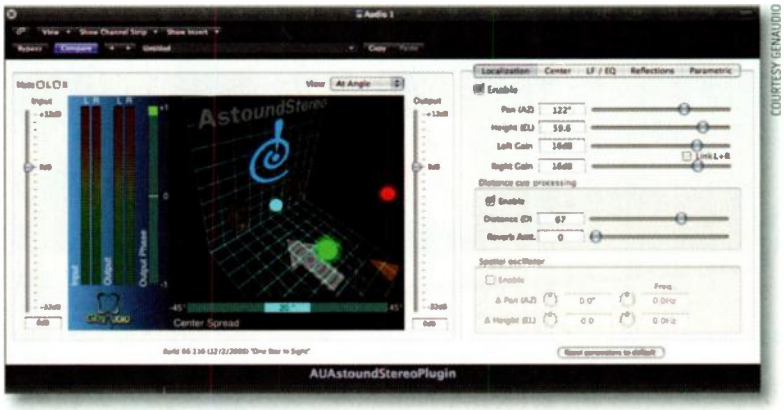

COURTESY GENAUDIO

FIG. 1: In this screen shot from the AstoundStereo Pro application, different sound sources are represented by colored dots placed within a virtual environment. The arrow indicates the direction in which the listener is facing, and the dot within the arrow is the listener's position.

Sound All Around

A new sound-field simulator incorporates psychoacoustics. | By Scott Wilkinson

The human hearing system is exquisitely sensitive to directional cues that let us instantly determine where a sound is coming from. This was critical for our survival in prehistory, when the snap of a twig or a low growl might be the only harbinger of impending doom in the jaws of a hungry predator.

These days, we don't have to worry about becoming something's dinner, but the ability to discern the direction from which sounds reach us remains. This is one reason why 2-channel audio reproduction is ultimately unsatisfying—even with a system that exhibits excellent imaging, all sounds appear to originate from a relatively narrow window directly in front of us or, in the case of headphones, inside our heads.

Many have tried to simulate a 3-dimensional sound field using 2-channel and even multichannel audio systems. But unless there are many speakers arrayed all around and above the listener—a prohibitively expensive approach—there's always something missing.

This problem intrigued Jerry Mahabub as a teen prodigy working on brain-imaging technology while attending Rensselaer Polytechnic Institute in the late '80s and early '90s. He recognized that previous attempts to simulate a true 3-D sound space were based on *head-related transfer functions*, mathematical descriptions of how sound diffracts around human heads and enters the ears. However, Mahabub realized that this is only part of the solution—to achieve a more convincing simulation of a 3-D sound space, a system must also model how the brain processes audio information, a field of study called psychoacoustics.

After 17 years of research and development, Mahabub's system, dubbed AstoundSound, is now being introduced. In 2003, he formed a company called GenAudio (genaudioinc.com) to commercialize various AstoundSound-based products for professional and consumer applications.

In the pro realm, AstoundSound can be applied to monaural, 2-channel, and surround recordings during production, and the result can be heard on any playback system, with no decoding required. Engineers can place up to 100 individual sound sources anywhere in 3-D space (see Fig. 1) and automate their movement over time. The system is compatible with any audio format, including PCM, DSD, and MP3.

For preexisting recordings, AstoundSound can be applied after the fact. A consumer-oriented Windows Media Player 11 plug-in called AstoundStereo Expander processes audio files using more than 90 DSP parameters to create a much broader, deeper soundstage. This software is also available for Macintosh computers running Leopard (OS X 10.5) and can process audio from any application, such as iTunes, QuickTime, DVD Player, and others.

Unlike most current soundstage-expansion and surround-simulation technologies, which are primarily based on phase manipulation, AstoundSound does not introduce phase anomalies, as indicated by a phase monitor during a demo I recently attended. The system manipulates frequency response, interaural time delay, and interaural level differences, among other physical properties, and very sophisticated EQ techniques are used to maintain tonal balance.

The demo I heard was, well, astounding. First, I listened to a clip on headphones and found myself turning around to see if someone had closed a door behind me while helicopters flew convincingly overhead. Next, I listened to Beyonce's "If I Were a Boy" on two speakers, switching between conventional and processed 2-channel versions. The difference was striking—with AstoundSound, the soundstage widened significantly and even increased in height, enhancing the clarity of each instrument while the vocal remained rooted in the center.

Among the first commercial releases to use AstoundSound are *Hellboy II: The Golden Army* on DVD and Blu-ray, Robin Thicke's *Something Else* CD, and *Deprived*, GenAudio's video game in the making. You can also check out some examples and get AstoundStereo Expander at astoundstereo.com. I'm very impressed with this technology, and I look forward to hearing it grow.

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POWER
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Music in the Air

Using Nintendo's Wiimote as a musical-instrument controller.

By Paul D. Lehrman

The Wii Remote—or "Wiimote" to its millions of fans—has radically altered the video-game world by offering players an unprecedented level of physical participation. Nintendo has packed into a $40, palm-size package control features that a half-dozen years ago would have cost 50 to 100 times as much (see Fig. 1). Instead of pushing buttons and moving joysticks, virtual golfers and bowlers now swing their arms and pump their legs, and virtual battlefield commanders literally point and shoot at their targets. If you're an electronic musician with a hankering for something new, the fun really starts when you add a Wiimote.

The Wiimote is a squared-off white cylinder about the size of a clave or a large hot dog, with 11 buttons and a dark area at one end that has something to do with infrared light. Inside are an Analog Devices ADXL 330 3-axis 3G accelerometer; a highly accurate, 2-axis infrared tracking system; a cell-phone-style vibrator called a "rumble generator"; a tiny speaker; and a Bluetooth transmitter and receiver. For another $20, you can almost double the Wiimote's power by adding a Nunchuk, a pickle-shaped device that plugs into the Wiimote with a cable and gives you a second ADXL 330, a two-dimensional joystick, and a couple of more buttons.

The ADXL 330 (which, if purchased separately, would cost nearly twice as much as the Wiimote) is a remarkable little chip. It senses motion in the *x* (left to right), *y* (up and down), and *z* (forward and back) planes and generates three different analog voltages in response. But its 3G (3 Gravities) rating means that it is sensitive enough to respond to the earth's gravitational field, even when it's not moving. So it not only measures acceleration, it can also measure static position relative to the earth's pull—in other words, tilt. At all times, therefore, the unit reports its rotational position in three dimensions: what airplane pilots call *pitch* (vertical plane), *yaw* (horizontal plane), and *roll* (twist).

The infrared system is just as remarkable. It uses a Pixart Multiple Object Tracking CMOS optical sensor, a technology that is also used in cameras. If you're one of the millions who have bought one of Nintendo's Sensor Bars for the Wiimote, you may be surprised to learn that all of the infrared tracking is done within the Wiimote. "Sensor Bar" is a complete misnomer: all that's in it are a handful of infrared LEDs, which the Wiimote's sensors track as you move the Sensor Bar. (This is why the Sensor Bar costs only $10.) The Sensor Bar has to connect to a Wii console not to pass data, but to draw power from the console. If you don't have a Wii, then you can opt for a "wireless Sensor Bar," which is nothing more than a set of battery-powered infrared LEDs, available from several companies.

If you've inferred from the last paragraph that you don't need a Wii console to get

FIG. 1: The author holds a Wiimote in front of a MacBook running the piece "Imaginary Dialogues."

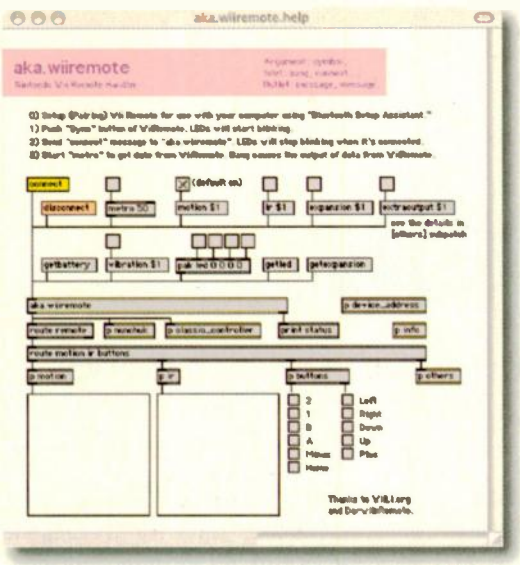


FIG. 2: The Max Object called aka.wiiremote that brings Wiimote data directly into Max/MSP.

> You can use it to turn your MacBook into a seismograph.

information from the Wiimote, you're right. The Wiimote communicates with the console, and anything else in range, using Bluetooth technology. Therefore any computer or other device with Bluetooth capability can be taught to respond to Wiimote-generated data.

Of course, getting the Wiimote to connect to your Mac or PC is one thing, but figuring out what it's sending is a lot more complex. Fortunately, there are a number of free or very inexpensive programs for both platforms that will read Wiimote movements, tracking data, and button pushes and translate them into useful information. The Wiimote-hacking community is huge and truly international, with contributions from almost every corner of the globe.

Some Wiimote-reading utilities use the data to simulate what one normally does in front of a keyboard: move the mouse, pull down menus, and press keys. For example, WiinRemote, from Japan, is a free utility for Windows that lets you move the computer cursor using either the accelerometer, the IR sensors, or the Nunchuk's joystick and lets you assign different keys and combinations to the various buttons. Similar applications for the Macintosh are DarwiinRemote (free, from Japan) and Remote Buddy (19.99 euros, or approximately $27 at this writing), which is made by a German company called IOSpirit. These utilities can be used in conjunction with almost any program: for instance, with Ableton Live you can use the Wiimote's buttons, joystick, and the rest to enable loops, mix tracks, change tempos, play with synth parameters, or trigger notes or samples on a virtual keyboard. Many of these utilities can also work with other Bluetooth-enabled devices, such as EyeTV remotes, cell phones, and the instruments in the *Rock Band* and *Guitar Hero* games.

Other programs are more specifically oriented toward music and generate MIDI or Open Sound Control commands, which can then be passed on to music applications using the Windows MIDI Mapper or Apple's Audio MIDI Setup. (For more on OSC, the media processing protocol developed at the University of

SOFTWARE FOR WIIMOTE CONTROL

Product	Operating System	Price	URL
aka.wiiremote	Mac OS X	free (requires Max/MSP)	www.iamas.ac.jp/~aka/max/
DarwiinRemote	Mac OS X	free	sourceforge.net/projects/darwiin-remote/
GlovePIE	Windows 98, 2000, or XP (for all features)	donationware	carl.kenner.googlepages.com/glovepie
OSCulator	Mac OS X	donationware (minimum $19)	osculator.net/wiki/
Remote Buddy	Mac OS X	approx. $27; Premium Edition, approx. $40	iospirit.com
WiinRemote	Windows	free	onakasuita.org/wii/index-e.html
Wiinstrument	Windows XP or Vista, Mac OS X, Linux	free	sourceforge.net/projects/wiinstrument/

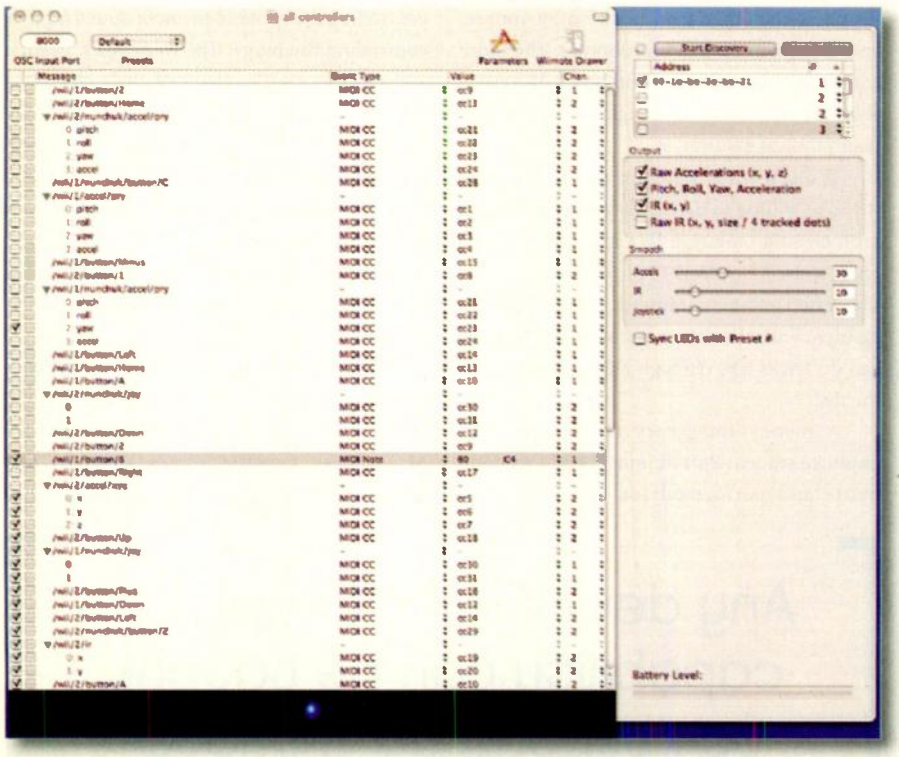


FIG. 3: The main screen for assigning MIDI commands to Wiimote parameters in OSCulator.

California, Berkeley, see "Square One: Open Sound Control" in the November 2008 issue, available at emusician.com.)

For Windows users, there's a comprehensive tool called GlovePIE (donationware), developed by Australian programmer Carl Kenner. Originally created for use with virtual reality gloves (as the name would indicate; the second part stands for "Programmable Input Emulator"), GlovePIE is a scripting language that supports a wide range of wired and wireless controllers, including the Wiimote. It's capable of working in many environments, and the downloadable package includes both OSC and MIDI commands.

Wiinstrument is a free, simple, open-source, cross-platform (Mac, Windows, and Linux) application from Germany that lets you generate MIDI notes and controller messages. In one mode, it provides a virtual keyboard, and in its Percussion mode, you can use the Wiimote like a drumstick. Acceleration in the vertical plane is mapped to Velocity sensing, and the buttons select various drum sounds.

If you're a Cycling '74 Max/MSP user, you can get Wiimote data into your creations with a free Max Object called aka.wiiremote (see Fig. 2). It allows you to use all the different Wiimote data streams in your Max patch and lets you send data to the Wiimote, activating its lights and rumble generator. Aka.wiiremote has a unique feature: you can throttle back the speed of the incoming data to cut down on noise and to avoid overwhelming your MIDI stream. (The Japanese developer, Masayuki Akamatsu, also has a very cool Object that uses a Macintosh laptop's Sudden Motion Sensor to tell you when you're tilting the computer in any direction. It may not be all that useful for music, but you can use it to turn your MacBook into a seismograph.)

My favorite way of getting Wiimote data into my computer is a neat little application called OSCulator, which comes from France (donationware, minimum $19). Its developer, Camille Troillard, is a power user of Symbolic Sound's Kyma, and he wrote the program so he could choose from all sorts of external controllers—graphics tablets, 3-D mice, JazzMutant's Lemur, and a variety of wireless gadgets, including Wii-Fit Balance Boards and iPhones—to play his Kyma. In the process, he put in hooks for OSC and MIDI and designed a very simple and elegant, yet highly versatile, interface (see Fig. 3). Unfortunately for Windows users, OSCulator runs only on Macs.

OSCulator lets you assign any Wiimote parameter to any MIDI note, controller message, or other system message as single events or toggles. A special Note w/Parameters command allows you to use continuous parameters to control the characteristics of a note. For example, when you use a button to trigger a note, you can use the vertical tilt of the

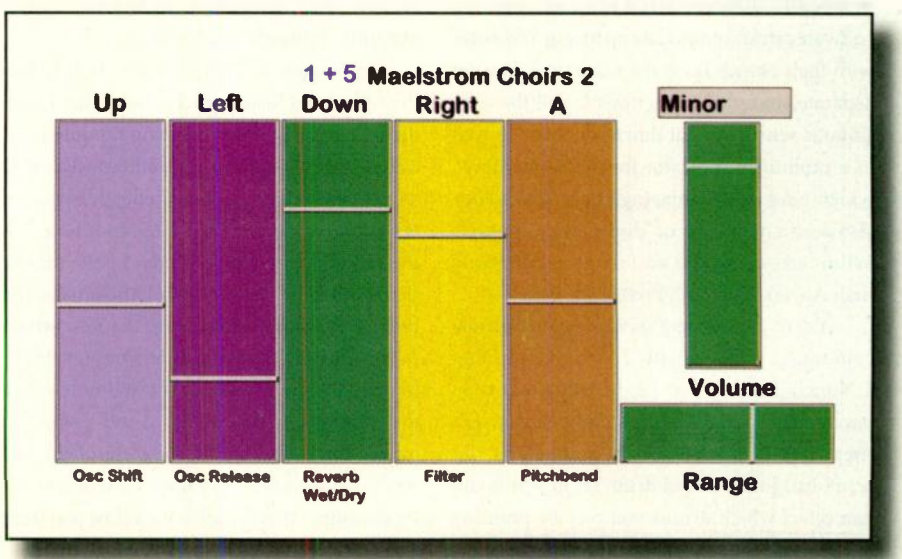
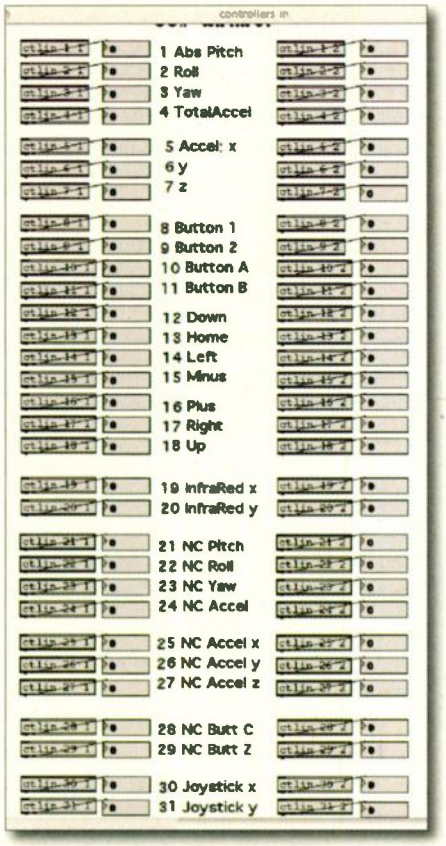


FIG. 4: One of the display screens from "Imaginary Dialogues," showing which parameters are being controlled and their current state.

Wiimote to specify the note number and the horizontal position of the Nunchuk joystick to set the Velocity. Wiimote functions can be mapped to different MIDI channels, and the software can accommodate up to four Wiimotes with their Nunchuks at the same time. You get separate smoothing functions for all the continuous sensors to cut down on noise, as well as a prominent indicator for the battery level, which goes down amazingly fast. OSCulator also does a heroic job of "discovering" multiple Wiimotes—and does so far more efficiently than Apple's Bluetooth Preference Panel.



A test patch in Max that lets you look at the data from the Wiimote as it is being converted into MIDI.

Any of these programs will let you do some cool musical things with a Wiimote. Adding a Nunchuk gives you 12 different real-time parameters you can control, and you can split these among as many MIDI channels as you want. Imagine a virtual drum set in which you can select which drums you play by pointing at them and then flicking your wrist to make it sound; or a loop with a steep resonant filter that opens up and growls as you raise your arm; or a vocal patch that responds to one arm's position for pitch, the other arm's position for timbre, and the twist of a wrist for vibrato. The more continuous controllers a synth patch has available, the more you can mangle the sound with your physical gestures.

You can really go crazy with a Wiimote if you're willing to do a little programming in a processing language like Max/MSP or the open-source PureData (Pd). With these tools, the action of any parameter can be interdependent with the action of any other, and you can do tricks like reassign all the controls on the fly.

A piece, "Imaginary Dialogues," that graduate student Phil Acimovic and I recently wrote and performed for two Wiimotes, Nunchuks, and Max/MSP had 12 scenes. When I raised my left hand and shook the Nunchuk hard, it sent a message to Max (and also a visual message to Phil) to change scenes—and the actions of the controllers instantly changed completely.

The output of Max/MSP was sent to two Propellerhead Reason racks, each with a bundle of synthesis and processing modules, and different combinations of modules were used in different scenes. In one scene, pressing the B button played and held a random note, but the randomness was restricted by the middle three buttons: whichever of those was last pressed determined the scale the note would fall in—major, harmonic minor, or pentatonic. Raising the pitch angle of the Wiimote raised the volume, while changing the yaw angle moved the sound within the stereo field, and moving the Nunchuk's joystick altered the filter envelope. When used with a slow pad from a Maelström module, it was very effective.

In another scene, holding the B button spit out a string of random short notes, again restricted by the scale selection, with the yaw controlling the speed of the notes and the pitch controlling the range. The Nunchuk's joystick and motion sensors changed their character within the scene depending on which buttons were pressed: they might be used for LFO rate, filter frequency, vocoder mix, reverb wet/dry mix, distortion, or the degree of feedback in a flanger (see Fig. 4).

Phil did some very fancy programming that showed us, on two screens, exactly which parameters were being controlled at any moment and what their current values were. You can look at some of the Max patches at emusician.com (see **Web Clips 1 through 3**) and watch our performance at tuftsemid.com.

ONLINE BONUS MATERIAL

> Any device with Bluetooth capability can be taught to respond to Wiimote-generated data.

This is just the beginning. With the economies of scale the video-game industry offers, we can look forward to devices with even more sophisticated capabilities in the future. And because Wiimotes are small, they can be attached to other objects or to people's clothing and can give them the power of motion detection and tracking. It won't be long before the technology is put to use by anyone or anything that moves, from dancers and circus performers to model-car makers and pet owners. Right now, though, these simple and inexpensive toys will let you get creative, onstage and in the studio, in ways you've probably never thought of before. EM

Paul D. Lehrman is the author of The Insider Audio Bathroom Reader, *a collection of 11 years of his columns for EM's sister publication* Mix. *He is also coordinator of music technology for Tufts University and has been known to do strange things with player pianos and robots.*

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CHRIS DAVISON

Quintessentially Steven Wilson

The Porcupine Tree guitarist-vocalist expresses his eclectic musical vision on his self-recorded solo project.

By Mike Levine

In some ways, Steven Wilson is a throwback. The Porcupine Tree guitarist-vocalist admires concept albums, reminisces about LP packaging and graphics, and finds today's download culture, especially the compression of audio into MP3 format and the emphasis on single-song downloading, antithetical to his musical vision. Yet Wilson is by no means a Luddite. He wholeheartedly embraces digital recording technology, uses many signal-processing plug-ins, and has a personal studio that's centered around his Apple Mac G5. His setup is a home studio in the most literal sense—it's located in his parents' house, in the room he grew up in (see Fig. 1).

Wilson used that studio for much of the tracking on *Insurgentes* (K-Scope, 2009; see Fig. 2), his new solo project. (Some of the guitars were recorded at Red Room Recorders in Florida, and the drums and a few of the other tracks were recorded elsewhere.) Wilson did all the mixing for the project, both in stereo and surround. The music on *Insurgentes* shares some similarities with that of Porcupine Tree, but because it was a solo project, it allowed Wilson to explore musical elements—ranging from wall-of-noise segments to atonal orchestral passages to piano vocal ballads—that are unlikely to be heard on a Porcupine Tree release.

But *Insurgentes* encompasses more than just a CD. The standard release, which is slated to come out in February 2009, features both a CD and a DVD. The latter contains Wilson's surround mixes of the material in DVD-A and DVD-V format (DVD-V can be played on home-theater setups), as well as an 18-minute excerpt from yet another facet of the project, a "documentary road movie" by filmmaker Lasse Hoile that features Wilson in a variety of locations around the world, talking to musicians about how the digital age has changed the music world for them (see Web Clip 1).

STEVEN WILSON

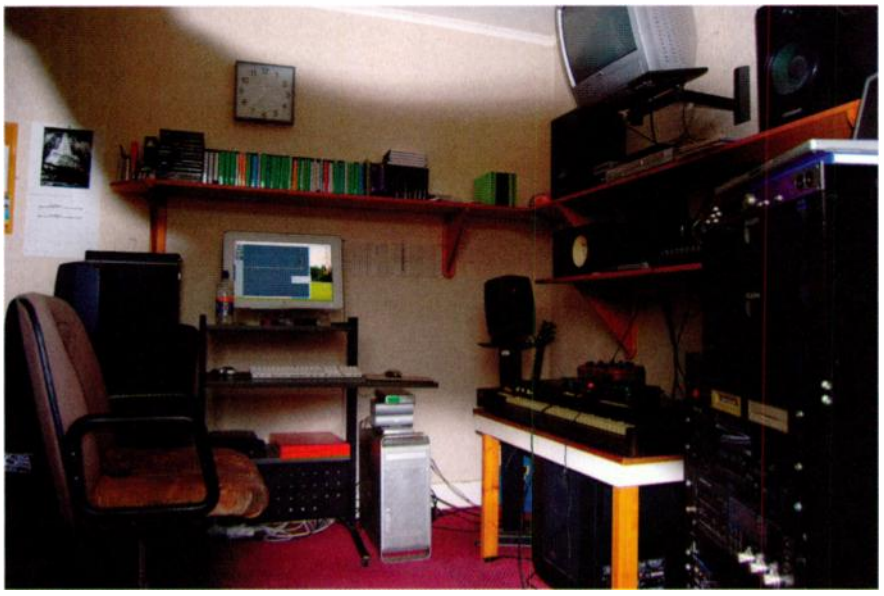

FIG. 1: Wilson's studio is located in his parents' house outside London, in the room he grew up in.

In one scene, Wilson is shown shooting a rifle at an iPod, in a symbolic put-down of how those devices have contributed to what he calls the "jukebox mentality" endemic to downloadable music.

This past fall, Wilson showed his reverence for creative album packaging by releasing a limited-edition, deluxe version of *Insurgentes* that contained a 5-track bonus disc (those tracks were not included on the subsequent standard release) and came inside a hardcover book, replete with color photos taken during the making of the movie.

I had a chance to speak with Wilson about *Insurgentes* when he was in New York previewing the surround mixes.

Genrewise, how would you describe the music on *Insurgentes*? Would it be correct to call it progressive rock?

I think I can honestly say that this is the first time I've made an album that's almost beyond generic classification. So yes, *Insurgentes* has elements of progressive in it. But it also has elements of industrial music, pop, Britpop, shoegazer, and alternative. It has tricky time signatures on it, but it also has very simple piano ballads. It's something beyond. In a way, I've always aspired to create music that's beyond genre. But it's actually easier said than done.

So it's your musical vision, regardless of genre.

It's me. Absolutely, it's me. And it's all the music that I've ever been inspired by and makes up my musical personality. I listen to so many kinds of music, but that all kind of gets filtered through into my work. So I hope there's something that's quintessentially Steven Wilson about it, and beyond that kind of "It sounds like this band" or "It sounds like that band" or "You can put it in that box or this box."

FIG. 2: The cover of the standard-release version of *Insurgentes*.

How did the experience of doing this album compare to recording with Porcupine Tree?

Obviously, there are similarities, because my approach to working is fairly consistent regardless of what I'm doing. In some ways it was easier, in some ways it was harder. It was easier in the sense that I didn't have any baggage or agenda with this record. The thing is, when you have a well-established band, no matter how liberated and experimental you are as a musician, you do always, with every new project, bring the weight of your back catalog with you. And you bring the weight of your fans' expectations with you, and you bring the weight of your own style, or however you've defined your sound and your style. So that was easy because I had no agenda. If I wanted to get the orchestra to play two minutes of atonal noise, I could tell them to do that. If I wanted to do a piano ballad one day, I could do that. If I wanted to make complete industrial noise the next minute, I could do that. I don't think I could do that in the context of a band, because a band is always about the kind of common ground that you share. And there are always things in everyone's musical personality that they can't bring to the band because for whatever reason, they don't fit in the matrix of whatever the band [is doing]. So that was great, that was liberating.

Were there any disadvantages to working solo?

The hard thing, of course, for the very same reason that I was liberated: I was the only person there to make decisions. It's so easy to disappear up your own backside when you don't have someone else there to bounce ideas off. And that was tough, because I had no one else really to turn to and say, "Hey, what do you think? Do you think it's too loud? Do you think it's too quiet? Do you think this track's good enough?" I had to come to all those decisions myself through trial and error. I can see why it's tough to be a solo artist and only be answerable to yourself. There was more stress in that sense. It

was definitely good and bad, pro and con, the solo-artist-versus-band thing.

But you like to work in your own studio as much as possible, no matter the project, right?

I do, yeah. For many years, I've done that. I realized early on that the kind of records that I wanted to make were not records that could be made in a disciplined, pressure situation. By "pressure," I mean you've got a certain amount of time, and an expensive studio, and every minute's costing you money. I can't do that. The kind of records I like to make are these big type of productions, like a musical journey, in a way. And it becomes more like putting a jigsaw puzzle together. Very often, that process takes a long time. I love experimenting, and I hate the feeling that I don't have time to experiment because of financial or time constriction. So for many years, I've been building up my ability, my expertise, in self-producing. And as a spin-off from that, I've taught myself how to make reasonable noise on many different instruments as well.

> I love the brutality of taking something very beautiful and destroying it with noise.

What would you consider your main instrument?

I suppose you'd say it's guitar [see Fig. 3]. Again, I'm not a particularly accomplished guitar player; I play keyboards as much as I play guitar when I'm writing. But in Porcupine Tree, almost by default, I've ended up as the front man–guitar player–singer. Not by design, but that's the way it seems to be going.

STEVEN WILSON

FIG. 3: Wilson recording guitar in his studio. Notice his Genelec 8030A, Yamaha NS-10M, and Quested S6R monitors against the far wall.

What does the album title, *Insurgentes*, mean?

Insurgentes Avenue is the longest street in the world. And it runs through the third-biggest city in the world, which is Mexico City—the two bigger cities are both located in India. But outside of India, Mexico City is the largest city in the world, and it's where a lot of the album—I wouldn't say that a lot of it was recorded there, but a lot of it was definitely inspired by my trip to Mexico City, and a lot of the photographs that you see in the book were taken in Mexico.

Tell me about the film aspect. What is it about? Is it a documentary about making the album?

No, that would have been extremely boring. Quite the contrary. I mean that is in it; there are moments in the film when you will see me working on the record. The best way I can describe it is that it's almost like a surreal road movie. You see me traveling around. But every country we went to, we also found these incredible locations [see Fig. 4]. We'd make up weird stuff to do on the spot, surreal stuff. And we'd try to talk to as many musicians as we could, local musicians.

There was a basic concept behind the film, and it is this: we wanted to explore what it was like to be a professional musician or producer, or someone who makes records in the era of download culture, and how that has affected them, the era of MP3s and the death of physical media. I don't think anyone has stopped to document it. In the last five years, the change has been unbelievable, extraordinary. And nobody has stopped to document that process. So we talked, for instance, to Trevor Horn, the British producer, in the film. And we asked him a basic question like "What do you think of the sound quality of MP3s?" Because it's interesting, I think, for people to hear from someone like him how much he thinks MP3s sound like s--t. A lot of people don't even question the quality of MP3s; they think that that's what music sounds like. Particularly the younger generation, who have grown up in the era of MP3s. To actually hear someone like Trevor Horn say, "If you listen to an MP3 and then you listen to one of my productions in high resolution, you will not believe the difference."

[It was great] to hear people like that talking about those kind of issues. So we talked to a lot of musicians and producers and people who make records about the whole issue of

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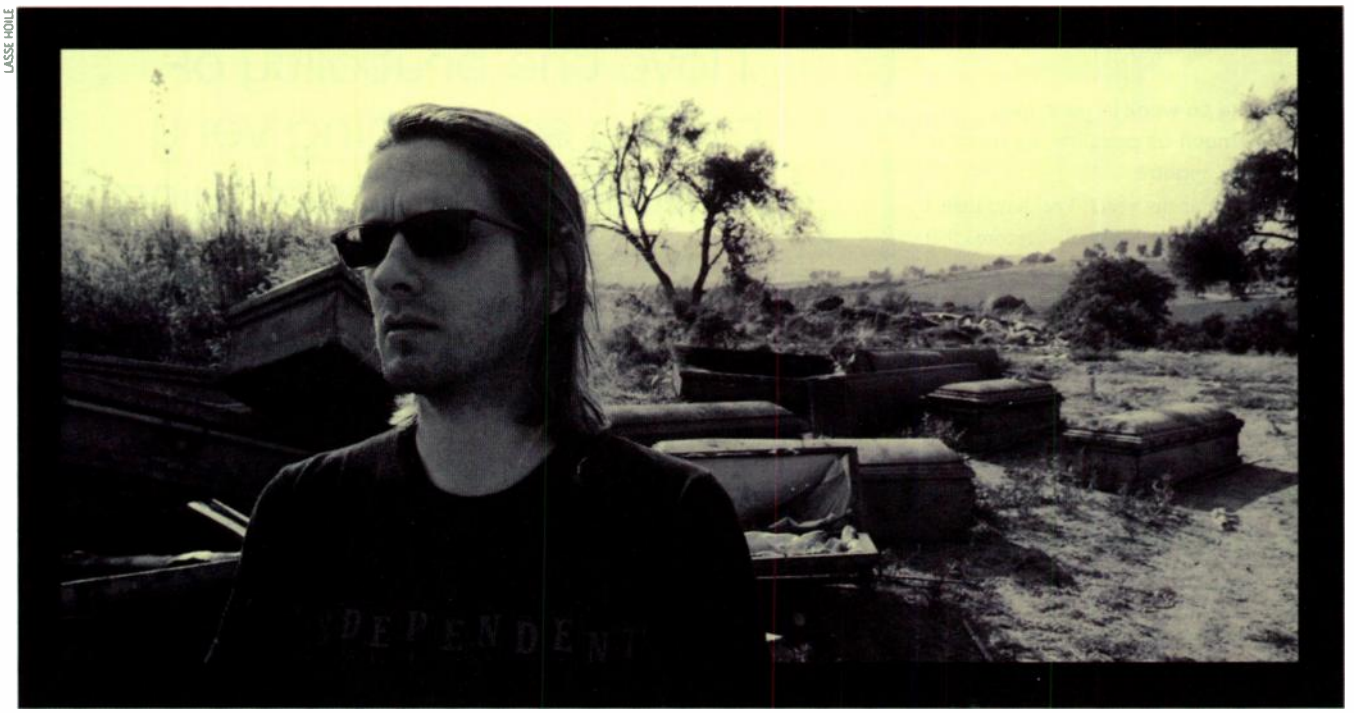


FIG. 4: Wilson at one of the Mexican locations used in the *Insurgentes* movie.

the death of physical media or high-resolution media. [See Web Clip 2 for more about the film and Wilson's views on the impact of digital audio on musicians.]

Not to mention that the "album" as a concept is not as big as it used to be due to downloading.

Right, that's the other thing. We talk about what I call the "jukebox mentality," where you download a couple of songs off the record, but the whole idea of the album as a continuum, or a musical journey—you think of the great albums like your *Pet Sounds* or your *Sgt. Pepper* or your *Dark Side of the Moon*—these were albums that were conceived to be listened to from start to finish as a kind of musical journey. But now, of course, you've got kids who are not familiar with that whole kind of approach, that whole kind of aesthetic—the 50-minute musical journey. It's just download a couple of songs and program it into a playlist.

And then there's the artwork that used to be on albums. I saw a book of CD covers from classic Blue Note albums, and that stuff was amazing. The CD and, to a larger extent, downloading have killed album art.

Yeah, the whole idea of the artist or the musician extending their creativity through to the way their music was packaged is becoming less and less prevalent. And that, for me, is quite depressing. So we talk about that in the film, we talk about packaging, we talk about artwork and all those things I grew up with—gatefold sleeves and novelty sleeves. I don't even know if the younger generation can conceive of music having a physical form these days.

Let's talk a little bit about your studio. How big is the actual room?

My "studio" is not really a studio at all. It's a computer. That is my studio these days. Now that's not to say that over the years I haven't had studios with outboard equipment and mixing desks and all that stuff. And I have to say that I'm a big fan—and this is where I may sound like I'm being a hypocrite—I'm a big fan of digital recording. And a lot of my music is very much influenced by digital recording techniques and digital editing and the facilities that gives me; plug-ins as well. So in terms of the studio, these days I have one great A/D, which is an Apogee Trak2, and I have a great microphone, a Neumann U87 [see Fig. 5], and that's about it. I have my collection of guitars, of course, and I have a piano. The rest, really, is taking place inside a computer, which is a G5 running [Apple] Logic Pro 7 at the moment.

But the physical space you record in is a room in your house, right?

It is, and it's a fairly small room. And actually, it's not in my house, it's in my parents' house. It's the room I grew up in. In some respects, I've never left home, because I still go back to the room that I grew up in to write, to record, and to mix.

What kind of monitors do you use? And do you mix in there?

I do mix in there. When I'm doing surround, I use five Genelec speakers and a Genelec sub. On the stereo side, I'm also monitoring through the Genelecs, and I have a pair of Yamaha NS-10s. I have a pair of Quested monitors as well. And I'm always comparing on different speakers. It's one of those things where it's not the greatest room, it doesn't have the greatest acoustics, but I know exactly how it should sound in there.

When you mix surround and also do

a stereo mix of the same material, which one do you generally do first?
I always do stereo first, because when you get to the point where you're happy with the stereo mix, the surround mix becomes a breeze, because all you're doing at that point is placement. You've set up the EQs, you've set up the effects, you've set up the volume balance. And with a little bit of adjustment—because obviously, perspectives do change when you start breaking things out into 3-D, particularly with volume—you have your surround mix, just with a little bit of placement. So always I work to perfect the stereo mix, which can take weeks. And then the surround mix usually only takes another day, because you're having a ball, you're just kind of flying stuff around the room.

> The best way I can describe it is that it's almost like a surreal road movie.

I guess if you did it the other way around, it would be kind of depressing to do the stereo mix.
It would be really depressing. Because once you've heard surround, it's really hard to go back. It's like going from 3-D to 2-D.

What about the drums on this album? Were they recorded in your studio as well?
No, they were done at the drummer's own studio. Now the drummer, Gavin Harrison, who also happens to be the drummer in Porcupine Tree, has a very similar situation to myself. He spent years and years experimenting in his home studio with microphones, with positioning, with preamps, and has arrived at a system that's permanently set up in his studio. He has a very big room in his studio, a soundproof room. And he does all of his drum tracking there.

Does he have Logic, too, or did you just send him a reference file?
Fortunately, it was coincidence because he was using it before we met, but he also happens to run Logic. So we're pretty interchangeable with our files.

There are a lot of textural sounds on *Insurgentes*. Did you use virtual instruments for those?
A lot of the instruments on the record that are more what I'd call in the sound-design area are actually guitars. They're almost all guitars.

How did you get those sounds?
Plug-ins. I love plug-ins, and I love messing about with plug-ins. I love using plug-ins in the way they were never meant to be used.

What are some of the plug-ins you were using?
I'm a big fan of a suite of plug-ins called the [Digidesign] D-Fi. They include Lo-Fi, Vari-Fi, Sci-Fi [and Recti-Fi]. They're great for producing things like ring modulation and that kind of distortion, which is not like natural distortion; it's distortion where you're reducing the bit rate until you get that kind of digital breakup.

If you're running Digidesign plug-ins, you must be using Pro Tools hardware.
Yeah, I'm using TDM stuff. I use the DAE engine with the Logic front end, which for me is the best. Because I tried using Logic native, but that whole latency issue is a problem for me. Because when I'm creating sounds, a lot of the time I'm playing the instruments through the plug-ins. The problem with native is that there's such a great latency between the playing and the hearing it back. So anyway, those kind of plug-ins [D-Fi] and things like the Line 6 Echo Farm plug-in let you do some amazing stuff like saturating the signal and putting that tape warble on it. I love all that stuff. It's kind of old-fashioned techniques in digital form, so you

STEVEN WILSON

FIG. 5: Wilson recorded the vocals for the album in his studio using his Neumann U87.

have so much more control [see **Web Clip 3**].

On the song "Get All You Deserve," there's a section where all of a sudden there's this wall of white noise. Talk about that.

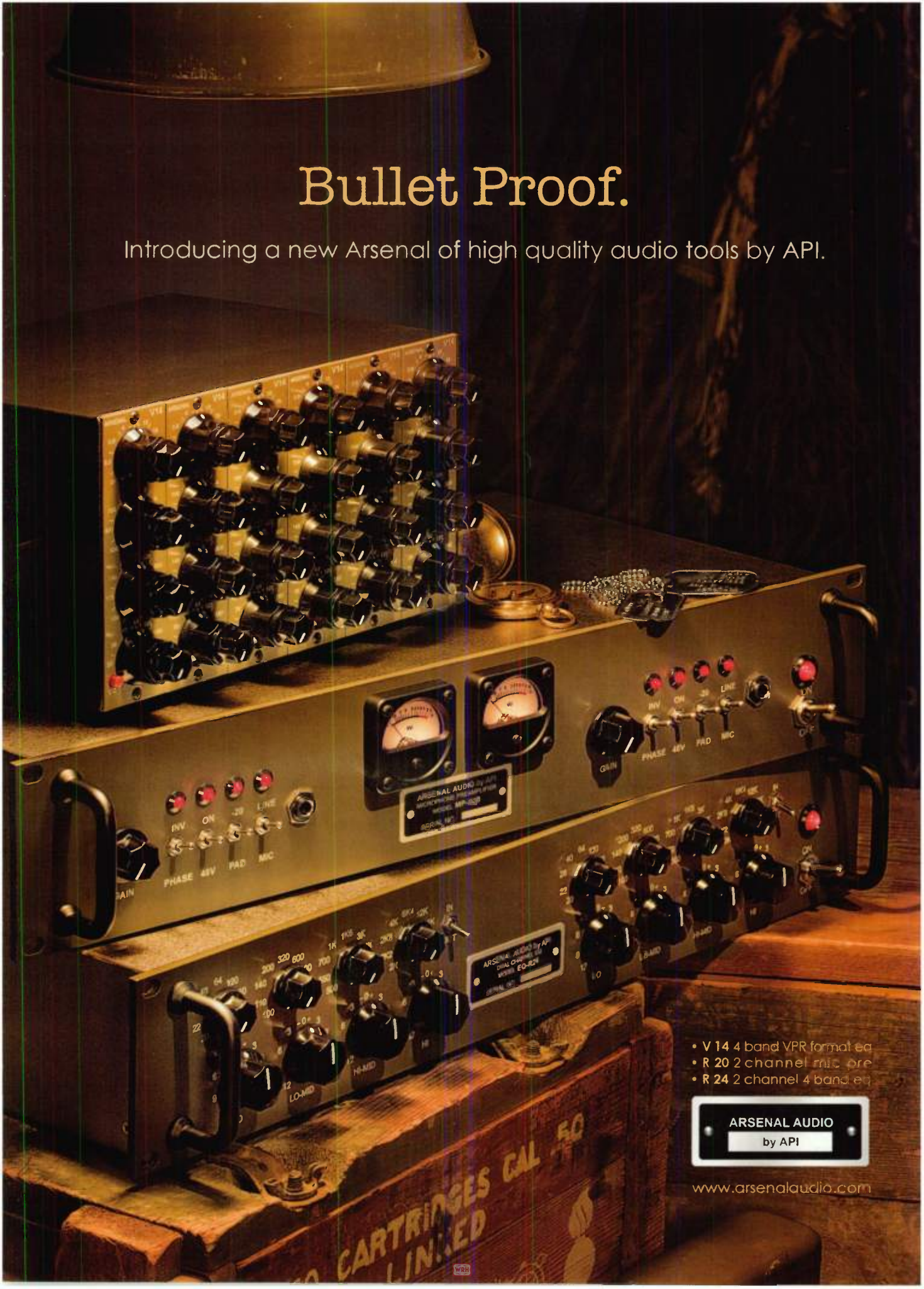
I've always loved noise. I love the brutality of taking something very beautiful and destroying it with noise. For me, that's a very powerful dramatic device. And it does, in a way, happen in Porcupine Tree. There are moments when Porcupine Tree will go from very subtle, beautiful, and spacious to quite heavy; you hear it with the metal sort of element on Porcupine Tree. But on my record I wanted to do something more with pure noise. I've always been a fan of pure noise artists, you know. The so-called industrial musicians, people like Trent Reznor. And some even more extreme artists like Merzbow, the Japanese noise musician. I love that, and I love that sense of taking something quite fragile and destroying it. Those kind of dynamic shifts are incredibly dramatic.

Back in the days of tape, a big issue in the studio—especially a 4- or 8-track home studio—was fitting everything onto the available tracks. Whereas with today's DAW systems, the challenge is often to *not* use too many tracks. Do you find that to be true?

I do feel that, actually. Interestingly enough, I've been remixing all the King Crimson albums in surround sound. What's been fascinating for me is hearing how economic those albums are. Mixing an album like *Red* [Atlantic, 1974], for example, in surround sound and realizing actually that there's only like a power trio playing—guitar, bass, and drums—very little overdubbing. And yet it sounds huge. Whereas with some of my stuff I'm tracking guitars seven, eight, nine times. And I'm thinking, "Am I doing that because I can? Is it sounding any better?" Sometimes it sounds worse. If you can get the sounds good enough without having to track [multiple layers]. I think the problem with digital technology sometimes, the fact that you do have an endless supply of tracks, is that you tend to cheat a little bit. Rather than getting the sound exactly how you want it, you think tracking will kind of make it sound big. "Oh f--k it, it's not quite right, but if I track it enough times . . ." And I do think I'm guilty of that sometimes, because I never came up through that era. I think the guys who came up through that era know so much about how to get great tones and great sounds with very limited resources. As you say, if you work on an 8-track, you can't afford to track a guitar four or five times, so you spend a lot of time getting the tone so that it takes your head off with just one guitar. And I really admire that.

(Editor's note: To read more of this interview, in which Wilson talks further about his studio and the new album, see the ***online bonus*** *material at emusician.com.)*

Mike Levine is EM's executive editor and senior media producer. He hosts the monthly Podcast "EM Cast."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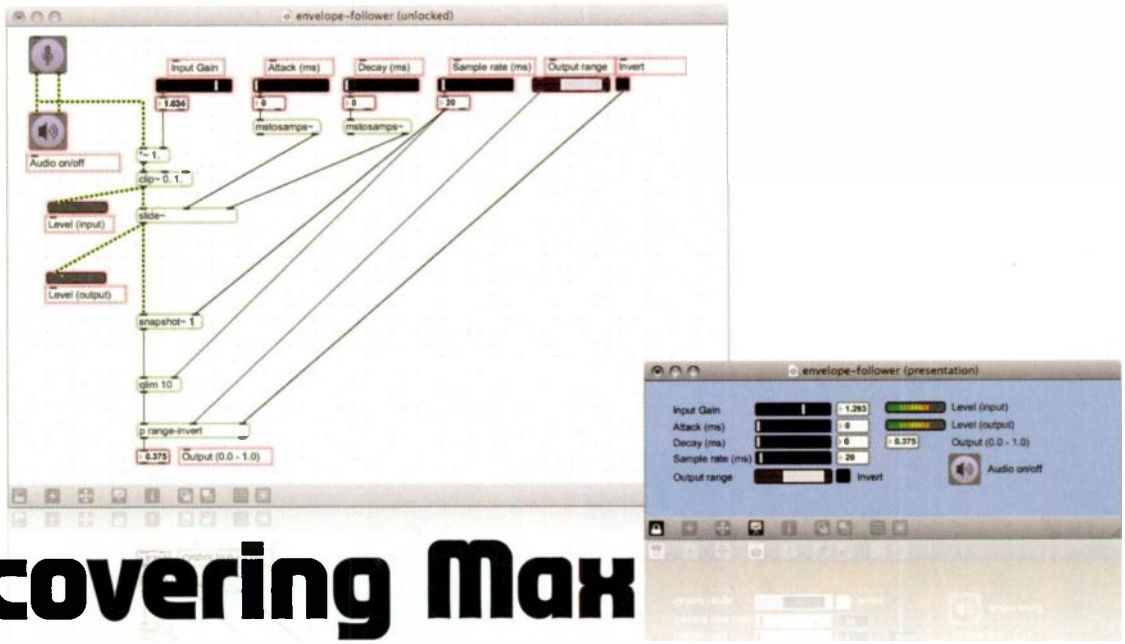

Discovering Max

How to get started with Cycling '74's Max graphical programming software.

By Jeffrey Stolet

Reviewed most recently in the October 2008 issue and a 2009 Editors' Choice Award winner, Cycling '74's Max (Mac/Win) is an extremely versatile programming application that lets you do things like build VST plug-ins, control the playback of 20 MIDI sequencers at multiple tempos from your computer keyboard, and much more. In conjunction with companion programs MSP and Jitter, Max integrates MIDI, digital audio, and video into one environment so that audio data can control MIDI, MIDI can control video, and video can control MIDI and audio. There are endless creative possibilities.

Advanced Max patches can be very complex, but getting started is easier than you may think. In this article, I'll help you build a Max patch that controls multiple MIDI sequencers and others that show you how to use sample playback with simple audio processing. You will be able to adapt and extend these examples, and with additional examples that are posted online, you will have enough to get started.

Before you begin, download a free 30-day demo version of Max 5 from cycling74.com/downloads/max5. Having the demo open while you read will make the job much easier. Also, I have provided **Web Clips** in the form of Max patches for each graphic in this article. Fig. 1 goes with Web Clip 1 and so on. These patches can be downloaded from emusician.com.

Max Factors

The Max package includes three applications: Max, which is focused on MIDI; MSP, which works with digital audio; and Jitter, which manipulates video and 3-D animation. In all cases, tasks are carried out by *Objects*—the basic building blocks in Max. Objects are small chunks of software that execute simple tasks such as generating, modifying, storing, or routing data. In Max, Objects are represented by icons; some icons have associated text and numbers, while others do not.

Objects are connected using virtual patch cords. Each connected Object performs a specific job and sends the results to the next Object in the chain. Only a few types of messages are sent between Objects: numbers, words, pairs or groups of numbers or words, and messages called *Bangs*. A Bang message is a "do it" message that can be sent to many different Objects; it causes an Object to do whatever it does. The result of these connections is a software program called a *Max patch*.

You construct a Max patch in the Patcher window. To place Objects in a Patcher window, simply double-click in the window, and a transparent, resizable window called the *Palette* appears. The Palette is Max's visual catalog of Objects; it provides an easy way to select Objects for your patch. When you place your mouse over a Palette icon, the name of the Object is shown.

The icon positioned in the upper left corner of the Palette is different from the other icons. It is called the *Object box*, and text that defines the Object's function is typed in there. The first word typed into the Object box is the specific name of the Object. The numbers that follow the name of the Object are called *Arguments*. Arguments specify how an Object will function. There may be more than one Argument, and sometimes the Argument may be a word. For instance, the Argument "120" in the metro Object specifies that every 120 ms, a Bang message will be output. The Argument "88" in the random Object specifies that all numbers output will be between 0 and 87 (a range of 88).

In our example patches, the bottoms of Objects are connected to the tops of other Objects with virtual patch cords. *Inlets*, where data enters

an Object, are at the top of the Object; *outlets*, where data leaves an Object, are at the bottom. If you place your mouse directly over an Object's inlet or outlet, pop-up help appears, telling you what that particular inlet or outlet is related to. You connect Objects by clicking on an outlet, then connecting the resulting line to an inlet.

Once Objects are placed in a Patcher window, they can be freely dragged into new positions within the window. You can also use the Cut, Copy, Paste, and Duplicate commands, so it's easy to turn one sequencer into 20.

Digital audio is handled a bit differently in Max. To begin with, yellow-and-black patch cords are used to represent audio signals, helping you to visualize the difference between audio signals and MIDI and control messages. In addition, Objects that end with a tilde (~) are audio based. Be sure to check out the tips and shortcuts under the Help menu.

Whole Lotta Sequencers Goin' On

The first example patch will allow you to play multiple MIDI files triggered from your computer keyboard. Launch Max, then select New Patcher from the File menu. This will bring up a new, unlocked window called Untitled1. Double-click in this window, and you'll see the Palette.

> Getting started with Max is easier than you may think.

Single-click on the Object box (far left, top) in the Palette and type the letter K. All Object names beginning with the letter *K* will appear in a menu. Double-click on the key Object, then click again in the white area, and you'll see the key Object appear in the Patcher.

Go back to the Palette, and this time choose the select Object using the same technique that you used to create the key Object. (You may have to scroll in the menu to find the select Object.) Connect the far left outlet of the key Object to the left inlet of the select Object.

Starting an Argument

The job of the select Object is to watch for incoming values that match its Arguments, and when there is a match, to send out a Bang from one of its four outlets. We'll supply the Arguments next.

Click in the select Object (directly after the word "select") and type:

113 119 101

Leave a space between the word "select" and the first Argument, and note that there should be a space between the numbers. When the select Object receives a value of 113, a Bang will be sent from the select Object's left outlet. Receiving a 119 will trigger a Bang from the select Object's left-center outlet, and a value of 101 will trigger a Bang from the right-center outlet. Now use the Save As . . . option under the File menu to save your work.

It Toggles the Mind

Next, choose the toggle Object from the Palette by double-clicking in the white area in the Patcher window to bring up the Palette, single-clicking on the toggle Object in the Palette (fifth Object from left, top row), and clicking again in the white area. When you click on the toggle, it functions like a light switch, alternating between 0 and 1 states. If you send the toggle Object a Bang message, it changes state: off to on or on to off.

Create a metro Object using the technique that you used to create the key Object. The metro Object outputs Bang messages at a specified rate that is defined by the Object's Argument.

Add the Argument 20.83 to the metro Object. Drag the toggle Object so that it is below the select Object, and then drag the metro Object so that it is below the toggle Object. Connect the left outlet of the select Object to the inlet of the toggle Object, and the outlet of the toggle Object to the left inlet of the metro Object. You should now have four Objects connected together (key to select to toggle to metro). For clarity in your design, you should organize your Max patch so that data flows downward.

Seq-ing Solutions

Next, create the seq, the midiflush, and the midiout Objects using the same technique that you used to create the key Object. Drag the midiflush Object to a location under the seq Object, and drag the midiout Object below the midiflush Object. Finally, connect the left outlet of the seq Object to the inlet of the midiflush Object, and the outlet of midiflush to the inlet of midiout.

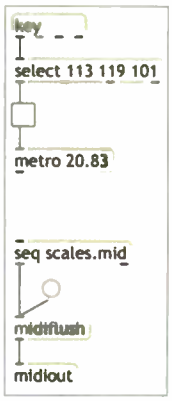

FIG. 1: The early stages of a Max patch that plays back Standard MIDI Files under control of a computer keyboard.

The seq Object is a MIDI sequencer that plays back Type 0 Standard MIDI Files (SMFs). The midiout Object receives MIDI data from the seq Object. Double-clicking on the midiout Object lets you call up a menu from which you can choose a physical or virtual synthesizer to play the MIDI sequencer data.

Because this patch lets you stop playing an SMF at any point in the file, the likelihood of losing Note Off messages is high. That's why we placed the midiflush Object in between the seq and midiout Objects. The midiflush Object keeps track of all Note On and Note Off messages sent to the midiout Object. When the midiflush Object receives a Bang, it sends Note Off messages for all notes that have received Note On (but not Note Off) messages. Add the button Object (fourth Object from left, top row) to your patch using the same technique that you used to create the toggle Object. The patch should look similar to Fig. 1.

You need a way to load SMFs into the seq Object, and there are several possibilities. If you type in the name of an SMF as an Argument in the seq Object, that MIDI file will be loaded automatically when the Max patch is opened—provided that it is in the same folder as the patch.

Alternatively, by clicking on a message box with a "read" message in it, you can recall the standard Open Document dialog box so that stored MIDI sequences can be loaded into the seq Object. To do this, double-click in the white area in the Patcher window to bring up the Palette, single-click on the message box

Object in the Palette (second Object from left, top row), type the word read, click in the white area again, and connect the outlet of the message box Object to the inlet of the seq Object.

Getting Ticked

Max can control the tempo of the seq Object in real time by sending it "tick" messages at varying rates. To use this method, create a message box Object with the word tick in it and place it between the metro and seq Objects. Next, connect the outlet of the metro Object to the inlet of the message box (with the tick message), and connect the outlet of the message box to the inlet of the seq Object. By sending the seq Object tick messages rapidly, you play the sequence rapidly; by sending tick messages more slowly, you play the sequence more slowly.

To make the seq Object respond to tick messages, you must first send it the "start -1" message before you begin playing back the sequence. To deliver the start -1 message automatically each time you start a sequence playing, create a message box Object that contains the message start -1, position it to the right of the read message box, and connect it to the seq Object. Directly above the start -1 message box, place a new select Object and put in the Argument 1. Connect the left outlet of the select Object to the left inlet of the start -1 message box, and connect the toggle Object to the left inlet of the select Object. Every time the toggle Object is turned on, it outputs a 1; that 1 is sent to the select Object, which responds by sending out a Bang to the start -1 message box, which sends out the message "start -1" to the seq Object. Concurrently, the 1 from the toggle Object is sent to the metro Object so that it will start Banging out tick messages at the rate of one every 20.83 ms.

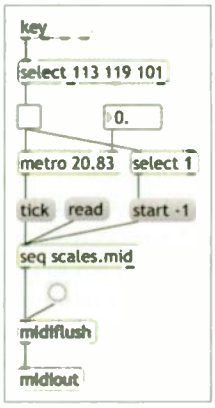

FIG. 2: The same patch as in Fig. 1, but with tempo control added.

Finally, you'll want to add real-time tempo control to your seq Object. Hitting the F key is a shortcut for creating a floating-point number box. Hit F to create a number box that you will use to control the tempo. Position the number box above the metro Object and to the right of the toggle Object. Then connect the outlet of the number box to the right inlet of the metro Object. You can now change the playback rate of the seq Object by scrolling with your mouse in this number box. The value 20.83 will yield the sequence at its normal rate, 10.415 will cause the playback to be twice as fast, and 41.66 will cause it to be half as fast.

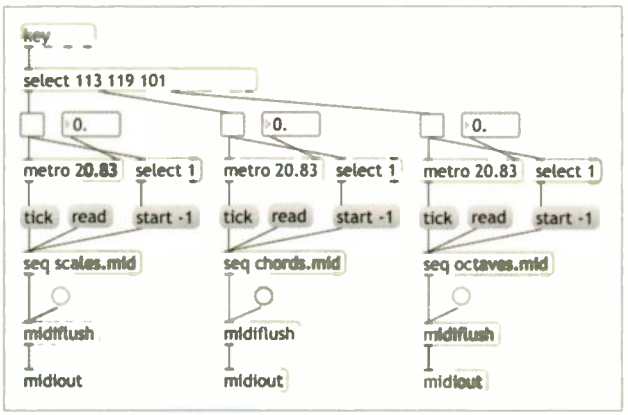

FIG. 3: Here's a completed Max patch that plays back three Standard MIDI Files under control of a computer keyboard, with tempo control for all three seq Objects.

Your patch should look like Fig. 2. Save your work.

Once Is Not Enough

In its current state, your patch allows you to read SMFs into a seq Object, to start and stop playback of this seq Object by pressing Q on the computer keyboard (the Q key results in the output of 113 from the key Object), and to control the tempo with your mouse. The final step is to create two more copies of the sequencer mechanism and connect these copies to two of the outlets of the select Object.

Start by selecting all the Objects from toggle down through midiout by clicking-and-dragging your mouse across the area where those Objects are positioned. Next, choose the Duplicate command under the Edit menu. The resulting copy will already be selected, so drag it carefully to the right so that it does not overlap the original. Now connect the left-center outlet of the upper select Object to the toggle Object of this copied sequencer.

Make another copy in the same manner and connect this copy to the right-center outlet of the upper select Object. If you want, you can now change the Argument of each seq Object so that each one loads a different sequencer file. Your completed patch should look something like Fig. 3.

To operate your Max patch, you must first lock it. You can lock a Patcher window by Command-clicking in the open area of that window or by clicking on the Lock button in the lower left-hand corner of the window.

Sampling in Max

A good way to begin a discussion about audio in Max is by looking at the software's sampling capabilities. Using a variety of Objects, audio files can be played back from RAM or from disk. One such Object is sfplay~ (sound file play).

It's easy to build a basic sample-playback instrument. Start by creating an sfplay~ Object using the same technique that you used to create the key Object. Next, choose the toggle Object, position it above the sfplay~ Object, and then connect it to the left inlet of the sfplay~ Object. Create four message boxes with the messages open, loop 1, loop 0, and speed $1. Position these message boxes above the sfplay~ Object and to the right of the toggle Object, and then connect each one to the left inlet of the sfplay~ Object.

Now add a floating-point number box, position it just above the speed $1 message box, and connect it to the left inlet of that message box. Clicking on the toggle Object or message boxes allows you to control basic aspects of the sfplay~ Object. Clicking on "open" recalls the standard Open Document dialog box so that stored audio files can be loaded into the sfplay~ Object. Clicking on the toggle Object starts and stops the audio file playback. Clicking on "loop 1" enables the looping function, whereas

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clicking on "loop 0" disables it.

If you scroll in the number box, you control the rate of sample playback. A value of 1.0 is the sample's normal rate, 2.0 reads through the sample in half the time, and 0.5 reads through the sample in twice the time.

Controlling Amplitude

To control the signal-level output from the sfplay~ Object, you need to use the *~ Object. The *~ Object literally multiplies the value of each audio sample and outputs it. If, for example, you multiply each individual sample by 0.5, you cut the amplitude by half.

Using the same technique that you used to create the key Object, create a *~ Object, position it below the sfplay~ Object, and connect the left outlet of the sfplay~ Object to the left inlet of the *~ Object. Add the Argument 0.5 to the *~ Object. Next, create a dac~ Object using the same technique that you used to create the key Object. (The dac~ Object is the digital audio converter in Max; it converts all audio signals it receives to the analog domain so that they can be amplified and heard.) Position the dac~ Object below the *~ Object, and connect the outlet of the *~ Object to both the left and right inlets of the dac~ Object.

Finally, choose another toggle Object, position it above and to the right of the dac~ Object, and connect it to the left inlet of the dac~ Object. Clicking on this toggle Object turns the audio on and off. Your sample-playback patch should look like Fig. 4.

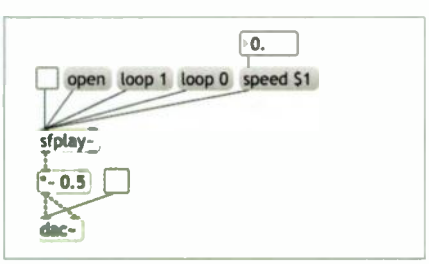

FIG. 4: This Max patch is based on the sfplay~ Object with its basic controls. The sfplay~ Object plays audio files from disk.

Delayed Gratification

Extend your simple audio-playback patch by adding four delay~ Objects. Before you add these Objects, select the patch cord between the sfplay~ and *~ Objects by clicking on it, and delete it by pressing the Delete key. Leave the *~, dac~, and lower toggle Objects connected, but drag them farther down in the window to make space for the delay~ Objects that you are going to add.

Using the same technique that you used to create the key Object, create four delay~ Objects. Position them below the sfplay~ Object, and connect the left outlet of the sfplay~ Object to the left inlets of each of the four delay~ Objects.

Each of these delay~ Objects needs two Arguments. The first Argument specifies the maximum delay time in individual audio samples; the second Argument specifies the initial delay setting. If the sampling rate is 44.1 kHz, then 44100 equals 1 second of time.

If you connect an integer number box to the right inlet of each of the delay~ Objects, you can adjust the delay amount in real time. To add four integer-number boxes, type the letter I and then click in the white area four times. Position one of the number boxes above each of the four delay~ Objects, connecting the outlet of each number box to the right inlet of the associated delay~ Object. By scrolling in the number boxes, you adjust the delay times. Now connect the outlets of each of the four delay~ Objects to the left inlet of the *~ below them. Your patch should look something like Fig. 5.

Notice the straight patch cords in Fig. 5. To make your patch cord straight, select the one you want to square off and choose Align from the Arrange menu. Once it's squared off, you can drag the patch cord up or down. I used the Align function in Fig. 5 to help keep patch cords and Objects from colliding with each other.

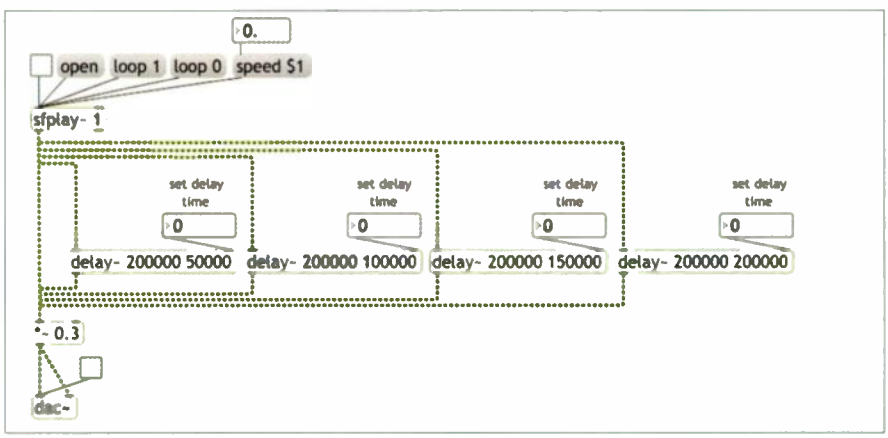

FIG. 5: This Max patch, based on the sfplay~ Object, combines four delayed copies and the original signal.

Max Pleasure

These patches (see **Web Clips 1 through 5**) can be altered, customized, and extended in many ways using a vast array of Objects I have not mentioned here. For instance, the vst~ Object enables you to modify audio signals with your favorite VST plug-ins, and the rewire~ Object lets you exchange audio and MIDI data with ReWire-compatible applications. This type of flexibility permits you to fully customize your individual sound-design environment.

Max also allows the creation of *external* Objects. An external Object, while functionally identical to regular Max Objects, is created outside the auspices of Cycling '74, Max's developer. I estimate that more than 1,000 external Objects are available, many of them for free at sites like the Max Objects Database (maxobjects.com).

One especially cool external Object is the aka.wiiremote Object written by Masayuki Akamatsu. This Object permits data to be transmitted wirelessly from the Nintendo Wii Remote into Max through a Bluetooth connection. (For more on the aka.wiiremote Object, see "Music in the Air" on p. 24 of this issue.) Professor Akamatsu has also written a magnificent 1,100-page text called *2061: A Max Odyssey* that exhaustively covers Max, MSP, and Jitter. The work is written in Japanese, but all of the beautifully clear examples are posted online for free download at http://max.iamas.ac.jp/2061/?page_id=1100.

Jeffrey Stolet is a composer and professor of music at the University of Oregon. He uses wands, devices, game controllers, and other magical things to tame the sonic and videographic domains.

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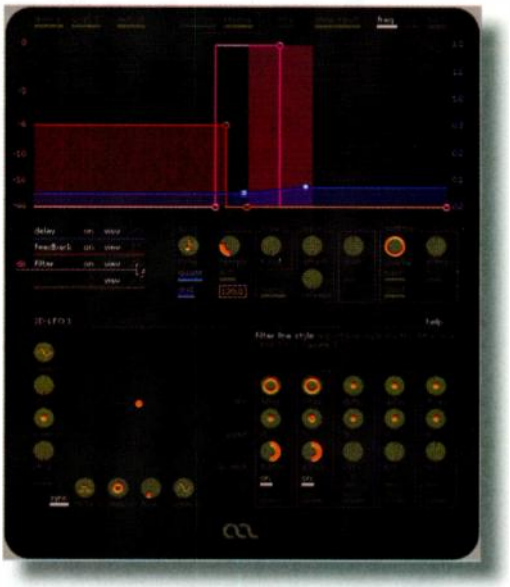

FIG. 1: This Obelisk setup applies eighth-note delay to the pink-shaded region of the frequency spectrum. Feedback applies only when that region moves into the red-shaded zone.

Frequency Domain Delays

Multiband effects with Obelisk's spectral processing.

By Len Sasso

Professional-quality effects that operate in the frequency domain are rare and often quirky. But once you harness their considerable power, they give you a whole new bag of tricks with which to mangle your favorite audio tracks and synth sounds. Obelisk (Mac/Win, $125) from Artificial Audio (artificialaudio.com) is a welcome addition to the field, especially since the demise of Native Instruments' underappreciated Spektral Delay.

Obelisk uses FFT spectral analysis to slice an audio signal into either 256 or 512 frequency bands (your choice), and it lets you apply gain reduction, gating, and delay with feedback to each band separately. Moreover, the program is easy to use: you create line graphs by setting breakpoints, then animate those breakpoints with three two-dimensional LFOs. Here, I'll use Obelisk to process string, bass, and drum loops.

String Magic

When you process pulsating parts (such as staccato strings) with a delay and add some feedback, you risk having the effect take over the part. You can tone things down by using a multiband delay and applying most of the processing to the lower-frequency, less prominent bands. At heart, Obelisk is a multiband delay on steroids.

To do this, you can use Obelisk as a send effect, but I prefer to insert it in the track and use the wet/dry mix (Effmix knob) to solo the effect as I'm setting it up. Start with the gain-reduction section (called Filter), set its line style to Square, and right-click in the spectral area of the GUI to create breakpoints at 400 Hz and 20 kHz with –∞ dB reduction, and at 1,200 Hz with 0 dB reduction. You'll see a shaded pink rectangle indicating the audible range of frequencies. Set the mix to fully wet, select the breakpoints at 400 and 1,200 Hz, and move them horizontally to sweep the filter. Then set up the first two targets of LFO 1 to animate that horizontal sweeping (see **Fig. 1**). Notice that the shading moves to indicate the audible range, but the breakpoints and lines stay put.

Next, turn on the delay and leave its line style set to Polygon. In the Delay section, turn on 16th-note quantizing and display the grid. Then create a delay breakpoint at the second grid line from the bottom (an eighth-note delay) and roughly centered in the filter band. With the breakpoint selected (colored white), click on Quantize at the top of the GUI. The breakpoint becomes a square to indicate that when you move it, it will snap to the nearest grid line. Create another delay breakpoint roughly the same distance to the right of the filter band, but this time, raise it just slightly above the eighth-note grid line and don't quantize it. Listen to the pitch rise slightly as the filter sweeps to the right, and adjust the vertical position of the new breakpoint to taste.

Now turn on the Feedback section with a Square line style, create a 50 percent feedback breakpoint near the left edge of the filter band, and create a 0 percent feedback breakpoint anywhere to the right of the first breakpoint. That will give you multiple echoes for the lower frequencies, with single echoes for the higher, more noticeable frequencies (see **Web Clip 1**).

ONLINE BONUS MATERIAL

Drum 'n' Bass

Obelisk's Gate section by itself, with an LFO applied to the gate-threshold breakpoints, will add interesting timbral variation to a bass part. The factory preset Gate Swing 1 is a good starting point. It has five breakpoints distributed evenly across the spectrum, all are vertically animated, and adjacent breakpoints have opposite LFO-animation polarity. The preset has a fully wet mix, but when using it as an insert effect, adjust the Effmix knob to taste (see **Web Clip 2**). Moving any of the breakpoints vertically or horizontally and adjusting the LFO amount and speed are useful tweaks.

The Beat Restruction presets all use a fully wet, quantized, Square-line-style delay to reposition percussion hits that fall in different parts of the spectrum. The thing to remember when using them fully wet is that the bottom of the graph represents the original time (no delay). Useful tweaks here include adding vertical, square-wave, or random modulation to the delay breakpoints; drawing in some feedback with or without modulation; and gating or filtering parts of the spectrum (see **Web Clips 3 and 4**). EM

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


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COURTESY NEETA RAGOOWANSI

FIG. 1: Neeta Ragoowansi is the director of artist/label relations at SoundExchange.

Q&A: Neeta Ragoowansi

SoundExchange collects digital-performance royalties for musicians.

Songwriters and music publishers receive royalties for performances of their music on network and cable television, on the radio (including Internet and satellite radio), and in performance venues. The payments for such performances are tracked by the three performing-rights organizations (PROs) ASCAP, BMI, and SESAC. But did you know that if you're a performer or a master-rights owner of a sound recording, you may be due some royalties, too? Because of legislation passed by Congress in the 1990s, performers and the owners of master recordings can collect royalties for the digital public performances (such as on satellite radio or the Web) of their material.

By Rich Tozzoli

These performances aren't tracked by the big three songwriting PROs, however. They're handled by an entity called SoundExchange, a nonprofit PRO designated by the U.S. Copyright Office to collect and distribute performance royalties for digital cable, satellite, and Internet radio plays on behalf of recording artists and sound-recording copyright owners. To find out more about this relatively unknown organization, which could already have money for you in its coffers, I caught up with Neeta Ragoowansi (see **Fig. 1**), SoundExchange's director of artist/label relations.

How does SoundExchange differ from the other PROs?

We are completely different in that we collect for the performers on a sound recording and for the owners of the copyright, regardless of who wrote or owns the underlying song. We don't compete in any way with ASCAP, BMI, or SESAC. So a songwriter who is also a recording artist, or a record label that is also a publisher, can be a member of ASCAP, BMI, or SESAC as well as of SoundExchange.

Talk about the history of SoundExchange. How did it evolve, and what exactly is its role?

Prior to 1995, recording artists and sound-recording copyright owners whose sound recordings were played by anyone in the United States did not have a right to receive royalties for the public performance of their work. This was in stark contrast to what was going on in pretty much every other country in the developing world, which collected and distributed royalties for the public performance of those recordings. As a result, users of sound recordings in the United States (such as radio broadcasters, clubs and stadiums, Webcasters, and digital-cable music services) were free to play them at will—provided they paid the royalties due the songwriter and music publisher (typically through ASCAP, BMI, or SESAC). However, no royalties were payable (to the artists on the recording) for the public performance of the recording. For example, still to this day an AM or FM radio station pays a royalty to the songwriter of "That's Life" but pays nothing to Frank Sinatra, who recorded the song. The music industry has attempted to correct this unfairness in the past and to get the

applicable provisions in the copyright law changed but has been unsuccessful.

Finally, however, a limited right was created in the Digital Performance Right in Sound Recordings Act of 1995 and the Digital Millennium Copyright Act of 1998. This granted [sound-recording] copyright owners a public-performance right for digital audio transmissions of their commercially released sound recordings. As a result, copyright law now requires that when these recordings are transmitted over digital cable and satellite television systems, satellite radio, or by Internet Webcasters (including radio stations that simulcast on the Internet), those users must pay a performance royalty to recording artists and sound-recording copyright owners—in addition to the music-publishing royalties [still payable to ASCAP, BMI, or SESAC].

SoundExchange was created to collect and distribute these royalties. It's an independent, not-for-profit organization, with an 18-member board made up equally of the very recipients of these royalties: recording artists and record labels (both indie labels and majors). We currently represent over 3,500 independent labels, over 31,000 recording artists, and the four major-label groups.

What is the scope of SoundExchange's tracking?

SoundExchange itself does not actually track what is being played. Rather, pursuant to Copyright Office regulations, the digital services (the *licensees*) are required to report certain portions of their playlists to SoundExchange. SoundExchange then makes distributions based on the data received from those licensees. Basically, if you get reported as having been played and you register with SoundExchange (so that we know where to send your payment), you get paid.

Where does the pool of money come from?

SoundExchange collects royalties paid by noninteractive streaming, subscription, and nonsubscription services. To break it down for you, the digital services we're talking about here are basically of three varieties:

- The noninteractive streaming Internet radio services (or Webcasters) and both commercial and noncommercial radio stations that simulcast over the Internet (or simulcasters).
- The satellite radio service Sirius XM.
- Services that feed music via digital cable and satellite television (audio only), such as Muzak and MusicChoice. Sirius XM and MTV have also launched these types of services.

How is the distribution determined?

It's determined by copyright law and regulations. SoundExchange, after deducting its administrative costs, distributes the monies as follows:

Fifty percent goes to the owner of the sound-recording copyright (the master rights), which is typically the record label or the recording artist (if they have not signed those rights away to a record label). Forty-five percent goes to the "featured artist," who is basically the main artist on the track or on the album cover. Or, where there's a group, it would be the core members of the group, for the most part.

Five percent gets sent to a fund out in Los Angeles called the Intellectual Property Rights Distribution Fund, which is overseen by the musicians' unions AFM and AFTRA, for distribution to session musicians and backup singers (the "nonfeatured artists"). One does not have to be a member of the musicians' unions to collect these monies, and any nonfeatured artists interested in finding out more on how to collect these monies should go to raroyalties.org.

FIG. 2: SoundExchange's Web site offers downloadable forms for registering with the service, and a search engine to find out if a recording that you performed on has generated royalties.

How does an artist or a label register with SoundExchange?

In most cases, it's really quite simple. One can go to our Web site at soundexchange.com [see Fig. 2] and download, print, complete, and mail or fax the forms, and they're done.

What if there are multiple artists on a track? How do they get paid?

If the multiple artists are members of one band and they have one band bank account, then we can just send the payment to that one account and they can divide it up according to their own internal agreement. If the multiple artists you speak of are in fact multiple featured artists (for example, DJ Tiësto featuring Timbaland), then we will pay according to whatever agreement they have in place for how these types of performance royalties are to be split (once we are notified of such agreement). If there is no agreement, we will pay out to all featured artists listed in equal shares. So in the example above, it would be split fifty-fifty between DJ Tiësto and Timbaland.

How can artists find out if they're owed money already?

We have a search engine called Plays on our Web site. The first time you use it, you must register as a first-time user and get emailed a password. Once you're in, you can search by your artist name, track name, album name, record label, et cetera, and see what has come to us as reported from the various digital services.

Does SoundExchange pay the producers of a project?

In some circumstances, yes. If the record producer has an agreement with the featured artist to get some portion of the artist's share of digital-performance royalties, there is a standard Letter of Direction (LOD) on the SoundExchange Web site (it must be our LOD that is used) that the member artist can complete, sign, and send in, asking that SoundExchange pay a certain portion (pursuant to the agreement between the artist and producer) of the royalties that SoundExchange allocates for them directly to their record producer. We are making direct payments quarterly to hundreds of record producers already, pursuant to receiving such LODs from our featured-artist members.

Are revenues growing?

Yes. More and more people are turning to Internet radio and satellite radio to consume music, as opposed to purchasing physical copies or owning digital downloads. In 2001, we collected about $6 million. In 2007, we collected approximately $140 million.

Rich Tozzoli is a producer, engineer, and surround mixer who has worked with artists such as Al Di Meola and David Bowie. Tozzoli is also a guitarist and composer; his music can be heard on Fox NFL, the Discovery Channel, and Nickelodeon.

Arturia

Origin

A hardware synth goes retro—or does it?

>> PRODUCT SUMMARY

synthesizer module	$2,490

PROS: Terrific, animated sounds. Generous supply of modules. Powerful modulation capabilities with flexible routing. Brilliant user interface with intuitive controls, navigation, and display. Versatile mixer options.

CONS: Gaps in documentation.

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

Arturia
arturia.com

>> In our reviews, prices are MAP or street unless otherwise noted.

ONLINE BONUS MATERIAL

GUIDE TO EM METERS

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

By Marty Cutler

Arturia has a well-earned reputation for delivering classic-synthesizer replications unbounded by the limitations of the instruments that inspired them. It isn't surprising that the Origin synthesizer—the French company's first hardware instrument—also draws from that legacy of classic instruments. The Origin adds new capabilities and builds on a user interface inspired by its virtual siblings.

If you're eagerly awaiting the entire Arturia virtual instrument collection embodied in hardware, you'll have to keep waiting; that isn't the driving force behind the Origin's design. But if you've ever contemplated (for instance) patching a Prophet VS wavetable to a Moog filter whose frequency is modulated by a Yamaha CS-80 envelope generator, your ship has come in. The Origin's greatest feature attraction is its ability to combine modules culled from Arturia's virtual instruments for fresh sounds previously impossible to obtain from any single source.

Rack on Tour

A surface studded with 54 knobs, 81 buttons, a jog wheel, and a joystick can be daunting. However, the Origin's neat, logically grouped control layout is easy to grasp, with light-gray stenciled backgrounds highlighting its main operational areas (see Fig. 1).

The rackmountable unit has no shortage of conduits for moving audio and data in and out. In addition to a ¼-inch headphone jack and balanced left and right master outputs, you also get eight balanced ¼-inch aux outs. Analog inputs include a stereo pair of balanced ¼-inch jacks for processing external audio.

Digital I/O comprises MIDI In, Out, and Thru jacks; MIDI input and output via USB 2.0; and a S/PDIF optical connector (see Fig. 2). For rackmounting, simply remove the wood side panels. Rackmounting aligns all jacks vertically, however, making access to I/O awkward; the Origin fares better as a desktop unit.

Parameters on Parade

Much of the Origin's ease of use hangs on its brilliant display. Practically every editing maneuver calls up a contextual graphic in vivid color. Color coding either reinforces context, helping to trace modulation routing, triggers, and audio signal

FIG. 1: The Origin synth module delivers some of Arturia's best synth models in tabletop or rackmountable hardware form. The control panel neatly divides operational areas into sections, which are subtly highlighted in light gray.

flow, or highlights an active control. Selected modules immediately appear onscreen; modulation sources or destinations are clearly visible and accessible without the need to change pages. However deeply you delve into the Origin's architecture, you are never more than a single button push or two from the home page. For quick tweaks, the unit will simply display the parameter name and its values as they change at the bottom of the window.

Level controls sit at the unit's upper left, topped with left and right LED meters for the Input Level knob. Just below are separate knobs for master and headphone levels, and below those is an *x-y* joystick section. The Mixer and Effects sections are on the instrument's right side.

The Origin's so-called Analog section divides programming and real-time control areas into Oscillator, Filter, LFO, and Envelope sections. By default, turning any of the black knobs in one of the aforementioned areas activates a macro—a control assignment that groups multiple modules in a section under a single control (for example, detuning all or a selected group of modules in the Oscillator section, or changing the cutoff of multiple filters). Turning any section's Select knob to the far right and pressing downward selects the macro for editing.

To edit a single module, such as one of several filters or an LFO, the Select knob also scrolls through a patch's available modules. Pressing down on the knob selects and displays the module for onscreen editing. You then use the 4-way cursor buttons or the jog wheel for instant access to edit basic parameters or modulation sources and destinations, keyboard follow, and more. The jog wheel also serves as a selection button, so you can choose patches or Multis, navigate edit menus, enter or change values, and move on to the next edit without using another knob or button. One very welcome aspect of the Origin's user interface is that elements of the navigation and entry systems work in harmony. Intuitively, I could go from using a knob to a cursor button to a wheel without changing screens, so I never lost my place.

Original Spin

The joystick offers more than real-time mixing; you can assign several independent modulation destinations to each axis. Two additional sets of assignments are accessible using the Mode button, with an LED highlighting which mode is operational.

Eight Live knobs flank the display. Assigned to mix parameters and effects settings in many of the patches, they can also control any of the Analog section modules. The Live mode page is a marvel of informational graphics, and color coded Live knobs, clearly visible joystick and macro assignments, and access to edit screens are only a single button push away.

Adipose Rex

The Origin sounds every bit as good as its capabilities suggest. Patches range from positively obese and warm pads to biting leads and punchy bass, all of which—thanks to the overabundance of real-time controls—can radically change character on a Bush-era dime. Fluid Arpeggo (sic) uses the joystick to turn a genteel arpeggiated flute into an undulating, metallic rasp (see **Web Clip 1**). I'm a fool for tonal pads with evolving inharmonic content, and Behind the Glass takes the cake (see **Web Clip 2**). Bode Pad uses a Bode Frequency Shifter model to produce subtle, shimmering metallic overtones (see **Web Clip 3**).

Part of the ever-changing beauty of many sounds comes from a 2D Envelope—a multistage looping envelope with a choice of four destinations—and the Galaxy LFO modulation feature, which was ported from the Jupiter-8V (see the November 2007 review, available at emusician.com). Additional sonic motion arises from modulation embedded within the Origin's step-sequencer tracks.

Points of Origin

With everything the Origin has going for it, there's not much room for improvement. Having at least six MIDI channels in support of Mono mode would be a MIDI-guitar-friendly gesture. And Arturia needs to fix some gaps in the manual; for example, I'd like a thorough explanation of the absolute and relative settings for macros. The manual text refers to the Live knobs but supplies no callout for them in the graphics. Despite those omissions, the user interface is so easy to grasp that I reached for the manual mostly just to get the names of things straight. The synth invites you to learn by doing.

The Origin is not inexpensive, but you'll be

FIG. 2: With all analog and digital I/O residing on its rear panel, the Origin is best suited as a desktop unit.

able to creatively plumb its depths for a long time to come—especially considering Arturia's commitment to new modules, features, and templates (see the **online bonus material** at emusician.com). I didn't have room in this review to cover many features the unit offers right now.

Writing for EM, I've witnessed many evaluations of products based on whether they are evolutionary or revolutionary. With its innovative coupling of classic synthesis and contemporary musical-instrument technology and design, the Origin manages to satisfy both criteria easily. This is the first hardware synth I've wanted to buy in nearly a decade; need I say more?

Marty Cutler and studio fiddle ace Kenny Kosek are currently purveying eclectic banjo-and-fiddle music with a smattering of electronic assistance.

"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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FIG. 1: Sonar's Channel Tools plug-in lets you position signals anywhere in the stereo field, correct phasing problems, and decode signals from mid-side microphone configurations.

Cakewalk

Sonar 8 Producer (Win)

A venerable workhorse gets a tune-up and new plug-ins.

PRODUCT SUMMARY

digital audio sequencer	$499

PROS: Improved audio performance and usability. Excellent new effects. Powerful instruments. Plenty of sample content.

CONS: TruePianos Amber Module is less convincing than other sampled pianos.

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

Cakewalk
cakewalk.com

ONLINE BONUS MATERIAL

By Allan Metts

Software can be a tough business. To pay the bills, developers need exciting new offerings each year. If an application is already full of features, though, they run the risk of adding new ones that don't add much value—or, worse, that make the software confusing or cumbersome to use.

Version 8 is one of the most compelling Sonar upgrades in years. Cakewalk has made numerous optimizations to the programming code, enhancing the audio engine's access to your computer's CPU and audio drivers. The result is more effects, more soft synths, and more audio tracks using the same hardware as before, with fewer overloads and other artifacts. Sonar 8 has flashy new features, to be sure, but the flashiest are the Producer edition's new plug-ins.

Start Your Engine

I noticed Sonar's improved audio engine immediately after installation. I configured my audio card and waited for the "Restart Sonar for the changes to take effect" prompt I've learned to expect from previous versions, but it never came.

I haven't had many complaints with Sonar's audio performance in the past (my projects tend to be well within my hardware's processing limits), but now it has a more solid feel. I no longer see the screen flickering when I resize tracks, and I can switch to other applications with Sonar playing in the background without hearing audio glitches.

Cakewalk paid particular attention to performance on Microsoft Vista (especially the 64-bit version) and implemented support for Windows Audio Session Application Programming Interface (WASAPI). WASAPI is Microsoft's newest audio-driver platform, enabling low-latency performance and high-priority access to the CPU for multimedia applications.

Sonar's improvements aren't confined to the audio engine. Cakewalk enhanced usability, too, and added new features to make your work flow more efficient. (For details, see the **online bonus material** at emusician.com.)

Rev It Up

Sonar's additions to its already comprehensive suite of effects comprise four new plug-ins.

The TL64 Tube Leveler models vacuum-tube circuitry to add warmth and saturation to your recordings. The effect has an oversampling option to reduce aliasing, a low-shelving filter to prevent bass frequencies from overwhelming the effect, and bass compensation for restoring low frequencies postprocessing. I applied TL64 to a digital piano passage that sounded a little thin and electronic and immediately achieved a warmer, more organic sound.

Applied to a stereo signal, the simple but useful Channel Tools plug-in lets you invert either channel's phase, add delay or gain, swap the channels, or place each channel anywhere in the stereo field (see Fig. 1). If extreme left and right are already occupied, you can bring the stereo signal closer to the center. If you're recording with your microphones in a mid-side configuration, Channel Tools provides a decoder for this purpose as well.

Sonar's TS64 Transient Shaper is perhaps the most interesting of the new effects (see Fig. 2). Intended for percussive passages, TS64 can shape the attack portions of each transient separately from the decay portions. The effect is incredibly versatile; I can give my drum tracks more punch and less body (or vice versa). If you find that during mixdown your otherwise-perfect drum takes need to be tighter and crisper in the mix—or if you'd like to make the drums boomier and more spacious—then TS64 is the tool for you. I even made a piano passage sound like it was played in reverse with a bow.

TS64 works by applying gain adjustment curves to three different stages of each transient: the attack, the initial decay, and the tail. Depending on the settings you use, the gain adjustment can be substantial. To make an attack sound crisper, TS64 will spike the gain in the earliest moments of the sound and drop off quickly. To make it fatter, it will boost the initial decay portion for a longer period of time. Because TS64 has to do quite a bit of number crunching on your audio, and it can do that only *after* it sees what you've played, you won't be able to use it during live tracking. With about 200 ms of latency, TS64 is best suited for mixdown and postprocessing.

TS64 furnishes a threshold control for determining which transients get processed and which get left alone (a helpful indicator blinks when the threshold is crossed). A gain control in the last stage of processing lets you restore the processed sound to its original level in the mix. You can also manipulate timbre controls for the initial decay and tail portions, applying additional gain adjustment to the frequencies you choose. So if you want to make that snare drum ring a little longer, but primarily in the high-frequency portions of the sound, you can do that.

My own projects often suffer from drum tracks that are too wet or washed in reverb. In those instances, I find myself nudging the Attack knob toward Fast, the Weight knob toward Thin, and the Decay knob toward Dry. The mush goes away immediately, and I'm left with drum tracks that stand out clearly in the mix.

Rounding out the new effects is Guitar Rig 3 LE from Native Instruments (for a review of the full version, see the April 2008 issue, available at emusician.com). The LE version provides 3 amps and cabinets, 11 effects, and more than 50 presets.

Instruments Galore

With Sonar 8, Cakewalk adds three new instruments to its extensive collection, making it more likely that you'll have all the music-making tools you need in this one package (Sonar Producer installs from a 4-DVD set, indicating the vast amount of included sample content). The most notable addition is a full version of Dimension Pro, Cakewalk's well-regarded sample-based synth (see the July 2006 issue for a review). You get more than 7 GB of Dimension Pro content, including Garritan's Pocket Orchestra, Digital Sound Factory's Classic Keys Expansion Pack, and an extensive sound-effects library from Hollywood Edge.

FIG. 2: TS64 Transient Shaper provides independent manipulation of the attack and decay portions of percussive material. The effect is excellent for helping your drum tracks stand out in the mix.

> Sonar's improvements aren't confined to the audio engine.

Beatscape is a new instrument from Cakewalk offering extensive beat-slicing, loop-triggering, and remixing capabilities—all optimized for live performance (see Fig. 3). A complete description could easily fill an entire review, but suffice it to say that you'll find plenty to play with. My own projects don't typically involve sample loops and beat slicing, but I had a blast with the instrument nonetheless.

Each of Beatscape's 16 trigger pads can play loops from your Sonar project or the included 4 GB of well-organized sample content. You can insert up to three effects per pad, and you can map the pads and map individual beat slices to MIDI notes (see "Master Class: Cakewalk Beatscape" in the February 2009 issue, available at emusician.com).

Wrapping up the list of new instruments is the TruePianos Amber Module, one of four pianos from the full version of 4Front TruePianos VSTi. TruePianos Amber sounds quite good, with tonal characteristics that work well in a variety of mixes. That being said, I

>> FIG. 3: Beatscape provides 16 pads for triggering sounds and gives you extensive tools for shaping sounds and performing live.

auditioned Amber alongside several pianos from my Tascam GigaStudio library and found that I preferred the GigaStudio instruments. In comparison, TruePianos Amber sounds thinner and slightly more electronic.

> The mush goes away, and tracks stand out clearly in the mix.

Sounds Solid

Sonar 8 represents a solid upgrade for this audio powerhouse. As usual, the package comes complete with excellent documentation in the form of context-sensitive help files; the printed documentation supplies tutorials, troubleshooting, and a description of the new features. For anyone upgrading from a previous version (from $179), Sonar 8 Producer's improved performance, Dimension Pro, and TS64 Transient Shaper absolutely justify the cost.

Allan Metts is an Atlanta-based musician, software/systems designer, and consultant. Check him out at ametts.com.

ZED-12FX

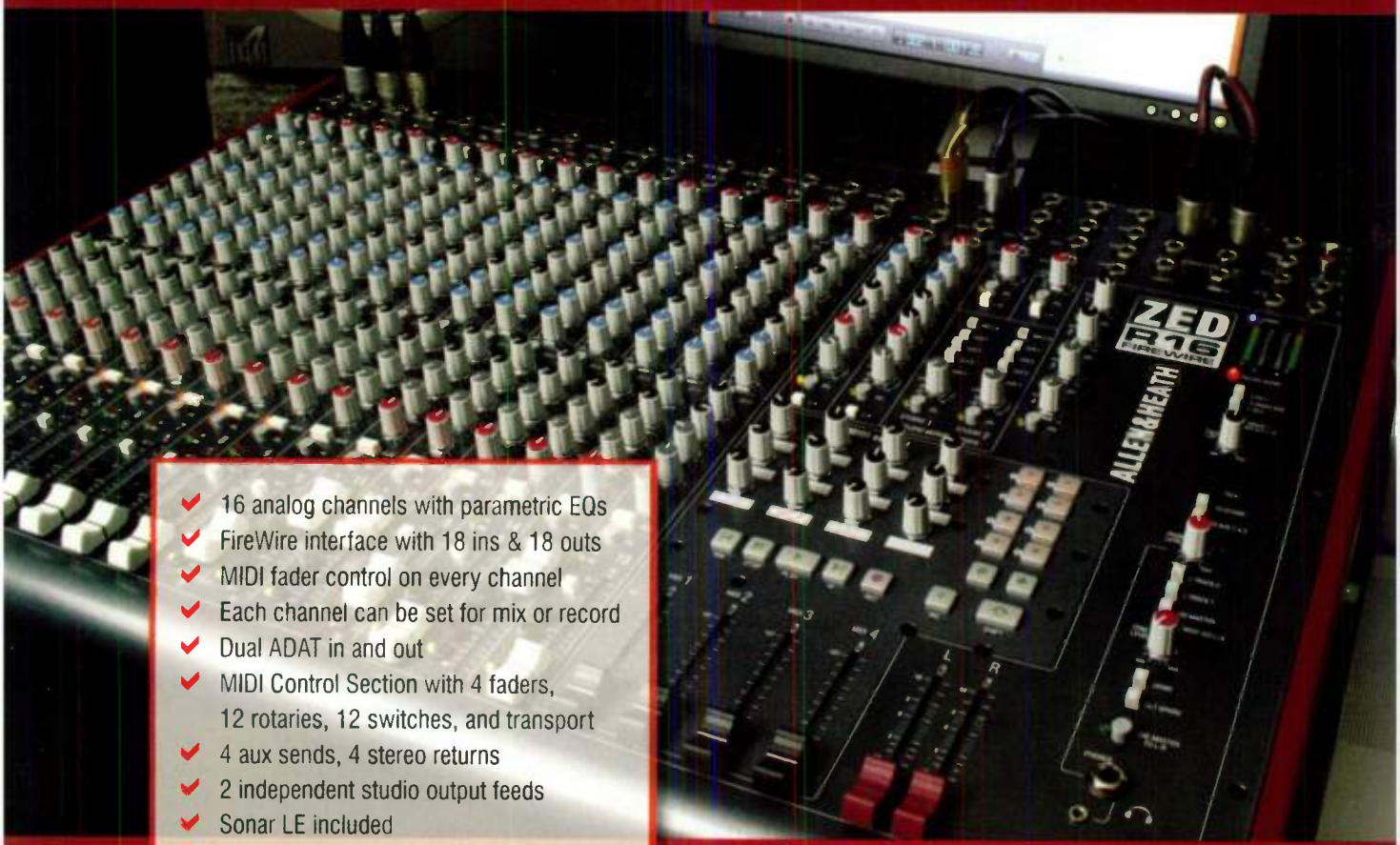
ZED-14

ZED-22FX

ZED-428

ZED R16

What's on your wishlist?



- 16 analog channels with parametric EQs
- FireWire interface with 18 ins & 18 outs
- MIDI fader control on every channel
- Each channel can be set for mix or record
- Dual ADAT in and out
- MIDI Control Section with 4 faders, 12 rotaries, 12 switches, and transport
- 4 aux sends, 4 stereo returns
- 2 independent studio output feeds
- Sonar LE included
- In the Studio and Live: You can do it all!

16 Channel FireWire Recording

Finally, there's an affordable, compact mixer which takes care of all your live and recording needs. The Allen & Heath ZED-R16 is packed with an array of features you just can't find anywhere else in one box. It combines an analog mixer which features an exceptional preamp and sophisticated EQ section, with 16 FireWire recording outputs, ingenious home-studio routing and lots of MIDI control - including switchable channel faders.

You'll be able to mix live gigs, and at the same time record up to 16 channels using either FireWire or ADAT outputs, then mixdown and record the final track on any computer sequencer software using the MIDI controls. Cakewalk's Sonar LE music production software is even supplied free with the mixer! Call Sweetwater's Engineers today to get a ZED-R16 for your studio!

ZED-R16: where analog meets digital

Sweetwater Music Instruments & Pro Audio

For more information: 800-222-4700 or www.sweetwater.com

ALLEN&HEATH

FIG. 1: In addition to the knobs and sliders (left) and the great big color LCD (middle), the Fantom-G has a bank of 16 backlit pads that can trigger drum sounds or whole phrases.

Roland

Fantom-G6

A keyboard workstation that packs some serious muscle.

By Jim Aikin

PRODUCT SUMMARY

keyboard workstation	$2,999

PROS: Stunning user interface. Trigger pads for percussion. User sampling. Built-in multitrack audio/MIDI sequencer. Rich sound palette. Accepts Roland ARX-series expansion boards.

CONS: Serious audio recording requires memory upgrade. Sequencer lacks audio-track automation. No undo for sample edits.

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

Roland Corporation U.S.
rolandus.com

ONLINE BONUS MATERIAL

Only the largest manufacturers have the muscle to build a modern workstation keyboard. These keyboards are designed to let you do everything, including multitrack audio recording, without going near a computer. Roland's latest entries, the Fantom-G series, are workstations on steroids. The huge color LCD caught my eye first, but backing it up are a massive patch library, sampling, a feature-rich front panel, and much more.

Three models are available, which differ only in the number of keys: the G6 (61 keys, $2,999), which is the one that I tested; the G7 (76 keys, $3,749); and the G8 (88 keys, $4,299). The G8 features Roland's PHA II "Ivory Feel" keyboard, which supposedly reproduces the surface feel of ivory acoustic piano keys.

A review that discussed every detail of this massive machine would fill the entire magazine. I'll hit the high spots, and you can read details about the built-in sequencer online (see the **online bonus material** at emusician.com).

Knobs and Sliders and Buttons, Oh My!

The Fantom's physical package is luxurious. The 8.5-inch color LCD (see Fig. 1) is not touch sensitive, but a mouse can be plugged into a rear-panel jack. I had no trouble navigating the graphical user interface without a mouse, which is fortunate because my keyboard rack is not equipped with a mouse pad platform.

To the left of the LCD is a bank of eight sliders and four knobs. These do various things depending on which of the Fantom's three main modes you're in. In Studio and Live modes, the sliders normally are mixer faders, and in Single mode, they're assigned to useful voice parameters, such as filter cutoff and attack time. You can create your own slider-assignment templates.

The 16 pads on the right side have numerous uses, including arpeggiator control, triggering percussion and MIDI phrases, and 10-key data entry. The pads have to be smacked firmly; when using them for data entry, I found that I could press lightly and feel a pad's sensor connect, but no data was entered.

In the upper left corner is Roland's D Beam

infrared sensing controller. The D Beam can be used to transmit Control Change data to the synth, play a theremin-like monophonic Solo Synth, or trigger a sample when you wave your hand over it. Live performers will appreciate the D Beam, but I found the Solo Synth hard to control. Its sound can be tweaked heavily, but in general the tone is not analog enough to appeal to me. It sounds digital both because of aliasing and because the motion sensing is noticeably stepped, not smooth.

Around back are some noteworthy luxury features. In addition to stereo line-level audio inputs for recording, the Fantom has a combo XLR/guitar input with a level knob and phantom power. The three USB jacks let you connect a mouse, connect to your computer, and plug in a storage device all at once. The storage jack is also used for updating the OS; just download the OS to your computer, copy it to a USB flash drive, and load it into the unit from the drive. You can't load a new OS into the synth directly from a computer.

Tone Palette

I like the sound of the Fantom-G a lot, and with twice the waveform capacity of Roland's previous flagship workstation, all of the types of sounds I use are well represented, from synth basses, leads, and pads to snappy drum kits. So many of the sounds are of high quality that I'm not going to bother listing favorites. In Single mode, finding patches in the preset library of more than 1,650 items is easy thanks to the category-based list. You can add considerably more sounds by plugging in up to two Roland ARX expansion boards.

The Fantom-G sounds feature Roland's SuperNatural modeling technology, which is designed to enable subtle, organic tonal changes and playing nuances. The voicing parameters are deep, but longtime Roland users will find few surprises. Each Patch comprises four Tones, and each Tone has its own filter, envelope generators, a pair of LFOs, and so on. The voice architecture uses Roland's familiar scheme for pairing Tones in Structures, allowing dual filtering, ring modulation, and so forth.

A step generator is available as an LFO "waveform." This can be used for stepped filter patterns or to gate the oscillator tone, thereby producing rhythm patterns. Pattern length is constrained to 16, 32, or 64 steps.

None of the Hammond organ Patches have authentic Hammond percussion (an attack transient) because the Fantom's Mono/Poly switch is at the Patch level rather than being at the level of single Tones within the Patch. Some other workstations produce this type of sound more effectively.

The 512 Live mode presets include some beautiful layered tones, gig splits, 8-way menus for quick selection of various leads, and so on. The selection is a grab bag, because no category list is provided. The LFO-based step generator is used to create analog-style drum patterns in some of the Live mode layers. The beats sound very old school and primitive, and the Fantom's arpeggiator is too basic to play drum patterns, nor can it run separate arpeggiations on several channels at once. For full-on drum grooves, you'll need to switch to Studio mode (the sequencer) and record your own.

The effects setup provides dedicated chorus and reverb and a mastering multiband compressor (all of them global), a separate multi-effect for each of the 16 Patches in Studio mode, one or two more multi-effects, and an input effect. More than 75 algorithms are available, along with 22 signal-routing options. Specific parts and effects can be routed to hardware output jacks 3 and 4, for instance.

Sampling

The Fantom-G ships with 32 MB of memory, which provides about 3 minutes of stereo sampling time. Memory can be expanded by installing up to 512 MB of DIMM. The same memory will be used for recording audio tracks into the sequencer, so most musicians will want to budget for extra memory. Cool feature: the Fantom's audio recorder is always operating in the background, so if you play a cool lick on the keyboard, you can listen to or even save the audio as a new sample.

In addition to the usual set of sample-editing functions, the Fantom can do real-time, granular-based time-stretching of samples. If you've recorded a vocal phrase, for instance, the Fantom can transpose it up or down by a few half steps without changing its speed and without drastically affecting the timbre. Transposing by more than two or three half steps with this feature tends to produce gargling artifacts, which are mildly amusing for a minute or two. There is no Undo command for data-altering sample edits, but if you get in the habit of saving your samples to long-term memory, you can restore the most recent saved version.

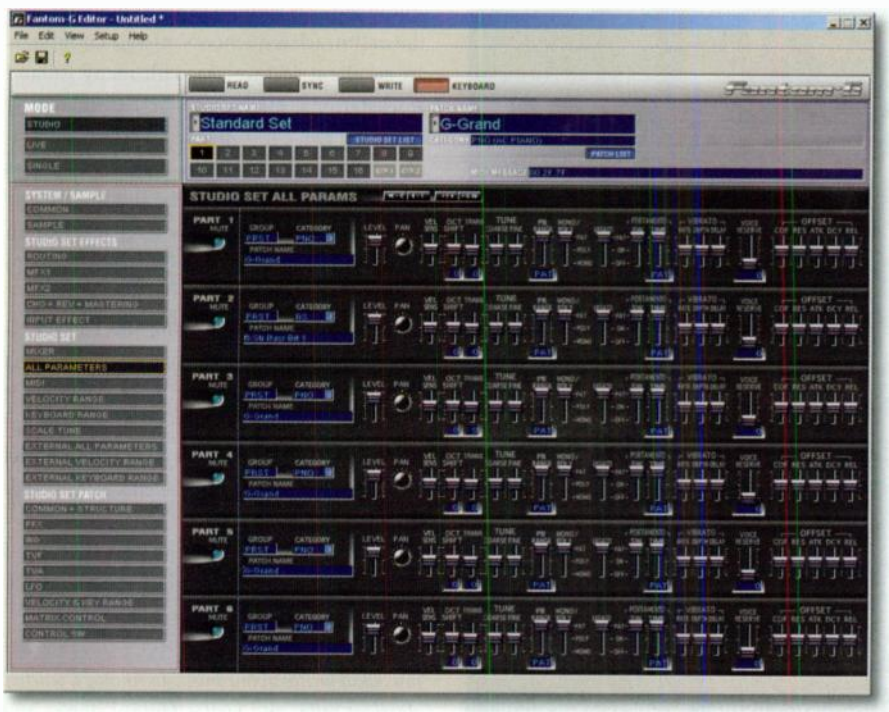


FIG. 2: Choose a mode and an edit page on the left, and then make detailed edits in the Fantom-G's computer editor software.

Editing Software and USB

The Fantom-G ships with a USB driver and an editor program (see Fig. 2) that can be used either standalone or as a VST or AU sequencer plug-in. This enables you to work within your familiar DAW and use the power of the Fantom-G's sound engine rather than taxing the host computer's CPU. The workstation also includes a 2-in, 2-out USB interface. This lets you record to the computer using the mic/guitar input and Fantom effects. Performers can also use the USB interface to stream audio from the computer to the Fantom-G, apply effects, and route the audio to alternate outputs.

Unfortunately, the manual doesn't explain how to use the Fantom-G as a plug-in; the Windows installer doesn't put a .dll file in the Steinberg VST plug-ins folder, which many installers can detect automatically; and the Fantom installer won't ask you where to put such a file. I also was disappointed that the edited voices within the editor can't be saved as part of the DAW project.

> Live performers will appreciate the D Beam.

I found that if I switched on the Fantom when it was connected via USB to my PC, my Syncrosoft dongle (also USB) would disappear from the system, leaving me unable to launch any of my Steinberg or Arturia software. I alerted Roland to the problem, and the company was unable to reproduce it. In fairness, I tested with an older PC, and its OS includes old drivers that might have caused some of the problems. Furthermore, EM's editors have heard reports of similar issues with Syncrosoft dongles that did not involve Roland equipment. So I can't prove that the Fantom was at fault; I can only report what I experienced.

Fantom Thoughts

I've always liked Roland's sample-playback synths, going clear back to the JD-800. The Fantom-G is a proud successor to that line and has both the wonderful Roland sound and a stunning user interface. In Live mode, you can build an 8-way split/layer and use the pads to trigger full sequences, drum patterns, or samples as performance Live Sets. This is a powerful way to provide one-finger accompaniment, but to be honest, I prefer the approach taken by some other pro-oriented keyboards, such as the Yamaha Motif XS, which can play realistic sampled drumbeats and guitar strums using its factory arpeggiator patterns. With that said, if you're looking for a gigging keyboard, I'd recommend the Fantom-G without hesitation.

The Fantom-G is a very good standalone workstation for those who want to do their studio projects without using a computer, and the multitrack sequencer's mic/guitar input is an excellent feature. As with many Roland workstations, effects can be automated by assigning any controller to an effects parameter and recording it to a MIDI track as continuous controller data. But I wish the Fantom-G had audio-track level automation as well, especially given that it boasts 24 audio tracks.

My feelings about using the Fantom-G with a computer are more mixed. The Fantom's USB connection is a good feature, and if it works as intended, it makes the instrument into a useful computer peripheral and more. However, as noted, I had problems using it with my Windows PC.

There's much more to the Fantom story. If you're curious, find a Roland dealer and check it out for yourself.

Jim Aikin writes about music technology, teaches classical cello, and writes fantasy stories and computer-based interactive fiction. Visit him online at musicwords.net.

DAKING

Mic-Pre One

By Myles Boisen

Judging from our experience, the Mic-Pre One can give your sound plenty of detail without coloration.

The Daking (pronounced *dayk-ing*) Mic-Pre One ($695) is built like a brick, and it's about the size of a brick as well. This single-channel outboard microphone preamp/DI benefits from sturdy, all-metal case construction, metal front and rear faceplates, and aluminum knobs that are easy to grasp. The included hard plastic feet keep the unit in place on all kinds of surfaces.

The solid-state Mic-Pre One furnishes a full range of professional controls on its compact front panel. A meter strip—20 multicolored LEDs in a ladder array with a peak indicator—runs horizontally across the top of the faceplate, registering gain from –17 dB to +22 dB. The left-hand knob adjusts a variable highpass filter (in other words, a low-shelving cut) ranging from below 10 Hz to 200 Hz. The knob on the right governs gain from 25 dB to 70 dB.

A ¼-inch DI input is on the lower-left panel corner, next to a small green LED that indicates when the power is on. Four clear plastic switches glow in different colors when engaged: Input (blue, selects the DI), Phase (red, polarity reverse), Pad (yellow, –20 dB), and Phantom (red, 48V power).

On the vented rear panel are a balanced ¼-inch +4 dBV output and gold Neutrik balanced XLR line-out and mic-in jacks. The input transformer is a Jensen, and input impedance is 1,250Ω. A multipin jack connects to a 48 VDC in-line power supply with a standard IEC 120V connector. The Mic-Pre One has no on/off power switch.

THE GUERRILLA GAUNTLET

During a testing period of about a month, I tried the Mic-Pre One on a variety of sources at my Guerrilla Recording studio. The preamp was easy to set up and use right out of the box.

On trumpeter Nathan Wooley, the Daking Mic-Pre One paired with an AEA R84 ribbon microphone gave beautifully smooth and detailed results. Even on very quiet and muted playing, the trumpet track had lots of presence against a backdrop of guitar and drums, with no apparent high-end boosting at the preamp stage. Although I already have a few favorite preamps for use with ribbon mics, the Daking's authoritative sound and ample gain won me over.

I achieved a similarly pleasing outcome by coupling the Daking with a Neumann TLM 103 condenser mic on acoustic bass. As with the trumpet recording, the Mic-Pre One contributed to a commanding presence in the mix, yielding effortless detail and timbral balance without resorting to any audio trickery. Veteran Bay Area jazz bassist Fred Randolph was lavish in his praise of the big, open bass sound.

The Daking also worked well with the TLM 103 on a male vocalist. Though this mic sometimes can be a bit too bright on vocals, the Mic-Pre One apparently mellowed the high end slightly, passing along its smooth presence without a hint of sibilance.

However, with a female vocalist recording to tape in front of a warm Lawson L47 MP tube mic, this preamp didn't quite have the cutting power I needed. The Lawson is my first-pick vocal mic for almost any singer and musical style, but it tends to work best with a preamp that has a little extra zip in the high end. Keeping all other factors the same, I switched to a Grace 101 preamp, and the highs were restored to what I required for this track.

In a comparison with solid-state and tube DI preamps in my studio rack, the Daking scored high marks once again for clear and articulate midrange tone, with a clarity that never sounded brittle or thin. The Mic-Pre One is certainly versatile and heavy-duty enough to qualify for a job in big studios, small desktop DAW recording, or professional mobile setups. Its solid build quality and feature set make it a natural for live recording; however, portable as it is, it does not come with a carrying case or handle.

REVIEWER RECOMMENDED

The Mic-Pre One compares favorably to several other single-channel boutique preamps, without showing any signs of compromise or cost cutting. The inclusion of an adjustable highpass filter, polarity reverse, a great-sounding DI, and dual outputs will be attractive to many users. Sonically, I found the unit to be colorless and true, conveying big tone and remarkably detailed presence without hyped high-end response. For anyone looking for a "straight wire with gain" type of preamp, I give the Daking Mic-Pre One an enthusiastic recommendation.

Value (1 through 5): 4
Geoffrey Daking & Co., Inc.
daking.com

APPLIED ACOUSTICS SYSTEMS

Strum Acoustic GS-1 (Mac/Win)

By Marty Cutler

Strum Acoustic GS-1 offers a healthy batch of guitar-oriented sound-design controls.

It's axiomatic that even though synths can evoke realistic-sounding acoustic instruments, the performance provides the most important impression of realism. Many synthesizers attempt to emulate guitars, with varying degrees of success, replicating the nuances of idiomatic chord voicings, guitar strumming, and other articulations.

Applied Acoustics Systems is known for its physically modeled software instruments, including Lounge Lizard, Tassman, and String Studio. The company's latest offering is Strum Acoustic GS-1 ($229), which proffers guitar-focused sound-design options coupled with a sophisticated array of authentic guitar-performance techniques. Applied Acoustics provides VST, AU, and RTAS versions for the Mac; VST and RTAS for Windows; and standalone versions for both platforms. You can download the software from the company's Web site or buy a boxed version from a dealer.

A MODEL COUPLE

Strum provides a generous complement of timbral variations, and its acoustic guitar sounds are more detailed than those of String Studio, whose broader palette extends well beyond guitar emulation. Strum's presets include three basic instrument types: steel-string and nylon-string instruments, a resonator guitar, and processed variations. The steel- and nylon-string instruments sound quite realistic, but the resonator guitar sounds more like a comb filtered variant of the other models than a National steel-bodied guitar or a Dobro.

Apart from the effects panel at the top, which presents menus for EQ, delay and modulation effects, and reverb, you get controls for shaping the guitar's sound and its response to incoming MIDI data. Using controls such as Coupling, Stiffness, and Edge, you can adjust the perceived body size and resonance; your choice of pick, fingers, or fingernail; and more.

You can modulate pick position relative to the bridge and neck in real time with smooth and realistic results, the timbre changing from crisp and more nasal near the bridge to deep and mellow as you move toward the neck position (see **Web Clip 1**).

ONLINE BONUS MATERIAL

No acoustic guitar that I have played has had a perfectly consistent response across all six strings, and Strum can respond realistically in this respect. Clicking on any string number at the top left portion of the virtual guitar body enables you to customize that string's settings. You can even adjust individual string gauges. This works hand in hand with Strum's chord-voicing abilities, just as a note's timbre will vary when played from different strings on real guitars.

SHUT UP AND PLAY

There are several ways to play Strum, but common to all is the ability to revoice incoming MIDI notes to emulate guitar fingerings. You can choose from several types of movable (or closed-position) chords and open-chord voicings, which are great for folk styles. With closed-position voicings, options include the starting fret position for the chords and whether the root note will be the lowest guitar tone.

With the Auto button off, the instrument waits for the right hand to strum chord positions, which are interpreted from the left hand. You then trigger up- and downstrokes on consecutive diatonic keys above the chord-detection range, and adjacent chromatic keys trigger muted strokes. With the Auto button on, chords played on the keyboard are immediately interpreted and played as downward strokes. I had great fun performing Freddie Green–style comping, which is characterized by predominant quarter-note downstroke chords with lots of harmonic motion.

A built-in player lets you audition and choose from a library of Standard MIDI File loops and rhythm patterns that can follow your chords. You can drag them to MIDI tracks and vary the content or change the feel. If you want more, create your own; the clearly written manual explains the process well.

Strum handles single-note performances well. Play successive legato notes, and hammer-on and pull-off notes are executed flawlessly, without retriggering the attack. Envelopes respond realistically to note durations, so notes played quickly cut off in response to key release, while held notes die off as they would on a real guitar, gradually fading into silence, and with increasing speed at higher pitches.

In addition to standard Pitch Bend, Aftertouch can control the pitch of the strings. Light touches add subtle pitch deviations (as with a real guitar), and increased pressure induces smooth pitch-bend effects. Chords remain intact, with only the highest note affected.

WHOSE AXE IS GORED

Guitarists might not want to mothball their vintage guitars just yet; Strum Acoustic GS-1 isn't poised to replace all aspects of the guitarist's tricks. The instrument doesn't quite convey all the close-mic, brassy brilliance of a fine acoustic steel-string guitar or the chaotic snap and buzz of zealously overplayed strings. That said, Strum's models are as good as it gets, and its accurate articulation and sophisticated chord voicing make it an utterly convincing chord-melody instrument, an excellent solo voice, and an agile accompanist. I recommend it highly.

Value (1 through 5): 4
Applied Acoustics Systems
applied-acoustics.com

They *laughed* when I said they could have Perfect Pitch

... until I showed them the simple secret —and they heard it for themselves!

David-Lucas Burge

- Name any note or chord – by EAR!
- Sing any desired pitch at will
- You'll hear it for yourself – immediately.
- Copy music straight off a CD
- Play by ear – instead of searching by hand
- Identify keys of songs just by listening
- Compose music in your head
- Perform with confidence
- Enjoy richer music appreciation
- Open a new door to your talents...

My true story of Perfect Pitch

by **David-Lucas Burge**

IT ALL STARTED *when I was in ninth grade as a sort of teenage rivalry . . .*

I'd slave at the piano for five hours daily. Linda practiced far less. Yet somehow she always shined as the star performer at our school. It was frustrating.

What does she have that I don't? I'd wonder.

Linda's best friend, Sheryl, bragged on and on to me, adding more fuel to my fire.

"*You* could never be as good as *Linda*," she would taunt. "*Linda's* got *Perfect Pitch*."

"What's Perfect Pitch?" I asked.

Sheryl gloated about Linda's uncanny abilities: how she could name *exact notes and chords*—all BY EAR; how she could sing any tone—*from memory alone*; how she could play songs—after just *hearing* them; the list went on and on . . .

My heart sank. *Her EAR is the secret to her success* I thought. How could I ever hope to compete with her?

But it bothered me. Did she *really* have Perfect Pitch? How could she know notes and chords just by *hearing* them? It seemed impossible.

Finally I couldn't stand it anymore. So one day I marched right up to Linda and asked her point-blank if she had Perfect Pitch.

"Yes," she nodded aloofly.

But Perfect Pitch was too good to believe. I rudely pressed, "*Can I test you sometime?*"

"OK," she replied.

Now she would eat her words . . .

My plot was ingeniously simple . . .

When Linda least suspected, I walked right up and challenged her to name tones for me—*by ear*.

I made her stand so she could not see the piano keyboard. I made sure other classmates could not help her. I set up everything perfectly so I could expose her Perfect Pitch claims as a ridiculous joke.

With silent apprehension, I selected a tone to play. (She'll *never* guess F♯, I thought.)

I had barely touched the key.

"F♯," she said. I was astonished.

I played another tone.

"C," she announced, not stopping to think.

Frantically, I played more tones, skipping here and there all over the keyboard. But somehow she knew the pitch each time. She was AMAZING.

"Sing an E♭," I demanded, determined to mess her up. She sang a tone. I checked her on the keyboard—and she was right on!

Now I started to boil. I called out more tones, trying hard to make them increasingly difficult. But each note she sang perfectly on pitch.

I was totally boggled. "*How in the world do you do it?*" I blurted.

"I don't know," she sighed. And that was all I could get out of her!

"How in the world do you do it?" I blurted. I was totally boggled. (age 14, 9th grade)

The dazzle of Perfect Pitch hit me like a ton of bricks. I was dizzy with disbelief. Yet from then on, I knew that Perfect Pitch was real.

I couldn't figure it out . . .

"How does she DO it?" I kept asking myself. On the other hand, why can't *everyone* recognize and sing tones by ear?

Then it dawned on me. People call themselves *musicians*, yet they can't tell a C from a C♯? Or A major from F major?! That's as strange as a portrait painter who can't name the colors of paint on his palette. It all seemed so odd and contradictory.

Humiliated and puzzled, I went home to work on this problem. At age 14, this was a hard nut to crack.

You can be sure I tried it out for myself. With a little sweet-talking, I got my three brothers and two sisters to play piano tones for me—so I could try to name them by ear. But it always turned into a messy guessing game I just couldn't win.

Day after day I tried to learn those freaking tones. I would hammer a note *over* and *over* to make it stick in my head. But hours later I would remember it a half step flat. No matter how hard I tried, I couldn't recognize or remember any of the tones by ear. They all sounded the same after awhile; how were you supposed to know which was which—just by *listening*?

I would have done anything to have an ear like Linda. But now I realized it was way beyond my reach. So after weeks of work, I finally gave up.

Then it happened . . .

It was like a miracle . . . a twist of fate . . . like finding the lost Holy Grail . . .

Once I stopped *straining* my ear, I started to listen NATURALLY. Then the simple secret to Perfect Pitch jumped right into my lap.

Curiously, I began to notice faint "colors" within the tones. Not *visual* colors, but colors of *pitch*, colors of

Order now online at this Special Offer Page:
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EM-132

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Outside USA & Canada call: 641-472-3100

sound. They had always been there. But this was the first time I had ever really "let go"—and *listened*—to discover these subtle differences.

Soon—to my own disbelief—*I too could name the tones by ear!* It was simple. I could hear how F♯ sounds one way, while B♭ has a *totally different sound*—sort of like "hearing" red and blue!

The realization struck me: THIS IS PERFECT PITCH! This is how Bach, Beethoven, and Mozart could mentally hear their masterpieces—and know tones, chords, and keys—all by ear!

It was almost childish—I felt sure that *anyone* could unlock their own Perfect Pitch with this simple secret of "Color Hearing."

Bursting with excitement, I told my best friend, Ann (a flutist).

She *laughed* at me. "You have to be *born* with Perfect Pitch," she asserted. "You can't *develop* it."

"You don't understand how Perfect Pitch works," I countered. I sat her down and showed her how to listen. Timidly, she confessed that she too could hear the pitch colors. With this jump start, Ann soon realized she also had gained Perfect Pitch.

We became instant celebrities. Classmates loved to call out tones for us to magically sing from thin air. They played chords for us to name by ear. They quizzed us on what key a song was in.

Everyone was fascinated with our "supernatural" powers, yet to Ann and me, it was just normal.

Way back then, I never dreamed I would later cause such a stir in the academic world. But when I entered college and started to explain my discoveries, professors *laughed* at me.

"You must be *born* with Perfect Pitch," they'd say. "You can't *develop* it!"

I would listen politely. Then I'd reveal the simple secret—*so they could hear it for themselves.*

You'd be surprised how fast they changed their tune!

In college, my so-called "perfect ear" allowed me to skip over two required music theory courses. Perfect Pitch made everything easier—my ability to perform, compose, arrange, transpose, improvise, and even sight-read (because—without looking at the keyboard—you know you're playing the correct tones).

And because my ears were open, music sounded richer. I learned that music is truly a HEARING art.

Oh, you must be wondering: whatever happened with Linda? I'll have to backtrack . . .

Flashback to my senior year of high school. I was nearly 18. In these three-and-a-half years with Perfect Pitch, my piano teacher insisted I had made ten years of progress. And I had. But my youthful ambition wasn't satisfied. I needed one more thing: *to beat Linda.* Now was my *final chance.*

The University of Delaware hosts a performing music festival each spring, complete with judges and awards. To my horror, they scheduled me that year as the *grand finale.*

The fated day arrived. Linda gave her usual sterling performance. She would be tough to match, let alone surpass. But my turn finally came, and I went for it.

Slinking to the stage, I sat down and played my heart out with selections from Beethoven, Chopin, and Ravel. The applause was overwhelming.

Afterwards, I scoured the bulletin board for our grades. Linda received an A. This was no surprise.

Then I saw that I had scored an A+.

Sweet victory was music to my ears, mine at last! —D.L.B.

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Join musicians around the world who have already discovered the **secrets** to **Perfect Pitch.**

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● "Wow! It really worked. I feel like a new musician. I am very proud I could achieve something of this caliber." *J.M., percussion* ● "Someone played a D major chord and I recognized it straight away. *S.C., bass* ● "Thanks...I developed a full Perfect Pitch in just two weeks! It just happened like a miracle." *B.B., guitar/piano* ● "It is wonderful. I can truly hear the differences in the color of the tones." *D.P., student* ● "I heard the differences on the initial playing, which did in fact surprise me. It is a breakthrough." *J.H., student* ● "It's so simple it's ridiculous. *M.P., guitar* ● "I'm able to play things I hear in my head. Before, I could barely do it." *J.W., keyboards* ● "I hear a song on the radio and I know what they're doing. My improvisations have improved. I feel more in control." *I.B., bass guitar* ● "It feels like I'm singing and playing MY notes instead of somebody else's—like music is more 'my own.' *L.H., voice/guitar* ● "What a boost for children's musical education! *R.P., music teacher* ● "I can identify tones and keys just by hearing them and sing tones at will. When I hear music now it has much more definition, form and substance. I don't just passively listen anymore, but actively listen to detail." *M.U., bass* ● "Although I was skeptical at first, I am now awed." *R.H., sax* ● "It's like hearing in a whole new dimension." *L.S., guitar* ● "I started crying and laughing all at the same time. *J.S., music educator* ● "I wish I could have had this 30 years ago!" *R.B., voice* ● "This is absolutely what I had been searching for." *D.F., piano* ● "Mr. Burge—you've changed my life!" *T.B., student* ● "Learn it or be left behind." *P.S., student*

Now it's YOUR turn!

For 28 years now, musicians around the globe have proven the simple methods that David-Lucas Burge stumbled upon as a teenager *(plus research at two leading universities—see www.PerfectPitch.com/research).*

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Imagine the talents that Perfect Pitch can open up in YOU to advance *your* playing, *your* singing, *your own* creativity and confidence. *Then again, how will you ever know unless you listen for yourself?* There's no risk. Order your course now and *HEAR IT for YOURSELF!*

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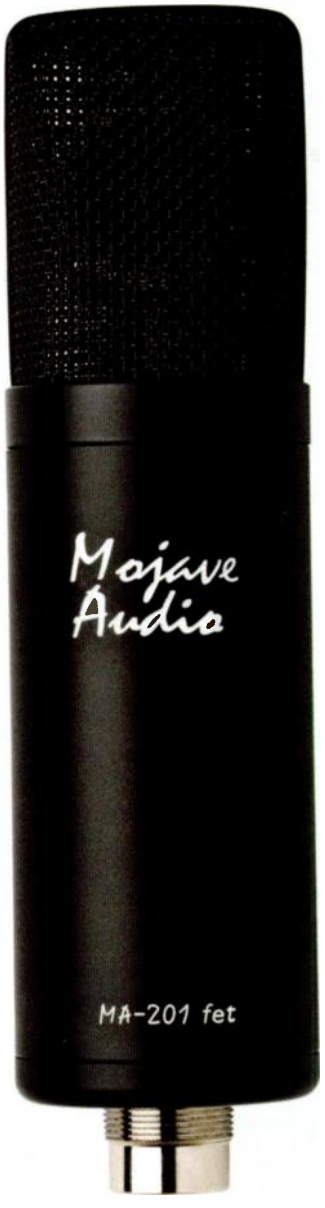
MOJAVE AUDIO

MA-201 fet

By Eli Crews

Mojave Audio's new MA-201 fet large-diaphragm condenser microphone ($695) is the solid-state alternative to the company's popular MA-200 tube mic. The two microphones utilize the same 3-micron 1-inch capsule, but they have different amplification circuits (field-effect transistor [fet] versus tube), as well as different Jensen output transformers. Mojave achieved the low price point by manufacturing the capsules in China, but all components are quality-controlled by company founder David Royer.



Mojave Audio's MA-201 fet follows in the footsteps of the MA-200, but it has a fixed cardioid pattern and is amplified by solid-state electronics rather than a tube, resulting in a warmer sound.

BACK IN BLACK

Visually, the MA-201 fet is almost identical to the MA-200 (see my review in the April 2007 issue, available at emusician.com). The most obvious difference is the black grille protecting the capsule (the MA-200's grille is silver). Both mics have the same solid, hefty feel and come with a well-designed elastic/basket shockmount and a heavy-duty carrying case. However, because the MA-201's case doesn't house a tube power supply and cable, it's roughly half the size of the MA-200's. The MA-201 accepts a normal 3-pin XLR cable instead of the 5-pin cable (originally with 7 pins) needed to power the MA-200's tube; the MA-201's solid-state electronics are powered by standard 48V phantom power. The MA-201 has no switches; it's fixed in a cardioid position and doesn't have a pad, nor does it need one (I never experienced a loud sound source overloading the mic's electronics).

EM HOT PICK

ON THE JOB

The MA-201s found their way onto every tracking session I had during the test period. They faithfully captured male and female vocals, acoustic and electric guitar, upright and electric bass, tenor and soprano saxophones, grand piano, bass clarinet, bass drum, and full drum sets (as overheads as well as room mics). Only once in a few months of usage did I pull the MA-201 off a source, and it was a questionable-sounding saxophone to begin with. In every other scenario, the MA-201s gave me the sound I was looking for—natural, open, and true.

When they were directly A/B'd with other large-diaphragm condenser mics, I often felt the MA-201s had less brilliance and more midrange warmth. This was especially the case when compared with the MA-200s, which are quite bright and capture transients very quickly. Which mic I preferred depended on the source. For drum overheads, I leaned toward the MA-200s for the detail they brought out in the cymbals and toms, whereas for a certain female vocal, I opted for the MA-201, through which I heard more chest and less sibilance. In scenarios in which the MA-201s sounded a tad too dark, adding a smidgen of high-end EQ always did the trick to emphasize the upper harmonics in a pleasing way.

One standout application for the MA-201s was on piano, through a pair of Vintech X73is. I use a wide variety of miking techniques for piano, depending on how the instrument is going to fit into the song. The MA-201s served well spread out across the soundboard, close to the strings for a bright, present, attacky sound that cut through a dense rock track. They also sounded great backed off a bit in XY to get a roomier, larger sound for use in a sparser song. I really liked the MA-201 outside of the bass drum (through the Millennia Media TD-1) and as a bridge mic on upright bass (through the Focusrite ISA428). In both scenarios, the balance of lows to highs, or body to attack, was almost perfect and just needed a touch of standard dewoofing EQ to slip into the mix.

YOU FET YOUR LIFE

Overall, I like these mics only slightly less than the tube MA-200s, which I love and use constantly. However, taking into account that they are each $300 less than the MA-200s, they still garner the highest mark. With this release, Mojave Audio has cemented its position high on my list of can't-wait-to-see-what's-next gear manufacturers operating today. em

Value (1 through 5): 5

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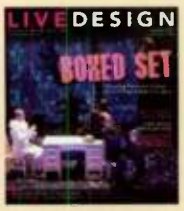

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Now That We Can Do Anything, What Are You Going to Do?

By Nathaniel Kunkel

Some of the greatest audio inventions were born out of frustration. Dean Jenson was as frustrated with grounding issues on a location recording as George Massenburg was with equalization technology, and as a result, we got the isolating microphone transformer and the parametric equalizer, respectively. Even a relatively new invention such as Antares Auto-Tune had a frustrating early equivalent: two tape machines, a strobe tuner, and an Eventide H3000. The arrivals of these little godsends were like rays from heaven.

I remember when Auto-Tune came out. It was like, "Yes! Tuning won't take a week." Auto-Tune was precise and near instantaneous. The reaction was the same about DAW editors: we were able to do limited editing before, but with their creation, editing the other outro onto the master take took only a couple of seconds instead of minutes. Implementing our wishes became a nonissue, and boy, did our wish list grow. Little did we know what a slippery slope we were on.

Cut to present day.

Now there is a whole generation of producers and engineers who are using this technology without understanding the frustration that was the impetus for its creation. They don't know how things used to be done, and they don't care. They don't approach making a record like we used to because they don't have to; they don't have the limitations that we did. They can do things in any order, in any key, at any tempo, and if they can dream it up, it will work.

On one hand, that's cool because we get to hear Kanye West generate a performance like "Heartless." I, myself, love the freedom to move between tasks at will, thanks to recall ability. It keeps me fresh, and therefore I make better decisions.

On the other hand, people are using so much technology that the magic—the intangible interaction between musicians—that made a performance more than the sum of its parts is no longer heard very often.

Not long ago, the inability to edit minutiae meant that real musicians needed to play the music. And with the limited editing capabilities available, they needed to really play together because you couldn't tweak the arrangement after you recorded it. Our work flows were designed around just such limitations.

Now there are no limitations, and there are limitless work-flow options.

But more often than not, the grid, not the drummer, is the law, and the vocal will be tuned and phrased no matter what is sung. Everything is manipulated to be "correct." That is our collective work-flow choice. It's cool and it's perfect, but sometimes I feel like I am hearing a presentation of the song more than I am hearing the song itself. I just hear the production; I don't feel the emotion.

Maybe it sounds crazy, but I really did believe that Buddy Holly loved Peggy Sue. That doesn't happen much to me anymore.

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C. many people don't have the skills to produce an album with instruments unless the instruments are all corrected? (This is not necessarily a bad thing.)

If the answer is A, how long will it take for C to come true? And if the answer is B, how do we break the habit? How do we use the tools at our disposal to enhance our product without them becoming a crutch that limits us?

No matter what the answer is, we can now do anything we want to do to audio. And currently, we make it perfect.

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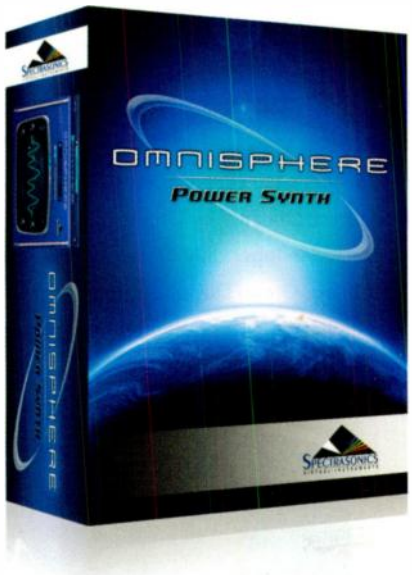

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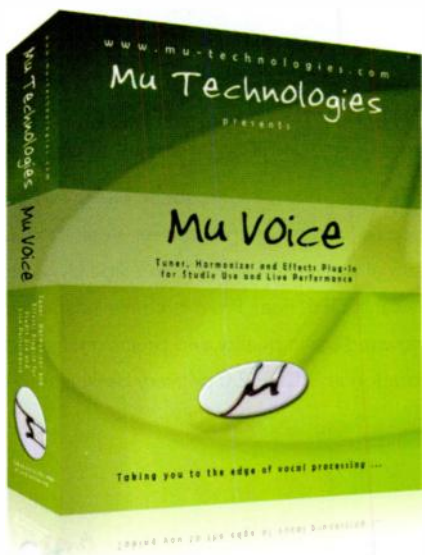

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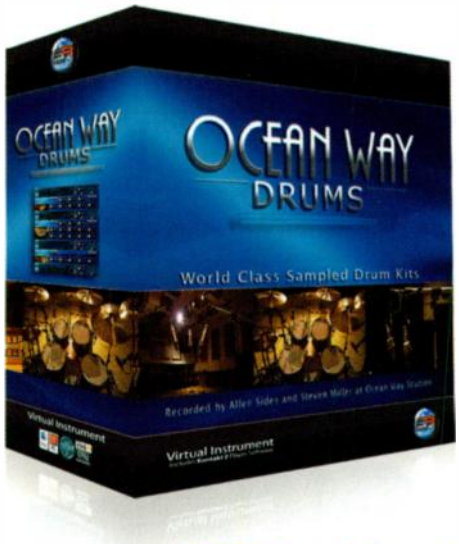

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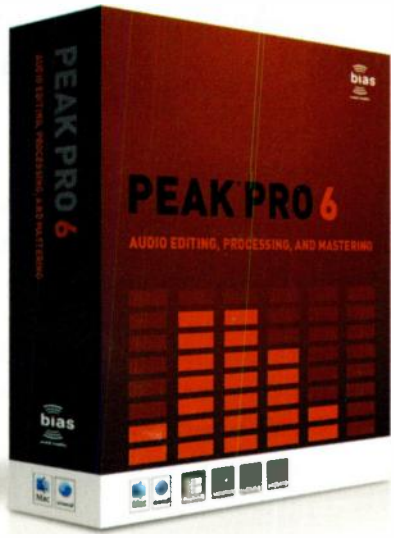

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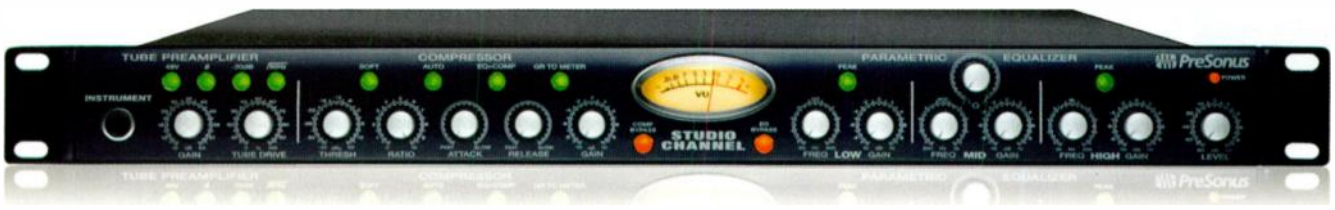

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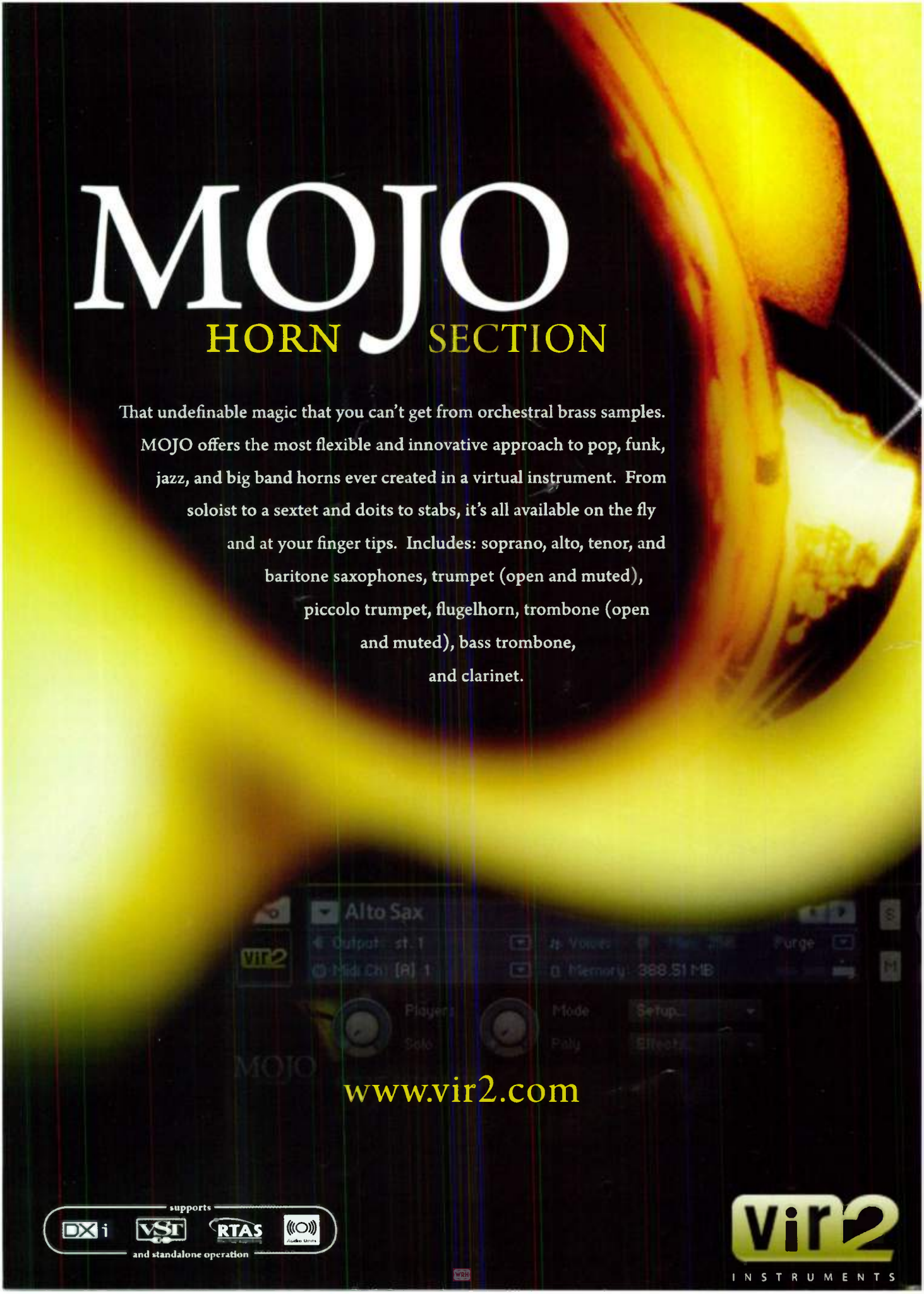
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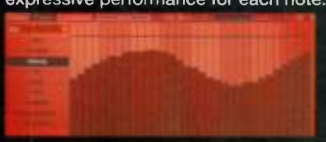
Piano Roll Editor for sequencing multi-sample instruments and sliced loops.

Loop Editor lets you set loop behavior and drag & drop loops as MIDI or audio.

Graph Editor lets you achieve ultra-expressive performance for each note.



Plus many more screens for scene building, song mode, and much more...

Waveform Editor for quick editing, tweaking and cleanup of sample material.

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