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JAMES TAYLOR

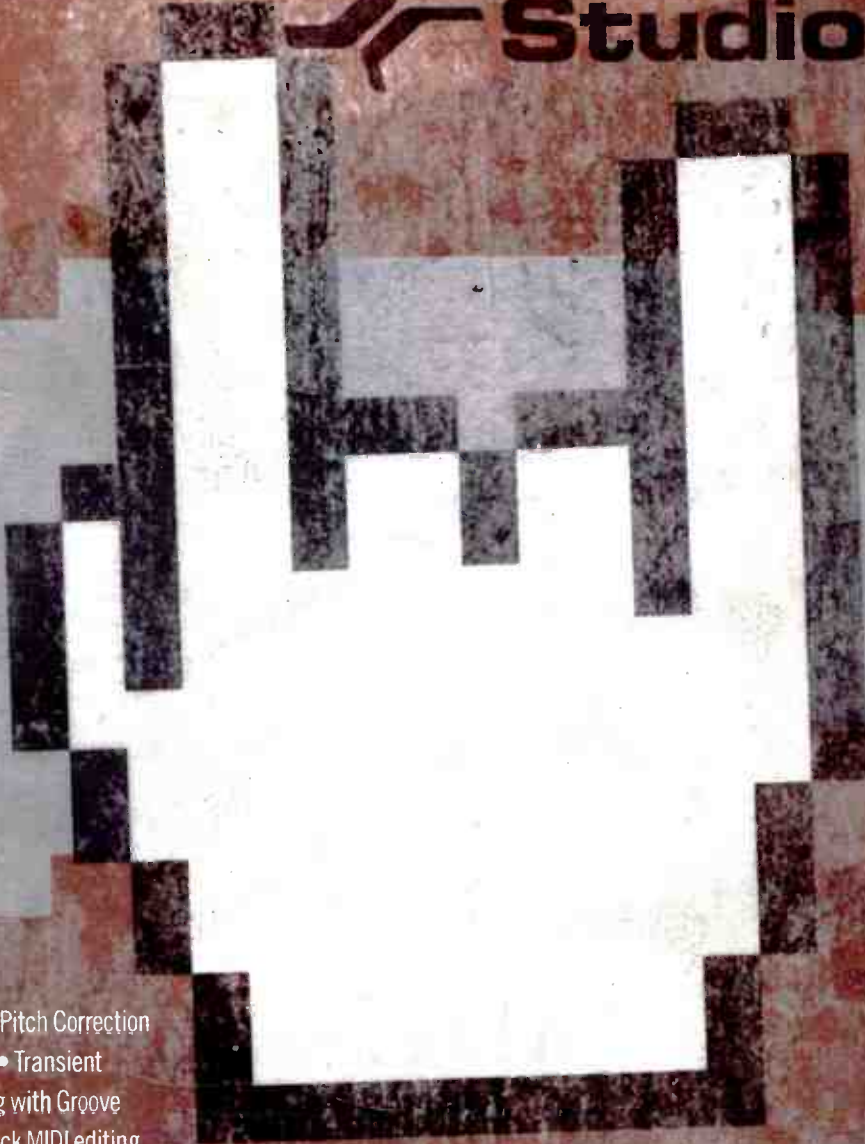
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On the Cover: James Taylor is one of the industry's all-time leading road warriors, still filling houses around the world after 40-plus years, the past six accompanied by veteran FOH engineer Dave Morgan and monitor engineer Rachel Adkins. Photo: James O'Mara.

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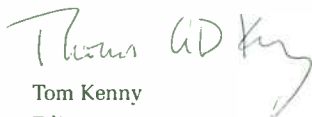
When my younger daughter Jesse was in the fifth grade, her class at Thornhill Elementary in Oakland, Calif., put on an original musical based on Aesop's Fables. Two moms had written it, one directing the action, the other playing piano and coaching the singers. I was asked to be the Tech Parent. We put four mics on the stage, with two speakers on sticks and a simple Mackie board at the rear of the cafeteria; my daughter was to be lighting director, running her own board on a riser. At the final rehearsal, I reminded the backstage team to show up dressed all in black.

On opening night, I surprised the four-member tech crew (stage manager, sound, lights, student director) with All Access laminates prepared by my art director and four headsets donated by the good folks at Clear-Com, located down the street from the *Mix* offices in Emeryville. The kids were wide-eyed and thrilled; suddenly, they were the stars. At one point, the lead missed a cue because he was playing with the stage manager's push-to-talk! Crew was cool. Later, back at home eating pizza, my daughter remarked, "You know, dad, the stars got all the applause, but they couldn't even do the play without us." I was dying inside, holding back my laughter; they learn so early.

I was reminded of that story this month because of two pieces we have inside this Live Sound issue of *Mix*. The first involves our cover story on James Taylor, the return of "The Mix Interview." James, one of the real gentleman talents in our industry, is a true road warrior, with more than 40 years in buses and hotels and waking up in new towns and still loving it. The past two years, whether sharing the bill with Carole King, bringing up his son, Ben, or going it alone at Carnegie Hall, just might have been his most successful run in a long and successful career. When we asked him for the interview, his one condition was that we also talk to his crew. It seems that much of the appeal of the road to JT is the camaraderie of the people around him, the way all the parts mesh together to bring a total experience to the audience. So you'll find some words from his longtime monitor engineer, Rachel Adkins, who worked her way up through the ranks to become his anchor onstage; some more from Dave Morgan, his front-of-house engineer these past six years, who brought his sensibilities to that amazing acoustic guitar and velvet baritone voice; and even more from guitar tech Jon Prince, who used to climb up in the rigging and now keeps James' Olson and Telecaster guitars primed and ready.

The second story involved the John Lennon Educational Tour Bus, now entering its 15th year on the road. I can recall its maiden voyage when it pulled into Ex'pression College for Digital Arts as a songwriter's bus, promoting the contest. Then I continued to see it over the years, each time seemingly more impressive, with more sponsors, more technology, the addition of video and a few high-profile, high-press appearances with celebrities at events like the Black Eyed Peas Tour and Coachella. But then when I sat down to talk with the principals, I found out how much the young engineers on The Bus really do behind the scenes, every day, in towns across the country, many of them underserved communities. Waking up at dawn to greet a new bunch of kids, many of whom had never touched a musical instrument or computer. Completing a project a day, song or video. Chief engineer Jeff Sobel summed it up nicely when he said, "When people first come onboard, they are impressed by The Bus; but when they leave at the end of the day, all they can talk about is the crew."

So engineers, producers and artists, please take a moment at the start of 2012 to turn around and thank your crew. The show doesn't go on without them.



Tom Kenny
Editor

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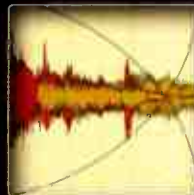
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—Will Files, sound designer, Skywalker Sound (*Let Me In*, *The Smurfs*, *Cloverfield*)



**“It’s faster at getting the idea from my head to my workspace.
Does that give me a competitive edge? Of course it does.”**

—Tony Maserati, mixer/producer/engineer (*Lady Gaga*, *Beyoncé*, *Alicia Keys*)



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COMPILED BY SARAH BENZULY

NEW NETWORKING STANDARD IN THE WORKS

Addressing the need for interoperability between products from many different manufacturers, X192—an audio network standard created by an AES standards task group chaired by Kevin Gross—will provide manufacturers with the means to remain with the network technology they are invested in while also interfacing with products that support other networks.

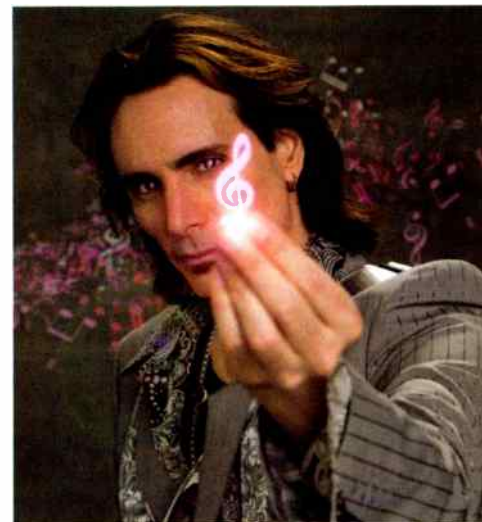
Current existing and work-in-progress protocols include the IEEE 1733 variant of AVB, Dante, Livewire, Q-LAN and RAVENNA. With an “interoperability mode” built from existing protocols and compatible with existing network equipment, system integrators and end-users will be able to select and interface the products that best meet their design goals with confidence that the X192-enabled devices work and play well together. By “interoperability,” Gross means the ability for devices operating under various proprietary Layer-3 protocols to easily exchange audio data.

QSC Audio Products, LLC and Telos Systems' Axia Audio division have become sponsoring members supporting Gross' work. Manufacturers and users of networked audio products are recognizing the benefits of using Layer 3 network technology and applying existing IP protocols such as IEEE 1588, RTP and DiffServ to the challenge of distributing high-channel-count, low-latency, uncompressed digital audio.

Gross conceived and developed the CobraNet system for transport of real-time, high-quality audio over Ethernet networks. He is an active contributor to the AVB standards efforts and has helped QSC deploy Q-LAN. He holds several patents, has written papers and articles, and presented on numerous A/V networking topics. In 2006, he was awarded an AES Fellowship for his contributions to digital audio networking. Find out more at x192.org.

VAI TO RECEIVE LES PAUL AWARD

On January 20, during the 2012 NAMM show, guitarist/composer/producer Steve Vai will be presented with the Les Paul Award at the 27th Annual Technical Excellence & Creativity Awards. Vai began his professional music career working with Frank Zappa, with whom he toured and recorded before launching his solo career. He has recorded and toured with Public Image Ltd., Alcatrazz, David Lee Roth and Whitesnake, and has worked with a variety of musicians including Joe Satriani, Joe Jackson, Janice Ian, Steve Lukather, Alice Cooper, Gerry Rafferty, The Yardbirds and Mary J. Blige. He has composed for and/or performed on original soundtracks for films such as *Crossroads*, *Encino Man*, *Bill & Ted's Bogus Journey* and *PCU and Crazy*, and videogames including *Halo 2* and *Guitar Hero 3*. His latest live album and DVD is *Where the Wild Things Are*. Additional credits include receiving honorary doctorates from Berklee College of Music and Musician's Institute, founding



the record label Favored Nations, and serving as a Trustee for the Recording Academy. He also works closely with Make a Noise Foundation.

AES Tackles Digital Cinema

The Audio Engineering Society has formed a provisional committee to review audio reproduction for digital cinema and television. Spearheaded by Brian McCarty, managing director at Coral Sea Studios (Australia), the new AES Technical Committee on Sound for Digital Cinema & Television, AESTC-SDCTV, is planning a meeting in Los Angeles in early 2012. To participate in this event or to join the AESTC-SDCTV committee, contact Brian McCarty (aes.org/technical/sdctv).

“Our mission is to identify a consistent approach to controlling perceived loudness and frequency response from installation to installation, and from position to position within digital cinema installations worldwide,” McCarty says. “And for this to be adopted as the formal reference for all contemporary dubbing stage recording and mixing activities, and ultimately as the unified method for film reproduction at home.”

LAWO ACQUIRES INNOVASON

Console manufacturer Innovason's products and trademarks are now owned by Lawo AG following the company's acquisition of Innovason's majority shareholding in April 2008. According to Marcel Babazadeh, Innovason international sales director, “Our focus for the future is on the continued development of the Eclipse platform. The difference is that we will be able to pursue this development with more resources available to us than before.” Following this move, Hervé de Caro is now product manager for Eclipse; Nicolas Gozdowski will continue in his role as service engineer; and Benoit Quiniou in R&D.



“How did you get into game audio?”

I started doing sound design as a child, recording my sister’s voice and then editing it with razors I stole from my father, cutting the tape and putting it back together to change and reverse the phrases. I then found out that I could achieve better performances from talking through a tube or similar items to make it sound even stranger. At 16, I developed my first polyphonic sequencer using Pascal and Assembly (as a tool for composing music for a game that I was developing as a hobby). Some years later, I joined a band as a guitarist and started exploring music creation even more. Then in my early 20s circa 1996, a programmer friend of mine told me to make some music for one of his indie-developed games and I made the music and the effects, which turned me to making game sounds again—and I never looked back. Now I own my own development company and a publishing label offering royalty-free game audio content. I think that it was always in me: I never left it even when playing guitar for a thrash-metal band, carrying seven effects pedals; the other bandmembers would laugh from the weird (and many times funny) sounds I made all the time.

Panozk, Panozk.com

Poetic License

Michael Golub, a 30-year recording engineer in New York City, continues to provide us with the results of his audio muse. Enjoy!

The Engineer

In a dim-lit domain, a bethroned Captain Kirk / Probes his soul and his brain, alone in his work. / Faders at attention, LED’s wink in space / They beg for invention O divine state of grace. / He moves with great deft, and aligns the foundation / Knobs turn right and left to define the sound nation. / Thunder doth grow

in a Marshall’s amp roar / Drums strike a fierce blow like the hammer of Thor. / His hands do a dance, his phasers on stun / O greatest romance—damn this is fun! / The mix sanctified, like a blended elixir / “I am I cried” said the engineer mixer. / The whirring drives play like crimson & clover / The producer arrives saying, “Can we start over?”

MIXBLOGS



Top 20 Products of 2011

Year one of the new decade offered up a slammin’ set of new audio products sure to make any audio-head squeal with joy. Check out my picks for the best products of 2011 based on their uniqueness, great feature sets and overall quality.

[»blog.mixonline.com/mixblog/category/techticker](http://blog.mixonline.com/mixblog/category/techticker)



Where’s Eddie?

Despite my best intentions to blog every week, I have been neck-deep in audio geeky-ness. Here’s a condensed version of what I’ve been working on.

[»blog.mixonline.com/mixblog/category/ask_eddie](http://blog.mixonline.com/mixblog/category/ask_eddie)

SPARS Sound Bite

WHY PARTICIPATE IN NAMM?

By Kirk Imamura & Paul Christensen

The National Association of Music Merchants produces two shows annually—the NAMM Show in Anaheim and Summer NAMM in Nashville. This month, the NAMM Show will again take over the Anaheim Convention Center. The mission of NAMM, established in 1901, remains the same: “to strengthen the music products industry and promote the pleasures and benefits of making music.”

SPARS continues its participation by presenting a SPARS Studio Summit in the H.O.T. Zone. This is the only major show related to our industry that takes place near Los Angeles. The gathering is huge by any stretch of the imagination. The audience is primarily music product dealers and hordes of musicians, even though, technically, the show is not open to the public. In 2011, the show drew 90,000-plus registered attendees (including more than 10,000 international attendees) and more than 1,400 exhibitors. SPARS began participating at the NAMM Show when the H.O.T. Zone was first established in January 2010, believing that there is a great need for the intangible skills of mentoring and coaching of musicians, artists and engineers.

As NAMM has grown, so has the interest of pro audio manufacturers, who are finding that more and more musicians also record. Last year, pro audio participants filled an entire exhibit hall. In addition, the TEC Foundation for Excellence in Audio recently teamed up with NAMM to host the TEC Awards.

SPARS will host a four-hour Studio Summit to examine the role of professional studios in the recording process. SPARS will be pairing studio operators with recognized artists, producers and engineers. Panelists will share case studies of recording sessions to highlight the thought processes that went into decisions like room selection, recording setup and establishing a creative environment. We anticipate that these summits will become an annual event as we continue to explore how we can raise awareness on the value we can provide to musicians and artists. We welcome other pro audio service providers to join us in this discussion to put together a unified front to educate and mentor the musicians and engineers and producers who have joined our industry.

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Studio Unknown Update

George Lucas is a master at it. Disney does it all the time. The major studios can't seem to get enough of it. We're talking about adding bonus features and "never-before-seen" footage to DVD and Blu-ray discs. It's a big-time trend, and this month we talk to a boutique audio production studio that has created a niche for itself in mixing and editing these additions for some of the biggest and most well-known Hollywood productions. Be sure to check out the January 2012 edition of PopMark Media's "Confessions of a Small Working Studio" for all the details.
>>mixonline.com/studio_unknown

Cool Spin

Miranda Lambert *Four the Record* (Sony Music)



Gotta admit, I like Miranda Lambert's side project, The Pistol Annies—the old-school, bad-girl country trio she put together with Ashley Monroe and Angalena Presley—a little better than this record, but only a little. Lambert had huge success with her previous record, *Revolution*, and *Four the Record* is the latest stage in her evolution from raw singer/songwriter to established Country Star. So her productions have become a lot more elaborate than the songs on *Crazy Ex-Girlfriend*, but each track is cool as can be.

>>mixonline.com/cool-spins

SoundWorks Collection Update

On vacation in Los Angeles, Walter, the world's biggest Muppet fan, and his friends Gary (Jason Segel) and Mary (Amy Adams) from *Smalltown, USA*, discover the nefarious plan of oilman Tex Richman (Chris Cooper) to raze the Muppet Theater and drill for the oil recently discovered beneath the Muppets' former stomping grounds. To stage *The Greatest Muppet Telethon Ever* and raise the \$10 million needed to save the theater, Walter, Mary



and Gary help Kermit reunite the Muppets, who have all gone their separate ways. In this SoundWorks Collection exclusive, we talk with director James Bobin, film editor James Thomas, supervising sound editors Kami Asgar and Sean McCormack, and sound re-recording mixer Kevin O'Connell.
>>mixonline.com/post/features/video_soundworks_collection

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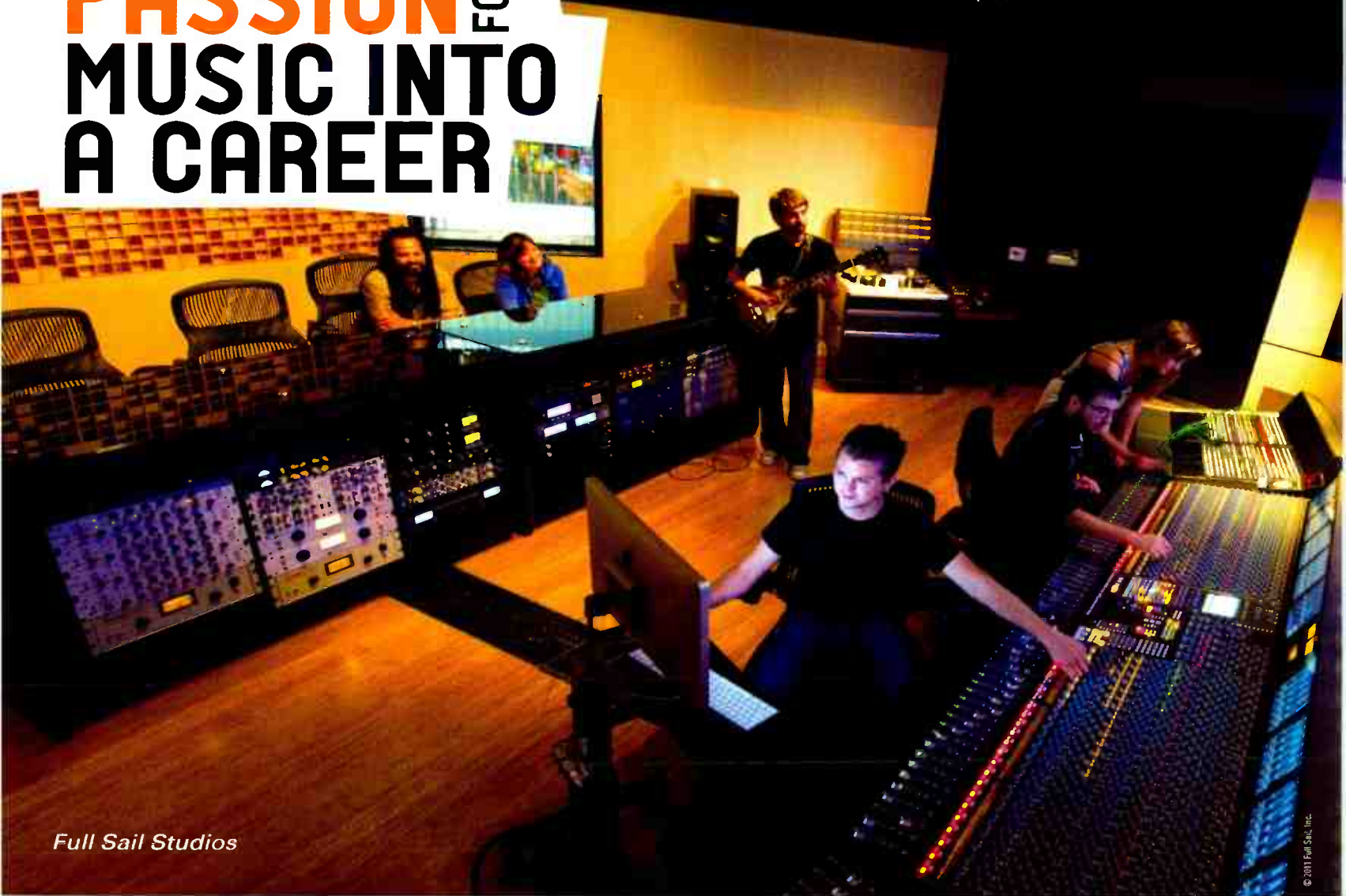
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MUSIC

TOUR BUS



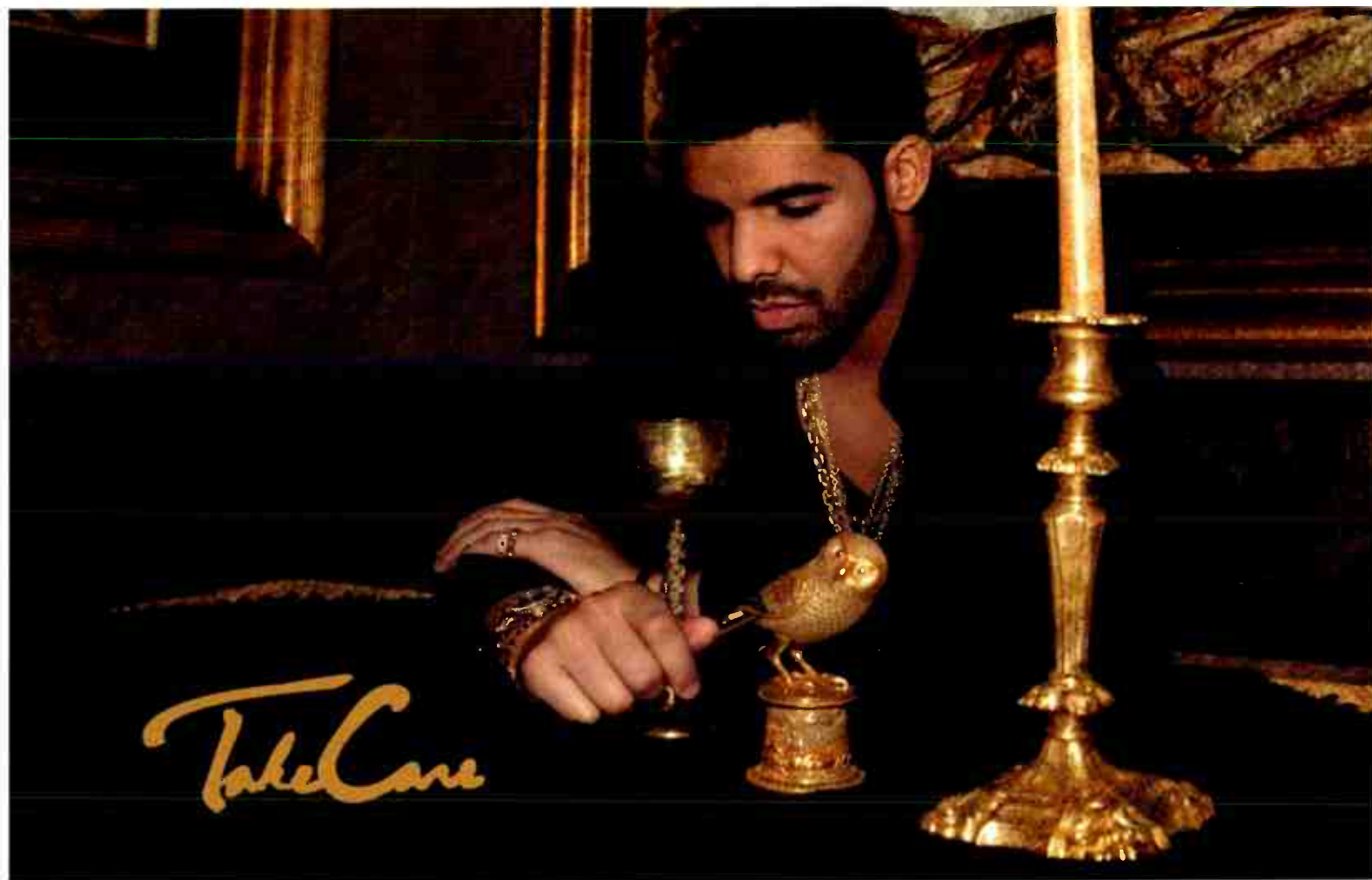
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NEW WEBCAST ON DEMAND: MIXING THE BAND WITH UNIVERSAL AUDIO // VISIT MIXONLINE.COM/WEBCASTS FOR DETAILS



DRAKE

Record-Making on the Go

By Sarah Benzuly

Drake may be the hardest-working artist in the hip-hop and R&B world. Three weeks after his 2010 *Thank Me Later* release, the artist and his longtime producer, Noah "40" Shebib, began production for what would become the 2011 album *Take Care*, released late November and debuting at Number 1 on the *Billboard* 200. In between tour dates, appearances at the MTV Awards, BET Weekend and other pro-

motional jaunts, Drake would lay down tracks on the bus and in hotel rooms to the producer's Mbox-based mobile rig.

"We have a plethora of interfaces, including a family of every Mbox five times over, tons of laptops," Shebib says. "It's grab a computer, grab an interface, plug in a mic and get going. When I'm on the road with Drake, I have a little rackmount on wheels that has an Omni HD interface in it and a Neve 1073 strip and a one-unit Magma chassis with a Native card. I plug this into my laptop wherever I go. This rig is pretty serious business when you're in a hotel room."

From planes to trains to automobiles, when

Drake has an idea for a song, the two whip out the mobile rig and record right there and then. When Drake's schedule permits, they also stop in at local studios to flesh out tracks. For example, at L.A.'s Marvin's Room or Toronto's MetalWorks, Shebib would plug his HD cards into his laptop via the Magma chassis, rip out the studio's DiGiLink cables in the back of their computers and plug them into his cards. "My laptops all come up right on the [studio's] console and that gives me free rein over the entire studio," he explains, "and it gives me 100-percent transparency and consistency when I walk back into the hotel rooms. So if someone says, 'Hey, can you tweak that one little thing?' it's really

Photo: Future the Primer



Executive producer Noah "40" Shebib has worked with Drake since the artist's debut.

easy for me to do it with a pair of headphones."

This portability also proved useful for the many guest artists on the album, in that Shebib could walk into the session with any of the artists and record straight to his rig. Even when the record neared completion and schedules with those guest artists conflicted with Drake and Shebib's, those artists' engineers could simply e-mail Shebib the take and he would then fly it into his Pro Tools session.

But front and center on the album is Drake. As this is more of an R&B-oriented outing—as opposed to being rap-heavy—Shebib kept Drake's vocals bright and clean and chose a Neumann mic through a 1073. "MetalWorks has a nice set of 1073s, originals," Shebib says. "They must have about 30 of them. I get my fair pick of the healthiest one on any given day and that makes me pretty happy." Shebib also places an LA-2 compressor before Drake's vocal, but touches it very lightly. For ambient noise and strings, Shebib uses stock Avid instruments, including Xpand, Structure and Hybrid. "I do a lot of processing, so every sound I pull up I hit with a pretty big chain of plug-ins," Shebib says. "I sculpted most of those sounds out of that and kept it really simple."

The album's 17 songs, two interludes and two bonus tracks proved to be a full plate for Shebib to mix, so he brought in some tried-and-true production help in the final stages, including assistant Noel Cadastre and Ruben Rivera from L.A., whom Shebib had met when working with Dr. Dre. "Ruben flew out to Toronto

LINER NOTES

Engineers: Derek "MixedByAll" Ali, Michael "Banger" Cadahia, Noel Cadastre, Ariel Chobaz, John Holmes, Brent Kolatalo, Carlo "Illangelo" Montagnese, Ruben Rivera

Mixers: Noel "Gadget" Campbell, Just Blaze, Andrew Wright

Mastering: Chris Gehringer

and spent six weeks with us [at MetalWorks]," Shebib says. "That was during the mixing process. Drake was continuing to record so I brought Ruben in so that I had someone to track him full time and I could hide in a different room and mix." For consistency's sake, it's fortunate that Rivera had worked with Drake before and so was aware of how the artist likes to record, the signal chain, etc. "It's hip-hop: We're talking about one input, one mic," says Shebib. "It's not the most challenging job in the world to track a rapper,

but the one thing that you need to be is extremely fast on Pro Tools because the caliber of artist that Drake is, he doesn't have the patience for wasting time. If he wants you to fly eight bars and put a chorus after that, he expects it done near-instantaneously."

Shebib also brought in mixer Noel "Gadget" Campbell so that he could focus on the overall production and sound during the last month. "I knew I wanted the mixes to have a huge bottom end and I wanted it to have his vocal sit on top," Shebib says. "We kept it very clean and straightforward so you can hear what he's saying."

Final mixes were handed off to mastering engineer Chris Gehringer at New York City's Sterling Sound, with instructions to keep Drake front and center, "as well as not losing too much of the low end because Campbell and I really pushed the low end on this record. He gave me back exactly what we wanted, and I feel like when you listen to it in a car or at home or with headphones or on a laptop, it's magical each way."

RELIVING THE DEAD

The Grateful Dead's Europe 1972 tour is legend among Deadheads, in no small part because it spawned four prior releases, including *Europe 72* and *Steppin' Out*. This year, Dead archivist David Lemieux spearheaded a 73-CD box set of the entire tour. All 7,200 sets sold out, and each show has been released individually. A three-person team made it happen.

Jamie Howarth transferred the original 16-track masters, using a bias oscillator to remove wow and flutter. "Plangent Processes transferred at 24/96 using our process to track the original tape machines' bias oscillator, using the bias as a clock source," says Howarth. "Bias is applied in the original recording by a precision oscillator that is much more stable than the tape transport. We basically pitch-correct very quickly and remove the wow and flutter of the original machine."

Jeffrey Norman at Mockingbird Mastering in Petaluma, Calif., mixed the entire run. Keeping his ears fresh during the process was a challenge. "I had five months to mix a project of about 400 songs," recalls Norman. "The challenge was how to mix so many songs and do a good job. The basic sound was right from the stage. I didn't monitor too loudly and I took breaks. I got a basic template that would work for each show. I had to average five or six songs a day so it was a little rougher approach than *Steppin' Out*."

Norman brought in David Glasser at Airshow Mastering in Boulder, Colo., to master. "Before we got started, David Lemieux said to be familiar with the other releases," says Glasser. "This is its own thing. It's a lot live-r sound, I think, a less-processed sound. The performances had a lot of consistency in the playing and tones of the instruments through the whole tour."

—Candace Horgan



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Emmy Award-winning guitarist/composer Brian Tarquin parlayed more than 20 years of experience in producing original music for libraries such as FirstCom, Megatrax, Sonoton and 5th Floor Music (ABC-TV) into creating TVFilmTrax.com, his new online production music library offering downloadable tracks to media professionals for licensing. The catalog includes a variety of contemporary genres, plus Tarquin's *Classic Rock* series of cover tunes (Led Zeppelin, ZZ Top, Eric Clapton) and *Guitar Masters* series featuring the likes of Jeff Beck, Joe Satriani, Steve Vai and more.

TVFilmTrax.com uses the Soundminer audio search engine to facilitate quick, efficient searches that accommodate a broad range of terms. "What's wonderful about broadcasters is that they're constantly looking for new music because they always have new productions," Tarquin says. "I thought the whole scenario of an iTunes for the TV/film industry would work out quite well."

—Matt Gallagher

Photo: Erik Christian Photography



B TOWN EXPANDS

Burlington, Ontario-based B Town Sound (btownsound.ca) recently hosted an expansion party to celebrate its Studios B and C rehearsal spaces coming online. The Hamilton Music Awards-winning

studio (Best Recording Studio of the Year; also nominated this year) caters to small and large ensembles—both local and international—and is owned by engineer/producer Justin Koop. Studio B (pictured) is producer Gianni Luminati's audio/visual lab, where he creates video compositions for artists like Walk off the Earth and Sarah Blackwood. The room is also used for all the mixing and editing. It has a Pro Tools|HD2 system, Universal Audio and API mic pre's, a Distressor and Chameleon Labs compressors. The fully floated room was designed and built by Koop. Studio C includes three multipurpose rooms for teaching, songwriting, recording and editing, and is open for rent on a daily or monthly basis to interns and recordings on a budget.

—Sarah Benzuly

ARE YOU IN THE LOOP?



Coming off of the recent Linkin Park tour as programming/playback engineer/keyboard tech, Dylan Ely announces the opening of his new studio, The Loop Studios (Corpus Christi, Texas). Ely and his wife, Michelle, co-designed and built the space with

consulting from studio designer Frank Comentale. The facility is centered on a Pro Tools|HD5 system with Genelec 8050 5.1 surround monitoring, a plethora of outboard goodies, amps and instruments.

"The whole facility was built out of necessity for a space to work," Ely explains. "So rather than just do a small mix room, we built a full tracking, mixing and production space. The goal of the studio is to help keep the local artist/talent here rather than them having to go to Austin, Houston or even Nashville in search of a high-end facility and experienced engineers with credentials."

—Sarah Benzuly



TURNER TURNS TO LAW0

Turner Studios, the broadcast production division of Turner Entertainment Group, has taken delivery of a second Lawo mc290 production console in its Audio Control Room 21 (ACR21), handling live sports studio shows and sports integration. The desk is configured with 48 channel faders, 16 central faders, 256 channels of AES I/O, 48 analog ins and 64 analog outs. The console's core is tied to a Nova 73 HD MADI router with 192 channels of MADI I/O using fail-over redundant connections. For this project, the Lawo Nova 73 HD was expanded to 40 MADI I/O ports, providing access to eight sound stage/studios and other shared resources such as a 64-channel I/O Pro Tools|HD system and the other four Audio Control Rooms. The 8,000x8,000 Nova 73 HD router is configured for approximately 1,300 signals in and 1,000 signals out.

—Sarah Benzuly

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BRINGING MUSIC TO THE PEOPLE

15 Years Onboard the John Lennon Educational Tour Bus

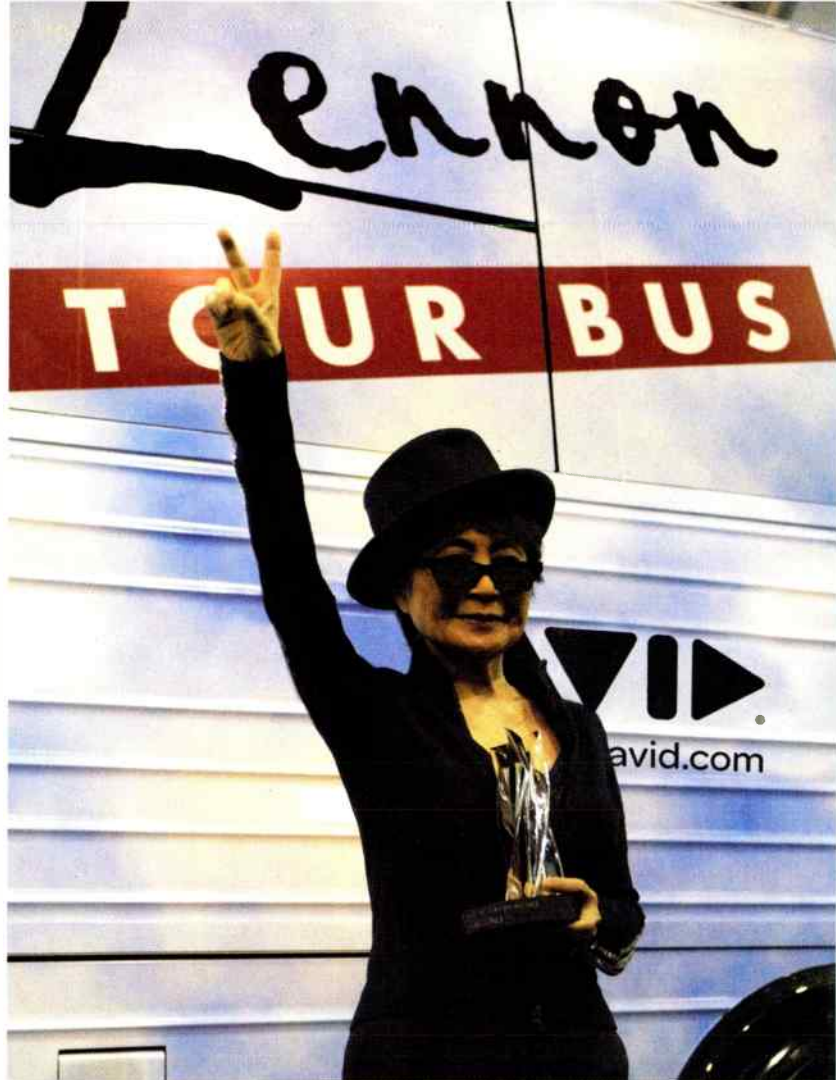
By Tom Kenny

It is unquestionably one of the most demanding jobs in audio, requiring a skill set that spans songwriting, musicianship, studio production, live sound, video production/post, IT and distribution. Ten months on the road, each day a new town, each day a new project from start to finish. It might be songwriting, it might be recording a band, it might be a documentary video. You never really know. The talent might be 13 years old and never have touched a musical instrument, or they might be in high school and in a band. They might just be in for a tour to learn about careers. Whatever the case, to be an engineer on the John Lennon Educational Tour Bus requires a ridiculously wide technical skill set, but perhaps more importantly a flexible interpersonal dynamic that can move fluidly between wide-eyed teenagers, high-level recording artists, corporate sponsors and a middle school principal who is knocking on the door at 7 a.m. ready for the meet and greet.

While it may be the most demanding job a young recording school graduate can take on, it may also be the most rewarding.

"I can't say enough about the engineers we have on the bus," says JLETB executive director Brian Rothschild, who founded the concept back in 1998 with Yoko Ono. "The spirit of the bus lives in the engineers onboard, and it's sometimes difficult to find the right people. You can be a great audio engineer or a great songwriter/musician, but if you don't have the ability to work with kids each day, if you're not a flexible personality..."

"When the bus rolls up, everyone is impressed by the technology, by the bus itself," adds chief engineer Jeff Sobel, who started a three-year run aboard the



Photos: Courtesy of John Lennon Educational Tour Bus

original vehicle in January 2002 and continues leading the engineering team to this day. "But by the time we leave a location, all we hear about is how great the crew was. When you find the right people, you hold onto them."

This month at NAMM, the JLETB kicks off its 15th year of continuous operation, and its mission of bringing practical arts and technology-based curriculum to often-underserved communities has evolved considerably. Originally, the idea put forth by Rothschild and artist manager David Sonenberg was simply a songwriting contest with Lennon's name attached. The bus was meant to be a five- to six-month promotional vehicle; it soon became something more.

"We were coming up with ideas of how to market the songwriting contest," Rothschild recalls. "Someone suggested advertising on the sides of buses, and it got me thinking, 'Well, what's inside the bus?' I thought it might be cool to have a studio on wheels to travel the country and support young songwriters. Of course, once it pulled up to my office here in New York, I think it was 4:30 in the morning, and I jumped on, it just looked amazing to me. And I started to see the possibilities."

The first real gig turned out to be pretty big. Wyclef Jean and Joan Osborne came onboard for a *Good Morning America* appearance in New York to write, record and perform an original song in a two-hour window, live. Some high school students were onboard that day, and soon after, calls started flooding in from school districts and organizations around the



Chief engineer Jeff Sobel (seated second from left) and executive director Brian Rothschild (left of Yoko Ono) with the Lennon Bus crew

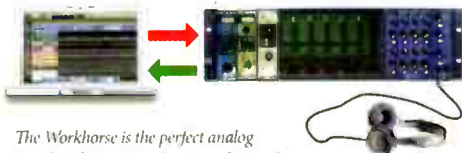
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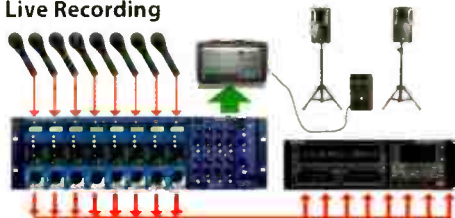
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Students at a Camden, N.J. stop

country asking how they might arrange a visit. It wasn't lost on Rothschild that the launch of the bus was coinciding with a drop in funding for arts programs nationwide. By year two, he had applied for nonprofit status, added an educational mission to the songwriting push and rewrapped the bus to reflect the change.

In January 2002, Jeff Sobel was graduating from a sound arts program when a placement director tipped him off to an opportunity to travel the country and give back to kids. He went to NAMM, worked the week, met the crew and signed on. He stayed aboard for three years.

At the time, the JLETB was PC-based, with a digital console, DA-88s for recording and space-hogging outboard racks. About 18 months into his tenure, Apple came onboard as a sponsor ("That was huge," says Rothschild) and Avid donated Pro Tools systems, so Sobel was given the opportunity to do a "soft" remodel/retrofit to reflect the new workflow. The outboard racks were taken out, workstations rearranged and the configuration revamped to allow for more of a recording space in the rear, with more isolation; he was assisted by Tay Hoyle of Taytrix.

For 2008, Sobel and Rothschild got the opportunity to rebuild from the wheels up with a brand-new 45-foot vehicle, along with a few

additional sponsors that took the bus to the next level: video, specifically HD robotic and XDCAM EX cameras provided by Sony, along with the Reflecmia Chromatte system for green-screen production, and Litepanels' professional lighting. The team had dabbled in video previously, but now it became part of the storytelling process. "I'm a big fan and proponent of having kids use technology to express themselves, to tell a story," Rothschild says. "When I was a kid, audio and video were separate disciplines, but young people today don't have that separation. Increasingly, to be able to compete today, you have to have lots of skills, and it's innate in the kids we see today. Many of the kids who walk

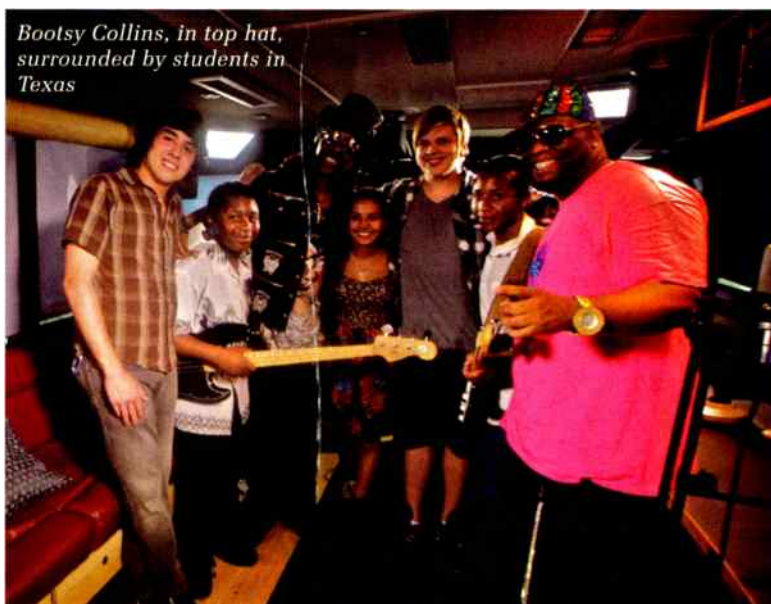
on the bus know things that they don't even know they know!"

Then at NAMM 2010, Avid boosted its sponsorship in a huge way, offering audio and video editing systems and interfaces. Other major sponsors include Montblanc, Neutrik, Gibson, Audio-Technica, SAE Institute, Roland, Apogee, Mackie and Disc Makers. New for 2012 is Newtek, which is providing the Tricaster for Web streaming, with satellite-uplink technology contributed by Todocast. "Our sponsors have been fantastic," says Rothschild. "Yes, they benefit from the marketing, but we seem to attract companies that completely buy into the mission. They go all-in."

The bus has also attracted its share of celebrities who want to give back, including the Black Eyed Peas and Fergie, who each have done portions of their albums on the bus; they began, Rothschild is quick to point out, long before they hit it big, working with kids whenever the bus came through L.A. The bus has hosted John Legend, Natasha Bedingfield and, most recently, Bootsy Collins for five stops in Texas. He will headline a special concert this year at NAMM. It also makes stops at Bonnaroo, Coachella, NAB, CMJ, the Warped Tour and countless universities and schools across the country. While the exposure is nice and it leads to press opportunities, all involved seem to get a bigger kick out of pulling into a middle school in Birmingham or Camden.

"We try to do our best over the course of any year to serve all kinds of demographics, across all areas of the country," concludes Rothschild. "In the broadest stroke, we are providing opportunities to young people, and some of the things we've done that I'm most proud of are sessions in severely underserved communities, where the kids walk on with no experience and no exposure to music or technology. By the end of the day, they've tapped into their own creativity and worked together to produce something original, something they can be proud of."

For the engineers, who Rothschild has dubbed "rock stars and roadies, all in one," each day brings a new opportunity, a new group, a new project, start to finish. They speak the language of collaboration and they teach kids what can be done when they put their minds to telling a good story. It's a mission that drives Sobel, who says, "I like the idea that we get these kids into an environment where they succeed because there is no time to fail."



Bootsy Collins, in top hat, surrounded by students in Texas



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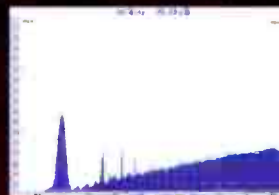
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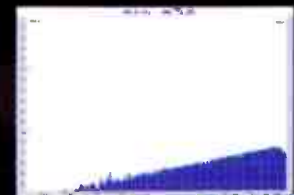
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DEREK TRUCKS AND SUSAN TEDESCHI

Couple Adds Live Album to Extensive Repertoire

By Candace Horgan

Although they have shared the stage together numerous times during the course of their 10-year marriage, last year marked the first time that guitar wizards Derek Trucks and Susan Tedeschi recorded an album together, *Revelator*. They assembled the 11-piece Tedeschi Trucks Band for the project and hit the road in the spring; in October, over the course of 21 days and 14 shows, they recorded material for their first live album.

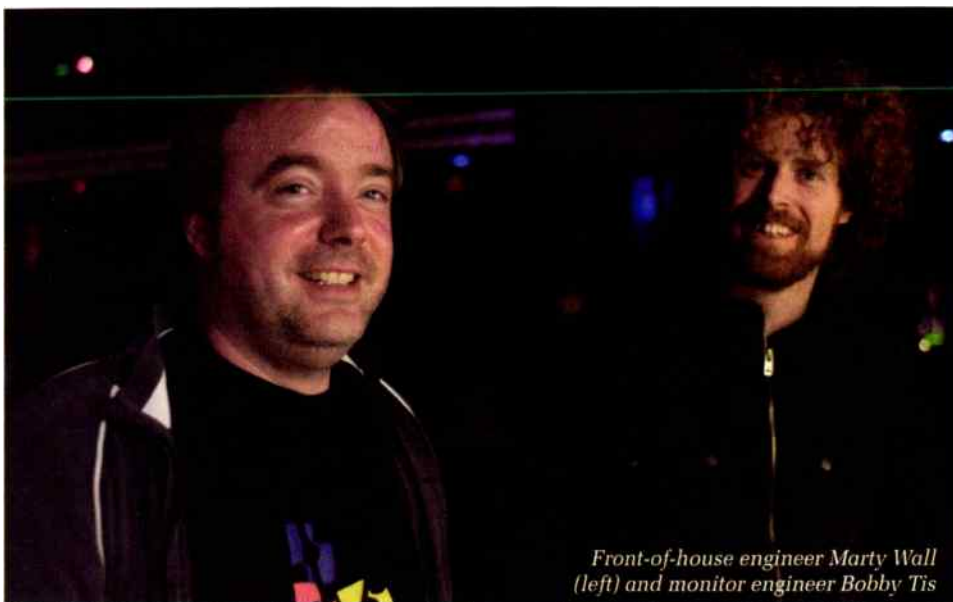
Engineering the show are Marty Wall at front of house and Bobby Tis at monitors. *Mix* caught up

with them at Denver's The Fillmore in November, where they relied on rental gear, including Midas analog boards. We spoke with them about the process for the live recording dates, where they were manning 54 inputs.

"Our input list was two pages long," says Wall with a laugh, who has been with Trucks since 1998, doing everything from mixing to driving the RV. For those gigs, he manned a DiGiCo D5. "They sound fantastic," he says. "Once you get to use them, they are very friendly. The EQs are some of the best out there." Wall also used Purple Audio 1176s on Trucks' guitar and Tedeschi's vocals.

close-miking of drums and single mics on the kicks and snare for the live stuff. When we were doing the recording run, we were able to expand upon that: [mike] bottom snares, dual kick drum miking, extra guitar lines, extra room lines. [On] both kick drums, we had a 421 kind of deep inside and a D-12 in the resonant head to give it that 'oomph.' We were using SM57s top and bottom of the snare; I love 57s for that. We had 451s on the hi-hats, Neumann KM184s on the overheads and E-V 635As, these old dynamic omni capsule mics that we were using, under the rides. Really, they became sort of an interesting,

"It was pretty insane," adds Tis, a 10-year veteran of sound engineering. "Normally, we just do



Front-of-house engineer Marty Wall (left) and monitor engineer Bobby Tis

Motown-y kit sound because of the omni capsule under the ride. We had some Sennheiser clip-on-style 904s on all the toms." Tis worked on a DiGiCo SD8, employing multiband compressors on his house monitor mix. "It's got that great clarity of an analog preamp, even though you are working on a digital surface."

Adds Wall: "I like compression, especially once I started using digital consoles." Concur Tis: "With an 11-piece band, compression becomes important because you kind of have to hold things in the right place. Then again, it's live and you don't want to take away from the dynamics, so it's kid gloves with the compressors."

For the recording of the live album, Tis' old company, SK Systems on Long Island, provided the DiGiCo consoles and monitor setup. Sonic Circus of Vermont outfitted them with a high-end rack of preamps from Millennia, API, Rupert Neve Designs and Brent Averill Engineering.

"We were getting some great analog sounds

BAND MICS

Bass Guitar: Pre going through a Brent Averill Engineering DMP. Also take it direct out of the head as an opposed signal and through an SM7 mic on the bass cabinet.

Keyboard: 414s on top of the Leslie, 421s on bottom. Radial DIs, 609 on Clavinet

Guitars: Amps take SM57 and KSM27
Horns: 421s
Vocals: Tedeschi on Telefunken M80; everyone else on Beta 58s and Beta 57s

before we even got into our consoles," Tis says. "From our DiGiCo desk at monitors, we went MADI out to a JoeCo BBR64 MADI recorder. Over two pieces of BNC, we were able to do 64 tracks in both directions, which allows for virtual soundchecking and playing back the tracks for reference. It writes data at 80 MBPS over USB 2, so it's not doing anything special. It seemed so terrifying to take a device out that was going to write over USB, but once we got it up and running, I was happy as hell, and it did not fail even once. We recorded at 48/24. In my opinion, 24-bit is really where it's at. Sample rate is sample rate; we did 48 to be video-ready, but it was all about being 24-bit."

In mixing the band, Wall went with the less-is-more approach. "Having two drummers is interesting, and they are both lead so I can shade the drums to the left and right a little bit," he explains. "The keyboards are stereo, and guitars are panned out sometimes, but not always. In a room like tonight, once we get a bunch of people in here, it's going to be fine. I'll have some freedom. I want it to be loud and powerful, but not too powerful. It's really tasteful."

Adds Tis about his monitor mixes, "The bandmembers tend to mix themselves. They're very dynamic. They're purists, and that's kind of where we're coming from. We're trying to represent them from an engineering standpoint and be purists as well."

DANTE IN INTER-M GEAR

Inter-M, the South Korea-based P.A. and installed sound manufacturer, will begin collaborating with Audinate to produce a line of products that will feature Dante, the latter's patented media-networking technology.

Inter-M manufactures P.A. systems, consoles, speakers, wireless systems and microphones that are in use throughout Korea in stadiums, performing arts centers and houses of worship. "We believe having Dante in our systems gives us a definite competitive advantage," says Wonho Lee, director of R&D at Inter-M. "We selected Dante because it provides us with an audio-over-IP solution today, and Audinate is the only company that can offer a viable transition path to AVB for the future." Inter-M plans to use Dante end-to-end throughout its systems, from Dante-enabled paging microphones, on through mixers and distribution units, to Dante-enabled powered speakers. Other manufacturers who have brought Dante into their systems include DiGiCo, Yamaha, Focusrite, Peavey, Crest Audio, JoeCo and others.

Audinate delivers a self-configuring, plug-and-play digital audio network that uses standard Internet protocols. Audinate's Dante system offers a solution for today while future-proofing implementations by providing a migration path to upgrade to new standards such as AVB.

Dante recently took home the Best Pro Audio Technology of the Year Award at the 2011 PALME Middle East exhibition. "As there are a lot of great other technologies in the audio industry, it is quite an honor to be recognized for the advancements of our digital media networking solution," says Audinate CEO Lee Ellison. "We believe that our recognition is a result of the many OEM partners who have embraced Dante for their products as the networking solution of choice for today's networks and as they move to AVB."



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General manager Stephanie Hansen and company principal Geoff Shearing

MASQUE SOUND SPARKLES AT 75

Jersey Boys, Billy Elliott, Phantom of the Opera, Les Miserables, Cats—Masque Sound has been integral to Broadway sound ever since three stagehands, in 1936, pooled their resources to create a new firm. Celebrating 75 years in the business under the leadership of third-generation owner Geoff Shearing, this SR/design/install company continues to expand its services, whether it's a move to a larger space, purchasing Professional Wireless Systems in 2002 or adding a permanent systems install division.

"A 75th anniversary is a significant milestone," says Shearing. "We are grateful to our many long-term clients and to a dedicated in-house team, some of whom have been with us for over 20 years. My father remains active and enthusiastically monitors our ongoing success from his New Hampshire home, just as my grandfather took great pride in dad's nurturing of our legacy. I grew up watching them make decisions about what new technology to invest in and how to grow the business in the most logical way. Their most important lesson was that customer service is the basis for all success."

EVANESCENCE FRONT-OF-HOUSE ENGINEER EDDIE MAPP

FIXIT

Having the option of four compressors on each channel [of the Midas PRO9] that retain your settings as you scroll through is invaluable. The adaptive compressor is amazing on drums and percussion, and I'm using two multiband compressors, a pitch and a delay for vocals, with two plate reverbs for drums. The ability to sidechain either the compressor or gate from any channel is now a must-have for my mixing setup. Another great feature is the KVM switch that allows me to have my Mac Mini on the right-hand screen. This runs the Meyer Galileo that I use for system tuning, my Smaart 7 setup and iTunes for playback, which makes for an extremely streamlined setup; now I don't have to worry about carrying a laptop out to front of house during show time.



CHURCH'S NEW KARAI SYSTEM

Christ Fellowship Church's flagship Palm Beach Gardens worship center is the first U.S. facility to take delivery of the new L-Acoustics KARAI system, as well as installing SB18i enclosures. Designed in SOUNDVISION, the three KARAI arrays are flown in an L/C/R configuration concealed in soffits above the stage of the 2,200-seat octagonal sanctuary. Two 4-box SB18i sub arrays (arranged in cardioid configuration) are flown in two spaces between the KARAI, while two SB28 subs are located on the floor beneath each KARAI array. Alan Jones of Pro Sound and Video's Miami location handled the sale and installation.

20 YEARS FOR AUDIO LOGIC SYSTEMS

What began as a small audio production company, Audio Logic Systems (Bloomington, Minn.) now boasts full-service production and installation services, including the recently upgraded Bethel University's (St. Paul, Minn.) Great Hall performance venue (pictured). According to director of operations John Simshauser, "The acoustical challenges of this highly reverberant space were minimized by the application of a d&b audiotechnik Q1 line array and a flown cardioid Q-sub array. The Q1 speakers are flown in a left/right main system with a center array covering the long throw to the balcony seats. The design maximized the visual impact of the system while maximizing the coherence of the audio system."



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CHICKENFOOT



When you assemble **Sammy Hagar** (vocals, guitar), **Joe Satriani** (guitars), **Michael Anthony** (bass, vocals) and drummer **Kenny Aronoff** (filling in for Chad Smith), you get supergroup **Chickenfoot**, who bring classic rock 'n' roll to each venue. *Mix* caught up with the group and crew at San Francisco's Warfield Theater.



Bassist **Michael Anthony**

has four racks, three with two Peavey VB-3 tube amps in each one and the fourth with several Peavey 700s. His bass cabinets are three VB-3 models, two 8x10s and a 2x15. Adds bass tech Kevin Dugan, "We have a wireless rack that utilizes a Monster power conditioner with an antenna combiner and three double units, six receivers with seven transmitters."



Kenny Aronoff is filling in for Chad Smith, who's out with the Red Hot Chili Peppers for this run. According to drum tech Nathan Staley (below), his kit is miked with Shure 91 (inside kick), Beta 52 (outside kick), SM57 (snare top, snare bottom), SM81 (hi-hats, ride) and KSM 32 (overheads); Audix Micro Ds (rack toms); and Sennheiser e 604s (floor toms).





Front-of-house engineer **Michael "Ace" Baker** (left) is currently working on a Yamaha PM5D for this run of clubs and theaters, but when the tour hits larger venues this year, he'll be turning to a Midas analog desk. "I'm not using any plug-ins, I'm barely gated," Baker says of the Yamaha board. "I've kinda compressed a few things and use hardly any effects: drum 'verb, vocal 'verb and vocal delay. Sammy's voice: a great singer plus an SM58 plus a nicely tuned speaker system equals we don't need no stinking plug-ins." Baker also uses a PreSonus StudioLive console for multitracking and a MacBook Pro recording with Logic, using the aux outs on the 5D into the StudioLive.

Monitor engineer **Jim Jorgensen** chose the Avid VENUE Profile for its ability to interface to Pro Tools and create a virtual soundcheck, as well as to easily transition from opener to headliner by recalling a scene. Onboard, he employs Drawmer TourBus comps and gates, as well as a couple of C6 compressors for more subtle compression on vocals and Serato parametrics on output mix buses. Creating an old-school garage-band rock vibe, there are no in-ears in use (except for a few by techs); instead, the band listens off of 20 wedges, a stereo side-fill and stereo drum mixes.



Guitar tech **Glade Rasmussen** (below) is filling in for longtime tech **Mike Manning**, who was unavailable for this leg of the tour. **Joe Satriani** uses Marshall amps miked with a Sennheiser e 906 for bite and a Shure SM32 for warmth. "Jim Jorgensen takes a direct out of Joe's amp to feed the drum monitor mix," says Rasmussen. "There is no bleed from the mics and that direct signal has a 1.6k slice that can cut through anything—very smart." Satriani's pedalboard comprises a wet reverb, two Vox Time Machines and a Big Bad wah pedal, a Roger Mayer Voodoo Vibe Jr., Marshall JVM foot controller, MXR Dyna compressor, Ibanez FL9 flanger, Voodoo Labs Proactavia and two Lab Pedal Power 2 Plus boxes, and Electro-Harmonix POG and Micro.



The two amps facing in on both sides of the drum kit are Hagar's, positioned where he intends to play. These amps are miked with a Sennheiser 409 and a Shure SM32.

Sammy Hagar sings through a Shure UHF-R with a 58 capsule. Monitor engineer **Jim Jorgensen** changes the wind-screen every night and the entire capsule every four to five shows, depending on how hard Hagar sang and the amount of tequila consumed onstage. "There are a lot of times where Sam and Michael sing together on Sam's mic and the 58 just works," Jorgensen says.



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Recording Chanticleer at Pyramid Studios for Halo: Combat Evolved Anniversary. From left: Peter Steinbach, Paul Lipson, Steve Heithecker, Matthew Oltman and Kristofor Mellroth

MUSIC CENTERSTAGE IN GAME RELEASES

Pyramid, Skywalker Sound Up the Musical Ante With *Halo: Combat Evolved Anniversary*, *Kinect Disneyland Adventures*

By Blair Jackson

As videogames have become more sophisticated and complex in recent years, so too have their music scores. Long gone are the days of simple scores banged out on solitary keyboards and integrated into the game at the lowest possible bit-rate. Orchestral scores are common for big-budget games, as are hybrid scores that use electronic and/or percussion

elements, rock and other music forms, as well as orchestrated passages. With some top games requiring two or more hours of music, there has been plenty of work for large and small studios to keep up with the demand, and musicians and singers are finding a new source of income for their talents.

Take, for example, two wildly different games that were released on November 15 by Microsoft Games Studios for Xbox 360: *Halo: Combat Evolved*

Anniversary and *Kinect Disneyland Adventures*. Both of these certain hits shared the same audio director (Microsoft's Kristofor Mellroth), music production company (Pyramid Studios of San Francisco) and recording facilities (a combination of Pyramid and, for each game's orchestral score, Skywalker Sound in Marin County, Calif.). Yet each project had so many unique challenges dictated by enormous differences between the two games, it's difficult to make generalizations about what is required from a music recording standpoint at this upper level of what is known as Triple-A gaming.

HALO REDUX

Halo: Combat Evolved Anniversary is something unusual in the game world—a complete remastering and revisiting of a classic first-person shooter game. Bungie's original *Halo* title was the flagship game for the Microsoft Xbox format, released 10 years ago to

the day of the *Anniversary* edition. The new version, developed by 343 Industries, hews very closely to the original but with greatly enhanced graphics, plus improved audio and a complete reinterpretation of Martin O'Donnell and Michael Salvatori's famous score—so instantly recognizable to gamers for its chanting monks and driving synth cellos.

"It's my favorite game of all time," says Microsoft's Kris Mellroth. "It was a landmark game, not just for gameplay, but for audio as well. It also has that super-iconic score. So it was a little nerve-racking [remaking it], and I wanted to make sure we got it right, so I wanted to have a team I knew would treat the music with respect. We weren't there to second-guess what was done before; we were there to make a super-high-quality remaster of what's there. In a way, it's a love letter to the original. I'm such a fan of Marty and of [original sound designer] Jay [Weinland], and I played *Halo I* so many times."

With Pyramind's long history of top-quality music and audio work for games by so many major game-makers—including Ubisoft, LucasArts, Sony Entertainment, Electronic Arts and Microsoft Games—it was a natural choice for Mellroth when he was looking for a one-stop shop that could handle music, audio post, implementation, mixing and mastering. Between Pyramind audio director/composer/COO Paul Lipson and founder/CEO/mixer/mastering engineer Gregory Gordon (and their team in their downtown S.F. studios), they had all the bases covered.

"The original *Halo* score was mostly sample-based," Lipson says, as he and Gordon sit in Lipson's studio/office, "and there was no sheet music at all. I was given a file directory for the in-game music, and then Lennie Moore [a well-known composer and orchestrator in the gaming world] and I transcribed every single note of the score and re-orchestrated a lot of it." As Mellroth notes, "If we could find a way to enhance something—say, add some brass for this passage—we were going to do it."

The score's non-orchestral portions were tracked mostly at Pyramind, including new guitar performances by Lipson and Bryan Dale, some bold synth work spearheaded by Brian Trifon, and percussion elements "virtualized" by Lipson and New York musician/composer Tom Salta, a longtime collaborator with Pyramind. "We did record a live drummer for a few tracks at our studios here," Lipson says, "and I know Tom brought in a live percussion player to blend in, as well, but most of it was created using custom samples and sequencing."

Then there were the monks. For *Anniversary*, Pyramind hired what Lipson calls "the finest vocal

ensemble in the world," the San Francisco-based all-male group Chanticleer, who had never sung on a videogame before. "The monks are the most iconic thing in the score, so it was important that they sound really powerful. As a longtime fan of Chanticleer, I was thrilled to get to record them here at Pyramind Studios."

SKYWALKER SESSIONS

The orchestral sessions took place on Skywalker Sound's enormous 60x80x30 Scoring Stage over five days this past June, with the studio's director of music recording and scoring, Leslie Ann Jones, engineering and Lipson producing. Pyramind's Michael Roache was production coordinator, and Skywalker's Andre Zweers was the primary Pro Tools operator. The group known as the Skywalker Symphony Orchestra—contracted for the sessions by Janet Ket-

there would be greater flexibility in the mixes. "The cellos played a crucial role in the score and needed to be very prominent in the mixes, so isolation was very important," says Gordon. Jones and her team still set up the room as if a full orchestra would be playing at once—with strings in front, brass in the rear and a slightly baffled middle section for woodwinds—and assigning spot, section and room mics accordingly. Among the mics Jones selected were C12s for first and second violins; U67s for violas; KM84s for cello; and M49s for double-bass, all through Neve 1081 console-controlled preamps. Other models included Neumann KM 140s for flutes, oboes, clarinets and bassoon, also through the Neve preamps; Neumann TLM 170s on trumpets; U87s on trombones; two M149s and a KM 143 on the French horns (front left/right and rear, respectively); and a Neumann M147 on tuba, all through Grace 801R preamps. There



The Kinect Disneyland Adventures team, from left: Mark Griskey, Lennie Moore, Laura Karpman, Paul Lipson, Leslie Ann Jones, Peter McConnell, Wataru Hokoyama, André Zweers, Michael Roache

chum—is made up primarily of players from the San Francisco Symphony, Opera and Ballet Orchestras, but also draws from the Marin Symphony and the Oakland East Bay Symphony. This is a union gig, so it does not come cheaply, but not long ago, game-makers managed to cut a special deal with the American Federation of Musicians in which musicians are paid more up front for videogame music sessions to compensate for the fact that there are no "back-end" residuals as there are for TV and film. Conducting was noted game music composer and conductor Wataru Hokoyama.

For the *Halo* sessions at Skywalker, the strings were recorded separately from the brass and woodwinds on alternating days in different sessions so

were also two high L/C/R "trees" up front and center for an overall view of the strings; one had three Neumann M50s going through GML preamps, the other was testing the new Telefunken 261s through John Hardy Jensen pre's ("hung adjacent to M50s so I could compare them," Jones says). Additionally, Jones put up a pair of wide mics, surrounds, a mic dedicated to LFE and a pair of Neumann KM133D (digital mics) "as an experiment to get a mid-room sound of the brass."

Everything was recorded through the studio's Neve 88R console to Pro Tools|HD at 24-bit/96k—though because of limitations in the original *Halo* engine, the music appears in the *Anniversary* game at 16/48. Lipson and Andre Zweers executed the

Wataro Hokoyama conducts the Skywalker Symphony Orchestra



session edits, and then all the various stems and sessions from Skywalker and Pyramind went to Gordon, who mixed and mastered all of the in-game music, as well as the double-CD soundtrack and the limited-edition vinyl release.

"What happens with games like these is the cue

count goes through the roof and the number of files you have to keep track of and the asset management required is phenomenal," Gordon says. "This is why we have a full-time project manager to keep track of all the different takes and which tracks and stems go with which, because you're recording material in one

studio that needs to get mixed with material from another, so we're very fortunate to have Michael Roache there every step of the way."

VIRTUAL DISNEYLAND

Kinect *Disneyland Adventures* was perhaps an even more complicated and involved project for Pyramind and Skywalker. The game, created by the UK's Frontier Developments, is the latest to employ Microsoft's proprietary Kinect technology (introduced a year ago), an interactive motion-sensitive gaming environment along the lines of Wii Remote Plus and PlayStation Move, but requiring no controller other than a moving body. The Disneyland game allows players to experience many cherished attractions at Disneyland—the Matterhorn Bobsleds, Pirates of the Caribbean, Big Thunder Mountain Railroad, the Haunted Mansion, Space Mountain, the Jungle Cruise, et al—and interact with some 40 Disney characters, as well as conduct the Disneyland Parade. It also features wall-to-wall music—more than 300 minutes of newly orchestrated and performed versions of numerous beloved Disney themes, along with new music composed in the spirit and style of classic Disney.

(continued on page 89)

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THE MIX INTERVIEW



By Gregory A. DeTogne
Photo by Rob Fortunato

JAMES TAYLOR

With sales of more than 40 million albums posted over a lengthy career dating back to 1968, when he signed with Apple Records, James Taylor remains at the top of his game. Lionized by fans, respected by his peers and solidly committed to the art of his craft, the singer/songwriter calls his life his music. Despite all the Gold, Platinum and multi-Platinum accolades, all the Grammys and all the fame, he still finds comfort and purpose on the road, where he continues to set records for ticket sales and simultaneously cultivates an uncanny knack for connecting with his audiences on an intimate level, even in large venues.

His songs need no introduction: "Carolina in My Mind," "Fire and Rain," "Sweet Baby James," "Country Road," "Shower the People." The melodies, lyrics and harmonies reveal emotions that are at once both subjective and shared on countless levels. If there is any key to his success and longevity, perhaps a hint of its discovery can be found in his unwavering baritone and singular guitar playing. Beyond that, we're left with a large degree of genuine honesty and spirit, which reveal themselves here in "The Mix Interview."

Touring is a natural and vital part of what I do. Given the current economic climate, live music is really where the money is now. Record royalties clearly belong to another time.

Much has been said about the romance and allure of the road. What are the realities for you?

A touring show is an interesting entity of its own. It's a very functional existence, it's very clear what the priorities are. Despite the punishments of having to be away from your home for long periods, you learn to get enough sleep, exercise, eat the proper foods and pace yourself. Every day you're dealing with multitudes of people. It's like being part of an organism, living in a pod of dolphins or a school of fish. You're constantly moving through the country, different cultures, the world. It's always fascinated me and still does.

They are indeed a crack bunch. Everyone approaches their job from a perspective of the whole, not just their special area of expertise. There is a spirit of unity and cooperation that allows us to accomplish a lot with fewer numbers.

Back in 1968, when I committed myself to being an itinerant entertainer, I wouldn't go as far as saying there wasn't a methodology established for getting these shows on, but as far as many of us were concerned, we were clearly making a lot of it up as we went along. There weren't clear ideas on how to do certain things: monitors, for instance. Or how to make an acoustic guitar speak properly in front of 10,000 people. These were things we had to experiment with and develop our own techniques for. Beyond the gear, the same thing could be said about how we traveled and where we stayed. On many levels, we were learning how to book a tour efficiently. As we went on, we got good at playing the summer venues. We were a shed act, and for many, many years, the core of my touring experiences revolved around the summer tour.

Same as they are today, really; now we just approach things with a different and better set of tools. The biggest hurdle we faced was trying to mix my acoustic guitar and vocals with the band. Then, just like now, you had to find a way to amplify my guitar and keep the stage level of everyone else within the same range. Everything had to be balanced according to the needs of

THE MIX INTERVIEW: JAMES TAYLOR

the room or else your sound would just take off through the roof. Overexcite the environment, and things becomes unpredictable—dead zones in one place, hot spots in another.

Your front-of-house engineer, David Morgan, and monitor engineer, Rachel Adkins, are helping to achieve this sound today. How do you expect to do it?

Rachel has been with me for years and basically worked her way through the ranks to where she is today. I met David in 2005. While looking for a new house engineer, I asked myself, "Whose sound is most like mine, and who has similar sensibilities?" I was always an admirer of Steely Dan and Simon & Garfunkel. When I discovered that David mixed for those artists, as well as Bette Midler and others, I thought he would be a perfect match for me. It turned out I was right.



David notes that shortly after you first met, "I sat down with you and discovered a secret of your signature guitar sound" (see sidebar). How would you describe your playing?

You could say I finger-pick, it's a very pianistic style. I'm not a virtuoso, I don't go up the neck much—rather than chords, I play lines. There's definitely a bass line I play, and that makes it a challenge for a bass player to work with me because I force the bass part by what I'm playing with my thumb. I play with three fingers and the thumb on my right hand. I definitely trend toward a Latin feel. I don't swing that much, but when I do I push it toward the Latin side of things. I like that spot, somewhere between a swing and a mambo.

You used a Gibson 150 guitar on your first two albums, and Olson guitars have figured prominently in your sound for recent years. How have these acoustic instruments held up with your playing?

WHAT OTHERS SAY

SECRETS OF JT'S GUITAR: CHORDS IN REVERSE

Ever wonder what it is exactly that makes James Taylor sound like James Taylor? His front-of-house engineer David Morgan did, and pinpointed at least one source of the artist's singular sonic signature shortly after meeting him in 2005.

"I was watching him play and noticed he used inverse fingering techniques on some chords," Morgan recalls. "Most specifically, while playing A and D chords, he'd have his index finger on the first string and his middle finger on the third—just the opposite of what most players would traditionally do. If you think about it, this goes a long way in defining the James Taylor sound."

For his part, Taylor mostly shrugs off the importance of Morgan's revelation, responding that that's the way he learned to play those chords. "My way does allow me to really hammer off that third string, though," he admits. "I can really pull hard, and I guess you could call that a signature thing for me."

Now go listen to "Country Road" or "Fire and Rain" again. Yes, that's where that little fill on the third comes from. "The technique frees up his pinkie to help run the bass lines he's known for, too," Morgan adds. "I can't help but wonder how many other people wondered how he did these things all these years. Well, the cat's finally out of the bag."

ON MONITORS...

Onstage, the JT show is a mixed bag of sonic sources. "Despite the diversity of how the performers listen to their stage mixes, this show is very straightforward from a monitoring perspective," says monitor engineer Rachel Adkins. "In terms of stage volume and consistency, it may indeed be true that the ideal situation would be one with everyone on ears. But reality dictates that my aural palette is one that draws from both ears and wedges."

Drummer Steve Gadd likes wedges. Ditto Larry Goldings on keys and Mike Landau on guitar. Taylor has been known to take a combined approach, at one point using a powered monitor on his right side and a single, mono-fed earbud on his left—a habit first established while doing shows with a small rhythm section and a symphony orchestra.

Giving guidance to the whole affair from behind an Avid D-Show desk, Adkins takes it all in stride with professional panache, making the task sound much easier than it actually is. "I just make a few adjustments here and there," she says, downplaying the importance of her efforts. "The stage dynamics are fantastic. Even the finest chefs still have to choose the right ingredients to make their food taste great. It's a similar situation in my world. But with musicians like this onstage, the substance of my role gains a huge amount of integrity before I even power-up my console."

GUITAR TECH JON PRINCE

Jon "JP" Prince first met James Taylor in 2001 during technical rehearsals for the Pullover Tour in West Palm Beach, Fla. Hired-on as a carpenter/rigger, JP was 30 feet up in the air lying belly-down in a truss, finishing up some last-minute airborne details. "Don't drop anything on me now," Taylor told the high-flying JP good naturedly from below as he inspected the stage. JP didn't, of course, a fact which in terms of career moves translated thereafter into landing the job as Taylor's trusted guitar tech.

As with every member of the Taylor crew, JP is a master of multitasking. During a show, if he's not stealthily handing-off a guitar to Taylor onstage, he's probably tuning another, plus doing a lot more. "I listen to the same mix as James does, so I know immediately if there's a problem," JP relates on jamestaylor.com. "I'm also watching to make sure [bassist] Jimmy Johnson and [guitarist] Mike Landau are comfortable and have everything they need. Along with my own specific duties, I'm one of the many sets of eyes and ears on the road crew working to keep things running smoothly."

JT'S ROAD GEAR

Guitars found within Taylor's road inventory include Olson SJ and SJ Cutaway and Dreadnought models. His main guitar is an SJ with a cedar top and rosewood back and sides. Each of the Olsons is outfitted with LB6 Series pickups from L.R. Baggs. A mainstay among performers playing large halls, the unitary pickups/saddles are used with Radial Tonebone PZ-Pre preamplification leading into a Fishman Aura acoustic imaging blender.

"Gains are formidable with this combination," FOH engineer David Morgan notes. "The strings sound as if they are resonating in wood, not across a crystal. Making an acoustic guitar sound real is a major sound reinforcement challenge James has long addressed."

Turning to the electric side of things, when he uses his Telecaster, JT plays through a Line 6 PODxt guitar effects unit programmed by Michael Landau. For vocals, he uses an Earthworks SR40V cardioid condenser. "We first used the SR40V when James and Carole King played the Hollywood Bowl last year on the Troubadour Reunion Tour," Morgan recalls. "We had tried the original prototype earlier in rehearsals and knew it had all the characteristics we were looking for in a high-end vocal mic. The SR40V perfectly complements the natural sound of James' voice. Implementing the first working model was an easy choice, and partnering with Earthworks on the development of this exceptional product has yielded outstanding results."

The Holy Grail of acoustic guitar for live performance is finding a way to get the artifacts out of the transducer. The slight buzz, the quack we've all experienced. They're moving targets, and unfortunately you just can't dial them out. To me it seems like there's this little curve of phase cancellation followed by augmentation that occurs with

each note, and it's not static enough that you can find it easily. This is the major thing we've dealt with, and right now we have a pretty good handle on taming the problem using Fishman's Aura acoustic-imaging blender.

Doesn't the way you play have a lot to do with it?

The type of music I play and perform is best experienced in a room with seating for under 5,000. When it gets bigger than that, our efforts turn toward bringing the more distant places in close via video and added sound reinforcement. The Rolling Stones, U2, Paul McCartney—those

ROAD CREW

Ralph Perkins, production manager
 Meagan Strader, tour manager
 Jonah Lawrence, stage manager/
 utility infielder
 David Morgan, FOH Rachel Adkins,
 monitors
 Andy Sottile, Clair Systems
 engineer/crew chief
 Jon Prince, guitar tech
 Mark Konrad, keyboard tech
 Scott Hoffman, drum tech

shows are great in stadiums. Me, I'm best in a medium to small environment.

Do you have a home base?
 I play some really wonderful spots. We play Tanglewood every year for three or four shows, I guess that's become home base. We typically play there over the Fourth of July. Tanglewood is built for an acoustic symphony orchestra; put amplified music in there,

and it can be difficult to mix. But as a venue, a location, it's great. Beyond Tanglewood, it's hard to turn down Carnegie Hall. You have to be just as careful not to overdrive things there, too, but it is just one of those places that has such definition. You have a sense of always being in the center of the room when you're onstage.

So you're doing this for the fans and the music?

Yes, and because it's what I love to do, it's where my heart is: touring, being on the road, the bus... with my band and crew, and keeping in touch with this great audience that has stuck with me for so long. It's a good living, the audience is my focus.

Year two of the album is out. How's it going?
 I love playing with Bonnie Raitt, Alison Krauss, Jerry Douglas, Yo-Yo Ma, Sheryl Crow, Vince Gill, Amy Grant, Tony Bennett. I've always had enormous respect for artists like these that embody living a life in music. They think of music as their life's work, not a chance to just make hay while the sun shines. Having a chance at the last-possible moment to record with Ray Charles was unbelievable.

What are you working on now?

Good question. I have an album that's about half finished, and I need to do some more writing. Following this summer's tour, I'll have a chance to stash myself away and finish this project. It's definitely time. The last record of new material I did was in 2003, so I need to get this out there.

Who are the usual suspects?

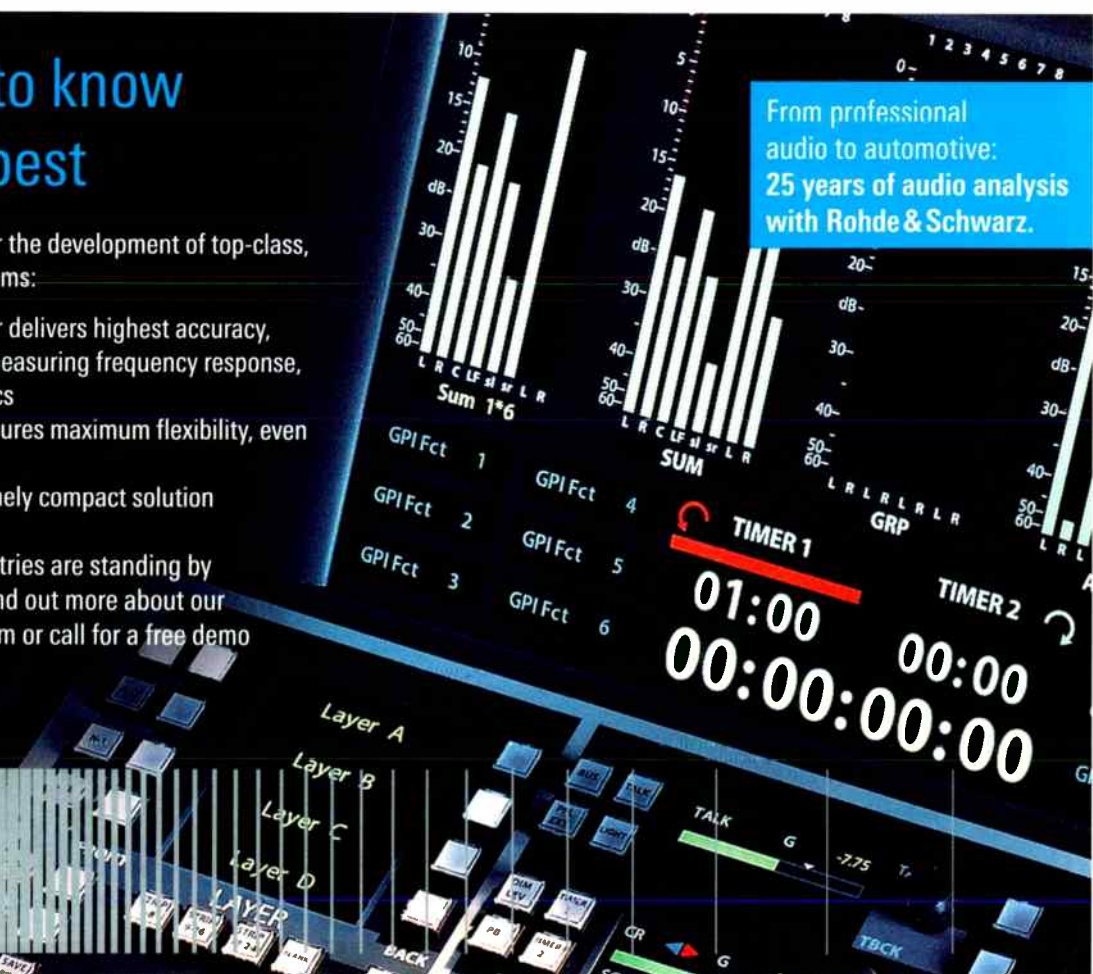
Maybe some of the usual suspects: Jimmy Johnson on bass; Mike Landau on guitar; Larry Goldings on keys; Arnold McCuller, Kate Markowitz and Andrea Zonn on vocals; Steve Gadd on drums; Luis Conti on percussion; Walt Fowler and Lou Marini on trumpet and sax. There is nothing like fronting a band like this. The power and musicianship is unparalleled.

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'War Horse'

...and the return of Gary Rydstrom

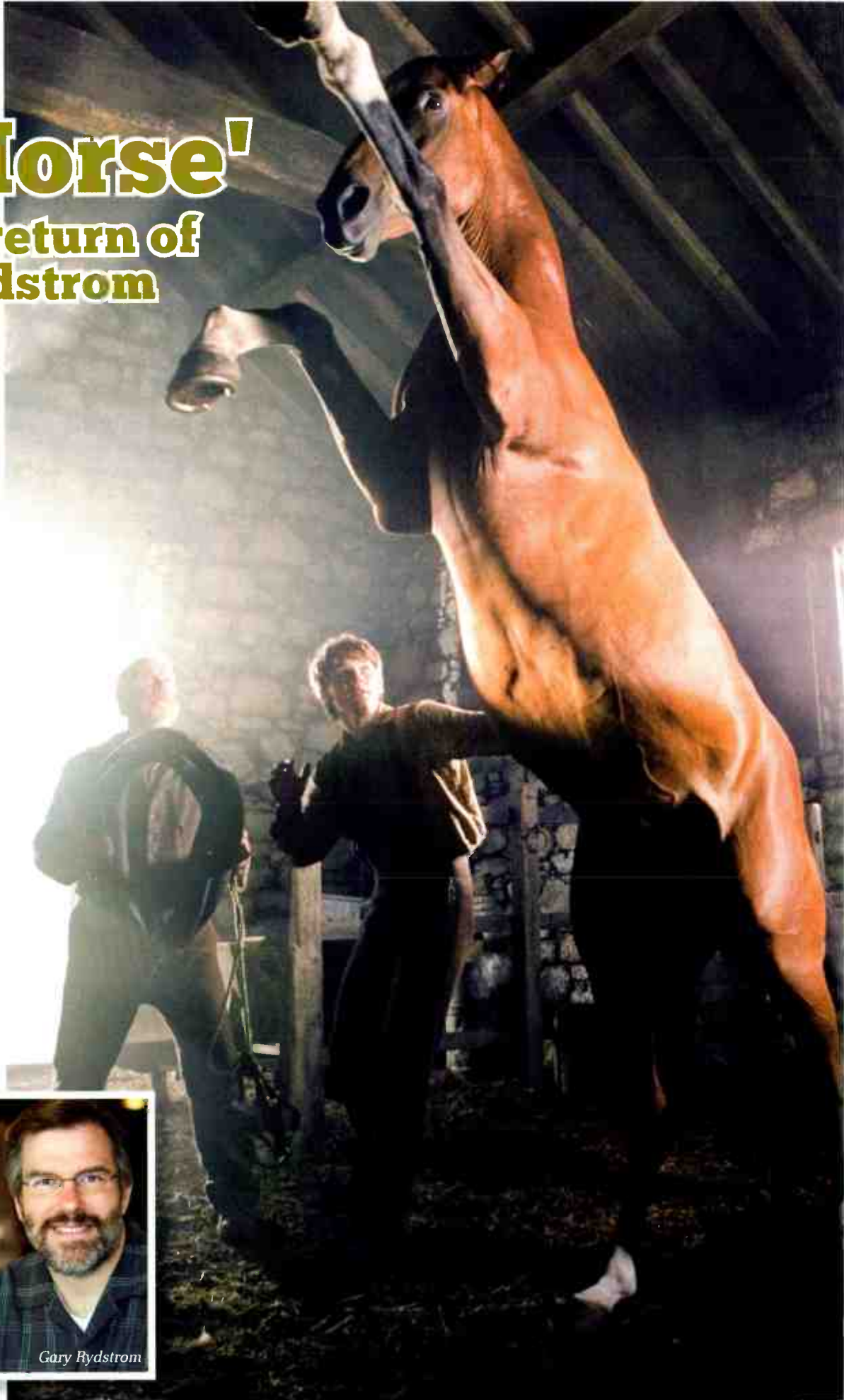
By Blair Jackson

Steven Spielberg's *War Horse* is a classic Hollywood epic, a throwback to a different era of filmmaking, when character development and telling a story in a cogent and methodical way were more important than gimmicky effects and manic pacing. The film is unabashedly aimed at families—there's no sex, bad language or gushing blood—yet it is also a tale about war, violence, and complex and often difficult relationships.

"When I saw it, I was amazed how old-fashioned it felt, in a good way," comments Gary Rydstrom, who was co-supervising sound editor (with Richard Hymns), sound designer and FX re-recording mixer for the film. "So many modern movies tend to have more edge or sarcasm or self-awareness, and this is telling a very big story in an episodic way. It's traveling long distances and meeting a lot of different characters. It has a David Lean grandness.

"It's a story about humanity surviving in the midst of war, told through how people relate to horses, really," he continues. "It has a beauty to it that's fitting and also a real emotional power. I had never worked on a movie quite like this. For me, it felt like I was able to get into a time machine and do a movie in 1960, but with Pro Tools and digital consoles." [Laughs]

War Horse, and the recent *Mission Impossible: Ghost*



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Protocol, mark Rydstrom's return to mainstream feature sound work following seven years at Pixar, where he directed and supervised the sound for a pair of well-received shorts (*Lifted* was Oscar-nominated), was the studio's in-house audio consultant and was directing a full-length film called *Newt* until it was canceled in mid-2010. Before his time at Pixar, Rydstrom spent two decades at Skywalker Sound, working on dozens of top films, nine of which earned him Oscar nominations; of those, seven wins for four movies: *Terminator 2*, *Titanic* and two Spielberg films, *Jurassic Park* and *Saving Private Ryan*. He last worked with Spielberg on *Minority Report* in 2002.

Rydstrom got the call to work on *War Horse* a few months before the relatively short two-month shoot in England during the fall of 2010. "We did a lot of our collecting of sounds based on the script, and luckily the script had a good sense of what the movie would be and a great sense of tone, and it also had that old-fashioned quality. Maybe that's why we collected so many sounds—because we hadn't seen the movie yet. We did some recording trips that, had we seen the movie, maybe we wouldn't have done. But once we did see the movie, we had a huge amount of great material to work with.

"We recorded all over the place and we had a lot of people doing it," he continues. "E.J. Holowicki [who has contributed sounds for numerous Pixar films] did a lot, and Nia Hansen was a field recordist for us on this and happens to own horses and know horses really well. We recorded a ton of stuff and a lot of it, not surprisingly, was horses and every type of horse, including a foal being born, which is pretty amazing. We recorded race horses, putting mics with jockeys on the horses because we had cavalry charges [in the film]. Nia went to a vet hospital at UC Davis and recorded horses coming out of anesthesia, sick horses, horses with tracheotomies. The sad truth is this often is a movie about horses struggling, so we had to find ways of capturing that without making them actually go through what it looks like they're going through.

"At the beginning, Spielberg said to me, 'Just make sure they're really horses.' I think he worries that we sound people are going to put together a walrus and an otter and call it a

horse," he says with a laugh. "Every movie I've ever worked with him, Steven gives me something not to do, and for this one, it was to not use non-horse sounds for horses. But that was fine because horses make such a broad range of sounds. For me, the great revelation was, if you record miniature horses, which have an emotional range that makes them seem almost dog-like at times, and then slow them down, they sound like a full-sized horse."

Do you do your pitch alteration in Pro Tools? "Within Pro Tools, and I also still have a Synclavier. My room at Skywalker is pretty much a museum of the 1980s," he says jokingly. "I've got a Synclavier and a quarter-inch deck—there's still nothing better for slowing sounds down."



There are two main horse characters in the film: We follow Joey from his birth on a farm in southwest England through his "conscription" into the British Army on the eve of World War I (hence the title); and the larger black horse Tophorn figures into the war part of the story. Rydstrom says it was important to give each horse his own sonic personality, so great care was taken in assigning vocalizations, breathing and movement sounds to what are, in a sense, the film's main characters.

"When I first talked with Spielberg," Rydstrom offers, "what I most wanted him to explain was his idea of Joey's character because we treat him

like a real actor. And he said Joey was noble, so even when Joey's in pain, we still wanted to make him somehow sound noble. The movie is full of opportunities to let the horses 'act.' All of the vocals and sounds of Joey for the whole movie were cut by Terry Eckton, who's a longtime Northern California sound editor who specializes in creature vocals.

"We collected so many great horse sounds, and then I would organize them: 'This seems like a Tophorn vocal, this seems like a Joey vocal, based on size. This might be good for this scene.' When Terry started cutting the horses, we would spot it, and this is where my years at Pixar came in handy because it was sort of like working with an animator, where

you say, 'I want the character to feel like this, or do this, or do this.' So we would talk about where the horse's brain was—what he was feeling—in the scene and then try to create a character through that. Terry would go off and cut something amazing from our library and then we'd finesse it into the movie. Breathing does a lot for you, and there's a huge range of breathing, but it's also one of the hardest things to cut because there's a pace and a rhythm to it. When we got to the final mix, we ended up simplifying some of the horse vocals and relied more on breathing."

Horse Foley—encompassing hoof steps, body

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World Radio History

swishes and shudders, and tail shakes—was also critical in providing depth and dimension to the horses. Dennie Thorpe and Jana Vance performed the Foley, which was supervised by Luke Dunn Gialmuda, recorded by Sean England and edited by Colette Dahanne.

The other major aspect of the film is war, and that area also offered many challenges to Rydstrom and his team. There are a few big battles, including one in which a regiment of British cavalry unwittingly charges into a hidden nest of German machine guns, and a long, pivotal scene depicting trench warfare and its

attendant horrors—the steady bombardments, the seemingly ineffectual assaults where hundreds of lives are lost trying to take over a few more yards of the contested “no man’s land” that separate the British and German troops. Still, this is a PG-13 film and the overall look of the film, even the war scenes, is more poetic than graphic.

Rydstrom comments, “Comparing it to *Private Ryan*, which had a sort of brutal, realistic quality to it—almost a documentary, you-are-there, walking through D-Day with a Bolex camera feeling—this is more distanced. And we

did that with the sound, too; we tried to give it a more controlled, bigger-than-life feeling. There are still real guns and real artillery-bys and the sound of distant artillery. But I felt on this movie I could be more flexible with playing around with the war sounds than I was on *Private Ryan*, where I felt I had to be true to life. Here, I thought we could be a little more stylistic because of the tone and because, really, it’s a story about war perceived by horses, if you think about it. I thought we had the leeway to do more iconic war sounds.”

As is common with these sorts of films, the recording team captured a wide variety of guns and ordnance from various distances and angles using portable digital recorders. However, “We also dusted off the Nagras and did a lot of the recording of guns and artillery and explosions with those,” Rydstrom says. “They’re just as hard to lug around as they always were, but they gave us a really big, beefy sound. For a lot of the gun recording, we’d record on Nagras and a series of digital recorders at the same time and I could mix and match. But there was a quality to the Nagra recording the digital couldn’t match.”

For an important scene involving Joey being terrorized by a then-new Mark IV English tank, Rydstrom notes, “It was impossible to find a working Mark IV tank—the one they used on the set was something else underneath. For the tank, the engine became less important, and what we concentrated on instead was the squeals it makes and the grinding of the gears and the rattles. It ended up being a mish-mash of things. I even recorded my push lawnmower—this old-fashioned, spinning lawnmower—and I slowed that down and combined it with other stuff. I admit I did go into the *Saving Private Ryan* library and found a basic engine that would work and some tread stuff, but then we sweetened it and made it rattlier and squeakier than anything we had done before.” As for the new-fangled 250-round Maxim *maschinengewehr* (machine gun), Rydstrom credits production recordist Stuart Wilson with getting some excellent recordings of Maxims on the set.

Other war sounds—the majority of them off-camera, allowed Rydstrom and company to get creative: “We manufactured a lot of sounds of explosions and war as heard from a trench and I used things that weren’t real—I used glacier sounds or cracking wood and slowed them down and phased them and treated them a little bit. It was a way to get that claustrophobic feeling of the trench. We also manufactured all these really

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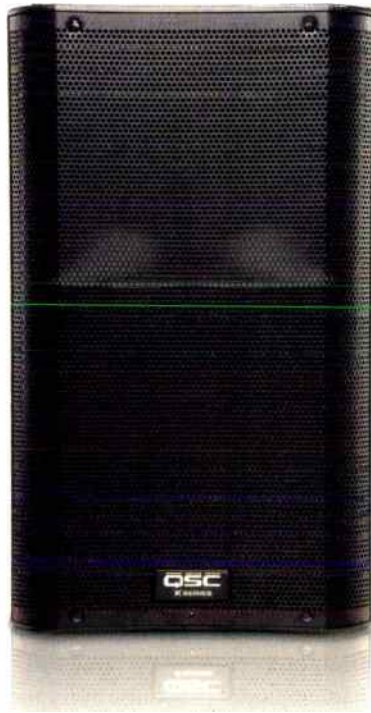
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bizarre artillery pass-bys using vacuum cleaners and bowed metal—anything I could Doppler. There was great variety to it.”

However, dedicated film buff that he is, Spielberg also requested the inclusion of a certain sound that Stanley Kubrick had employed

in his World War I film, *Paths of Glory*. “It’s the classic World War I artillery whistle,” Rydstrom says. “So we found one that was close enough that we were all happy and put that in. It was also a wonderful sound to pan through the surrounds because you’d get the sound of the war going overhead.”

Rydstrom and his crew did their sound editing and premixing work at Skywalker; then the action moved down to Fox’s Neve DFC-equipped Howard Hawks stage for the final mix, most of which was accomplished in a two-week window that Spielberg had in the midst of finishing his other new film, *The Adventures of Tintin*. Andy Nelson mixed John Williams’ lush and beautiful score—very prominent in the film—and Tom Johnson mixed dialog. “Steven was there every day, which was not always the case in my experience on other movies with him,” Rydstrom says, “and John Williams was, too. So it was as collaborative as you can imagine between those two and us and Richard [Hymns] and the sound crew. It was as an intense two weeks of mixing as I’ve ever had, but it was also very satisfying because everyone was there.”



Photo courtesy: Gasoline Studios, Franklin, TN

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digital on the

ROAD

Top Engineers Discuss Console Techniques

You'd be hard-pressed to *not* find a digital console on tour. Whether it's employing snapshots, bringing in plug-ins to re-create an album's sound, leaving behind racks of out-board or any other number of reasons, many touring engineers prefer to mix digitally. And each engineer has his/her techniques for creating a great-sounding mix. With this in mind, *Mix* asked some top live sound engineers to give us their tips on working with digital boards.

By Sarah Benzuly

CHRIS MADDEN

SADE FRONT-OF-HOUSE ENGINEER

With Sade, I have set up the Avid VENUE in three layers of 24 faders. The first layer has all my drums and percussion: the acoustic kit on channels 1 through 14, then five channels for the drummer's electronics and five more for the percussion. The second layer is where I'm focused for most of the show. Those faders control Sade's vocal, the background vocals, saxophone and multiple channels for bass, guitars and keyboards—all the stuff that I tend to want my hands on all the time. The third layer is assigned to the eight channels of playback, spares, ambient mics for recording and other stuff I don't need to touch very often.

I do use snapshots but in a very subtle way; I build the snapshots gradually. I bring in a few faders, then I bring in some effects, like my reverb, and then I set things in a sort of ballpark range. Then, when I recall a scene, I'll fine-tune it very gently from there as the band plays. I don't set everything to an exact setting or level, but over the course of a few shows, there are certain moves I just anticipate. For example, with some tunes we know that the crowd will react a certain way to some parts. With some songs they will get excited at the beginning, so I'll have the levels set a bit higher, then back them off a bit once the crowd calms down. So I might create a snapshot that's a bit louder to start the song off, then a second one that backs the level off a few dB.

I also use the VENUE's virtual soundcheck quite extensively. I honestly haven't done a live soundcheck for pretty much the entire tour. It's not just the logistics of getting the band together to do a soundcheck, it's also the fact that, in truth, musicians will never play with exactly the same energy and intensity during a soundcheck as they will during an actual show. Using virtual soundcheck, I can loop a short section of a song if I want to and experiment with different plug-ins and EQ settings, in an empty hall with a minimum of distractions. It enables me to try out things I'd never have an opportunity to do live, and gives me the opportunity to be far more creative and take chances without the potential of ruining the show.





CRAIG BRITTAIN

MICHAEL BUBLÉ MONITOR ENGINEER

I am lucky in that Solotech is our audio vendor for the Bubl  tours and they have put together one very slick touring package. The setup comprises the DiGiCo SD7 console running at 48 kHz with two stage racks, all tied together using Opticore. Both of the stage racks and the FOH racks are housed in a 2x40 double-wide/double-high rack with UPS, etc. The console sits atop a double-wide rack that contains all of our stereo transmitters and receivers.

One interesting thing we initiated with the SD7 early on in our touring cycle was using the AES I/O in the back of the console to route the solo bus (in-ear/solo bus 1) to a pair of matrixes. One physical patch cable in the back routing an AES output to an AES input, along with some soft patching. With the solo bus then coming into 1 and 2 of the matrix, all onstage and offstage talkback mics were then dialed into the matrix. This allowed for myself or my technician to hear any of the talkback mics in our ears whenever they were pushed to talk. One other item of note with the SD7 is that it finally gave me the confidence to rely on the use of snapshots. Never before had I fully trusted the “fire-next” button until the SD7.

JOHN SWORD

CARA DILLON FRONT-OF-HOUSE ENGINEER

This tour has 30 inputs from stage, which means on a Soundcraft VI6 I can run it all and effects on one surface. I will link stereo stuff together using the second layer for the right-side channel. If am using a VI1, I would also link stereo, but side-by-side only. I can hit the box I want quickly and efficiently without having to revert to a center section of controls to change what I want.

As far as the onboard plug ins, the standard gate, compressor (with de-ess functions and limiting) are good for me. I always like to drive compressors hard but with very low ratios. I really like the Hall reverb on the VI. I will use a dark, long hall around 2 seconds and rooms pre-delay for general drum reverb; it sits so well behind Paul’s heavy pounding beats. I also have an extra huge 10-second (no pre-delay) hall on hand for one-spot explosion. Vocal reverb will generally use the plate, dark so as not to accentuate a sizzle vocal. These ‘verbs can vary from 1.5 to 1.7 seconds, with around 70 to rooms pre-delay.

I have one tasty tip that I’m sure is not my own but it serves me perfectly. Nearly all artists I mix have a need to fly in effects at certain moments of the music, especially delay. So I have found it very useful to make, for example, two lead vocal channels soft-patched the same. Send whatever effect you want via the applicable aux, take the fader out of left/right so it won’t go through the system. Make sure the aux is post-fade. Then fire in the effect when you need it by riding the fader—effectively an effects send. I used to mix a lot of dub reggae so it’s essential to have your delays on tap for many instruments.



JASON DECKER

BLINK-182 FRONT-OF-HOUSE ENGINEER

I set up the Midas Pro 9 digital mixing system like I would on a regular analog desk: All my inputs I assign to subgroups, which then get assigned to feed left and right. I have dynamics and EQ privileges on all input channels on the subgroups, plus on left and right. I break down all drum and percussion elements, bass, guitar, keys, vocals, FX returns and matrix outputs. I put a stereo bus compressor on my left and right and use some output gain to make up the difference. The Crane Song HEDD 192HD is what I insert on my left and right. It’s not only a word clock that clocks my desk, but it also gives you tape saturation and second- and third-order harmonics to help shape the mix.



ROBERT BULL

MARTINA MCBRIDE MONITOR ENGINEER

I've mixed on all different types of consoles—both analog and digital, though I am a diehard analog guy—but there are times when analog is just not feasible. When I use a digital console, I prefer a Yamaha PM5D,

Recently, Martina McBride traveled on a chartered Amtrak train from Los Angeles to New York to promote her new album, *Eleven*, and paired with the Pink Together to raise awareness for breast cancer. We stopped 11 times along the way, performing at the train stations—some indoor, some outdoor. Within 15 minutes of walking off the train, we would have to set up instruments and be show-ready! In these situations, setting up a digital console is key. I would set up my wedge mixes on the Yamaha PM5D on the first five outputs, which are at the top of the output section. Then I set my IEMs on outputs 17 through 24, which is located on the bottom of the output section. This helped me to be quick and

accurate. I had graphics set up for my wedge mixes that were assigned to the user-defined keys, 1 through 5, corresponding with wedge outputs. My reverbs were assigned to outputs 23 and 24.

If I am doing fly dates, TV shows or even train stations, the PM5D's built-in effects and flexibility allow me to assign items where I need them via the user-definable keys. This enables me to walk right up to the console and start mixing. The 5D provides confidence that when a scene is recalled, it is right where I left it. If I am mixing wedges, having my graphic EQs set up on the user-defined keys allows me to get to them very quickly in any situation. When I am using both a PM5D and a DSP5D, the ability to switch between engines is invaluable to have at your fingertips. It helps an old analog brain get the job done.

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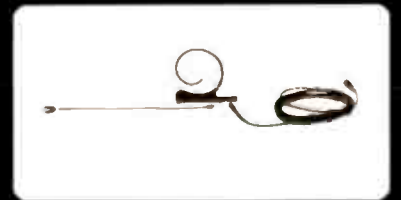
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World Radio History



Sound reinforcement for events in hotels and convention centers has been a huge industry for many years. It goes through cyclical up and downs, like most corporate-related services, but right now it's only getting bigger and more production-oriented. Ballroom events, meeting rooms, multipurpose venues, video conferencing, telepresence—they're all proving a fertile ground for today's audio school graduate. Often, professional A/V companies are the first employer for many of the students graduating today. Mix asked Chris Thomson, a 2002 graduate of Ex'Pression College for Digital Arts and now a technical coordinator at Swank Audio Visuals (swankav.com) in San Francisco, to let us know what a typical day in the life of a first job might look like.

Corporate Audio Demands High-End Sound

By Chris Thomson

Corporate, medical and political events are becoming ever more complex as meeting planners expect the speakers presenting onstage to sound clear while integrating seamlessly with video, lighting and staging. In fact, the corporate-event sound engineer's skill set includes many of the fundamentals that concert sound mixers adhere to, and the consoles, loudspeakers and processing gear is increasingly of the same type and quality. While the majority of the job involves dealing with the low sound pressure level of the speaking voice, it's not uncommon to find an A1 working a press conference in the morning and then mixing Carlos Santana for a Silicon Valley product launch in the afternoon. An event I recently engineered for commercial real-estate company CoStar required using all of the fundamental corporate audio skills, including proper speaker positioning, effec-

tive lavalier microphone placement, voice-specific EQ techniques, correct wireless RF programming, podium microphone compression and, finally, proper gain structure.

CoStar's event was held in the ballroom of the Westin Market Street hotel in downtown San Francisco. The ballroom is an elegant 9,040-square-foot rectangular space measuring 114x80 feet. The setup day began at 7 a.m. I joined four of my Swank Audio Visuals co-workers to begin the gear push from our various storerooms located throughout the hotel. By 8 we were ready to begin the event setup, which called for three 17-foot, fast-fold, rear-projection screens, 60 feet of pipe and drape, two lighting trees and the sound system.

The sound equipment included four Meyer Sound UPJ loudspeakers for the mains, two Meyer UPMs for the front-fills, a 32-channel Midas Venice console, and an audio rack with the processing gear and wireless mic units. A crew from CoStar's



Proper lav placement

IT department was providing (and setting up) the projectors and video-switching equipment. They were scheduled to arrive at 2 p.m. My team planned to be finished with the hard set so that the projection work could begin once they arrived. As three Swank workers assembled the lighting trees and projection screens, I teamed up with my audio assistant, Brandon, for the sound system setup.



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The author at the Midas Venice console

SPEAKER PLACEMENT

First, I needed to examine the room's stage, seating and tech riser positioning, already set by the house according to the client-approved CAD diagram. The two things that stood out to me were the position of the tech table and how some audience sightline issues would dictate my speaker placement. The tech table was positioned on the stage-right wall. It is best to mix from the back of the room near the center, but in the corporate A/V world, side-wall tech tables are common. I positioned my 32-channel Midas on the end of the table furthest away from my planned speaker position so that I could hear a more on-axis sound. As Brandon rolled over the speaker cases and Ultimate speaker stands, I began plotting the best locations.

This particular show called for the audience tables to be set fairly wide and not too far back from the large stage (32 feet wide). Also, the two outside 17-foot-wide projection screens forced me to place the speakers further from the stage than usual. No truss today, so with this floor-based speaker set, I chose to cluster two speakers outside the screens instead of splitting them due to sightline issues.

To accommodate the video tech table, we had to set the speakers about two feet behind the front of the stage. It is almost always good practice to place the speakers in line with, or in front of the stage's front edge, but that was not possible for this show. Also, the wide set of the room tables in relation to the stage did not allow for delay speakers to make a difference. The two Meyer UPM front-fills placed on the stage were going to help, but for the most part sound would be coming from the two UPJ clusters set wide, seven feet high, angled toward the stage more than usual, requiring that sound be pushed 70-plus feet to

the back center of the room—not ideal, with potential for greater-than-usual feedback problems.

MICS AND EQ

The microphone used for this corporate event (and most A/V events in general) was a wireless lavalier: a Shure UR4S. The obvious advantage of a wireless lav over a podium mic is mobility; the disadvantage is poor gain-before-feedback. The small-cap condenser element on these UR4S mics has the same cardioid pattern element used in my favorite podium mic, the Shure mx418. The crucial difference is where the mics face the mouth.

Two problems with a lav on clothing are low-end chest resonance and chin blockage. Placing the lav mic element about seven inches below the person's head is good practice. If it is too far down, the mic doesn't pick up as much of the voice, causing more feedback issues. If pinned too high, the mic picks up even less high end. Generally, the console preamp has to be pushed harder, and the high end (8 to 20 kHz) needs to be boosted. The extra gain will require more EQ adjustments.

The equalization techniques required for a corporate event are quite different than the techniques used doing sound for a band. A presenter at a corporate event is just talking and sometimes a timid person will speak at a very low volume. This, compounded with the feedback-generating position of lav mics, requires a careful "ringing out of the room." It is often taught at audio schools that only four to five feedback frequencies should be moderately notched out of your 31-band or parametric EQ. This is a rule that I strongly believe in but rarely see followed by beginner sound engineers. Pulling too many frequencies (ones that

are not actually feeding back) will just bring down the room's overall sound level and lead to descriptions like muddy, tin-like, fake, thin, etc.

Although the compromised speaker placement at the CoStar event posed a feedback problem, I was able to get plenty of gain using careful and spare EQ adjustments. During the day, Brandon acted as a test speaker onstage. Soon I had rung out the feedback frequencies on my rack's 31-band EQs. Next, I worked on the mic input channel strips of the Midas Venice. Boosting the strip's 12kHz knob brought my assistant's voice "to life" with the high-end "air" that is the part of the human voice. Often there are multiple mics on at once, and the variety of presenters will need different adjustments. A good sound person should



Positioning the Meyer UPJ mains

be able to dial in EQ adjustments within seconds of a speaker talking.

Wireless microphone programming can be problematic in today's RF-bombarded airspace. In general, most wireless mic transmitters will not send signal through more than two walls, so it is doubtful a mic kit being used in a hotel across the street is going to cause you any trouble. But all kits being used in your building should be set on different frequencies and monitored closely. Most mic manufacturers have preset groups of frequencies that do not inter-

ferre with each other, but sometimes you are forced to use multiple group settings because of a lack of open RF channels on one group. In this case, you should turn on all the mics and test them to uncover any intermodulation problems. RF problems can be greatly reduced with proper preparation; however, it is a good idea to have a wired mic or extra wireless handheld available onstage in case hits occur.

GAIN STRUCTURE

Compressor technology comes in handy when amplifying the speaking voice. A person speaking into a podium mic should be standing with their head about a foot away. In reality, this is sometimes not the case. If they are too far back, a well-rung-out system will still pick up the person's voice. If they do the opposite and get their mouths too close, the microphone can be overloaded and create loud, boomy "plosive" sounds. Cutting some of the low end on the channel strip will help, but the main tool to fight this problem is a compressor. Compressors have many uses when mixing a live band, but this is the main use when amplifying sound in the corporate setting.

As I mentioned before, a lavalier mic in-



Typical EQ settings on the Midas

put should be set to pick up strong level (good signal-to-noise ratio) without clipping (proper headroom). This method of setting a strong level should continue down the signal flow chain, through your preamp, EQ processing gear and all the way out to your speakers. Having a preamp set low will cause problems as boosting a weak signal down the chain can raise the noise floor. Another problem with a weak preamp level is you may not be able to see the channel's LEDs light up. These lights come in very handy when a group of people is onstage and you are riding the faders. Adding

mics onstage will increasingly reduce the gain you have available. Every time you double the number of mics, you lose 3 dB of gain-before-feedback. For example, two open mics will lower your volume 3 dB and eight mics will lower it 9 dB. This is quite a bit of volume loss; even the best sound person will be riding faders in this situation.

CLIENT-APPROVED

Sound engineers working in a corporate setting will face difficult situations. Meeting planners expect excellent results regardless of the room's shape, stage positioning, table setup and screen locations. And in many ways, with just a voice out front, clean audio is even more crucial. If you have a room of 40 venture capitalists and they are talking big deals, every word counts.

Think back to what you learned in school, then apply it in the real world. The basics do matter: proper speaker positioning, effective lavalier microphone placement, human voice specific EQ techniques, correct wireless RF programming, podium microphone compression and correct gain structure. Understanding these issues is necessary for success in the world of corporate sound.

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Take the time machine back just a few years—to 2005, say, or 2006—and you will see that the model that composers working to picture followed was fairly universal. Their DAWs might differ, with Mac the preferred sequencer platform for most. Some worked on PCs, but most composers had multiple computers (up to a half-dozen or more) networked together. Limitations in speed, RAM and hard disk size made it impossible for them to produce scores under the time pressures that the industry imposed using only one or two computers.

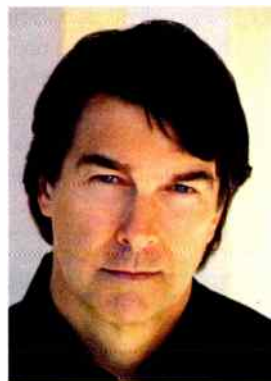
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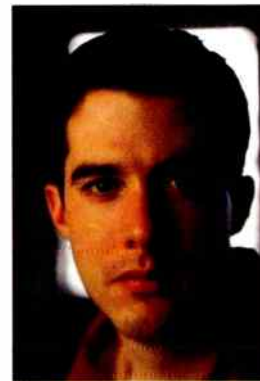
After spending a decade as senior music composer with Paramount Parks, **ROB POTTORF** moved into the film and television arena. His recent film projects include *The Trial* and *Unrequited*.



New Jersey native **KEVIN KLIESCH** is a composer and orchestrator who has lived in Los Angeles since 1996. Last year, Kliesch arranged Alan Menken's score to the Walt Disney animated film *Tangled*, and is currently working with Menken on the score to *Mirror, Mirror: The Untold Adventures of Snow White*, starring Julia Roberts.



DAVID NEWMAN is well known to *Mix* readers. In addition to scoring numerous major Hollywood films, Newman is a violinist and conductor. He was elected president of The Film Music Society in 2007 and, in 2009 was given the Richard Kirk Award, designating outstanding contributions to film and television music.



Florida resident **COLIN O'MALLEY** is an Emmy-nominated composer who scores films, television projects and interactive games. His orchestral scores have been performed by a number of ensembles, and for the past several years O'Malley has worked as orchestrator and arranger for Yanni.



Still shy of 30, **NATHAN FURST** already has an impressive list of credits under his belt. Furst scored *Act of Valor*, scheduled for release in February 2012, and has been contracted to write music for the Arnold Schwarzenegger vehicle *Black Sands*, which begins shooting in the spring.

Not that it was impossible to execute large orchestral tracks on one of these antiquated beasts. Even then, audio playback placed only a modest burden on a computer. If you wrote out detailed scores prior to turning on your box and were content with loading up just three or four virtual instruments at one time, with limited signal processors in-line, impressive results were achievable.

The doors have been blown open in the past year or two with the proliferation of 64-bit processors and large, cheap hard drives.

And sample library developers responded. More articulations, greater realism, interfaces that are smarter and easier to use abound. Though composers making a living scoring to picture still sprinkle several computers around their studios, a single DAW—like the dual Athlon Windows 7 machine that ADK Pro Audio built for me two years ago—can hold lots of samples in resident memory, and it's Usain Bolt fast.

Given the changes that have taken place during the past several years, *Mix* assembled

a panel of composers who make their living writing music for film, TV and games. What do they think of recent developments, and how have new technologies affected their workflow?

THE CONVERSATION

Please describe your current workstation and compare it to the system you were using five years ago.

Newman: Five years ago I had nine com-



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puters running GigaStudio. Logic Pro was my DAW, which, of course, ran on a Mac, and I had some outboard gear, as well. Today, I can do 10 times more with only two networked computers tied to a 12-core Mac Pro. RAM capacity has expanded dramatically, and 64-bit plugins have been a game-changer. It's getting very close to being transparent, where every sound you need is available at all times.

O'Malley: I'm currently running Logic 9 on an 8-core Mac Pro with 32 gigs of RAM and SSD drives. I run a fair amount of instruments in Kontakt and EXS within Logic. I also have four slave PCs with SSD drives hooked up over

Lightpipe to my Mac. I run all PLAY libraries and a few more instances of Kontakt on the PCs. I may be the odd man out here, but five years ago my setup wasn't that much different. The computers were just a lot slower with less RAM. I was hopeful when I purchased my latest Mac Pro that I would be closer to a single-computer setup. It seems the pace of computer development has been equaled by the increasing demands of the samples we use. I definitely still need slaves, at least for a large orchestral template.

Kliesch: Five years ago I ran three GigaStudio machines. My master computer was a Mac

G5, and I ran Pro Tools on a Mac G4. In addition to these five computers, I had a MacBook Pro, which I used (and still do) as a spillover machine; I'll stick Storm Drum on there, some synth libraries, the Forest Kingdom library. In short, I had six computers back then and my studio's been streamlined down to two or three.

Furst: My current system consists of two Mac Pro Harperton 3GHz 8-core computers, each with 24 gigs of RAM and 4 to 5 terabytes of storage space. One runs Logic, and occasionally Plogue Bidule behind it (for Verb organization via I/O loop inserts on Logic buses). The other Mac Pro runs VE-PRO and Pro Tools. Pro Tools functions as a video playback solution, and I use it to print real-time stems from Logic's bus outs for final mixing or delivery. Pro Tools receives MTC and MMC via MOLCP from Logic so the workflow is seamless. The Mac Pros are mirrored so in the event that one system goes down, I can work with the other in a single-computer configuration, which can load the same Logic template with a few frills disabled. My system uses only two computers and it's far more powerful than the seven-computer array I used to run!

Pottorf: My current setup is a Mac Pro 8-core with 32 GB of RAM for my main DAW and five satellite Macs networked to my main Mac Pro. In the near-future I'll be replacing my main Mac Pro with a new Mac Pro 12-core that has 96 GB of RAM. This new computer will allow me to retire all five of my satellite Macs. The new workstation will consist of just the Mac Pro 12 core and the Mac Pro 8-core, a net reduction of four computers.

Strings lie at the heart of many film scores. What string libraries do you rely on?

Pottorf: LA Scoring Strings and a few patches from VSL. LASS sounds great, and it's very easy to use. VSL requires more time than I generally have to spend, considering the huge time pressures that I generally operate under.

Furst: LASS, as well as a privately recorded library. In my opinion, nothing currently commercially available comes even close to the orchestration and production flexibility of LASS.

Newman: EastWest's Hollywood Strings, VSL and some custom samples.

O'Malley: Hollywood Strings, Spitfire Bespoke Strings, LASS.

Kliesch: Hollywood Strings and to some extent VSL. East West really nailed it when it comes to legato string runs.

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Others like to minimize the number of tracks and use controllers to switch between articulations on a single tracks. Which work method do you use?

Pottorf: This actually depends on the library. For example, Hollywood Brass patches are broken down into articulations as opposed to Cinebrass, which has all of the articulations in one patch, accessible either by velocity or key-switching. I prefer velocity myself; it took a little getting used to but my creativity/workflow increased tenfold. My track count has gone down considerably in the past three to five years.

Newman: I use tracks for each individual articulation so that it's clear for the orchestrator. However, I have lately been using lots of keyswitch patches, so I'm evolving my method.

O'Malley: I prefer to have individual MIDI tracks for everything. It's more of a pain when tracks are going to be prepped for a live session, but I'm simply used to having everything split out. If I'm going to obsess over a mockup, it just feels more natural to me to see everything sitting in front of me.

Kliesch: I use both methods. I've put in a lot of time trying to get my template streamlined,

and now I use the mod wheel to switch between a staccato and legato sound, for example. With Dimension Brass, you have to use keyswitches; their matrices come predefined with them.

Furst: I'd rather use more tracks. I've experimented with both extensively, and for me the single violin instrument with 20 keyswitches isn't a viable option. Separated tracks allows me to focus the CC controllers for specific articulations without worrying about neutralizing them for the different keyswitch, which would likely have different controller needs. Also, I find separate tracks (and therefore separate regions) of articulations leaves less confusion for orchestrator/copyists. Everything is labeled and clean, and I don't have to go through and hide keyswitch notes or anything. I manage the 500-plus track count with a combination of track folders and grouping.

Finally, the hushed question. Have we reached the point where sample libraries may in certain cases be better suited to a cue than live players would, even where budget allows for hiring musicians, or are sampled libraries always a second option?

Newman: Samples keep getting better every six months or so. The choices you have now with regard to soundstaging, miking and so forth—the universe of sampled sounds is miles beyond what it was five years ago. That having been said, you cannot replace live players. It seems impossible to me. Also, you tend to compose for your best samples, which can be limiting in some ways if you are not careful.

Kliesch: Not in my experience. I've been an orchestrator for 15 years and worked on over 100 films. Samples never sound as good as a real orchestrator, but the libraries are getting closer! We're not quite there yet.

Pottorf: As a film composer, your first choice is always live. There's nothing like the feel, the sound and interaction of a live orchestra. Now, that being said, libraries are getting so good that you can pull off a score that will fool 95 percent of the audience. And I don't throw that number around carelessly because I do it on a constant basis. In the "old days," you would have to "write around" certain samples (especially brass) because it was easier than trying to make a trumpet line sound convincing. But these days that's becoming less and less of a problem. Libraries are becoming so good that you can create an entire score right out of your box. Or if you have a little extra in your budget, you can use a smaller live [ensemble] and really have a fantastic-sounding track. There's no limit to what you can do anymore.

O'Malley: Our standards keep getting higher and higher. As composers obsessing over samples, we're constantly training ourselves to listen in greater levels of detail. As libraries have advanced, so have our ears. In that way, my enthusiasm for sample libraries has remained about the same. I'm still equally frustrated by them in many ways. The better I've gotten at using samples, the more I realize the necessity of live players.

Furst: I regret to admit that in a couple of instances I have in fact recorded with live instruments and went back to the MIDI. A good example is a jazzy action cue I was doing with live strings, and I had written a lot of swinging syncopated question-and-response stuff between the celli, violas and second violins. The timing and energy was better with my MIDI (I never quantize) than I was able to get with the group. Sonically, they sounded exactly the same. I should stress that in every instance I think I could have gotten the live guys to where they need to be, just not in the time I'd allotted to recording that cue.

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Robair Report

By Gino Robair

WELCOME TO THE ROBAIR REPORT 2.0

Where Musicians and Technology Meet



Welcome to the “Robair Report” 2.0. Starting this month, the “Report” is back and covering a broad range of topics for the recording musician. “The Robair Report,” originally launched online by *Electronic Musician*, focused on the gear and techniques we use in our personal studios and out in the

world, whether we’re recording shows, doing pre-production or sampling environmental sounds. Version 2, however, will work from the perspective of the recording musician, navigating the confluence of pro and prosumer gear that promises unprecedented capabilities for working with sound. In addition, the new “Report” will encompass print, online and the occasional tweet to keep you in the loop with late-breaking news.

But while the changes in technology seem to be accelerating, the core issues of sound recording remain constant. I’ll look at the practical applications and the ramifications of emerging technologies rather than simply tout new products. For example, in the first installment, I noted how the overuse of pitch correction seems to have given us—music creators and consumers alike—a more acute awareness of pitch. While I admit that my assertion was completely anecdotal, the idea is worth considering because audiences know more about the recording process now than at any time in the history of recorded music: The average listener is hip to studio trickery.

In fact, it’s likely that a greater percentage of our listeners have participated in some form of musicking (a term coined by the late Christopher Small to indicate all forms of musical activity, from listening to playing) than previous generations. Consider the cornucopia of sound-related software products available for computers and mobile devices that are aimed at non-specialists. Then wrap your head around the fact that a reported 2 million people (mashable.com/2011/12/06/t-pain-autotune) have downloaded one of T-Pain’s consumer-oriented pitch-correction apps for iOS.

I’m not pointing this out because I want to villify the technologies that are used pejoratively as ‘verbs such as “auto-tuning.” I’m interested in exploring how we use these tools to create music, and how their use changes the ways we work, listen and create. I think we can all agree that the gear itself isn’t to blame for music we dislike, although it can (and very often does) influence what we do.

I’m also a firm believer that gear does not necessarily become outdated or obsolete simply because a new technology comes along to “replace” it: Although we have the potential to work in a 64-bit recording environ-

ment, it doesn’t mean that a 32-bit system is less able to capture an inspired performance. Anything that can record, reproduce or alter sound is fair game. And I mean anything.

Consider analog cassette tape and all the artifacts that pertain to it. In the right hands, the medium becomes a nonlinear filter. Low-cost toys and consumer electronics are sources and processors just waiting to be explored, and that’s before they’ve been hacked and circuit-bent. But I’m not referring to the fringe audio-playground of unknown indie musicians. Artists and engineers from the trenches to the Grammys are checking their technological biases at the door, having answered the question of whether something is analog or digital, high or low resolution, with a “Who gives a f#%@. Let’s make music.” We’ve reached the technological point of all-fi, where we can embrace any fidelity or resolution. All that’s

needed is the creativity to see the musical potential.

I’m fortunate enough to teach audio recording classes at a local college, so I get a weekly reality check of what’s possible from the next generation of artist/engineers who lack the biases that many of my peers have about how things should sound. With blissful ignorance about the history of the recording sciences, my students grasp the full potential of the latest technologies quickly, unfettered by such trivialities as the collapse of traditional distribution models, while taking full advantage of what social networking offers.

And they’re savvy about the marriage of sound and visuals, using whatever tools they can find to create a video for their latest song, or a song for their latest video. In their world, the segregation of audio and video creation, like the divide between being an engineer and a musician, is disappearing as quickly as the polar ice cap. And it won’t be long before college courses cover both subjects in the same class.

Okay, I know many of you are rolling your eyes and saying to yourself that most DAWs are already bloated with features, and the last thing we need is to add the deep feature-set of a video-editing app. Fine. Tell that to my students who, while still in their teens, have already mastered Reason, Live and at least one of the major DAWs while having the chops to edit video in Final Cut or Premiere. Whoever comes up with the all-in-one app that sells for \$99 or less could do for MI what Steve Jobs did for online music distribution.

The “Robair Report” is intended to be a conversation that extends beyond the two of us. My goal is to explore the topics that are on the minds of musicians and engineers who are trying to keep focused on the music rather than getting distracted by the technology.

I’m interested in exploring how we use these tools to create music and how their use changes the way we work, listen and create.

Introducing *Hilo* from Lynx.



Reengineering the Two Channel Converter.

It's hard to know where to start with Hilo, so let's begin with the most important – audio quality. Hilo is the best sounding converter ever made by Lynx. The pristine, open, transparent audio quality of Aurora has been kicked up a notch or two, for mastering quality AD and DA conversion using Lynx's BiLynear™ conversion technology.

Hilo completely redefines the two channel converter genre. In addition to the primary analog Line Out, Hilo provides Monitor and Headphone outputs. Digital outputs include USB, AES/EBU, S/PDIF coax, S/PDIF optical, and ADAT. To top it off, each output has its own unique mix of all input sources courtesy of the 32-channel internal mixer.

Hilo's headphone technology adds a world-class headphone amplifier to the mix. It is capable of driving today's low-impedance headphones with extremely low distortion while maintaining accurate inter-channel gain matching.

With all of the options available, it was obvious that the standard push-button/LFD meter front panel would not be sufficient to control and monitor all that Hilo can do. As we called each other on our touch screen cell phones, the answer became obvious. Hilo's innovative LCD touch screen monitors and controls all routing, metering, and settings.

This high resolution screen allows Lynx to provide the analog style meter seen here, as well as several bar style meters.

Hilo is open-ended as no other converter has ever been. The updatable FPGA-based design and versatility of the LCD screen allow Hilo to accommodate enhancements to features, screens, functions, and utilities. The LSlot expansion port provides an upgrade path to future interface protocols as they become available. So the Hilo you buy today will be continually improved and morph into a device that will also meet your needs in the future.



Hilo can be powered by AC or optional DC battery pack

Hilo – reengineered to offer you audio quality, control and versatility never before available in a two channel converter.

Lynx
**STUDIO
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Tech // new products



ROLAND R-26 HANDHELD RECORDER

Touch Me, Hear Me

Roland's (rolandus.com) latest handheld recorder offers a bevy of groundbreaking features, including a 160x160-dot touchscreen, two pairs of built-in mics and 6-channel simultaneous recording. The R-26 (\$509) records up to 96 kHz/24-bit (BWF) and MP3. The internal transducers feature a pair of omnidirectional and directional X/Y mics that record directly to an SD or SDHC format card. I/O includes Mini-B-type USB connector, stereo inputs (XLR/TRS combo type), XLR type (phantom-powered), 1/4-inch TRS phone-type (balanced/unbalanced) and plug-in-powered mic input (stereo miniature phone-type). The recorder is powered by an AC adaptor Alkaline battery (AA, LR6) x4 or rechargeable Ni-MH battery (AA, HR6) x4, and ships with Cakewalk SONAR LE (Windows).

VIENNA ENSEMBLE PRO 5 WITH MIR PRO

Double Dippin'

The team at Vienna Symphonic Library (vsl.co.at) has integrated two technologies and workflows to bring users Vienna Ensemble PRO 5 with one-click integration of Vienna MIR PRO. Vienna Ensemble PRO is a cross-platform mixing host with MIDI and audio LAN capability, hosting Vienna Instruments as well as third-party 64-bit and 32-bit VSTi/AU plug-ins. PRO 5 offers full surround support adhering to ITU standards (up to 7.1), touch parameter automation for total control of all plug-ins on slave computers, and a Transport function to start/stop the sequencer from within Vienna Ensemble PRO 5. The newest feature is the optional integration of Vienna MIR PRO, the first whole-space mixing and reverberation solution based on Multi-Impulse Response convolution that was released in the summer of 2009. Vienna Ensemble PRO 5 supports AU/VSTi/VST3/RTAS, and comes with three licenses for setting up a network of up to four computers. An additional license of Epic Orchestra, a free 9GB Grand Orchestra Sample Pack, is included.



UNIVERSAL AUDIO UAD VERSION 6.1 SOFTWARE

New LittleLabs, MXR Plug-Ins

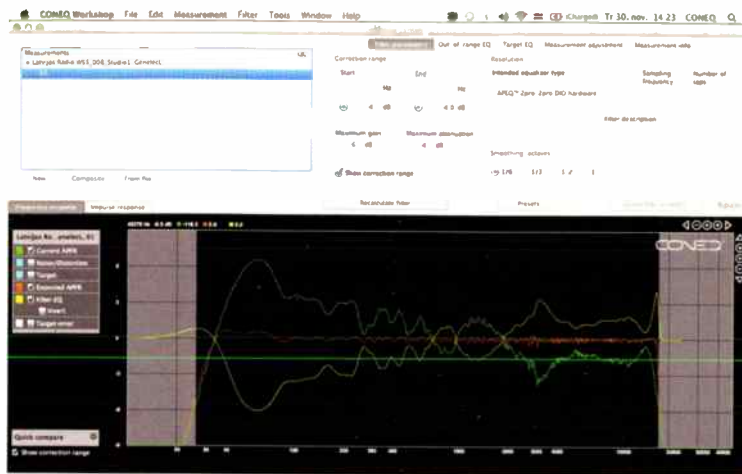
New to the quickly growing UAD platform of plug-ins are the MXR Flanger/Doubler Plug-In (\$199) and the Little Labs Voice of God (VOG) Bass Resonance Tool (\$149), as well as enhancements to Pro Tools workflow and the Ampex ATR-102 Mastering Tape Recorder plug-in. The MXR Flanger/Doubler replicates the sound of the classic processor with its signature flanging, doubling and delay effects. The Little Labs-authenticated Voice of God (VOG) plug-in for the UAD-2 platform accurately models the sonic characteristics of this unique 500 Series hardware audio processor in every detail. The VOG is used to target and accentuate low-frequency material, from vocals to bass guitar and drums—adding both heft and precision far beyond a simple EQ. Available for purchase via UA's (uaudio.com) Online Store.

SLATE DIGITAL VIRTUAL TAPE MACHINE

Famous Emulations

Slate Digital (slatedigital.com) has released the newest plug-in in their Virtual Analog series. The Virtual Tape Machine authentically re-creates the sound of two analog tape machines: a 2-inch 16-track from NRG Studios and a 1/2-inch 2-track from mastering engineer Howie Weinberg. Each tape machine allows the user to choose input drive, bias, tape type, tape speed, group settings and output. All of the algorithms were developed by master DSP designer Fabrice Gabriel, and were thoroughly tested against their hardware counterparts to ensure that even the most overdriven levels matched sonically. The VTM is Mac/PC, RTAS, VST, AU and AAX, and is available first quarter, 2012.





REAL SOUND LAB CONEQ WORKSHOP 3.2

EQ for Your Room

The latest update to the CONEQ Workshop software from Real Sound Lab (real-soundlab.com) includes equal feature sets across Mac and Windows software versions, filter export to third-party products, improved APEQ-8pro DIO support and multi-language support (English and Chinese in this version). New features of the CONEQ P2/P8/P2pro/P8pro plug-ins 1.2.0 include unlimited number of instances within a project (limitation only on the number of simultaneously filtered channels), renaming of the channel names and better support for non-standard VST hosts. Visit the Website for pricing info on all the available products.



TASCAM iM2 STEREO MICROPHONE

Big Sounds In Your "i"

Developed specifically for recording high-quality stereo audio into your iPad, iPhone or iPod Touch, the pocket-sized iM2 (\$79) stereo mic from TASCAM (tascam.com) sports a pair of condenser microphones—the same transducers in the company's DR Series recorders. The microphones are adjustable over 180 degrees, and are powered by onboard preamps and digitized by TASCAM V/D converters. The iM2 can handle up to 125dB SPL and comes with a stereo brickwall limiter to tame sudden spikes. The portable unit is powered through the dock connector so no battery is required, and a USB input is provided to charge your Apple iOS device for long recordings, either through a computer or TASCAM's PS-P15U power adapter. A PCM Recorder app, a perfect companion to the iM2, will be available soon on the iTunes store at no charge.

SAFE SOUND TRACKING TOOLBOX

Desktop Front End

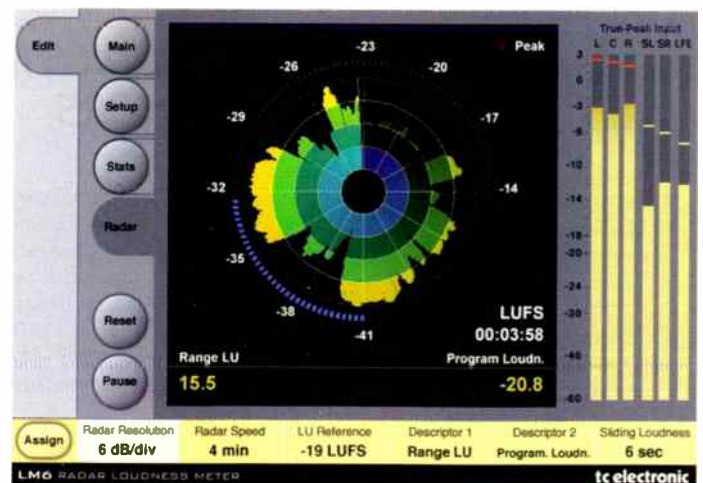
This three-trick pony from Safe Sound (safesoundaudio.com) is a mic pre/compressor/limiter meant to replace the company's first product, the P1. The Tracking Toolbox (\$999) features a Class-A discrete transistor mic preamp feeding a second servo IC stage to boost gain past 70 dB; peak-ride compression with fully adjustable threshold, ratio and attack; and "follow audio" controlled release time and automatic makeup gain. The fixed threshold limiter combines program-related elements of "look-ahead" dynamic threshold control with dynamic adjustment of attack time. Other features include a hi-Z instrument input, a stereo monitor section and high-quality headphone amp offering zero-latency monitoring and a 100-percent analog power supply with a toroidal transformer feeding three 100-percent linear power voltage regulators. It is distributed in the U.S. by ZenPro Audio (zenproaudio.com).



TC ELECTRONIC LM6 METER PLUG-IN

Peak Experience

With TC Electronic's (tcelectronic.com) new LM6 Radar Loudness Meter (\$599, \$399 crossgrade) plug-in, audio professionals on a Mac or PC can now meter all mono, stereo and 5.1 productions inside the box (AU, RTAS or VST). The user interface of the LM6 plug-in is similar to TC radar meters for other platforms, like the LM5D for Pro Tools|HD. LM6 shows loudness history in a single, easy-to-read radar-like view and employs a fully synchronous, high-headroom design to also show true-peak warnings and true-peak bar graphs correctly. The plug-in conforms with all of the major broadcast standards based on LUFS—e.g., ITU BS.1770-2, ATSC A/85 and EBU R128 (August 2011 update). No additional hardware is required other than an iLok 2 USB Key for licensing.



New Sound Reinforcement Products



YAMAHA MY8-LAKE Onboard System

Tuning

This processing card from Yamaha (yamaha.com) adds Lake Technology to PM5D, PM5D-RH, M7CL, LS9, DM2000, DM1000, 02R96 and 01V96 digital consoles, as well as DSP5D Expander, DME24N/64N processors and TXn power amplifiers. Features include Mesa EQ, Ideal Graphic EQ, linear-phase crossover and other tuning elements. The card offers up to 8 inputs/8 outputs in Mesa mode (system EQ), 4 inputs/12 outputs in Contour mode (crossover) or a combination of the two. Flexible I/O configuration via the console's insert points and the card's AES/EBU connectors, along with the ability to run at 96, 88.2, 48 or 44.1 kHz, makes it easy to integrate Lake Processing into any live sound system. Multiple cards can be used in Yamaha products that support multiple card slots. Lake Controller software installed on a compatible Windows PC allows control of the MY8-LAKE and other Lake devices in the system, while close compatibility with Smart contributes to efficient speaker system tuning. More than 1,000 speaker presets are accessible. The MY8-LAKE will be available spring 2012 with a target MSRP of \$3,200.

CLAIR GLOBAL CF 1090 FRACTAL ANTENNA

Advancing Wireless Systems

In the summer of 2010, Clair Global (clairglobal.com) acquired Wireless First. Both the company's founder, Kevin Sanford, and his chief engineer, Josh Flower, have been working on a new wireless antenna in their shop for several years, along with Dr. Nathan Cohen, founder of Fractal Antenna Systems Inc. Using fractal technologies, whereby self-similar scaling of antenna elements reduces housing size and increases frequency range, the CF 1090 is circular-polarized and orientation insensitive. The CF 1090 is band-optimized for communications, wireless microphones and wireless monitoring systems. At 15x15x2.7 inches and four pounds, the CF 1090 is easy to mount in a multitude of ways. Bandwidth spans 470 to 928 MHz, and half-power beam width measures 90 degrees.



COMMUNITY VLF SERIES

Low End Covered

New additions to the Community (communitypro.com) VLF Series of subwoofers include the dual 8-inch VLF208LV, single 15-inch VLF115 and single 18-inch VLF118. The VLF208LV (portable and install) measures 10x21.75x21.75 inches, has a frequency response down to 40 Hz (-3 dB), an operating range to 30 Hz (-10 dB) and 1,000-watt program. The latter two offer powerful bass with a half-space sensitivity of 98 dB. The VLF115 handles 1,500W program (operating range of 25Hz-1kHz), while the VLF118 handles 2,000W program (operating range of 26Hz-1kHz). All three models can be used in portable or install situations.

FUTURE SONICS MG6PRO EAR MONITORS

Listen Up

Future Sonic's (futuresonics.com) mg6pro 13mm Ear Monitors, celebrating 25 years, now feature the company's new MG6pro (\$900) 13mm proprietary miniature dynamic transducers. The custom-made models are multi-driver and crossover-free, delivering full-range audio for use onstage, in the studio and with personal media players. Features include 18-20k Hz TrueTimbre Response, 32-ohm impedance, 112dB sensitivity and +/-24dB ambient noise rejection. To upgrade to the mg6pro 13mm Dynamics, services are available for \$199.



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Telefunken Elektroakustik's small-diaphragm ELA M 260 tube microphone is arguably one of the best recording tools for acoustic and classical music.



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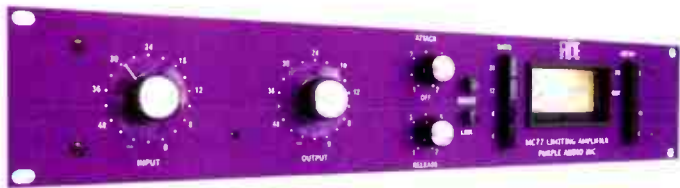
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"The 1628 has the warmth you want from a vintage desk combined with modern clarity." - Ryan Hewitt



Tonelux



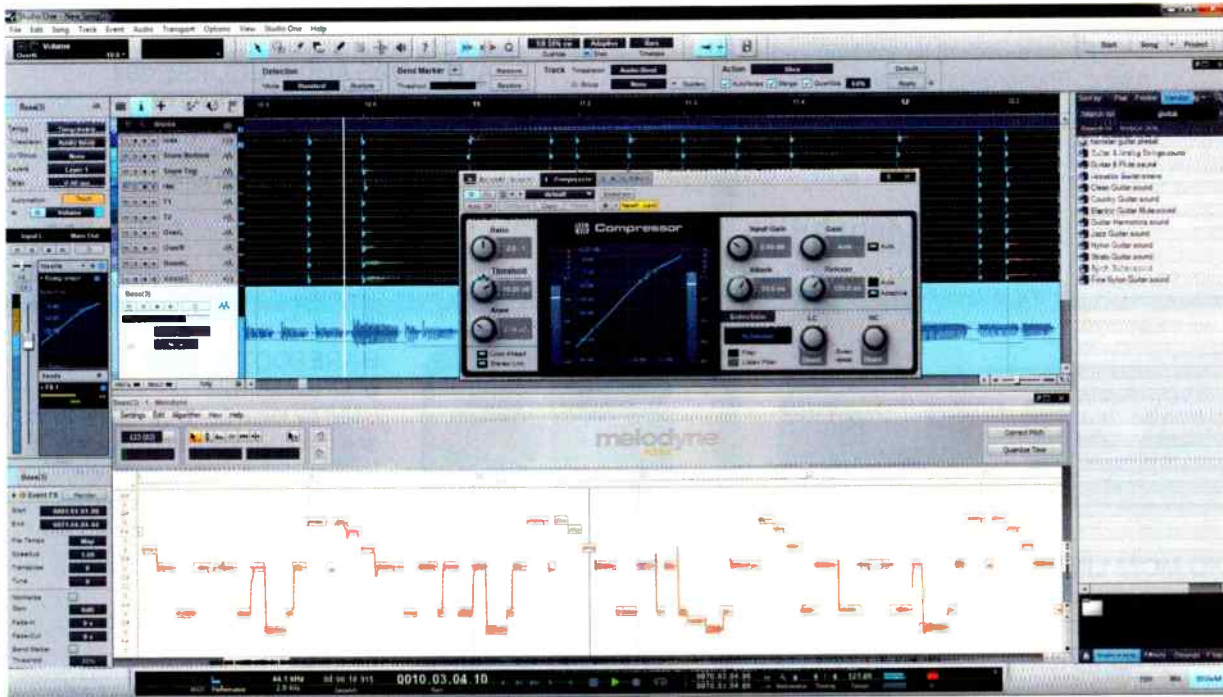
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Tech // reviews

PRESONUS STUDIO ONE PRO VERSION 2

New Features, Including Direct Melodyne Integration



Melodyne is now directly integrated into Studio One

At the end of 2009, I first became familiar with Studio One and was immediately impressed with the overall look, ease of use and extensive features. The next upgrade, Version 1.5, added QuickTime movie imports, uploads to SoundCloud integrated into the mastering suite, “time stretching” and numerous other tweaks and improvements in response to user feedback. My expectations were high for V. 2, reviewed here, especially with radical innovations like the first DAW implementation of Celemony’s Melodyne ARA technology, which seamlessly integrates the popular pitch-correction software into Studio One.

MELODYNE INTEGRATION

Studio One’s new Melodyne integration is powerful. Instead of transferring audio into Melodyne, tweaking it and then rendering it, any region can simply be invited to “Edit With Melodyne.” At that point, the Melodyne interface appears in a window much like the Studio One Waveform Editor window, the audio is analyzed and you can process Melodyne pitch and time correction in place.

The Melodyne window can be closed, and then you can return to the Melodyne window later and pick up where you left off. So far, sounds no different than what you are used to, right?

The novelty comes from the fact that now, that region, whose pitch has been corrected, can be dragged, nudged or trimmed in the regular audio timeline, and upon returning to the Melodyne editor there is no need to re-transfer. The Melodyne edits are locked to the region, or even the audio underlying the region, and no longer to the transferred audio recorded into the plug-in. The region in the Edit window will display its Melodyne information in an appearance like looking at a MIDI region on top of an audio region. Any Melodyne operation can be undone or done differently at will. This is absolutely a great concept, and at times it was incredibly useful; however, I’m eager to see this idea evolve even further. For example, the tools in the Melodyne editor can’t be accessed with any keyboard shortcuts. Zooming using shortcuts is also unavailable in the Melodyne editor. Eventually, I would love to see the PreSonus tools and short-

TRY THIS

Studio One Version 2 came with a bunch of new instruments and sounds. The Vintage Keys bundle includes virtual instrument models of electric pianos styled around classic Fender Rhodes-type sounds. Running these sounds through the updated Ampire guitar amp simulator, you’ll hear some great gritty sounds that really warm up a mix.



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Studio One includes plug-ins like the IR Maker and the Open Air convolution reverb.

cuts apply to the integrated Melodyne editor, creating a truly connected experience.

As cool as the new integration of Melodyne is, I did have some issues. I first tried the Melodyne editor on an old session that I had originally recorded using Studio One V. 1.5. At that point, the software didn't offer multitrack comping. Back then, I recorded vocal takes on different tracks and then manually solo'd, chopped and comp'd to one track. I selected all the regions of the first verse, which had been comp'd starting with a piece of Take 3, then a word or two from Take 2, back to Take 3 and then it finished with Take 1. With all

of these regions selected, I chose the "Edit With Melodyne" command, but instead of loading the whole verse into the Melodyne editor, only the last region in the selection was loaded.

Melodyne displayed the entire underlying audio passage of Take 1 and highlighted the section that was actually being used in the track. Naturally, only that highlighted section was audible during playback. Technically, this was correct, and if I manipulated the underlying audio that was not being used in that particular region, it still updated any other region using the same audio. The result, though, was that I had to pitch-correct the verse region by region if I wanted to take advantage of the new style of editing, making it a cumbersome process to try to hear and adjust the pitch effects while playing back the rest of the tracks in the session. In the end, I found it much more advantageous to simply transfer into a regular plug-in instance the old way, and there the entire passage could be listened to in the context of the song.

COMPING PLUS

Studio One V. 2 offers multitrack comping, which looks and performs nearly identically to Pro Tools playlist comping, just a little bit better and a little bit

worse. The "layers," as Studio One calls "playlists," are multi-colored, and a little arrow button near the track name shoots the selected take up to the main layer. Unfortunately, if you select only one word within a particular region and hit the arrow button, that doesn't matter: The whole region will move up to the main playlist. It didn't take long to find a keyboard shortcut to "copy range to track," only moving the selected audio to the master playlist. Where Studio One gets even better than Pro Tools comping is that rather than having to solo a layer and press spacebar to hear that take, simply Option + clicking a region auditions that layer in Studio One. Best of all, when using the multitrack comping function, the result is a lot of pieces of a lot of takes all sitting on one track. If all of those regions are selected and commanded to "Edit With Melodyne," the function behaves like you would otherwise expect it to. All regions will play consecutively in the editor, and pitch correction is practical and convenient.

TIGHTENING TIMING

Another highly anticipated pair of features is the ability to add silence between sound events and to quantize audio to a grid. The Strip Silence feature offers one of the crudest versions of that function that

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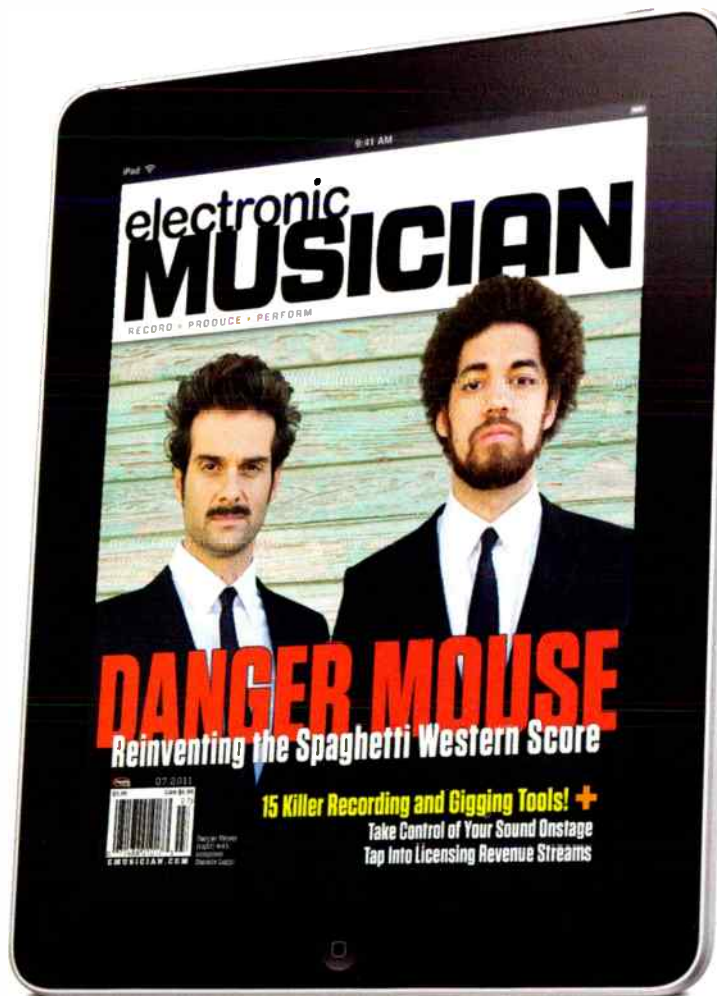
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I've come across in any DAW. Anyone that has used Pro Tools or Nuendo to extract or eliminate noise between snare hits, for example, is used to graphic feedback showing what will be kept, what will be trimmed and how tight the chopping will be while adjusting settings. Studio One gives no indication of what is going to happen, aside from numbered values for the threshold, minimum duration, pre- and post-roll (region start and end pad), and auto-generated fade lengths. It's up to you to guess, attempt, undo, tweak and try again. I found this to be difficult at best.

The Quantize function, akin to Beat Detective, was implemented with far more grace. Studio One V. 2 introduces "audio bending," which behaves very much like Logic's Flex Time. Flex Time was the jaw-dropping feature that allowed you to set up anchor points within a waveform and stretch individual sections, not the entire waveform. This feature is great for holding notes in vocals for extra time, sustaining guitar chords a bit longer and—as Logic and now Studio One use it—quantizing drum hits. Multitracked drums in Studio One can be grouped, transients can be detected, and the whole set can be phase-coherently quantized to a grid, tastefully squeezing decays to accommodate the shifting of attacks into place.

PRODUCT SUMMARY

COMPANY: PreSonus
PRODUCT: Studio One Pro Version 2
WEBSITE: presonus.com
PRICES: Studio One Pro 2, \$399; upgrade from Pro 1, \$149
PROS: The shortcomings of V. 1 have been resolved and it still sounds great.
CONS: Strip silence and Melodyne ARA have room for improvement.

OTHER ODDS AND ENDS

Studio One V. 2 includes many other small, yet strong improvements. Groups of tracks can be packaged into a collapsible folder in the Edit window, making it easier to manage the workspace. A track list on the left-hand side of the screen lets you show and hide tracks, as Pro Tools users would be accustomed. A tone generator was added and done well. It does the usual sine, saw, rectangle and noise, but adds tone sweeps and bends. Ampire XT, the guitar amp emulator, got a major overhaul, adding convolved cabinet designs and mic placement. The most exciting new plug-

in pair is the IR Maker and the OpenAIR convolution reverb. Collecting impulses is a breeze with IR Maker, and organizing them is made easy with the plug-in. Using your own models in OpenAIR is as easy as dragging and dropping. The new Dual Pan plug-in provides for each channel of a stereo track, like you would find in Pro Tools—a welcome addition.

The mastering suite also got some improvements. Now a project can be completed, burned to a reference disc, sent for duplication as a DDP file and still be released on Sound Cloud as MP3s. I am glad to see the new DDP option. I'd love to see AAC exports in the near future, and maybe real-time codec auditioning like we've seen from the Sonnox Fraunhofer suite.

Out of the gate, Studio One aimed to provide "All Muscle, No Bloat," and served that mission well. In V. 2, the menus are lengthier, big new features are flashy and it's packed with strong, subtle improvements. If the company commits to staying trim, fixing the quirks of already-included features and simply adding little niceties along the way, I think there is a bright future ahead.

Brandon Hickey is a freelance engineer and audio educator.

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RETRO POWERSTRIP CHANNEL STRIP

Versatile, Vintage, Valve Signal Chain



The Retro Powerstrip brings tube personality-plus through its preamp, EQ and compressor sections.

Some manufacturers produce products that are the best one-trick ponies money can buy, while others attempt to pack a wide range of features into a rackmountable or desktop unit. The Retro Powerstrip channel strip adheres to the latter philosophy with great results and no corners cut. The Powerstrip features a tube preamp with lots of clean gain; a Pultec-style, 2-band passive tube EQ; and variable- μ tube compressor in a two-rackspace unit.

As with other Retro gear, the build is rock solid with a chassis sporting knobs, dials, meters and even the colors looking like they came from military hardware. All mic and line I/O are fully floating and transformer balanced. There are features you'd expect like switchable phantom power, polarity reverse and an adjustable meter, as well as others that tube-heads will love, like the ability to use current production and new-old-stock tubes with no alignment needed after a tube swap. The unit's I/O is versatility defined: You can use the rear XLR mic input and line-level input for recording and mixing, or the front-mounted instrument DI, which can exit line-level or through the bonus instrument level output to go straight to a guitar or bass amp for live use, or both.

LET'S GET DELICIOUS

The signal flow on the Powerstrip is not linear like some

three-in-one units, meaning gain on the left goes to compressor, to the right goes to EQ, to the right of that, etc. For instance, the mic/line/instrument input selector is on the far-left of the unit, but the gain is set on the far-right—separate input and output knobs let you drive the output with tube goodness, if you desire. I liked how much gain I could get out of it, even when using a passive ribbon, without any hiss, which is remarkable for a tube preamp.

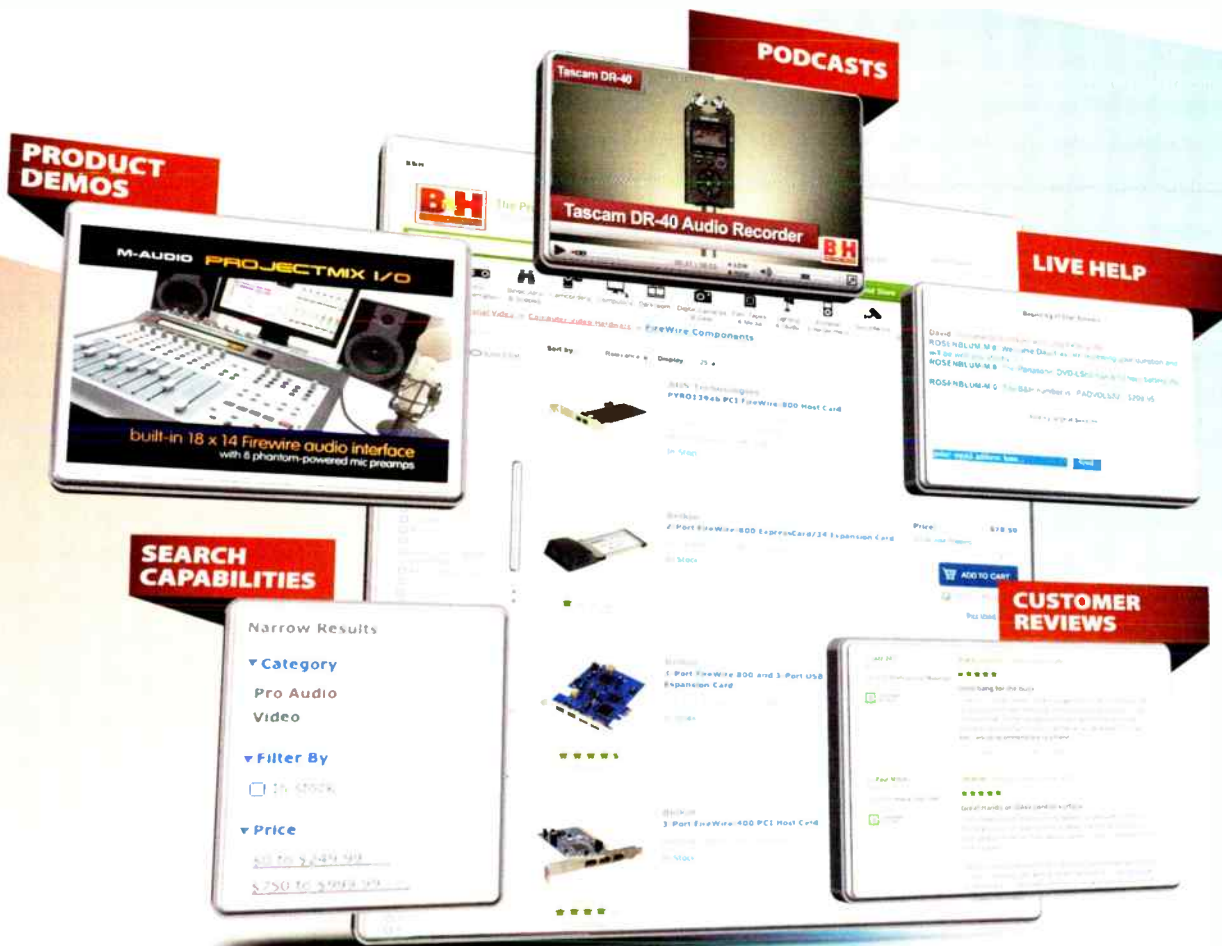
The switchable EQ on the left of the unit offers separate low and high bands. The Pultec passive style means you can boost or cut, or boost and cut, creating unique EQ effects. I found myself loving the 60Hz and 100Hz settings when I was cutting bass guitar or kick drum. Passive EQs always take quite a bit of boost to be apparent, but they are very forgiving and easy to use. The HF section offers a lot more versatility with 10 frequency choices as opposed to only four in the LF section. There is also a HF bandwidth control marked 0-10 (Sharp to Broad) and an extra knob allowing you to cut at 5 kHz, 10 kHz and 20 kHz while you're boosting at one

TRY THIS

For super-clean gain, start with the output gain cranked all the way right and bring up the input gain as needed. To feel some more of the warmth that nonlinear tube distortion can offer, start the output gain at about 10 o'clock and bring up the input gain past that position to 2 or 3 o'clock. At this point, forget the position and use your ears to guide you and fine-tune the amount of "dirt" in the signal by grabbing both input and output knobs and moving them left and right until you have the sound you desire.

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of the other 10 frequencies. There are a lot of possibilities here, but I found myself drifting back to a couple of key boosts that ended up making the track. For instance,

on bass, a boost of 100 Hz and then again at 5 or 6 kHz brought out the big bottom and definition in the higher range of the instrument beautifully.

The compressor is as beautiful-sounding as it is simple. It offers six time constants from slow to fast and is turned on via the sidechain HPF knob, which can be set to Comp Out, 250, 90 or Off, which means the compressor is on but there is no sidechain filter in play. I really liked how the sidechain HPF kept the compressor from choking down on the fundamental of a kick drum while grabbing the transient of the beater hit and putting it right in my face. Next, there's a separate three-position subsonic filter switch that can be set to Off, 40 Hz or 90 Hz. This takes rumble out of play on any recording. There's also a push/pull feature on the input knob that cuts down the gain and is described in the manual as a way to add interesting effects during instrument recording. I tried it a few times and it did cut the gain, but I always preferred the results I got with the knob "in" and off.

MUSICAL GENIUS

Being a longtime guitar player, I couldn't help plugging my 1968 Gibson 1.5 into the front of the Retro and then out the instrument level TS port to a Fender Pro Reverb amp. This is where the EQ shined. It brought out the beauty of the low end at

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PRODUCT SUMMARY

COMPANY: Retro Instruments

PRODUCT: Powerstrip

WEBSITE: retroinstruments.com

PRICE: \$3,595

PROS: Lots of clean gain. Great-sounding preamp, EQ and compressor. Rock-solid construction.

CONS: EQ may not be versatile enough if surgical EQ is needed. Layout of knobs takes some getting used to.

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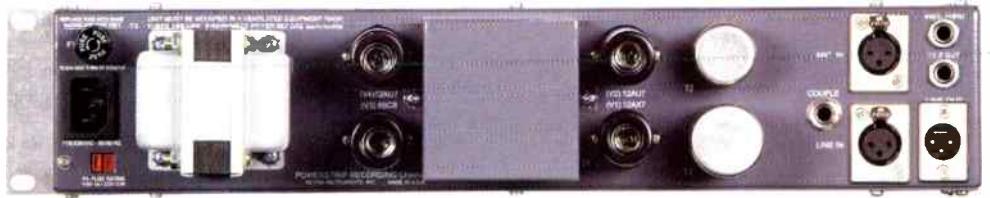
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the 100Hz setting and a variety of great tones when I set the boost to 12 o'clock and switched through the 4, 5, 6 and 8kHz HF bands. The broad bandwidth setting is very broad, and you can use this with the bandwidth to park the midrange frequencies and highs just where you want them at the ends of the boosted HF.

I next used the Retro to power a Sennheiser e 602 microphone outside a kick drum. After setting the gain, I switched in the EQ, set the low frequency to 60 Hz and brought up the boost. The bottom end bloomed immediately and sounded great. Then I wanted to add more beater "pop," so I set the high frequency to 3 kHz and brought up the boost until the balance between the boom and pop was perfect. I switched in the compressor at a medium time constant and started playing with the sidechain filter. Just as I expected, as I cut more low end to the sidechain, the compressor left the bottom alone, letting it peek through while grabbing the frequencies above. This gave me a nice, full bottom end that wasn't crushed while the compressor grabbed the attack of the beater, making it more uniform and sitting it perfectly in the track.

I also used the Retro to record hand percussion through an sE Electronics Voodoo VR1 microphone. The unit had plenty of gain to power this passive mic and sounded great in this application. The compressor's versatile controls let me tame the transient hits of a cowbell, giving me the ability to quickly audition the effect the squasher had on the signal in the mix as I switched through the settings from slow to fast. On other recordings of moderate to low-level acoustic guitar parts, I had the new AEA KU4 ribbon mic from Wes Dooley during my time with the Retro. Being a passive ribbon with a big engine, it needs a lot of gain, and I was pleasantly surprised that where other preamps needed to be at their limits, the Retro had a lot of clean gain to give with

plenty left—also remarkable for a tube unit. Using the combination of the KU4 and Retro to record acoustic guitar was a thing of beauty. I used no compression in this case and added just a bit of sweetness at 8 kHz with the EQ and notched out the very bottom end with the subsonic filter set to 90 Hz. Perfect.

BACK TO THE BEAUTIFUL

The Retro Powerstrip brings the best of what a new/vintage tube preamp, passive tube EQ and tube compressor has to offer—all in one box. It repeatedly brought a smile to my face as I ranged through the many features and tried different combinations. It has oodles of clean power, more than you'll need, even when powering a passive ribbon mic. And it's clean; there's no nasty hiss when you get to the top of the usable range.

While the EQ is not precise like a parametric, it has tons of personality and sounds very musical on bass, kick drum, vocals, guitars and more. Think of it as a broad-stroke tone-shaping tool and you'll get it. Even though the compressor seems very simple, it honestly has all of the control you'll need to tame peaks and make an uneven performance work like glue in the track. Its most usable feature is the sidechain frequency control, which feeds the compressor and avoids pumping. I was able to easily tailor how much crush I was getting with this feature and it's far more useful than a dedicated threshold control.

The instrument level output is a brilliant addition and begs you to feed a guitar and bass amp with a Powerstrip as the front end. All those cool tube toys beats any stompbox or freeze-dried plug-in combo—hands down.

If you're looking for that one sweet piece of gear that brings your front end to the next level, the Powerstrip may just be the ticket. Its unique feature set, solid build and great sounds makes it an instant classic.

Kevin Becka is *MIX*'s technical editor.



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SLATE DIGITAL VIRTUAL CONSOLE COLLECTION

Digital Simulations of Classic Consoles for Your DAW



VCC allows you to select any of the four consoles' channel strips to emulate.

The Slate Digital Virtual Console Collection plugins model the sonically pleasing harmonic distortion, noise and saturation effects of overdriving the transistorized channel and mix bus amplifier circuits used in four of the most highly prized vintage English and American analog recording consoles ever made. The four consoles' channel and mix bus topologies modeled are iden-

tified referentially in the plug-in GUIs as Brit N Discrete, Brit 4k, US A Discrete and by the Greek "trident" symbol.

Available as VST/AU/RTAS/native plug-ins for PCs and Macs, the Virtual Console Collection comprises two products: Virtual Channel processes individual mono or stereo tracks in your DAW mixer as if the audio passed through the channel strips of one of those four consoles; and the Virtual Mixbus plug-in mimics the coloration of those consoles' stereo summing buses.

VIRTUAL CHANNEL

Virtual Channel has a compact and simple GUI with three controls beneath its VU meter. The Console rotary switch selects any of the four consoles' channel strips; the Input control sets the throughput gain of the selected channel—just like cranking up a real channel's line input gain to boost level and nonlinearity operation (i.e., saturation, compression, noise and distortion); and finally the

Drive control decreases/increases those characteristics without increasing output level.

Without using any DAW bus resources, it is possible to group any number of channel instances together using any of eight internal groups. You can use the same console

TRY THIS

Revisit a popular recording method by using Virtual Console Collection's different console models for the various steps toward crafting your music mix. Years ago, because of a particular console choice and/or tracking room size, certain studios gained popularity for recording drums while other places sounded great for electric guitar tracking; subsequently, you might seek out a third studio for strings, brass and vocal overdubs. Try VCC's Brit N Discrete or US A Discrete console for all your drum tracks and then go with my favorite, the well-modeled "trident" mode, for the way it compresses and hardens up rock guitar tracks automatically. The SSL 4000 console was always good for large vocal stacks—it makes them more concise and compact. I found VCC's Brit 4K model works well for that.

model on all your DAW channels or build a hybrid mixer—mix 'n' match them using combinations of the four consoles' channel strips.

By designating any Virtual Channel as group master, it asserts global control over all other Virtual Channels assigned to its group. All knob settings, including automated changes (but not the Bypass button), are replicated on all group members, with grouped Virtual Channels' controls becoming grayed out and disabled. With the exception of the Console selector, Control + Click any individual control on any Channel and return it to local control.

Turning on a Channel's group toggle switch expands the GUI horizontally into Group view to reveal the group's Console, Input and Drive controls; 1 through 8 group Channel assign (green) and display (red) buttons—you can edit any group and rename it from any Virtual Channel; group bypass button for turning off processing on the group; a track list of all channels in a group; and the plug-in's Settings or Preferences window.

MIX IT UP

For stereo mix bus processing, the Mixbus

plug-in has just two controls. The Console selector chooses which of the four modeled-console stereo mix buses is to be used, and the Drive control increases/decreases the coloration of the amplifiers and summing networks used in those consoles. There is a stereo VU meter, Group on/off and the same Group View facilities as the Virtual Channel plug-in.

Mixbus comes alive when used as a group master for the entire DAW mixer. If a Channel instance is on every track, it is possible to audition your entire mix through any of the four consoles and set the amount of coloration globally using only the Mixbus' Drive control.

Both Virtual Channel and Mixbus have sets of slide-out drawer menus for setting operational preferences. They let you calibrate the operating levels of the individual groups and all four consoles (i.e., run one console hotter than others), switch on/off console hiss during periods of no audio, set VU meter ballistics, LED clip threshold and sensitivity, plug-in display behavior and more. For more realistic modeling (which uses more CPU), there are choices of none (default), 2x, 4x or 8x over-sampling for real-time and offline rendering.



The Mixbus plug-in selects up to four modeled-console stereo mix buses that can be further adjusted with the Drive control.

VCC IN THE MIX

I installed VCC Version 1.3.5 into my Mac Westmere 8-core with OS 10.6.7 and Pro Tools 9.0.3 HD|3 Accel installed; it requires an iLok2 dongle for authorization.

My first test was for an already finished mix

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Setups for each instance of the plug-in can be saved, named and then recalled

the Drive and Input controls to 2 o'clock, and saved it as a preset.

Next I used the Option + Control shortcut while inserting another Virtual Channel into track 2, causing it to populate the remaining tracks' slot 1 across the entire mixer. I liked that VCC automatically changes from a mono to a stereo instance whenever required.

I systematically recalled the saved preset for each instance and renamed it, copying the track's name in which it was inserted. Otherwise, the tracks will show up in the Group View Track List as Track 1, Track 2, etc. In Pro

because it feeds the mix to a stereo audio track. I set it to the same console as all the channels and designated it to be Group 1 Master.

For this 60-track mix, including effect returns, I got 60 mono and stereo instances of Virtual Channel running along with 43 other RTAS and TDM plugs (big reverbs, Melodyne, Slate's FG-X, etc.). I also used Mixbus instances on three backing vocals' stereo submasters. With no over-sampling engaged, I got very stable operation and playback with CPU (RTAS) spikes to about 48 percent.

PRODUCT SUMMARY

COMPANY: Slate Digital

PRODUCT: Virtual Console Collection

WEB: slatedigital.com

PRICE: \$399

PROS: Amazing mixing tool.

CONS: A little complicated until you grasp the whole idea.

Tools 9, there is no automatic way or shortcut for doing this. I then inserted Mixbus on the stereo aux fader. I sometimes place a stereo limiter here

that I was looking to hear as if it were mixed through an old Neve 8068 console. I opened a Virtual Channel on track 1's insert slot 1, set it to Brit N Discrete, selected Group 1, set

Tools 9, there is no automatic way or shortcut for doing this. I then inserted Mixbus on the stereo aux fader. I sometimes place a stereo limiter here

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Because I dedicated the first slot across the entire mixer to Virtual Channel instances, I could bypass all of them, including the Mixbus, by selecting Option + Command + Click on any plug-in instance. This is the most dramatic way to hear the overall effect of VCC. And dramatic it is—even with fairly conservative settings!

My mix now has more apparent loudness and sounds fatter, thicker and more glued together without doing much of anything. I did go through and re-adjust levels on a few tracks using the Control + Click shortcut, and lower either the Input or Drive levels because some of the plug-ins after VCC occasionally overloaded—an effort well worth the extra punch that you'll get.

All of the controls on both Virtual Channel and Mixbus are automatable, and I sometimes automated the Drive control and copied the data to all group master instances. This worked well when I wanted song choruses to "bloom" in harmonic thickness—they already increased in level and in stereo width, but still were not truly special until I did this little trick.

START WITH VCC

The best way to use VCC is to start a mix with Virtual Channels already in every first slot of the DAW mixer. Building the mix went better, and I found it easier to stabilize the tracks into a more cohesive whole. In general, harmonic distortion and character becomes pronounced on full-level sources when a Virtual Channel's Input and/or Drive controls are advanced above 12 o'clock.

I also had good luck building a mix in stereo stems with each stem submaster processed by a different console model. I used the Brit N Discrete for a drum 'n' bass stem, Brit 4k for the vocal stems, US A Discrete for keyboards and the "trident" mode for guitars.

On my drum 'n' bass stem, I had the bass amp track as group master with input set to 1.3 dB and Drive at 2.3 dB. (A small pop-up window indicates these values.) On this stem, the Brit N Discrete was the most "colorfully distorted," with USA A Discrete a close second. Brit 4K sounded the cleanest, with the "trident" model somewhere in between. Results vary and greatly depend on the program source and recorded level.

I liked running this drum 'n' bass stem hard with the bass guitar amp track as group master. But there were places where the recorded bass amp track "blows up," and the VCC process made

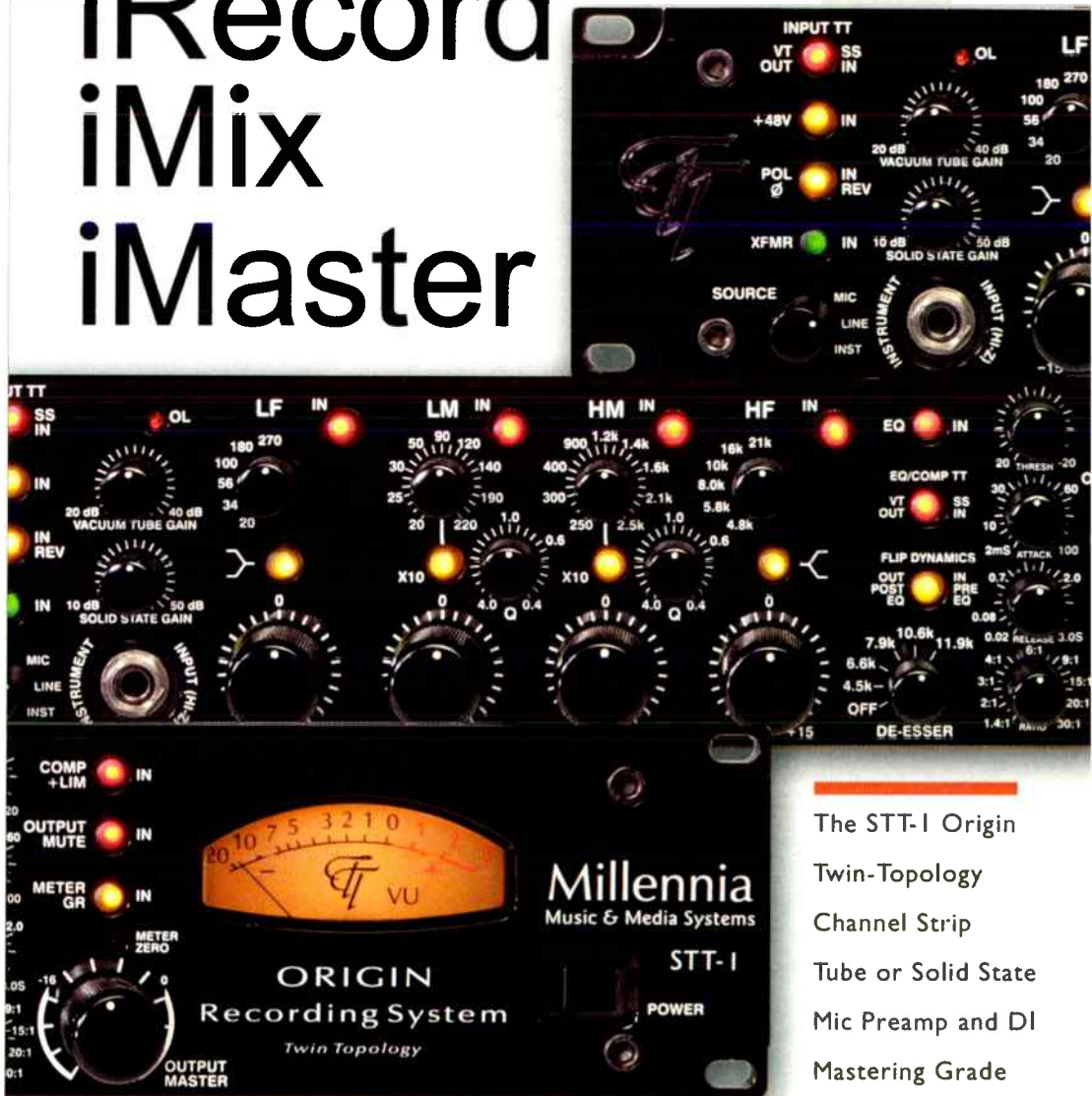
it worse, so I automated the bass amp track's Virtual Channel Bypass button for only those moments. This solved that issue without losing level, and thankfully it didn't affect the rest of the channels in its group. Later, I chose another track in this group as master, yet the bass track retained the Bypass button automation information—what a good thing!

Slate Digital's Virtual Console Collection

is an amazing idea for a DAW plug-in. When used on all tracks or groups of tracks in your mix, it adds an indescribable richness and earthiness to the overall sound similar to a badly abused and overdriven vintage recording console. I love it!

Barry Rudolph is an L.A.-based recording engineer. Visit him at barryrudolph.com.

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THE SOUND GUY SPECTRAL MACHINE

Numerous Frequency-Domain Effects in One Plug-In

New from The Sound Guy is a potpourri of effects—wrapped up in one plug-in—that use Fast Fourier Transform to massage and mangle audio. Flanging, multiband tremolo, equalization and pitch shifting are just the beginning. Other processors virtually transform vocals into keyboard instruments or robots to startling effect. But the biggest eyebrow-raiser is Spectral Machine's list price: only \$49.95.

Spectral Machine supports AU and VST formats. I reviewed Version 1.0.2a of the AU plug-in in MOTU Digital Performer 7.21 using an 8-core Mac Pro running OS 10.6.8.

BEHIND THE WHEEL

Navigating Spectral Machine's user interface is an easy ride. Mouse-click on the GUI's General Purpose box, and a list of seven polyphonic effects (those capable of processing chords) appears in a browser-like effects menu on the left side of the GUI. (See Fig. 1.) Click on the Monophonic box instead, and the menu lists eight effects that only work with monophonic sources (such as a solo voice or an instrument playing a melody). Select an effect from the menu by clicking on it, and its exclusive control set appears in the center section of the GUI; most of the effects offer very few controls (see Fig. 2). A helpful read-only text field describes the selected effect and what its controls do. A clip indicator and separate sliders for adjusting wet/dry balance and output level are always available on the right side of the GUI.

The Delay Spectral Bands and 3 AM effects each split the audio into three bands; you can adjust the two crossover frequencies for each effect. In Delay Spectral Bands, you can apply separate delay times (up to 10 seconds!) and feedback to each band. 3 AM provides separate depth and rate controls for an LFO controlling each band, creating a multiband tremolo effect.

Spectral Freeze is a 2-band, sample-and-hold effect with adjustable crossover frequency. Click on the Fire button, and the effect samples and plays back a very short slice of the input audio. The audio then decays independently in each band at the rates you set using two sliders. Clicking the Reset button resumes normal play-through of the input signal. The Sample and Hold effect is similar to Spectral Freeze but is

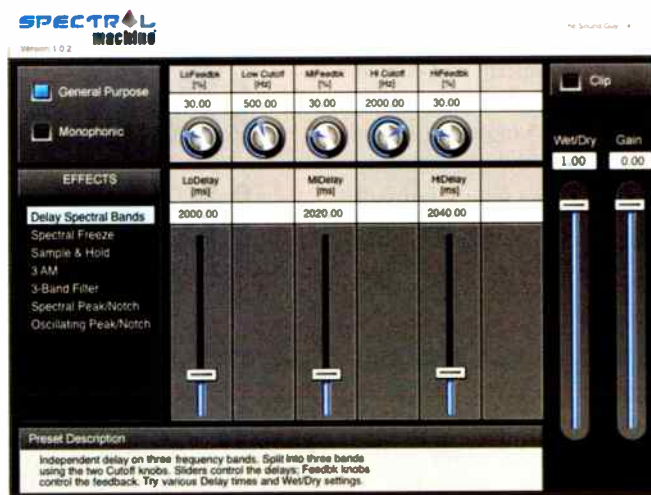


Fig. 1: The control layout for 3 AM, one of Spectral Machine's general-purpose effects

wideband, and it automatically and repeatedly resamples the input audio at a time interval that you specify in milliseconds.

Two of the General Purpose effects are simple equalizers. 3-Band Filter is a 3-band graphic equalizer with adjustable crossovers and gain controls for each band. Spectral Peak/Notch is a single-band parametric equalizer capable of producing both bell curves and notch filters. Yet another effect, Oscillating Peak/Notch, lets you modulate the center frequency of a parametric filter with an LFO; depth and rate controls are provided for the oscillator.

MONOPHONIC EFFECTS

Pitch Shift is a single-voice effect that does just what its name implies, purportedly preserving formants in the process. If you need two pitch-shifted voices, select the Harmonize effect; each voice has controls for ad-

TRY THIS

To create a multiband tremolo effect, select 3 AM in Spectral Machine's effects menu and set the wet/dry slider to 1.00 (100-percent wet output). Boost the MiDepth slider until you clearly hear the amplitude modulating. Adjust the MiRate control to sync the pulse of the tremolo to the beat of your music production by ear. Set the other two rate controls to a multiple or fractional value of the MiRate control. Adjust the two cut-off controls to set the crossovers between the three bands to taste. Tweak the three depth sliders to fine-tune the intensity of the tremolo effect in each band.

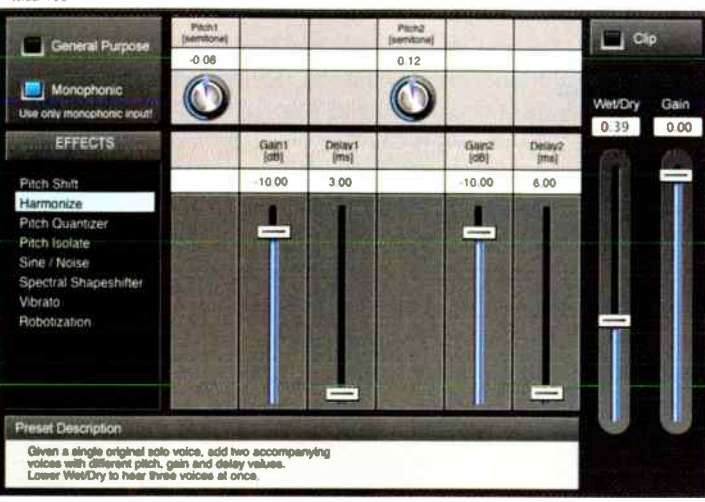


Fig. 2: Many of Spectral Machine's effects offer only a few controls

justing its pitch-shift amount, gain and delay. The Spectral Shapeshifter effect shifts only formants and not pitch.

Pitch Quantizer is a chromatic pitch-correction effect with a twist: The setting for its correction control determines the maximum extent to which a note is allowed to move to the nearest semitone. The speed of correction is dictated by the rate slider's setting. Robotization is another pitch-shifting effect and it's a brute: It changes any pitch to a single fixed frequency of your choosing, no matter how far-flung it is from the source's fundamental pitch.

The Pitch Isolate effect strips transients and integral noise (such as the breath noise on a flute track) from audio, leaving only the tonal (sinusoidal) component. Sine/Noise provides two sliders for adjusting the respective levels of transients and noise (together as one component) and the tonal component. With the Vibrato effect, only the pitch of the sinusoidal component of the audio input is modulated; separate rate and depth controls are provided for the LFO.

IN THE STUDIO

Delay Spectral Bands created very interesting, if unnatural-sounding, multiband echoes. I could delay a vocal track's high, midrange and low bands by different amounts and blend the processed signal with the dry vocal. This took awhile to set up properly as there was no way to sync delay times to Digital Performer's tempo. And while I could set any band's delay time to 0 ms (no delay), I couldn't bypass or independently lower the gain for its output. The result amounted to an arbitrary equalization of the dry signal at the plug-in's output. I also wish that the wet signal had highpass and lowpass filters at its disposal so that they could be used to siphon rumble out of the low-band delay and make the high-band delay sound more natural. (Highs become progressively dampened in a natural acoustic environment as echo times increase.)

On tracks for vocals and electric guitar alike, Spectral Freeze's 100-percent wet output created interesting—often bizarre-sounding—drone effects that could be useful to sound designers working on a sci-fi or

horror flick. The Sample and Hold effect's wet output made a vocal track sound like a dynamically filtered keyboard, evoking electronica and dance productions. The inability to sync to Digital Performer's tempo made it virtually impossible for me to lock the generated notes to my other tracks for more than a bar or two.

I could create outstanding multiband tremolo effects on a synth pad using 3 AM, my favorite offering in Spectral Machine's arsenal. I only wish the LFO rates for each band could be synced to my DAW's tempo for faster setup and accuracy. I could also create some good flange effects on electric guitar tracks using Oscillating Peak/Notch.

3-Band Filter and Spectral Peak/Notch were unremarkable equalizers, both in their capabilities and sound quality. Digital Performer's Masterworks EQ provided far greater flexibility and features.

Pitch Shift and Harmonize were both of limited use. Using either effect, I couldn't pitch a female vocal up even one semitone without hearing gargly artifacts. Pitching down produced fewer pitch artifacts and preserved formants quite well as long as I shifted the pitch no more than two semitones. Although both effects can be used to generate background harmonies (one har-

The advertisement for INGRAM ENGINEERING features a large red and white logo on the left. The text 'INGRAM ENGINEERING' is prominently displayed in the center. Below it, 'MPA685 MICROPHONE PREAMPLIFIER' is written in bold black letters on a yellow background. A photograph of the physical device is shown below, featuring several knobs and meters. At the bottom, the text reads 'Includes Full Direct Box and Re-Amping Capability' followed by a list of features: 'Variable Input Impedance for Shaping Tones • Transformer Coupled Discrete JFET Amps & High Current Output Buffer Provide Ultra-Linear Phase, Extended Frequency Response & Excellent Transient Response • Best Tonal Character and Consistent Sound for Any Setting • Wide Dynamic Range'. The website 'www.ingramengineering.net' and telephone number 'Telephone 678-685-9838' are listed at the bottom.

mony in Pitch Shift and two in Harmonize), they must necessarily be parallel; diatonic, or intelligent, harmonization isn't possible.

Pitch Quantizer was, frankly, a train wreck. Used on a vocal track, even moderate pitch correction—25-percent maximum correction toward the pitch target, at a very slow rate of change—produced a gargly and distorted sound. Equally disappointing was Sine/Noise: Lowering the Noise Gain slider even just a couple dB (to reduce breath noise) made the vocal sound thin, scratchy and distorted. And no amount of formant shifting, however mild, could prevent Spectral Shapeshifter from distorting a vocal track horribly. The wet output for Spectral Machine's Vibrato effect was also terribly distorted, making it unusable.

Pitch Isolate made a vocal sound like a keyboard instrument with muffled highs, a potentially useful effect in music production. Robotization sounded like Auto-Tune's Cher effect in your worst nightmare, but I mean that as a compliment. It did such a great job hamstringing the pitch of a singer that she sounded like a computer-generated voice stuck on one pitch. The fidelity wasn't great,

but it didn't matter. In fact, it made the effect more credible.

Spectral Machine lacks any kind of frequency graph and spectrogram, an oddity and disappointment considering its sole focus is frequency-domain effects. Master controls for multiband parameters would have made setup easier. Also missing are I/O meters, which would help hunt down the origination of unintended distortion. There are also no built-in facilities for naming, saving and loading presets; you'll need to use your DAW to accomplish those tasks.

IN A NUTSHELL

Spectral Machine offers several unusual effects that approach greatness for music production and sound design, but others fall far short of professional benchmarks. Unfortunately, the omission of sync-to-host capabilities hampers the use of some of the best-sounding effects—3 AM, Sample and Hold, and Delay Spectral Bands—for music production. Sound designers will especially appreciate Spectral Freeze and, to a lesser degree because it's a one-trick pony, Robotization.

Considering that Spectral Machine costs

PRODUCT SUMMARY

COMPANY: The Sound Guy

PRODUCT: Spectral Machine

WEBSITE: sfxmachine.com

PRICE: \$49.95

PROS: Wide variety of frequency-domain effects for music production and sound design. Very inexpensive.

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Mix contributing editor Michael Cooper (myspace.com/michaelcooperrecording) is a mix and mastering engineer based in Oregon.



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Videogames

(continued from page 32)

With a fiendishly short 75-day window to work within, Mellroth turned to Pyramind and charged Lipson with being both the producer and lead composer. To meet the tight timeline to complete the mammoth task of creating the music for *Kinect Disneyland Adventures* (*KDA* for short), Lipson assembled a team of five additional composers. There was some overlap with the *Halo* team, including Lipson, Wataru Hokoyama and Lennie Moore contributing various pieces, along with established game composers Laura Karpman, Peter McConnell and Mark Griskey. Lipson carefully matched each composer's talents (and preferences) to the myriad styles required—after all, this music spans the entire history of Disney films (and theme park attractions), from the late 1930s to the present, and styles ranging from lush orchestral pieces of the first “Golden Age” to modern pop nuggets by Alan Menken, Randy Newman and others, as well as sometimes whimsical diversions into bluegrass and various ethnic music styles for specific rides.

“Everyone had to be able to compose idiomatically,” Lipson comments. “When you're touching some of these franchises that have been around for years, for decades even, everybody's looking and you have to get it right. But that's the trust we had from Disney and Microsoft. And that's why I called the people I did. They understand the idiom, and I knew I could trust them to do this without over-coloring it.”

The orchestral sessions for *KDA* at Skywalker in mid- to late August and the beginning of September 2011 were longer and more involved than the ones for *Halo Anniversary*, including 12 three-hour sessions with a 79-piece orchestra, and others with what Jones calls “the B-band—27 players, just strings and woodwinds.” Rather than recording strings and woodwinds and brass separately as they had on *Halo*, Jones says, “On *KDA*, everybody was playing at the same time, including the percussion, so the only things you could separate from that were if the strings doubled, or if the percussion had extra parts they overdubbed, or any of the pre-layed percussion the composers came with.

“For some of it that had that '50s-style orchestration, we were looking for an older sort of sound rather than something that's very pristine and hi-fi,” Jones continues. “For *KDA*, we ended up using C-12s for the strings and ribbon mics for the brass—I use

Wes Dooley mics, I use Royers, I use Coles—because we wanted a sound that was full, but not terribly ambient and not too dry.”

The different composers would be on hand for the days on which their pieces were recorded—on the day I visited, Laura Karpman was in the control room at Skywalker, standing to Jones' left, carefully following the score as the orchestra—with Wataru Hokoyama conducting—went through its paces. Occasionally she would communicate a minute change to an arrangement through the conductor, and there were also instances where musicians would ask questions about a specific note or rest. Lipson was at Jones' right at the Neve, also examining the score and listening for problems. During the hours I was there, few anomalies showed up—the Skywalker Symphony moved from piece to piece with remarkable precision and alacrity. You could almost feel the euphoria of Disney Magic in the control room.

“All these scores hit the stage the day we were recording them,” says Gordon, who was also on hand that day at Skywalker. “Wataru was sight-reading all the conducting as it went down the whole way through, just as the orchestra was sight-reading it. It was so impressive.”

INTERACTIVITY

After the orchestral recording for *KDA* was completed, Pyramind once again became the site of some smaller sessions for other parts of the score, includ-

ing a bluegrass group that had to be mixed into the orchestral base of the Big Thunder Mountain Railroad section. Even more challenging was the Disney Soundsational Parade.

“For that one,” Lipson says, “I had to take a bunch of beloved Disney melodies—‘Under the Sea’ and some of those beautiful Menken melodies, along with Peter Pan, Mickey Mouse and others—and arrange them for brass and also make it interactive, because in that part of the game, [the player] conducts the music, and how it sounds depends on how well it's being conducted. So when we were recording, I had to say something to the musicians I've never said before on a project, which was, ‘Give me your worst!’ Because I had to track the success of you conducting well and also you *not* doing well. The result is astounding. It will move out of bad playing and good playing depending on how you're doing. It's hilarious.”

Jones mixed the large “A-band” orchestral sessions on the Neve 88R at Skywalker and then the smaller “B-band” cues (the 27-piece group) went into the game directly from the 2-track mixes she made at the time she recorded them. Gordon mastered the entire score, which was the single largest either Pyramind or Skywalker had ever worked on.

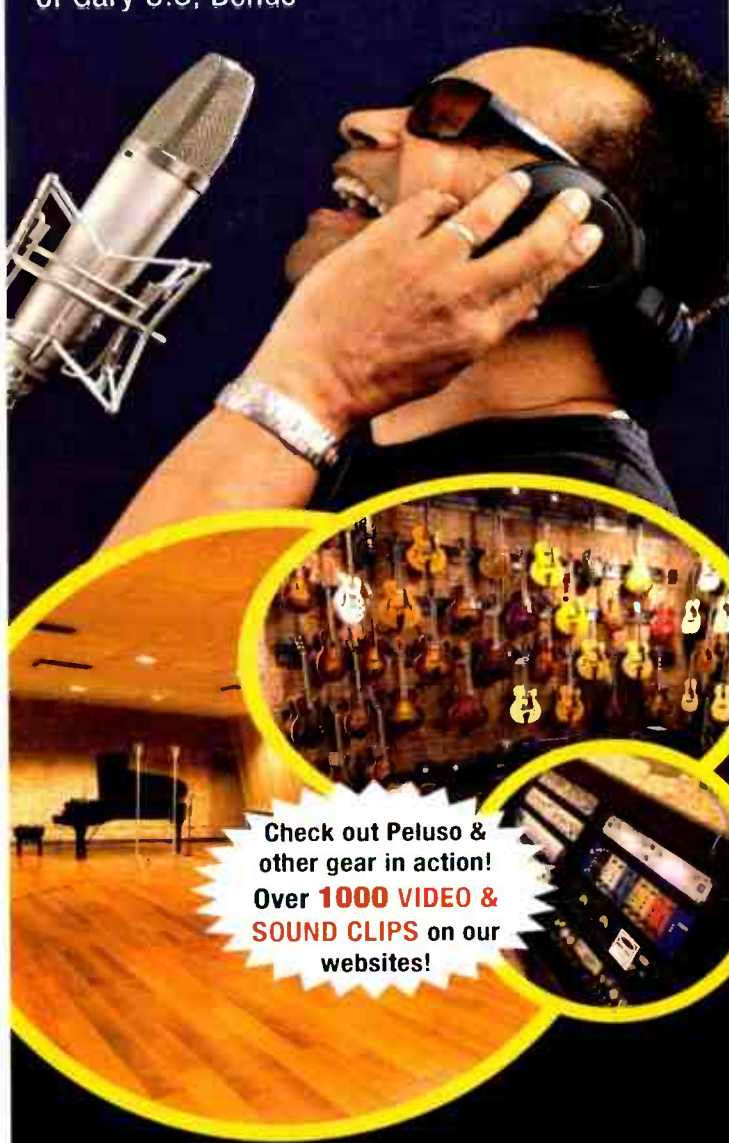
“More than just about any game I know, the score is front and center [in *KDA*],” Lipson says. “The music drives the game audio. In every single attraction, the music is important.”



Chanticleer and the Pyramind studios team. Front row, from left: Lennie Moore, Cortez Mitchell, Adam Ward, Brian Hinman, Gregory Peebles, Paul Lipson, Kristofor Mellroth, Jace Wittig, Peter Steinbach, Michael Axtell, Eric Alatorre. Back row, from left: Matthew Oltman, Matthew Curtis, Ben Jones, Steve Heithecker, Michael McNeil, Casey Breves, Alan Reinhardt, Michael Roache

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After 30-plus years in the business, I've caught the studio bug again. I've been building a small mix room for four months now and it's almost done. The paint is dry, but I'm still playing with the acoustics, learning to trust how it sounds and even doing some

mixes on a small laptop-based rig while I wait for a computer, balanced power units and interconnects. I'll have gear from Lynx, Radial Engineering, Dangerous Music, Monster, Focal, Retro Instruments, Lindell Audio, Millennia, Steinberg, Avid, and some "vintage" hardware reverbs from Lexicon and AKG. On the digital side, I'll have plug-ins from Universal Audio, SoundToys, Vienna Instruments and many more. It's going to be a hybrid analog summing and in-the-box combo mix room, all run on a rackmounted PC from Rain Computers that's more than 30-percent faster (and way less-expensive) than anything currently offered by Apple.

If you're an audio-head, it's easy to find studios attractive—even addictive. I first got interested in the '70s after I moved to L.A. with the intention of being a session guitar player. At the time, my high-school buddy, engineer Dave Rideau, was working on a construction crew building two new studios for Westlake Audio on Beverly Boulevard. I occasionally got to hang out after hours as the rooms went up; I became enamored with the process. All the strange angles, isolated floors and walls, diffusers, double glass and more made me feel like this was going to be something special. It was fun being around the space, even without any gear inside.

Later, I found myself on a construction crew helping Eduardo Fayad, a former Westlake employee, build his studio on Ventura Boulevard, and a few years later another in North Hollywood. The NoHo space is the room that eventually enticed me to give up playing the guitar so I could work full-time as an assistant engineer, where I stayed for six years. In

the '90s, I helped Kenny G build his home studio in 90210, then ended up leaving L.A. after the '94 quake, got into journalism and education, and here I am again, building another studio—this time for me.

Working as lead audio consultant for the 2010 Esquire House studio in L.A. got my juices going, and it only took a year before I envisioned a small space of my own where I could critically listen, practice the craft I love and play with some of the great gear I get to review for Mix. I'm already partners in a tracking room built in a double-wide RV garage at the edge of the desert where I can cut guitars, drums, vocals and more, and the only complaints we get are from bobcats and javelinas. So this will be much smaller, which will keep the cost down. It's also in a suburban setting (with neighbors) and not a big space, only 9x12 feet. It's a two-seat mix room at best, and I'm going to share every step along the way, weekly on my Mix TechTicker blog and also some added extras in this column where you'll learn from both my successes and failures.

The budget is not huge, so I'm taking what I already know, moving in some new directions, getting help from a studio-savvy contractor, hiring an acoustician, having some things custom-built and putting

in some sweat equity—all while keeping the quality up and \$\$\$ down. Some of the questions I've answered include: How much isolation can I achieve in an existing space? Is it possible to mount acoustic panels magnetically so I can move them around? Will it work if I light the entire space with LEDs? Will DC dimmers play havoc with my audio? How much gear can I fit into a small space without it looking cluttered? How can I neatly run cables in a room where I can't cut into the floor? Can I save money and still have great audio and a pro look? Some of the answers surprised me; in some cases, I found solutions in unusual places. So watch here and online as the process unfolds. I think you're gonna love it; I'm already hooked.

How much gear can I fit into a small space without it looking cluttered? How can I neatly run cables in a room where I can't cut into the floor? Can I save money and still have great audio and a pro look? Some of the answers surprised me; in some cases, I found solutions in unusual places.



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