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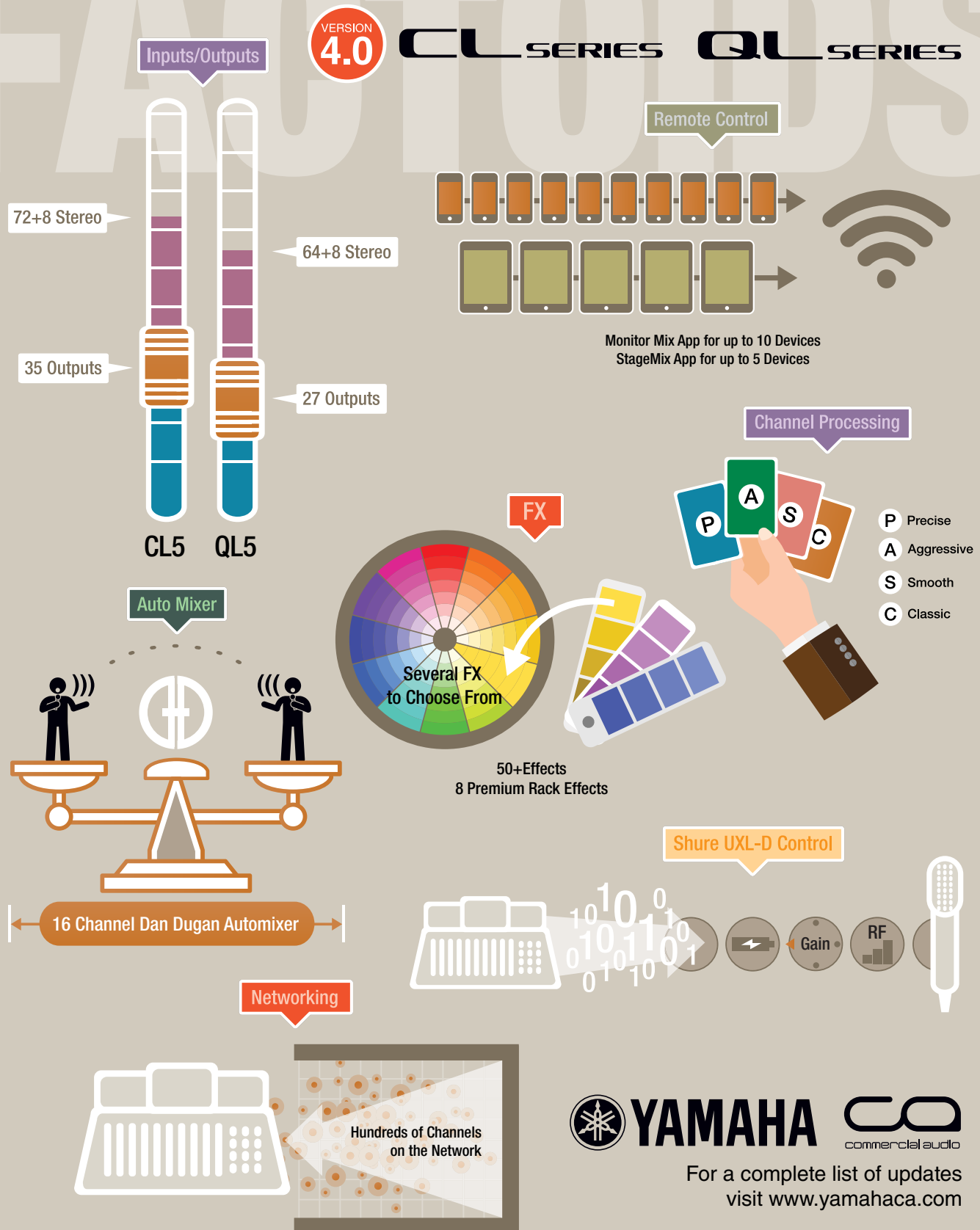
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Photo: Todd Berkowitz



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**On the Cover:** The newly refurbished Fantasy Film Center, in Berkeley, Calif., sports an Avid S6 console and Meyer Sound Acheron 7.1 monitoring system. **Photo:** Kyle Hixson

Mix, Volume 40, Number 9 (ISSN 0164-9957) is published monthly by NewBay Media LLC, 28 East 28th Street, 12th floor, New York, NY 10016. Periodical Postage Paid at New York, NY, and at additional mailing offices. POSTMASTER: Send address changes to Mix, PO Box 8518, Lowell, MA 01853. One-year (12 issues) subscription is \$35. Canada is \$40. All other international is \$50. Printed in the USA. Canadian Post Publications Mail agreement No. 40612608. Canada return address: BleuChip International, P.O. Box 25542, London, ON N6C 6B2.





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## From the Editor

### CONTROL THEORY

Control Theory doesn't often come up in casual conversation. But it's come up for me lately, quite a bit actually, and I still have a hard time getting a grasp on it. My daughter's boyfriend, John, is a Ph.D. student at UC Berkeley, in engineering, emphasis on Control Theory. While in school, he is researching possibilities for improvements in MRI machines, with professors from Stanford, Berkeley, SF State and various medical centers. We have pints and dinner on a semi-regular basis, and I ask a lot of questions. I understand most of what he does, but it isn't easy stuff.

As best I can define it, Control Theory is a field of study that sits at the nexus of engineering and mathematics, in an effort to understand dynamic, complex systems. It involves logic, computation and feedback. It is both a means of understanding a system and a method of developing one. I do know John could go get a job at Google, design industrial robotics, continue in medical research or go teach. He's an interesting guy. He goes backpacking, writes enough code to be dangerous, and he believes in driverless cars.

Then a couple of weeks ago, on a visit to Dayton, Ohio, and Wright-Patterson Air Force Base, I learned about Human Factors in Control Theory, complicating the matter even further! I was visiting the base for a story on research into Virtual Reality, and found myself in the center of the U.S. military's Human Performance Wing, where they delve into psychoacoustic perception as a means of developing simulation technologies and understanding human response. Fascinating stuff.

There are five-wall and three-wall CAVEs, 270-speaker spherical cages hanging in anechoic chambers, and a number of audio labs with test speakers on the walls and ringing the interiors. The research is conducted in conjunction with Wright State University and led by a couple of passionate audio engineers: Robert Gilkey, a longtime VR professional now at WSU, and Brian Simpson, a former gigging guitar player from St. Louis who is now a civilian researcher on the base. You'll read more about them in a coming issue of *Mix*.

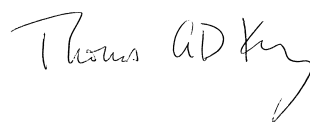
I was visiting Dayton and Wright-Pat at the invitation of long-

time family friend John Flach, a professor of psychology and engineering at Wright State. John was a student of my father's back in the early 1970s and has gone on to get a doctoral degree in psychology and the near-equivalent in engineering, specializing in Human Factors, essentially a subset but integral part of Control Theory.

Human Factors involves Science and Mind and Behavior. He's done research into perception for pilots, and he's designed user interfaces for doctors to access medical records quickly, then show a patient how behavior changes the diagnoses. Essentially, he injects the human into the complex system. He also studies how decisions are made. He has a few academic texts out on Human Factors, the latest a more accessible one titled *What Matters*. John does not believe in driverless cars.

While in Dayton, I also learned a whole lot about the Wright Brothers, the poster-boys of Control Theory and Human Factors. Our grade-school classes didn't do the brothers nearly enough justice. They didn't invent flight; others were working on it, too. Their genius—and their patents—was in figuring out how to control the plane.

So as I drove back from Dayton to Bloomington, I started thinking about all the times we use the analogy of an audio engineer being in “the cockpit,” at the console. On the Human Factors scale, an audio engineer is not that far removed, either literally or figuratively, from a pilot. The amount of complex technical and subjective data coming all at once. Sounds at all frequencies, becoming a whole. Metering, perception and taste. Choices. It's all there, just with audio sources rather than visual sources coming through the glass.



Tom Kenny,  
Editor



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## Mix Sound for Film & TV

The third annual Mix Presents Sound for Film will be held September 17 on the studio lot of Host Sponsor Sony Pictures Studios in Culver City, Calif. This year's theme—"Sound for Film and Television: The Merging of Art, Technique and Tools"—brings film, television and virtual reality together in an all-day exhibition with a series of expert panels.

This year the Cinema Audio Society presents a Sound Mixing Panel: "Workflow for Musicals in Film and Television Production," moderated by Glen Trew, CAS (*Nashville*, 42), and including Re-recording mixer Gary Bourgeois, CAS (*Captain America: The First Avenger*, *Criminal*, *Ghostbusters II*) production mixer Phil Palmer, CAS (*Glee*, *Better Call Saul*) music editor David Klotz (*Game of Thrones*, *Glee*, *Iron Man*), Pro Tools Music Recording and Playback Gary Raymond (*Roadies*, *Jungle Book*, *Almost Famous*), and others.

Plus, also new this year is the Audio for VR Room, Sound Reel Showcase, and the Production Sound Pavilion, presented in the iconic Barbra Streisand Scoring Stage, where top production sound mixers show what's in their sound carts, and top manufacturers show the latest in wireless, microphone and recorder technologies.

Supporting sponsors include Event Host Sponsor Sony Pictures Studios; Event Partners Motion Picture Sound Editors (MPSE) and Cinema Audio Society (CAS); and Event Sponsors Avid, JBL by Harman, Yamaha, Meyer Sound, Lectrosonics, Audionamix and more to be announced.

General Admission is \$99, while CAS and MPSE members, and students, may attend for \$49. For more information on the programming, and to register, go to [mixsoundforfilm.com](http://mixsoundforfilm.com).



## MPSE, CAS Golf and Poker Tournament

The Motion Picture Sound Editors (MPSE) and the Cinema Audio Society (CAS) will host the 8th Annual MPSE Golf and Poker Tournament on Sunday, September 18,

2016 at the Angeles National Golf Club in Sunland, Calif. Proceeds from the event will benefit the MPSE's Ethel Crutcher Scholarship Fund, which provides mentoring and support for student sound artists, as well as the organization's work in promoting the role of sound in movies, television, gaming and other entertainment media.

This year marks the first time that the Cinema Audio Society has joined MPSE in sponsoring the event. Serving as Honorary Chairman will be Ron Kutak, the longtime National Executive Director of IATSE Editors Guild Local 700, who is retiring from his post on November 1.

"It's a day for networking with sound artists, filmmakers, vendors and studio executives," says MPSE President Tom McCarthy. "I am extremely proud and excited that the CAS is co-sponsoring this event as both organizations support the art of sound and the complete sound community."

To register, go to [www.mpse.org/mpse-and-cas-annual-golf-tournament](http://www.mpse.org/mpse-and-cas-annual-golf-tournament).

## AES Returns To Los Angeles



The 141st AES International Convention takes place in the Los Angeles Convention Center from Thursday, September 29, through Sunday, October 2, 2016. AES L.A. offers access to the highest levels of professional audio engineering and production.

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## Mix Nashville/ HOW Nashville 2016

Mix Nashville returns to Music City on November 12, 2016, at Belmont University's Johnson Center and at Music Row Studios. And this year, to add to the program, Mix has partnered with sister publications *Pro Sound News* and *Sound & Video Contractor* to introduce HOW Nashville: Expanding Your Mission Through A/V Integration on November 12 at Belmont University's Johnson Center. This one-day intensive event will provide insights and hands-on opportunities to learn how to integrate A/V into an existing facility or into plans for a build, expansion or renovation. Attendees will see the latest gear, learn best practices, network, and end the day with a Music Row studio tour and party.

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## Error Log

In the story "Classic Tracks: 'All By Myself,' Eric Carmen," in *Mix* magazine's August 2016 issue, the photo caption on p. 26 should read: Eric Carmen, left, with producer Jimmy Ienner at a Raspberries session a few years earlier at Record Plant New York. Photo: Bernie Hogya. *Mix* regrets the error. ■



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# On the Cover

By Tom Kenny

## FANTASY FILM CENTER REBORN

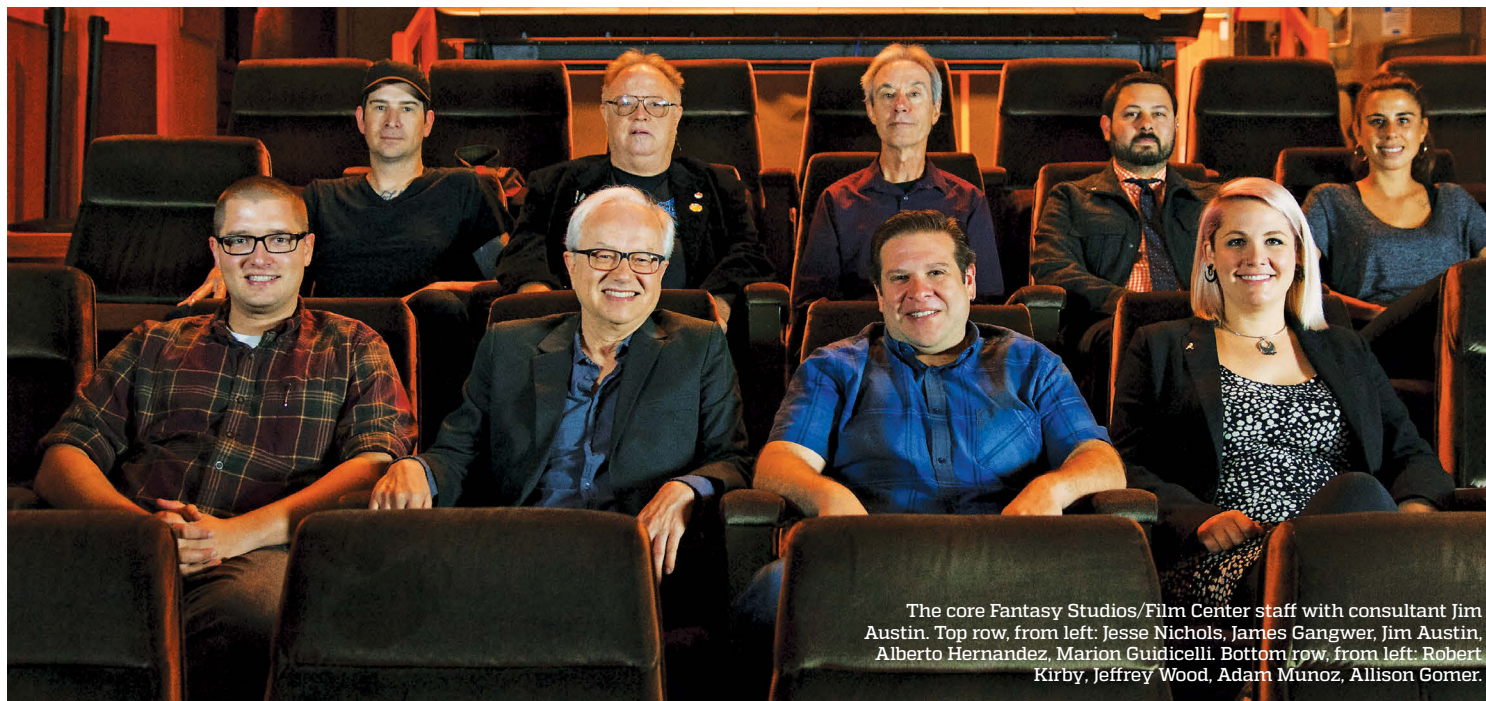


Photo by: Maya Pisciotto

The core Fantasy Studios/Film Center staff with consultant Jim Austin. Top row, from left: Jesse Nichols, James Gangwer, Jim Austin, Alberto Hernandez, Marion Guidicelli. Bottom row, from left: Robert Kirby, Jeffrey Wood, Adam Munoz, Allison Gomer.

**I**t is rare that a story about an iconic, large-scale, world-class studio closing is followed—in this case nearly a decade later—by a story of its successful rebirth. It just doesn't happen. Technologies change, people move on, other facilities open to fill the void. But it can happen, as it did this year with the reopening of the fabled Fantasy Film Center, at the corner of 10th and Parker in Berkeley, Calif.

Actually, the reopening is part of an even more improbable story that involves the larger Fantasy Studios and its successful navigation in the mid-2000s through a change in owners and looming mothballs. In short, the music studios themselves were closed and staff laid off in 2007 by Concord Records, which had purchased Fantasy Records from Saul Zaentz and his partners in 2004. The building and the studios were taken over by local developers Wareham Development.

"Wareham had a great deal of interest in keeping it a media building and understood the importance of Fantasy Studios and how

they should stay alive and vibrant," says Jeffrey Wood, who had been a resident producer in the building since 1995 and since the end of 2007 has served as Studio Director. "My belief was that there was still a need for large-format studios. People still have a need to play together in a large room. Everybody said, 'You're crazy! Why are you doing this?' But Wareham was very supportive and we put together a business plan. Then the financial crisis hit, and everybody again said, 'What are you doing?' We cut down from four rooms to three rooms, and over the next few years we built up the business. And for the last five years we have been booked constantly."

But in closing the fourth room (Studio C, reopened this year as the home to Michael Romanowski's Coast Mastering), and in having the good fortune to have the other three booked, Wood and his team had run out of space, and in 2011 started looking at the possibility of reopening a film mix room, to address the coming boom in sound for picture. There were already two mix

theaters in the building, along with a host of independent film editors, sound editors, mixers, documentary filmmakers and screenwriters. It had been that way since Saul Zaentz opened the building and subsidized the arts through rent subsidies and reduced rates on facilities. Wareham was continuing the tradition. Three years ago, Avid moved into the second floor.

"I got all the re-recording mixers I knew at the time and asked them what they thought of us building a mix room, of refurbishing a theater," Wood recalls. "They all said, 'Great!' I asked how much business they could bring me, and they all looked at the floor." He laughs. "So we let it go at that time. But the world has changed from five years ago, and one of the main changes is the concept of the tech companies producing content. All these independents are thinking, 'Why aren't we the next Netflix? Amazon does content.' Then we started to get some work from gaming companies. They all want to produce narrative content. We want to



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The side-wall, multifaceted balconies help provide more natural time arrivals, but made the positioning of the surround speakers more challenging.

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help nurture a new type of market, from documentary films to virtual reality.”

A year and a half ago, after lengthy research and even lengthier consultations from throughout the post-production industry (including Steve Shurtz, who had run the film center for many years and now heads the Cinema Group at Meyer Sound), Wood decided the time was right. From Fantasy Studios, he had the infrastructure in place, the scheduling, the billing, the maintenance staff, the engineers, even the echo chambers and plate reverbs from the studios downstairs—he just needed to adapt it all to a whole new clientele. And he needed to update the Alan Splet Theatre, pictured on this month’s cover.

The first call Wood made once he decided to move forward was to Skywalker Sound, the nearest competitor, to let them know what was going on. All was good. The second call he made was to Jim Austin, chief engineer at the Film Center from 1985 until its closure in 2005. He knew the room better than anyone. Working with Alberto Hernandez and James Gangwer from the Fantasy staff, Austin oversaw the buildout.

Renowned architect/acoustician Jeff Cooper built the Fantasy Film Center theater (later renamed the Alan Splet Theatre for the late Bay Area sound designer) back in 1980, while Austin was head mix engineer at Francis Coppola’s Zoetrope Studios in San Francisco. Austin’s first real visit to the space was in 1984 to help rebuild the console so that it could use two 6-track mag recorders for the re-recording mix of the Oscar-winning *Amadeus*. He returned the following year as chief engineer.

Over the two decades, mixed in with work on films including *The Right Stuff*, *Amadeus*, *Good Will Hunting*, *The English Patient* and so many others, some upgrades were made to the room, most notably replacing the Altec speakers behind the screen with bi-amped JBLs, moving the mix platform slightly closer to the screen during a console change in 1996, and projection system upgrades in 2006 when it was turned into a screening room and the console removed.

When he received Wood’s call, Austin knew that the room was solid acoustically, but the speaker system would have to be updated, a console put in and they would have to start from scratch electronically with all-new wiring. The equipment package was already decided: an Avid S6 console and Meyer Acheron monitoring system.

“Part of it is that it’s all family,” Wood says. “Steve Shurtz from Meyer and Pete Bouton from Avid have been invaluable for their support and guidance.” Wood laughs. “But the joke is that we shop locally. Avid moved into the building a couple of years ago, on the second floor. And Meyer is about three blocks away. But they’re also the best for the type of work we’re doing. We wanted a good, working surround room. Even though we have Galileo’d up

as far as the routing to make it an Atmos room with the addition of speakers only, at this point we want a good working surround room.”

Besides the installation of the S6 and general oversight on the job, Austin was primarily responsible for the monitoring system. He had extensive experience with both Avid and Meyer, having supervised numerous installations of each up at Skywalker Sound. The Fantasy Film Center system now includes three Acheron 80 screen channel loudspeakers, 10 HMS-12 surround speakers, two 650-P subs and a Galileo 408 and 616 for system drive and management.

“The screen speaker openings had to be resized,” Austin explains. “The Meyer speakers are amazingly compact for their power. They’re actually a little smaller than the JBL boxes. We put a slightly new platform in that I like to use so the speaker can turn and get very close to the screen—a very thick plinth, where the speaker sits out slightly proud of the opening, very close to the screen. The Meyer speaker has a built-in system where you can tilt it. I usually tilt it 6 to 9 degrees. That keeps the reflection off the back of the screen from going back into the speaker; it minimizes the comb filtering. And Jeffrey put in a fabric screen at my suggestion, which is the best you can do to minimize the effects of the perf screens. You now get a much smoother overall frequency response into the room. The subwoofers had been updated in 2006 and didn’t have to be touched, just rewired and ready to go.

“The surround speakers were the trickier part in that room because it’s quite a multifaceted wall system due to those balconies,” he continues. “And there are two pillars that are structural elements. We eyed it and used the laser and came up with the best location for the surrounds. And we left a known position for a forward surround speaker if Atmos is added. The wiring and infrastructure are there.”

The new Fantasy Film Center fits right into the means of modern workflow—a multipurpose room that can switch from features to television to gaming to corporate to VR at the switch of a button. And Wood and his team are reaching out to any and all parties in sound for picture. Once the staff understood the process of audio post-production, they bought in.

“We rebuilt the whole business on quality of recording,” Wood explains. “Rebuilding the pianos, the microphones, the outboard gear, and having a full-time maintenance staff. But the quality of a studio isn’t about the gear; it’s about the staff. Allison Gomer, my studio manager, is simply the best at scheduling and overseeing everything. We have on staff the most talented young engineers in the Bay Area and have built the studio on the basis of the people and the rooms. We are reopening this room for all of the post-production community to do quality work.”

The first full mix in the new theater finished in August, for Academy Award winning documentary filmmaker Steven Okazaki’s new film on the life of Toshiro Mifune, the famous Japanese actor of *The Seven Samurai* and *Rashomon* fame. Okazaki stated that he “loves the sound of the room, and he feels confident that the mix will sound great in theatrical release.”

“It’s a wonderful room for 7.1 work,” Austin says. “The wider balcony width gives you a little more natural time arrivals. More separation naturally. And yet it’s a very musical room, with all the wood and natural surfaces, the fabric, the old-style mineral wool. It’s very solid, very quiet, very tight in the low end. A very musical room, which works well for film, I think.”

“One of the things I always felt is that it’s one of the most comfortable mixing rooms I’d ever been in,” Wood concludes. “The warmth with all the wood, and the way it was designed it always struck me as a musical instrument, like walking inside a violin. I spoke with Jeff Cooper and he said that that’s what he felt, too.” ■



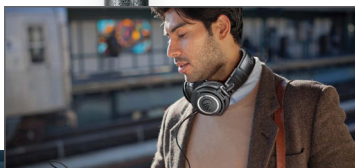


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# Music



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THE NITTY GRITTY DIRT BAND

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Glass Animals

## GLASS ANIMALS

Raw, Dead Sound for 'How To Be a Human Being'

By Lily Moayeri

**L**ittle talked about fact regarding Glass Animals' frontman and producer, Dave Bayley: He used to be the warm-up DJ at Fabric, one of London, England's foremost nightclubs. Trying to get a vibe going for a slow-filling dancefloor to gear the crowd up for top international DJs seems to not have a lot to do with Glass Animals' universally appealing, if unconventional pop-laced concoctions. But those 90 minutes in the DJ booth would get Bayley buzzing to make his own noises as a way to re-create his favorite sounds from other people's records.

Bayley soon found his own style, which in turn caught the attention of uber-producer Paul Epworth, who made Glass Animals the first signing to his Wolf Tone label. This was partially due to the fact that Bayley is a self-sufficient producer himself, not needing Epworth to hold his hand through the creation of Glass Animals' first album, *Zaba* (2014) or its follow-up, this year's *How To Be A Human Being*. But having Epworth as an on-hand mentor, and access to Epworth's The Church Studios during off-hours, didn't hurt.

The majority of *How To Be A Human Being*,

however, was created in Bayley's tiny, nameless writing studio in North London. "I had a very clear idea of what I wanted to write about," says Bayley, who while touring in support of *Zaba* surreptitiously recorded his conversations with people as sources of inspiration. "I knew I wanted to write about people. I knew the characters. I knew what their house looked like, what they wore, their entire world. The noises come into my head as I thought about the character. It made it easy to write music and develop songs."

Unlike *Zaba*, which is in the box with its





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Dave Bayley

starting points of beats, electronics, synthesizers and drum samples, *How To Be A Human Being* gets its start in a traditional fashion with lyrics and chords played on guitar and piano. This approach allows Bayley to be more streamlined, only pursuing an idea if it works in its most raw form.

The writing studio's compactness leant itself nicely to Bayley's process. Keeping his essentials within arm's reach, he has guitars: Hofner 176, Fender Stratocaster, Selmer Classical, Fender Precision bass with flat-wound strings, Roland Jupiter-6, Korg MS-20, ARP 2600—which made it onto every song on the album—a vintage Neumann U 87 microphone, and a couple of API preamps. Recording happens into Pro Tools, with Ableton preferable for sequencing and programming. Keeping things simple allows Bayley to whiz around, patching in what he needs quickly.

The studio has a drum room where sketches are put down. For this Bayley has created diffusers, acoustic panels, and movable walls in order to create a dead space without reverb or reflection. “I was listening to some old hip-hop records that I loved the vibe on, and they’re super dead,” says Bayley, who uses programmed drums on “Cane Shuga,” but then goes for a live kit on “The Other Side of Paradise.” “There’s something about that in-your-face-ness of those drums that I particularly wanted to capture the punch of for this album. The little studio’s walls are lined with acoustic treatment. You can clap in there and there’s no reverb. You can hear your heart beating in that room. I made these extra walls with soundproofing to put around amps and the drum kit to make a warm little room for them, a dead space.”

For many of the percussion sounds, Bayley used whatever he could find, from a pencil smacked on a tin can to mouth noises, particularly on the hi-hat sounds, which come close to beatboxing. On “Pork Soda,” for instance, the bass line heard halfway through is a combination of the bass guitar and Bayley half whistling/half humming and putting that into a sampler. “It’s easier than trawling through 100 sample packs and using

something that’s been used before,” he says.

Also on “Pork Soda,” Bayley uses a binaural head microphone to achieve a crowd effect by having his bandmates—guitarist Drew MacFarlane, bassist Edmund Irwin-Singer and drummer Joe Seward—gather around it playing different characters singing the same line in four different takes. Even with all its tricks, the core of “Pork Soda” was recorded in one take with all members performing together.

When recording bigger things, Bayley made use of Epworth’s The Church, its wonderful selection of microphones, and engineer Matt Wiggins. Even in The Church they create a dead space within the large studio room by using available baffles, positioned tightly around the drum kit, a draped roof, and a small opening in the front. This gives them the option for a dead sound on the close microphones to go with the option of using the room microphones for ambience.

“We used condensers on the close kit for brightness and attack, with the exception of a dynamic on the hi-hat for a bit more chunk than sizzle,” says Wiggins. “A Coles 4038 was placed

above the kick and distorted for when more crunch was needed. The condenser on the kick was supplemented by a speaker cone microphone with a Pultec-style EQ to add even more low end. All kick and snare microphones went through Transient Designer-type devices to add more attack and suck down the sustain, keeping the sound as tight as possible. On the overheads we had a Neumann U 67 and AKG D19, both in the center above the snare. We then would choose one or get a blend that worked for each song. Occasionally I added a second pair of overheads, some Sony pencil condensers in x-y, just in front of the kit about two meters off the ground. These microphones sound very hard and in your face, so it worked out great.”

In contrast, the huge chord sounds heard on “The Other Side Of Paradise” is the ARP 2600 recorded 30 times playing each note of the chord individually, resulting in 32 tracks, super-stacked, panned off hard left and right, with a little bit of a chorus for the widest chord sound Bayley could create. The Jupiter-6 is what he likes for pad sounds and EMS VCS3 for effects. He states its intuitiveness as a draw for creating Pink Floyd-like loops and ambient space-y sounds. He also managed to get his hands on a Transcendent Synth 2000, which usually comes in a build-it-yourself kit, but Bayley’s used to belong to Martin Hannett of Joy Division.

“I’ll record all those synthesizers and re-amp them to give them another bit of texture and forwardness that they don’t necessarily have if you record straight in,” Bayley says. “I tend to go through a Roland JC-120 amp, but if it’s a low synth I’ll go through an Ampeg B-52, and if it’s a simple mono synth line I’ll get it through whatever guitar amp I have lying around.

“There’s definitely a grittiness and rawness to this album that the last one didn’t have, where I was shy and nervous and trying to perfect everything,” he concludes. “The last record was shiny, mellow, ambient and reverbed out. This one is more of a kick in the nuts.” ■



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# WES SHARON

## Oklahoma Producer Takes Americana Artists to the National Level

By Barbara Schultz



Photo: Youngsun Yun

From his studio, 115 Recording, in Norman, Okla., producer Wes Sharon has launched the national careers of some of Americana's great young artists. John Fullbright's 2013 album *From the Ground Up*, which Sharon produced, recorded and mixed, earned Americana Album of the Year nominations at the Grammys and Americana Music Association Awards. Next came Parker Millsap's eponymous debut, and it earned the singer/songwriter an Emerging Artist of the Year nom at the AMAs.

The Sharon-produced album for the Turnpike Troubadours, *Goodbye Normal Street*, hit Number 14 on *Billboard's* country chart and Number 3 on the Indie chart, and was Lone Star Music's best-selling album of 2013.

"I don't know if people know what goes on down here, but the Troubadours will sell [more than] 50,000 hard copies of a record, entirely in Texas," Sharon says. "For this kind of music, Texas is its own world."

### How did your studio career start?

I was a musician playing in bands, and I wanted to learn more about [recording] so I could communicate better with an engineer. I was a kid, making real-deal punk records. If you'd told me

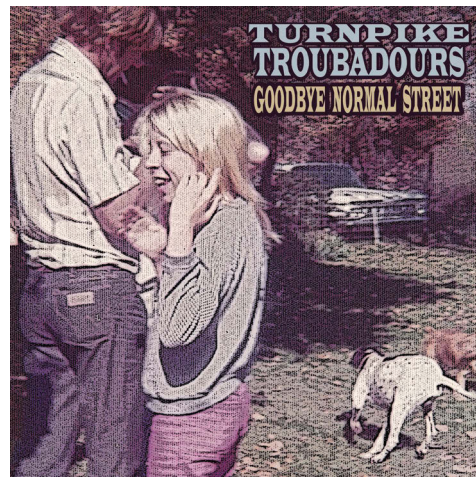
then what I would end up doing, I would have thought you were high.

But the truth is, any music that communicates directly with your audience is a folk art. A lot of the guys who were my contemporaries in the punk days are doing the singer/songwriter thing now. They're just communicating at a different volume.

### How did you go from recording at home to owning your studio?

I went to the Conservatory of Recording Arts and Sciences, and [then I wanted to do] an internship. Tom Waits' music was everything to me at the time, so I called Prairie Sun [Cotati, Calif., where Waits has recorded], and Jeff Sloan, who was the manager at the time, says, "We don't use interns." Click. But he called me back a week later: "They're going to lose Studio B for several months while they rebuild it, and everybody's leaving to work somewhere else." So I became the only guy there, helping the techs and getting things back online.

That was in '94, and I stayed there till Christmas of '97. I finished a Doobie Brothers project, and then I came back to Oklahoma and started recording out of my house. I actually built 115 for a friend, but one thing led to another and I bought it from him.



**What's your recording platform, and what would you say are the go-to pieces of gear in your studio?**

I use Digital Performer. I have an Audient ASP 8024 console, and I like the way it sounds, but I rarely use the preamps. Since 1994 I've mainly used an SM7 for vocals with a Neve 1073, or an Aurora Audio GTQ2, or an API 512. For guitars, the coolest thing I've bought in a while is a DynaMount [robotic mic positioner], which I can manipulate from my listening position.

### How do you approach working with a newer artist?

I always ask: Send me iPhone recordings of your song, the way you wrote it, with you playing and singing, totally unadorned. I want to listen to that a few times before we start. We don't do demos. When you hear someone playing their song, they're compensating for the sound in their head.

With John Fullbright, if he's fingerpicking, I can tell: That's the bass line; that's where the kick drum is supposed to go; that's where the snare would hit. I hear what [the artist] wants to hear. But I really don't want to make the record that sounds like them then. The hope is to make the record that sounds like them two years from now. Recording is not just archiving. It's giving the artist a way to express themselves that's timeless. ■



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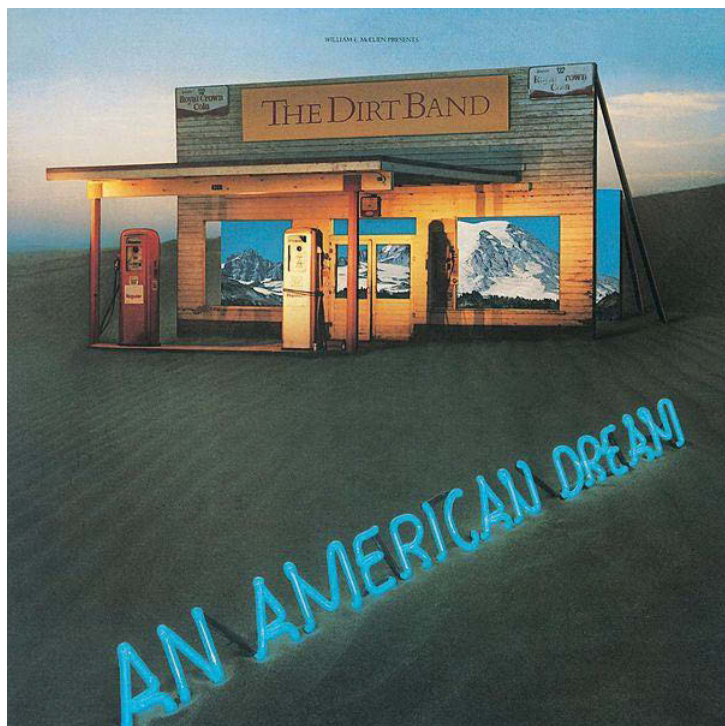
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# Classic Tracks

by Robyn Flans



## **"AN AMERICAN DREAM"** The Nitty Gritty Dirt Band

**F**our studios from all around the country, an initial duet refusal, and the ultimate singing partner were all part of the "An American Dream" saga, which put the Nitty Gritty Dirt Band back on pop radio after 10 years.

While on tour with Louisiana's LeRoux, NGDB had some time off, and as frontman Jeff Hanna put it, LeRoux members said, "Y'all have to go to Studio in the Country in Bogalusa, Louisiana."

The band, with Hanna co-producing alongside Bob Edwards, took them up on the invitation. They had met Edwards, Al Kooper's engineer, when Kooper wrote for *Crawdaddy* magazine—in addition, of course, to being one of the more influential musicians and producers of the era. Kooper had interviewed Steve Martin, who was Dirt Band manager Bill McEuen's other client. Edwards then engineered some overdubs on the album preceding the *An American Dream* album at the Record Plant, in Sausalito, Calif.

At Studio in the Country—where everyone believes there was a Neve console and Studer multitrack—the band cut rhythm tracks for two songs for the *An American Dream* album: "New Orleans," and the title track, "An American Dream."

The NGDB rhythm section at the time included Merle Bregante on drums and Richard Hathaway on bass, in addition to founding member Hanna on guitar. LeRoux's guitarist Tony Haselden laid down a lead gui-

tar solo in which he incorporated a lick that NGDB multi-instrumentalist John McEuen showed him on the banjo. Hanna performed all the rest of the acoustic and electric guitar parts on the track.

Co-producer Edwards recalls an Electro-Voice RE20 or Sennheiser MD 421 on the bass drum, Shure SM57 on the snare, Sennheiser 421s on the toms ("or if I got real adventurous and tried condenser mics on the toms, they were probably 87s or Neumann KM 84s.") an AKG 451 or 452 on the hi-hat, and AKG 414s on the overheads.

"The bass was undoubtedly taken direct," Edwards says. "We miked the amp with a 421. Guitar amps generally would have some combination of an SM57 and 421, and maybe also an 87 used as a room mic, back a little bit to get a little room sound."

Edwards says with the Neve board or any of the classic consoles, a lot of outboard gear wasn't needed, but there were Pultec Equalizers in various models, UREI 1176 or Teletronix LA-3As or Teletronix LA-2As for compression. "Back then, reverb was EMT plates," Edwards says.

A few months later, the team went to The Aspen Studio in Aspen, Colo., owned by manager Bill McEuen. "Bill McEuen built the studio for the Dirt Band and to work on Steve Martin's albums, who he also managed," Edwards explains. "We also recorded the score for Steve's *The Man With Two Brains* up there. That was really the Dirt Band's home base, and several of the members lived there at the time."

The Aspen studio had a Harrison console with VCA automation. "It worked great, but we were pretty much locked into using Neve or API mic pre's as much as we could, just for the sake of consistency," Edwards says. "Chances are on most of the overdubs we did up there, the signal path was through an external mic pre, which was probably an API or Neve, and through outboard gear. Bill had a great selection of Pultec equalizers and UREI and Teletronix compressors. We pretty much kept the sound and signal path the same as the other places we recorded. The chances are most of those overdubs were done through outboard mic pre's and outboard equalizers."

Edwards says The Aspen studio also had EMT 250 and 251 digital reverbs. "They weighed between 80 and 90 pounds and were about waist height and like R2-D2's younger brother," Edwards says with a laugh.

While there, they recorded Hanna's lead vocal, Jimmie Fadden's signature harmonica part and McEuen's dobro, captured acoustically with a high-end condenser mic.

As with most of the records Hanna and Edwards produced together, with the exception of the Louisiana beginning on this one, they started in Aspen and continued in L.A. for overdubs. At Sunset Sound where there was the custom API DeMedio console, they overdubbed the late Bobby LaKind (from the Doobie Brothers) on percussion. He played a chime tree, conga and you can hear the güiro prominently throughout the track. Edwards is pretty sure they recorded Al Kooper on electric piano at Sausalito's Record Plant.

Mixing was done back in Aspen; Edwards describes it as an incredible place to work.





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"The front of the control room was this angled wall of glass about a story and a half tall, where if you were sitting at the console in the mix position and looking off to the right, you were looking at the back of Aspen Mountain," Edwards recalls. "And if you were looking off to the left, you were looking up at Independence Pass. There were birds flying around and snow coming down and it was the top of the Rocky Mountains and the Continental Divide. Inspirationally, it was unparalleled and very comfortable."

The song was done but Edwards and Hanna were looking at one another wondering what they were going to do about the missing female voice. Rodney Crowell's version had Emmylou Harris on it and they were big fans of that recording. They asked their drummer friend Rick Shlosser for Nicolette Larson's phone number.

"We asked Nicolette if she wanted to come in and sing on 'American Dream,' and she just turned us down. Well, we didn't know her," Hanna says in her defense. "For starters, we were not yet friends. We later became fast friends."

They were stymied. They really wanted a female voice to go with Hanna's. "Bob looks at me and says, 'What about Linda?'" Hanna recalls "Linda Ronstadt?!" She was on the cover of *Time* magazine—literally the Queen of Rock 'n' Roll. Somehow I got Linda's number; she had changed it a bunch of times."

Hanna and Ronstadt went back all the way to 1967 when she was playing with Bobby Kimmel and Kenny Edwards in the Stone Poneys. Hanna recalls being at the session when they cut "Different Drum." In 1975 Ronstadt had recorded a duet with member Jimmy Ibbotson on "Hey Good Lookin'" for their *Symphonion Dream* album.

"I call her up and it went like: 'Hey Linda, Jeff Hanna.' 'Jeff, ahhhh! Are you in town?' 'Yes.' 'Let's have dinner.' I said, 'It'd be great to have dinner, but before we do that, how would you feel about coming into the studio and singing on this tune we've got?' She said, 'What's the tune?' I said, 'American Dream,' this tune that Rodney wrote.' She said, 'I love that song.' That was great, I thought. She said, 'When do you want to record it?' I said, 'How about tonight?' She said, 'I'll be there in two hours.'"

Hanna recalls Ronstadt was taking karate at the time and showed up at Sunset Sound in her dojo outfit and "killed it in two takes."

"The first take was perfect and she was self-critical like always: 'Let me sing that bridge on the second take,' and that was it," Hanna says.

Edwards says they used a Neumann U 67 on her vocals. "That was the tried and true vocal mic for her," he says. "Probably some EQ and compression on it. At Sunset Sound the console equalization was top notch, so we may have used that, or maybe some outboard gear, I honestly don't remember. But for compression, probably a Teletronix LA-2A would be my guess."

"And while she was there, we asked her to sing on another tune, 'New Orleans,' which had a call and response on it, and if you listen to that you can hear her clearly wailing," Hanna adds. "And we had dinner and that was that."

The postscript on the story was that Ronstadt endorsed the Dirt Band to her friend Nicolette Larson, who then sang on the band's next single, "Make a Little Magic." That single took the Nitty Gritty Dirt Band to No. 25 on the *Billboard* charts in 1980, and the band has just celebrated its 50th anniversary. ■



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# Live



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The Lumineers performed at Marymoor Park in Seattle in June 2016.



Photo: Todd Berkowitz

## THE LUMINEERS

Re-creating the 'Cleopatra' Album Mix for Live Audiences

By Candace Horgan

**W**ith a new album, *Cleopatra*, debuting at Number One in both the *Billboard* 200 and UK Album Charts in April, hometown heroes The Lumineers returned to Denver to play two sold-out shows at the famed Red Rocks Amphitheater in June 2016. On the first night, the band mixed in songs from the new album, including the title track, with old favorites like “Ho Hey” and a cover of Bob Dylan’s “Subterranean Homesick Blues.”

Working front-of-house for the band is Josh

Osmond, who has been with The Lumineers since September 2013.

For the 2016 summer tour, Osmond is mixing on the new Avid S6L-32D. He appreciates the sample rates and how the design of the new console makes the workflow easier. “Obviously having a desk that can run at the higher sample rates is pretty essential now with the digital format, so that is great,” he explains. “The input and output count has been significantly increased, which makes the console very flexible when you have a band that is constantly changing or adding to

what they want to have presented in their live performance, and the general workflow of the desk is as good as it gets. I can pretty much get anywhere I need to go with one touch of a button or screen. I also love the fact that I can attach a specific layout of faders/channels to a snapshot and have the essential inputs be recalled for each song in the set.”

Osmond relies on stock 64-bit AAX plug-ins on the Avid, such as the Pro Subharmonic, and the multiband compressor that he uses on the main vocal, electric and upright bass, cello, and acoustic and electric guitars. During the summer in Europe,



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he started using the Sonnox Oxford Reverb and Oxford Dynamics, as well as the Softube Tube-Tech. He also likes to use a variety of outboard gear.

"I have really found that essential to helping open up the stereo image, as well as warming up and cleaning up some of the inputs," Osmond says of the outboard. "I have a TC Electronic M5000 that I use for snare and tom reverbs. I have two Bricasti Design M7s that I use for vocal reverb and some special effect reverbs. I have an Alan Smart Research C2 compressor that I use on the main left and right bus; I do very subtle 2-to-1 compression, and it really allows the mix to stay under control when things want to get derailed. I use three Empirical Labs Distressors—one on the lead vocal, one on electric bass, and one as a spare—and two Summit DCL-200s for parallel compression over the entire drum subgroup. This really allows the drums to drive the mix without overpowering it."

When preparing for the tour, Osmond spent a lot of time listening to Cleopatra and tried to duplicate the album for his mix, and uses reverb to "make some inputs sound bigger. Luckily, this is a very organic band, and almost every input out of the 64 we use is a live mic/instrument. There is no track or playback, so that is really refreshing. My main goal is to basically



Photo: Todd Berkowitz

Front-of-house engineer Josh Osmond is mixing The Lumineers on an Avid S6L-32D.

create as best I can a three-dimensional space for everything to live in. We have lots of acoustic instruments, so everything needs to sound natural."

The band carries its own P.A., a Meyer Sound system provided by Sound Image. They flew 14 LYON speakers per side, four 1100-LFCs per side, and added eight 900-LFCs ground-stacked per side, three CQ-2s per side for front fill, and four MINA boxes as lip fill. The system was powered by one master Galileo Callisto 616s at FOH

and three Galileo Callisto 616s on either side of the stage.

Osmond doesn't have the benefit of a system tuner for this tour, but in the future will have a dedicated system tech so he can concentrate on the mixing duties. His prior experience with system tuning allows him to tune things with Smaart v.7.

"I like to use upwards of five measurement microphones when shaping the arrays. This allows me to look at the frequency response of the system at various locations of the venue all at the same time. From there, I can do some broad shaping to the system to get the response to be as consistent as possible across the vertical plane of the venue. My rule of thumb when tuning is to EQ first, then time-align. Obviously, any parametric filter that you put into your system will add a small amount of latency, so

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it's important to EQ a zone first and then look at timing relative to another already EQ'd zone. That way, you know that the phase response will be accurately compared to each other for the most part."

The mic setup includes an Audix D6 and Shure Beta 91A for drums, a Neumann KMS 100 on top and a Telefunken M80 on the bottom of the snare, and a Shure KSM141 on hi-hat and ride. There is a Shure 181/C on the rim of the kick drum, toms are Sennheiser e 904s, overheads are Neumann KM 184s, and there are a Shure Beta 91A, Sennheiser e 904, and Sennheiser e 602 for auxiliary drums that are a combination of kick and toms. Guitars are a combination of Shure KSM313s and Telefunken M81-SHs. Vocals are a combination of Shure KSM8s and Shure SM58s. Osmond also has Shure KSM137s for FOH audience mics for his recordings.

Handling monitor duties is Brad Galvin, who has been with the band since 2012. Galvin is mixing on a DiGiCo SD5, having transitioned from using the Avid Venue Profile.

"I really like that I can have anything anywhere on the console, as well as having multiples of the same channel anywhere on the surface," Galvin says. "I utilize the multi channels a fair amount since I have performers with multiple dedicated mics where I have a single fader to control the overall level, but can quickly open it up and adjust all the individual channels assigned to them. I then use a macro to swap which input is live at any given time. I also use multis on my toms and all of my various overhead mics."

Galvin doesn't use plug-ins, and likes to use effects sparingly on his mix. "I honestly try not to use a lot because I want the band to have a good

representation of what they are giving me, and as much as I enjoyed having plug-ins with the Profile, I still used the least amount that I could. I do use a number of the tube emulations on the console to get a little bit of harmonic distortion on some inputs, but even those I use sparingly. I feel like it's easy to go overboard when using plug-ins and it can often do more harm than good. If the source sounds good, and the mic picks it up properly and the console preamp and single path sounds good, I simply don't need all that extra stuff."

For the monitor mixes, most of the band is on in-ears. Singer and guitarist Wes Schultz gets guitar and vocal and vocal verb "riding on top a bit," according to Galvin. "Jer [Jeremiah Fraites] gets a lot of drums with a lot of reverb and a good mix of everything else just below that, and Neyla [Pekarek] mainly listens to cello and her vocal with the piano and bass there for tuning and guitars just below that.

"Wes's vocal is somewhere between the guitars and bass/piano in her mix," he continues. "Byron [Isaacs, bass player] gets a lot of bass, kick and snare, with just a touch of everything else to keep time and pitch for his vocals. Stelth [Ulvang, pianist] has both ears and the only wedge on the stage. Both mixes are similar. It's mainly to feel some low-end vibration, and for the times when he will pull an ear out. Other than that he has a lot of keys, Rhodes and accordion in his mix. When he plays the mandolin and the acoustic guitar, it rides just above everything else, but not loudly. Other than that, he has a general mix of everything just underneath his own instruments." ■

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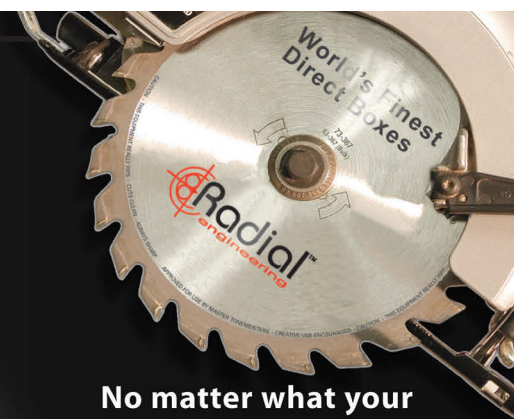
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Photo: Todd Berkowitz

## DREAM THEATER

### 'The Astonishing' Live

Veteran prog-metal band Dream Theater—John Petrucci (guitar), John Myung (bass), James LaBrie (vocals), Jordan Rudess (keyboards and Haken Continuum) and Mike Mangini (drums)—began 2016 by releasing a daring and ambitious concept album. *The Astonishing* (Roadrunner Records) is a fantastical sci-fi rock opera that comprises 34 tracks featuring characters (all but one voiced by LaBrie), locales and a storyline envisioned by Petrucci. For the album, the band joined musical forces with the Prague Symphony Orchestra and three choirs conducted by composer/orchestrator David Campbell, who is Beck's father. It was recorded at Cove City Sound Studios in Glen Cove, N.Y., with Petrucci producing and Richard Chycki engineering and mixing.

The band toured behind this double-album in Europe and the U.S. this spring by performing it in its entirety each night as an immersive experience complete with visual elements including video projection and lighting synchronized to the music. "We wanted it to be the closest thing to watching a movie while the band is playing a live score, basically," Petrucci told *Rolling Stone* magazine. They perform as a self-contained unit, locking in with playback of the album's orchestra and choir tracks.

Because of these interdependencies, front-of-house engineer Nigel Paul notes the importance of "system redundancy and fallback strategies in the event of human error or hardware failure. Everyone needed to be on the same page and crystal clear as to how they would need to respond in the event of a, b, c, x, y or z occurring."

For the spring dates, VER Tour sound provided equipment packages, service, support and touring personnel. Paul has worked with Dream Theater since the band's 2002 *Six Degrees* tour, and mixed all but two of the band's tours since then. On this tour, Paul worked alongside monitor engineer Stew Wilson, systems engineer Clark Thomas, monitor and RF tech Ed Hammond, and Pro Tools playback tech "Jimmy T" Meslin.

Paul selected a DiGiCo SD5 specifically for this tour. "All of the vocal effects on the album were to be reproduced as accurately as possible, particularly as these would aid in differentiating between the story's characters," Paul says. "For James [LaBrie], I'm using an onboard delay, an onboard harmonizer, an external TC4000 reverb and a second channel adjacent to his main vocal channel that has been double-assigned from the preamp and that is set up for a telephonic effect, and punched in and out as needed."

"For Mike's drums I'm using one onboard reverb for the main and utility snare drums, and a second onboard reverb for the toms and [TAMA] Octobans," Paul adds. "All of the effects on John's electric guitars are generated within his onstage rig, with the exception of the touch of reverb on the solo piezo parts. A second external TC4000 reverb is used exclusively for the six- and 12-string acoustic guitars, and solo piezo parts."

Paul notes that he begins each night's mix with Mangini's drums "because I find that they give me the most useful initial frame of reference. With this band, our line-check order is drums, bass, keyboards, playback, guitars, vocals, video/audio. As long as the P.A.—our touring system [a d&b audiotechnik rig] or 'du jour'—is well set up and tuned, we're already at a viable starting point."



Photo: Todd Berkowitz

Wilson mixes monitors on an Avid Venue Profile and employs a Shure PSM 1000 wireless system. "I am using every input and output and almost all of the FX returns, matrixes and PQ mixes, as well," Wilson explains. "The set list contains a lot of time changes, and a lot of times they work off of each other. The video is a big part of the show so there are count-offs and clicks that keep everything on the same page. It's more like a GPS system than a click track, as each band member has their own channel for counts, clicks and cues. Even the LD has a personal channel."

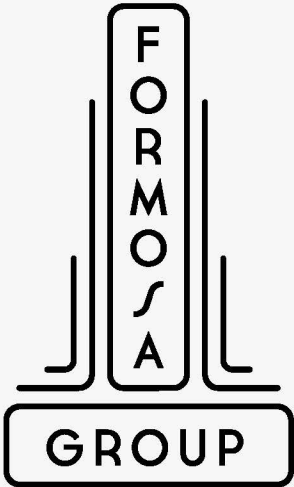
"They are all amazing musicians, have meticulous rigs and spend a lot of time on their own sound, so I use compression in a very limited manner," Wilson adds. "There are no ambient mics or anything like that. So the mixes for the most part are fairly insular."

Dream Theater's *The Astonishing Live* returns to the road with dates in the Eastern U.S. beginning October 5. — Matt Gallagher



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## KEITH URBAN *ripCORD World Tour*



Keith Urban performed to a packed house at the Shoreline Amphitheater in Mountain View, Calif., in early August.



**FOH engineer Kirk Kelsey** (left, pictured with system engineer **Arpad Sayko**) has been mixing on the Avid Venue Profile for about as long as it has been available. Having extensive studio experience, he was comfortable with using plug-ins to achieve the kind of sound he was looking for. “The Profile surface is a nice compact space to work in and keeps my movements to a minimum,” Kelsey says. “I still prefer to manually mix for the most part, keeping snapshot use for mostly effects changes.

“That said, I use an obscene amount of plug-ins,” he continues. “I am currently trying to ween myself off them and get back to the simple life. For drums, I have had good results from Waves C4, using it as a multiband expander. Guitars have their share of Crane Song Phoenix and Waves Renaissance Ax. The vocals are Waves C6. The rest are different reverb/delay effects, very basic. I love Soundtoys but have yet to integrate them into the show. Maybe by the fall.”

Kelsey carries one piece of outboard gear, a custom box by Ike Zimbel of ZAP Ltd., which he uses across the instrument bus. “I couldn’t tell you how it works,” he says, “but it makes the mix separate and pop with greater depth than the console has on its own.

“I want the audience to recognize the songs, of course, so in mixing the show there are a fair share of studio-like elements, but I would say a more ‘live’ feel is what I’m after. The thing I like about mixing live is that everything about it can be larger than life. More dynamic range to play with, more energy all the way around.”





**Monitor engineer Phil Wilkey** started with Urban a little more than five years ago and has employed the Midas H3000 analog console since the beginning. “We started with one and it has grown to two with the addition of the B stage and an array of talkback mics,” he explains. “I’ve always loved the warm sound of the console. I still do all my cues manually and use the faders for Keith’s mix. It’s all there in front of me. The input count for me is about 120, with FX and talkback mics included. I am using all 24 main outs and some matrix sends, as well.

“It’s a real pleasure to mix for Keith and the band,” Wilkey sums up. “Nice people, nice music and nice crew!”

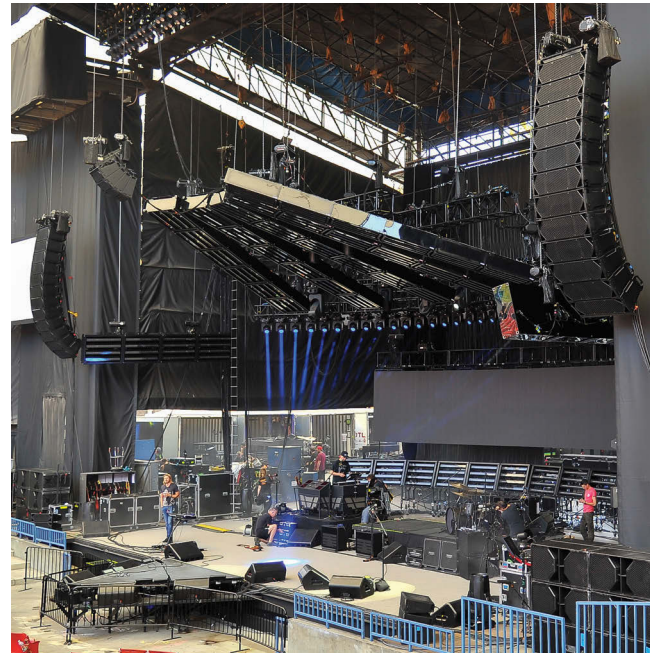


“We have a heavy duty road case built by J Sound Services out of Nashville,” FOH engineer Kelsey says. “**Pandora’s Box**—as we call it, I don’t remember who coined the name but we like it—has thick studio baffling with enough room to strap in a 2x12-style combo amp. Keith uses a 1959 Fender Twin on stun—hence, the isolation. The tone can’t get there any other way, though most

of the sound comes from Keith’s hands. It’s mixed with two KSM32s and an AKG C747.

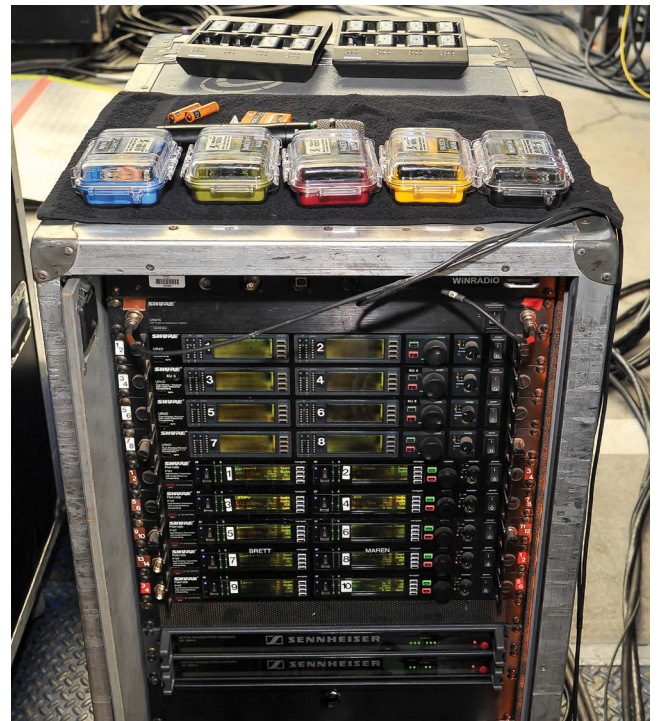


Wilkey uses XTA D2s on all of Urban’s vocals with basic 990 reverbs. “I have a selection of Drawmer gates and compressors and use Klink DN360s for my wedge mixes,” he explains. “I also use dbx 160s on all the backing vocals. The band all use Jerry Harvey in-ear products—Keith being on Laylas and the band on JHA 16s. I use Clair CM22 wedges, six downstage and two upstage for Keith, and two CM22 wedges for Jerry our bass player. I also have a CM22 either side of the stage, again for Keith if he decides to roam that area.



“We’re using the Clair Cohesion 12s, 12 deep, as our main hang, says system engineer Sayko. “Cohesion 8s, eight deep, as a side hang. Cohesion 8s for front fill. The subs are CP-218s. Everything is being powered off of Lab. gruppen 20k amps, with the exception of the subs, which are self-powered.

“At FOH we have an LM44 that is generating our Dante signal, which has been 100-percent solid all tour long,” he continues. “This is my first run with the CO-12s, and I must say it is a tremendous cabinet. As with any P.A., it has a ‘personality,’ but Kirk and I became friends with it early on. Onstage you will find 14 Clair CM-22 wedges.”



The Keith Urban tour uses Shure RF throughout. IEMs are PSM1000. Mics are Shure sticks with Heil PR 22 capsules.



From the movie  
*Sing Street*

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# THE SOUND OF 'SING STREET'

YOUNG, IN A BAND, IN THE '80S

By Jennifer Walden

Some animals lock horns, or bare teeth and claws, to physically dominate their competition. Other species inflate random body parts in magnificent display to catch the eye of a potential partner. But for that special breed of human known as the teenager, an effective way to attract a mate is to play in a band. Director John Carney's latest film, *Sing Street*, captures this timeless mating display. Set in 1980s Dublin, Ireland, a teenage boy seeking to impress a girl convinces his friends to form a band. But unlike most high school bands, the *Sing Street* group has the benefit of professional musicians and the magic of filmmaking to boost their appeal.

Using professional musicians and syncing the sound in post is a departure for Carney, who had taken a "what you see is what you hear" approach on a previous film, *Once* (2007). "*Sing Street* involves a full band, which makes it more complex to capture live performances on set. Also, the young lads are all inexperienced actors," says *Sing Street* co-supervising sound editor Niall Brady (with Michelle Fingleton), who also supervised the sound on *Once*. Not only did the young actors have to learn their parts for the film, but they also had to rehearse all the songs so their

performance on-screen would sync with the studio musicians' tracks. Even for his musical-dramedy *Begin Again* (2013), starring Keira Knightly as a singer-songwriter, Carney used Knightly's own performances of the songs—although they were recorded in the studio, not captured on location.

As Carney was finishing up *Begin Again*, he popped in to see music producer Kieran Lynch who owned a studio in Dublin's The Factory, a collective community of film industry artists founded by Carney and director Kirsten Sheridan. "John [Carney] pitched the idea for *Sing Street* to me and a couple of other people in The Factory. His initial idea was slightly based on his own childhood and his experience while in that school," says Lynch. The school in the film is the same one that Carney had attended.

Since music is so central to Carney's films, work began on the songs long before the film was shot. In November 2013, Lynch hired keyboard player Graham Henderson, drummer Karl Papenfus and his brother, guitarist Ken Papenfus. Together with Carney on guitar and his friend, bassist Eamonn Griffin, they held once-a-week writing sessions in the control



room of Lynch's studio. Carney would pitch an idea for a scene or present a rough song idea, and the group would flesh it out and try to structure it based on the needs of the scene. By December, they had five songs. Those sessions also produced a friendship between Henderson and the Papenfus brothers. "They got along so well as people that Graham, who is the musical director for Sinead O'Connor, asked them to join her band. They have been playing with her ever since."

## MUSIC PRODUCTION

In August 2014, a month before principal photography began, the studio band reunited at Windmill Lane Recording Studios in Dublin. Songwriter Gary Clark, frontman for '80s band Danny Wilson, joined Carney as co-writer of the final tracks, which pay homage to period favorites like The Cure, Duran Duran, Hall & Oates and Elvis Costello. Lynch notes that those different song styles didn't impact his approach to recording the tracks. What was more important was how the songs would fit into the film. It needed to sound like the kids on-screen were actually playing the songs, and the songs also needed to transition into full studio versions for the score sections.

To cover both approaches as efficiently as possible, Lynch used different mic setups at varying distances for each instrument. "When the scene happens in a sitting room or the bedroom, you want the music to sound as close and intimate as possible," says Lynch, who had to make decisions on mic selection and setup without the benefit of picture. "Then, when

the camera moves back and you have a wide shot, you want to be able to give it more space sonically. All we had was the script and a basic concept of what would be happening, so you have to try and imagine how the scene will be set up and hope that you have the flexibility when it comes to fitting in the track."

While the music for *Sing Street*'s on-screen band is pure studio magic, lead actor Ferdia Walsh-Peelo, playing the part of Conor, actually performs his vocals. Lynch had the foresight to record Walsh-Peelo's vocals using a Neumann KMR 81 shotgun mic and a DPA 4060 lav mic to match the production sound captured by location sound mixer Robert Flanagan. This made it much easier for the post sound team to transition between the dialog and the diegetic music moments. Lynch also had an AKG C12 VR and a Shure Beta 58 paired with two UREI 1176 mic preamps on the vocals to capture a richer studio sound for when the songs go into full-on score.

Another factor in helping the audience believe that the music was coming from the band on-screen was to have the professional musicians play like amateurs. Lynch says, "It was a challenge getting session musicians to play poorly but not play so badly that it was terrible. I kept having to tell them to play like a 15-year-old kid who believes that he is amazing but actually isn't. With this film I tried my hardest to get it to feel real and authentic, to make it as believable as possible so that the audience isn't taken out of the film ever, not even for an instant."

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*Continued on p. 60*

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Dominic Cooper as preacher Jesse Custer.



Ruth Negga as Tulip O'Hare



Joseph Gilgun as Cassidy



Tom Brooke (left) as Fiore and Anatol Yusef as DeBlanc

Photos: Lewis Jacobs/AMC

# IN THE MIX WITH THE SOUND TEAM FOR 'PREACHER'

By Lily Moayeri

**P**reacher, AMC's newest series adapted from a cult comic book, centers around a super-hot preacher man, Jesse Custer, his renegade Dorothy Dandridge-esque soulmate, Tulip, and their wacky vampire buddy, Cassidy. Custer has a gift, the power to make anyone do his bidding using the voice of the entity that is inhabiting his body, aka the voice of God. If bewilderment has already set in, that is understandable, as much of *Preacher* is confusing. Connections are made over the course of a few episodes, where if you pay super-close attention, things kind of start to make a little sense.

The post-production sound team has a lot to do with assisting in making these connections. Supervising sound editor Richard Yawn meets with the show's executive producers, Seth Rogan and Evan Goldberg (*This Is the End*, *Superbad*, *Neighbors*), and showrunner Sam Catlin (*Breaking*

*Bad*), during an initial spotting session. Here, Yawn takes copious notes on their very expressive ideas and concepts, as well as asks questions, makes suggestions and brings up ideas of his own. He then disseminates the information to his team, regarding sound design, music, effects, Foley, dialog and ADR. They then deliver to the re-recording team, which for a conventional-length episode has three days of mixing and a day of playback, which can stretch to five days total for extended episodes.

Dialog and music mixer Mark Linden—whose Emmy wins are quickly moving past being countable on two hands—says, “On *Preacher*, there is a lot of overlap between music and post because so much of the effects and design in the show cross in points where music is playing almost a sound design-type role. There is music that is tonal and really effected, and a lot of effects are musical and really tonal.”



"The challenge with TV is to get dialog loud enough where in a suburban home it is heard over the ambience," he continues. "The more you keep the dialog up, the more it limits how much you can do on sequences. We worked a ton getting the music to play with the effects and to maintain all of them so we could keep the dynamic hits and still have the dialog."

This is another area of crossover, this time with Tara A. Paul, also a collector of Emmys, who mixes background, effects and Foley. For *Preacher's* stylized filming, Foley has a more central role than it otherwise might.

"There was a lot of opportunity to play," says Paul, who works side-by-side with Linden on one of the re-recording mix stages on the Sony Pictures lot in Culver City, Calif., both using Pro Tools and an Avid ICON D-Control ES mixing console. "I was able to change things with EQ and pitch shift. I rely pretty heavily on Pro Tools' built-in 7-band parametric equalizer. As far as distortion goes, I like the Meequalizer. In the fifth episode, for instance, we are looking at a hole in the wall where every time someone passed by, we had to filter so it felt like we were hearing someone block the sound for a moment. I used the Meequalizer to roll off the top end and then roll it back up again. For reverb, I like the Phoenix-Verb. It has a pleasant decay and a clean sound without that digital top end that a lot of reverbs get."

"I'm also using Fab Filter and the L1 compressor but not for limiting, which is what it's intended for," Paul continues. "I use it specifically to get a mightier sound out of things like gunshots that I don't have the headroom for because of TV limitations. I compress the sounds enough so it adds a little bit of distortion, making the apparent sound much louder than the actual sound. That way I am able to keep within TV specs without pegging the meter but still give it that big feature sound."

"You have to figure out a way to make something feel like it's loud without hitting the frequencies that take up the bandwidth of the feature, but still have the impact," Linden concurs. This is an area where the post team worked a lot with composer Dave Porter (*Breaking Bad*, *Better Call Saul*). "Each time we ran into the issue of not being able to make it any louder, [Porter] would come back with other frequencies. He's very knowledgeable about the dynamics of sound versus instruments in a music piece. We were able to make a mix apparently loud without making it dynamically loud."

A particular trait of *Preacher's* is having sound that isn't supported by picture. For instance, the character Quincannon, who runs a slaughterhouse, is in his office listening to tortured cows over the intercom. The viewer thankfully doesn't see this, but hears it. Later, Quincannon is having somewhat of a Civil War reenactment when trying to make the preacher sign the church lease. Elsewhere, Eugene, another character, climbs out of hell



Mark Linden



Tara Paul



Richard Yawn

(according to him, "It's not that far"). The sound team comes up with the sounds of cow slaughter, war screams, and hell based on feeling without visual reference.

*Continued on p.75*

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Image via Lionsgate

Vee (Emma Roberts) and Ian (Dave Franco) in *Nerve*. (Allison Shearmur Productions)

# FOLEY, PLEASE

## DETAIL AND TEXTURE TO HELP TELL THE STORY

By Jennifer Walden

Ian steps out onto the gantry of a crane's arm, suspended hundreds of feet above the street. Wind tugs at the loose fabric of his clothes. The metal sways, causing a caution light at the arm's end to rattle. It's a tense moment in the film *Nerve*, which opened in theaters July 27. In the film, players of an online game are paid to complete dares, and Ian (Dave Franco) has accepted the dare to walk out onto a crane arm. Just watching the scene delivers a rush of adrenaline even though in reality the crane arm is only 20 feet above the ground.

The Foley artist on the film, Leslie Bloome at New York's Alchemy Post Sound, feels that the fine sonic details captured in Foley—the metal stressing under Ian's footsteps, the loose light, the flapping of his clothing—pull the audience into Ian's experience. “You can hear the rattle of the light's glass against its metal housing, and just that one little sound helps to put you right there,” Bloome says. “That little sound helps the audience to experience the intensity of this one instance.”

As a Foley artist for the past 26 years, Bloome observes that when it comes to performing Foley, not much has changed since the days of radio dramas. But what has changed, says Foley artist Gary Hecker, is how directors and sound supervisors view the contribution that Foley can make to a project.

Hecker, considered one of the film industry's top Foley artists, started 35 years ago at age 19 as a Foley apprentice on *Star Wars: Episode V—The Empire Strikes Back*. Then he followed his passion. He has seen the role of Foley increase over the course of his career, from being used minimally to cover scenes that had been looped, making a larger-scale contribution across the entire film. And that role is still growing. Recently Hecker has noticed that sound supervisors are turning to Foley as a way to cover story points with handcrafted sound effects.

“Many sounds that go into films are pulled from sound libraries, but here on the Foley stage everything is fresh and new,” he says. “It is cus-



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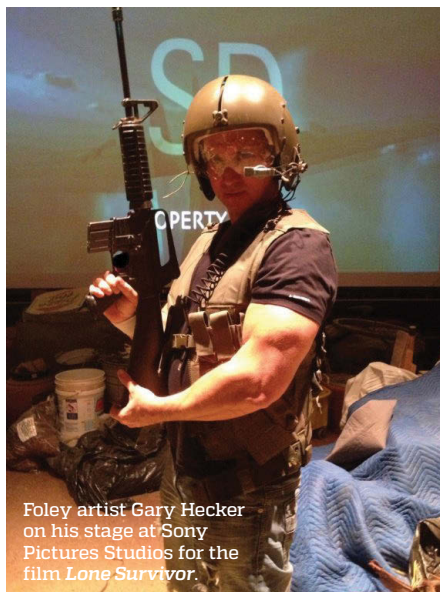
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tom-made for the project that we are working on. Foley contributes an organic feel to a film and it helps to add so much detail. That's what people rely on me for the most now, to add detail, because I can handcraft the sound on the Foley stage right to the picture."

Hecker, at Sony Pictures Studios in Culver City, Calif., has been the Foley artist on some serious feature films. This year alone he has created and performed Foley for *Batman vs. Superman*, *Warcraft*, *Ghostbusters*, *Independence Day: Resurgence*, *Deepwater Horizon* set for release September 30, and *Snowden*. Later this year he's slated to work on *The Dark Tower*, *Spider-Man: Homecoming*, and *Justice League*. He's even performed Foley for videogames, like the upcoming *Call of Duty: Infinite Warfare*.

Bloome calls Foley "the glue that holds the whole sound design together." He explains that sound designers, sound effects editors, and the Foley team all work together to tell the story through sound but in different ways. Take a car crash, for example. The sound effects editor will cut in an explosion with a sense of loudness and intensity, but the Foley team will put in the details, like glass shattering and debris scattering on the ground. "We are working together to help accentuate those effects and



Foley artist Gary Hecker on his stage at Sony Pictures Studios for the film *Lone Survivor*.

make them really sell," says Bloome.

Hollywood blockbusters and AAA games aren't the only projects that can benefit from Foley. Indie films and documentaries are more and more working Foley into their budgets. For example, on Netflix's documentary series *Making a Murderer*, for which Foley artist Bloome recently earned an Emmy nomination, writers/directors Laura Ricciardi and Moira Demos rely on archival courtroom footage as part of their narrative on the true story of Steven Avery, a man wrongfully convicted of rape/attempted murder who had served 18 years of a 32-year sentence before DNA evidence proved that another man had committed the crime.

Bloome explains that the courtroom cameras were incredibly limited as to what they could capture, so the directors used Foley to help accentuate the harshness of Avery's reality. The challenge was to add sounds that weren't jarring or obtrusive, to get the right perspective so that the Foley didn't conflict with the dialog or other elements. "We really had to bring to life the weight of Steven Avery's handcuffs and leg restraints as he's being brought into the courtroom. We really wanted to sell the heaviness of the moment in this virtually sterile environment," Bloome says.

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Another example is footage shot at the Avery's family-owned junkyard. As the camera pans into the junkyard, Bloome says, "It's completely dead and lifeless. Coming up with sounds, like the groan of the metal decaying or the shrub and brush scraping against the side of these dismantled vehicles, really bring up the feeling that this is rock bottom." By utilizing Foley, Bloome feels they were able to bring those moments to life without being intrusive. "Even on a limited budget, Foley makes a big difference."

Foley not only improves the soundtrack, it also boosts a film's marketability. "Foley is a must for the M&E [music and effects] track," says Foley mixer Colin Rogers, emphasizing its importance, especially for indie films seeking to enter the lucrative global film market. "There's no question that you need to have Foley for your M&E for foreign distribution purposes."

Rogers has spent the last 18 years mixing Foley at Roundabout Entertainment, a full-service post-production facility in Burbank, Calif.



The Alchemy Post team of, left to right, Nick Seaman, Leslie Bloome, Ryan Collison and Joanna Fang.

Throughout those years he's noticed a decline in the time allotted for Foley and ADR, two post processes that go hand-in-hand; if a scene uses ADR, then it's going to need Foley.

In the case of Roundabout's current series for MTV called *Mary + Jane*,



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premiering September 5, Rogers notes that numerous scenes are shot on the streets of Los Angeles. Those noisy locations require a large volume of ADR and Foley coverage. As the time scheduled to shoot and edit Foley gets whittled away, Rogers says, “We really have to move, and go, and get things done. We have less time to actually work on shows, to get things sounding right. If clients understand and spell out exactly what kind of sounds they are looking for—exactly how they want to hear the characters or props—then that is so helpful. If we understand exactly what the direction is from the beginning it prevents us from having to go back and re-shoot the Foley.”

Having an accurately cued Foley session and well-defined notes for the direction of the sound are key ways of maximizing efficiency on the Foley stage. Hecker agrees: “For projects that aren’t giant blockbusters or tent-poles, the budgets have gotten trimmer through the years. For those we have to prioritize and focus on the sounds the director or sound supervisor needs for story points they want to cover. It’s important to be precise. By really zeroing-in on the story they need to tell with sound, I believe that, on the Foley stage, we can get a lot of the sound package covered quite quickly.”

Great Foley is half performance and half engineering. A skillful Foley mixer can capture the right perspective, seamlessly syncing the Foley into the scene. That’s a real time saver for the sound supervisor and the re-recording mixers. At Alchemy Post, Bloome and Foley artist Joanna Fang work with Foley mixers Ryan Collison and Nick Seaman. Bloome says, “It’s important to have a good relationship between the Foley artist and

the engineer, and I couldn’t ask for a better team. When the Foley is recorded at the proper perspective and depth of field, it can sit perfectly in the mix. We want it to sound as seamless as possible.”

Using a two-mic setup, the Foley mixers capture the sound close-up and from deeper in the room. By changing the balance of the two mics in the mix, they can change the perspective of the sound, making it match the action on-screen. Tweaking the EQ settings further helps to sync the sound. As an example, Rogers’ Foley recording setup includes two Avalon mic preamps, a Neumann 81 shotgun mic for close-up and a Neumann U 87 as the room mic. He says, “I depend on my Avalon pre-amps for EQ. I like to keep my Foley sounding as real as possible, and let the re-recording mixers handle any processing like reverb.”

The engineering side of Foley has seen significant changes over the years, from working with a limited number of channels on magnetic tape to utilizing the seemingly limitless track counts of digital nonlinear workflows. And in the next five years, maybe that will change even further as virtual reality infiltrates the film industry.

Films need Foley, so what will post sound workflows for virtual reality films look like for the Foley industry? Bloome weighs in, “For VR, I think the actual Foley performances are going to remain relatively the same but the recording techniques might change a bit. I think we might have to work more with different types of perspectives or maybe different multiple miking setups. Virtual reality is still in its infancy and it’s a very exciting place to be right now. It’s going to be really cool. I’m looking forward to it.” ■

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# COMPOSER CHARLIE CLOUSER

## FILM TECHNIQUES FOR TV SCORES

By Jennifer Walden

**D**ear TC Electronic, on behalf of award-winning composer Charlie Clouser—former Nine Inch Nails keyboardist who's gone on to score the entire *Saw* film franchise—we respectfully request a reissue of his favorite compressor/limiter plug-in, the Master X5. For years Master X5 has been an integral part of his sound for TV scores, but since updating to a new Apple Mac Pro, the TC Electronic PowerCore is no longer compatible with his system. Clouser, who is currently scoring his second season of Fox Network's series *Wayward Pines*, says, "There is something about the way in which the Master X5 can step on the signal, bring up the level of my quiet little sounds without inducing artifacts and pumping. That plug-in is the sound of my TV music and I'm limping along without it. I would be very happy to see the Master X5 make a return in some form."

Nearly 15 years ago, Clouser's TV scoring days were filled with procedural crime dramas that only required a stereo music mix for each episode. But recently, Clouser has noticed the film ethos infiltrating the TV mentality via limited-run network series like *Wayward Pines*, streaming series like Netflix's ambitious *Marco Polo*, and souped-up premium ca-

ble series like HBO's *Game of Thrones*. There's a growing trend to treat episodic content like extended movies parceled into one-hour packages.

"The production brief now is, 'We're not making a TV series. We're making a miniature movie split into 10 parts,'" he says. "You see on the visual side, from shows like *Game of Thrones* to *American Horror Story*, that they have a much higher production value, and that has trickled down to the music and sound side. That has definitely changed my approach to the score."

One big change is the delivery requirement. Stereo music mixdowns? Not anymore. Clouser now delivers full surround stems on certain shows, which is also a typical delivery for film. He says, "I'm delivering many more stems than I was at the beginning of my career."

There is a difference though, between the stems he creates for TV scores versus the stems he generates for film. Clouser explains that the music for TV tends to be less dynamic and more compressed in terms of its dynamic range. Going back to the importance of his beloved Master X5 plug-in—a five-band virtual version of TC Electronic's Finalizer hardware unit—Clouser needs compression to help his delicately bowed wa-



terphones and metal sculptures, and quiet bowed guitar sounds stand up to huge car crashes and blazing gun battles in the mix. “I’m often using sounds that are very quiet at their source, which have to be amplified and compressed just to sound loud. I have to boost the heck out of them to make them audible over the mayhem on-screen,” says Clouser, who’s become a connoisseur of mastering plug-ins in his search for a Master X5 replacement. He’s currently using Waves L3 Multimaximizer and iZotope’s Ozone 7 mastering software.

Another way film sensibilities have spread to TV scores is in dealing with the story arc. For example, *Wayward Pines* tells a story that develops over a 10-hour time-span, whereas a more traditional series, like *The Simpsons*, treats each episode as a stand-alone story. In a typical film, a story arc is roughly two hours, but in this film-style series, the story arc spans 10 hours. *Wayward Pines* starts off Season 1 with a small, creepy town, but by the season finale, the series morphs into a creature-feature. How does the composer account for a 10-hour story arc?

“Fortunately, you can think of it as one big story arc with each episode being a little bump,” Clouser says. “Some of the creepy, more subtle musical elements I created for the early episodes faded into the background as the storyline got more intense. Those creepy, quieter elements became a backdrop to which the score would fall when the action subsided. I didn’t actually walk away from whole chunks of the approach to the score as the series developed, but the proportions kind of changed.”

Some of the subtle, creepy tones Clouser carried over to Season 2 were bowed metals and quiet bits of guitar feedback. While those are no longer the lead sounds, they are still part of the show’s musical flavor. “Many of the melodic themes and chord progressions I came up with for the first few episodes of Season 1 have become the pattern by which more elaborate cues are developed for this second season,” he explains. “Everything still fits in the same harmonic and chordal space.” He also wrote *Wayward Pines*’ main melodic theme, which has melodic and harmonic elements that became the map for the chord voicings he uses for the rest of the score. “I was using this little three-note melody that became a signature piece. There were a lot of happy accidents that resulted in early episodes providing raw material that could populate later episodes, even if those later episodes were stylistically more intense.”

On Season 2, Clouser scores epic battles between Army troops and hordes of creatures trying to scale the town’s wall. These big scenes call for more than what the quiet tension of bowed metals could provide, so Clouser breaks out the war drums, big low brass and strings—more conventional orchestral sounds that have power and heft. “I’m adding music elements that are big, huge and splashy, but I’m still keeping the chord structures and melodic structures true to what was created for the creepy vibe of the first few episodes of the first season,” he says.

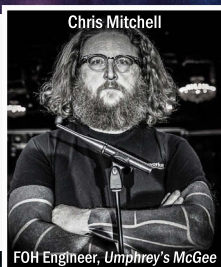
Nearly all of the orchestral elements for Clouser’s TV scores come from virtual sources. And while he has numerous new sample libraries, he is not shy



Photo: Zoe Wiseman

about utilizing older sample libraries, like the early EastWest Platinum Orchestra library, the Denny Jaeger sample library originally created for the Synclavier, and libraries from Kirk Hunter Studios, which according to Clouser are one of the earliest providers of deeply sampled orchestral instruments. These older libraries might lack features found in newer li-

*Continued on p.72*



Chris Mitchell  
FOH Engineer, Umphrey's McGee

“I get a lot of compliments on our guitar sound now that we started miking our guitar amps with Earthworks SR25s. My guitar player has been a ribbon mic fanatic, as he likes the high frequency drop off associated with ribbon mics, and felt that warmth was necessary for a rock & roll guitar tone. After I started miking his guitar amp with SR25s, he came back to me a couple weeks later and said that he could actually hear the difference between a worn plastic guitar pick and new plastic pick, because of the detail coming from the Earthworks microphone.”

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Supervising sound editor  
Michael O'Farrell at his  
Yamaha Nuage console

# MICHAEL O'FARRELL

## MAINTAINING SOUND CONTROL WITH NUAGE/NUENDO

By Robyn Flans

As a supervising sound editor whose projects include *The 9th Life of Louis Drax*, the HBO hit *All the Way*, *Maps to the Stars*, *The Campaign*, *Bruno* and *Pineapple Express*, Michael O'Farrell likes being a hired gun. As such, he enjoys the independence, the variety and the control.

That said, control is enhanced by his choice of tools. O'Farrell is adventurous, to be sure. He likes to try new systems, and while many resisted digital workflow way back, he embraced it. He was the person who faced opposition in bringing Pro Tools to Sony.

But when years later he began to find his system somewhat limiting, finding it harder and harder to have smaller interfaces to drag around, a system of outstanding quality to accommodate his traveling, he searched for something new. In 2007 O'Farrell began to use Steinberg Nuendo on the Will Smith film *Pursuit of Happiness*.

Although it was not without its learning curve, simply put, it's expanded his capabilities, it's flexible and it's portable.

Sitting in front of Hollywood Sound's Yamaha Nuage board, which houses Nuendo, O'Farrell spoke about how easy the console is to take apart, pack up and take all over the world where he is called to do his work. (He has the setup in his downstairs home studio, too, but someone was working on it at the time.) He says Nuage is extremely affordable, and he also has Nuendo loaded

onto his MacBook Pro so he can work on the airplane if need be.

"I premixed most of the effects of David Cronenberg's *Maps to the Stars* in a condo in Toronto because they just didn't have time or money for stages," O'Farrell says. "It has built-in ADR capabilities, and a lot of the ADR from Jay's Roach's LBJ film *All the Way* was recorded in the cutting rooms because we could. It gives us proper wipes, it gives us flexibility on how many mics we're using, how we're setting it up and we can do it on a moment's notice.

"It's about being able to use a bunch of different interfaces from different manufacturers, being able to take stuff on the road easily, not losing a lot of capabilities when I'm on not on an HD Pro Tools system. And I still use Pro Tools," he continues, adding that the compatibility to Pro Tools is critical.

Nuendo is also compatible with his style as an independent contractor.

"I don't have the kind of huge studio backup a lot of times that a lot of people have, even though I've done a lot of films with studios," he explains. "I've done a lot of work with David Cronenberg in Canada, with Jay Roach, with Alexandre Aja in France and we've done things in a way that they're much more confined. I'm usually working directly with the editors, directly with the director and that's how I like to work. I don't really like to work in a big shop. I like to bring my own people in."

He says the comedy people he's worked with, like Sacha Baron Cohen in particular, do a lot of previews, and he is often mixing a preview daily.



With Cohen, there were 25 previews on *Bruno* prior to the mix.

"I needed something I was going to turn over fast, where we weren't going to have to rely on being able to get onto big stages, where I could do it in the cutting room and could be really good," O'Farrell says.

Describing his job in terms of his role on *All the Way*, the biopic on LBJ starring Bryan Cranston, O'Farrell says he first assembled a team to supervise the sound editing and put together a budget for the very tight schedule. He knew he would not be doing the mix, so he would have to premix and take the effects tracks and categorize them.

"I would take what would be many channels of, say, crowds and premix them so it was one 5.1-channel [stem] of crowds and do that for all the instances," he explains. "So there were many predubs; maybe I would have 10 or 12 5.1 predubs of several hundred channels for the entire show to boil them down to a more manageable state. Sometimes I will actually mix the film, too."

One of the major features of Nuendo is he can have multiple sessions open simultaneously.

"I can have several reels open, so if I need to copy something from one reel and paste it into another, I can do that, or drag it across. Or if I want to check something that is in reel six to make sure something that reel five doesn't sound the same, I can listen to it easily and change the elements involved very easily. So that's been a huge thing for me."

O'Farrell still can remember his beginnings in Canada in 1978 when technology was starkly different. He started in film school in Ottawa, moved to Toronto and worked as a film editor with Bob Clark on *Porky's* and *A Christmas Story*. At about age 25, sound editor Ken Healy-Ray got him into sound, and he recalls going out and recording sounds of insects and cars dropping from cranes.

He worked on Norman Jewison's film *Agnes of God*, working location Foley, recording people walking out of a room and up the stairs. Those were the days of 35mm film, with sound on mag stripe, working on a bench and cutting on a Moviola.

"And I loved it," O'Farrell says. "That's how I did *Moonstruck*. On Jim Brooks' *I'll Do Anything* we had 40 sound editors on at any given time. Now my general crew is about four or five people. It's not the same as it was. Before it was a big community and you could bounce ideas off of people. Generally, there was more money, too."

But technology does make it more simple. And O'Farrell continues to extoll the virtues of the Nuage/Nuendo setup.

*Continued on p.76*



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# NEW TOOLS FOR SOUND-FOR-PICTURE

BY ROB TAVAGLIONE

"Sound-for-picture" has traditionally meant audio-for-film, television and video; think of all our usual needs and considerations in pursuit of sonic quality now merged with the needs of counterparts like script, dialog, scoring, actors, direction, cameras, noisy sets (if any at all), voice-overs, ADR, natural sound, dailies, constantly evolving edits, live broadcasts, capturing audio on the run and last-minute changes right up until the 11th hour (and 59 minutes).

New vistas push the envelope even further with virtual reality, 3-D audio, immersive audio, interactive audio, videogames, Web audio and live Webcasting, all catching on like wildfire. The tools and the techniques from all these various avenues are merging, allowing new methodologies, new workflows and new expectations.

Many of the tools of the trade are shared with music production and some are ubiquitous—for example, Avid's Pro Tools and the company's flagship S6 control surface. Pro Tools remains the eminent DAW on the market and Avid's control surfaces (S6, S3, Artist Control and C24) are seen as the perfect companion in countless post houses, studios and film mixing stages, all while Avid's Media Composer grows in video editing popularity.

It's a rapidly evolving digital world and there are new platforms, new technologies and new attention to ergonomics that are finding once difficult tasks now rudimentary, the once impossible now doable and the once inconceivable now attainable.

Here are some examples from the cutting edge of sound for picture.



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or later is required for playback, and the collection is nearly 24 GB in size.

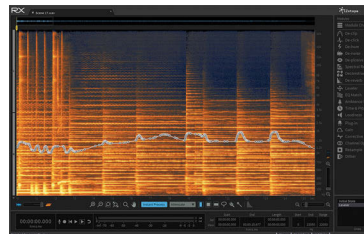
And what a collection it is. The sheer number of articulations, figures and voicings is staggering, with total control of finer details like round robins and individual tunings. Sounds were captured at 96 kHz with three mic positions (Mixed, Decca Tree and Far) for extensive mix flexibility. The all-crucial UI was built from scratch with more than 35,000 lines of code, so control is easy and streamlined. This includes a new advanced articulation browser, arpeggiator and polyphonic step sequencer. Price: \$599 direct.



## COLEMAN AUDIO SR7.1MKII SURROUND MONITOR CONTROLLER

Glenn Coleman doesn't mess around when it comes to the construction of his namesake switchers, controllers and routers. Stepped output attenuators, firm switches, tight pots, no-frills designs and proper components are found in all of Coleman's products. As such, I've rarely visited post-production pros that don't have a Coleman or two in their monitoring chain, especially if they work in surround.

The newly updated SR7.1mkII continues all those positive trends in the company's flagship controller. Eight channels of input and output are found on DB25 connectors with mutes and level trims on all inputs. There are easy fold-downs with 7.1 inputs summing down to 5.1, stereo, or mono, and mutes for the L/R. There are even trims for the mono and stereo sums, so this box can get your surround mixes properly calibrated for delivery, especially if paired with Coleman's SMP5.1 surround VU meter. Price: \$1,940 street.



## IZOTOPE RX5 ADVANCED AUDIO EDITOR

It's no secret that RX5 Advanced is one seriously effective program and wildly popular, too. It successfully cleans up audio problems of seemingly all varieties (plosives, sibilance, hum,

clicks, clipping, excessive verb, unmatched ambience, wild levels, etc.). What's most interesting is that Advanced keeps on advancing, with new features as well as workflow efficiencies.

New modules De-Plosive, De-Reverb and Leveler are all eponymous and obvious, while the similar Ambience Match is now accessible within Pro Tools via AudioSuite.

The new Instant Process tool doesn't require much description but one can easily see the advantages to simply highlighting a selection and having your pre-selected process happen immediately. Equally helpful are Module Chains, allowing a series of processes to be engaged with a single click—ideal for those most difficult of repetitive jobs.

Having recently completed an audiobook—which is, actually, the antithesis to sound-for-picture—I found RX5 Advanced to be indispensable for taming clicks (including actual sonic ones, those accentuated by a large diaphragm condenser mic and digitally induced ones), removing extraneous noise and removing plosives. For music mastering I find myself leaning on De-Click and De-Clip to remove the very worst moments from semi-





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pro mixes. De-Noise is the trickiest of all the modules to use, but when it saves the day (as it often does for dirty guitar tracks or client-submitted vocals), it can elicit gasps from relieved clients: all useful functions, if not lifesavers, whether accompanied by picture or not.

Price: \$349 direct, with RX5 Advanced at \$1,199 which includes the Insight metering plug-in (my favorite), a \$499 value.



### MOTU DIGITAL PERFORMER 9.1 DAW

I've always considered DP to be quite the user-friendly platform—I've been on it since 1999—and I'm far from alone. It seems that DP is the popular choice among composers, espe-

cially for those writing cues for film and TV, and it features a slew of "make this tough job easier" features.

You can import QuickTime video into the session and it shares the timeline with your audio tracks for quick and easy sync. New to DP9, MOTU's SMPTE-Z timecode generator can create timecode from your timeline, allowing an easy solution to what would be jam syncing. The new PreGen engine renders output from plug-ins and virtual instruments, allowing more instances of each. The new MegaSynth turns guitars (or any audio, really) into synths, allowing six-string composers like myself much more creative flexing.

Veteran film and TV composer, producer and longtime DP user David Das confirms: "The improvements in the PreGen engine are pretty amazing, specifically concerning virtual instruments. It's pretty much changed the scope of what I've been able to accomplish with VIs, now that I can have more of them running at once. And MusicXML export has made it a lot easier to get MIDI from DP into a dedicated notation program."

Price: \$499, competing product upgrade \$395 direct from MOTU, \$195 upgrade from previous DP versions.



### SOUND DEVICES CL-12 LINEAR FADER CONTROLLER

It should come as no surprise that Sound Devices is considered a leader when it comes to grabbing critical audio on-location, on-set or "run 'n' gun" ENG work. It's in no small

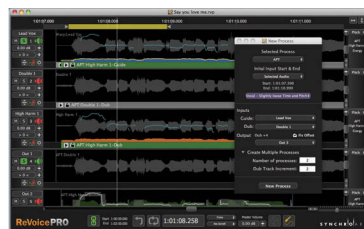
part based on the company's popular portable recorders, or mixers, but even more focused on their combo mixer/recorders, which paired with DC-power make the whole world your soundstage.

Anyone employing a Sound Devices combo 633, 664 or 688 on their production cart could appreciate the CL-12. It provides those with 12 faders, a three-band parametric EQ for each of the 12 inputs, quick access to wireless data with SuperSlot, auto-mix monitoring with Mix-Assist and all with only a USB A-to-B and a TRS ¼-inch to connect the CL-12, making the dreaded-yet-inevitable jumps back and forth between carting and bagging/ENG a lot more tolerable.

The CL-12 accepts a USB QWERTY keyboard for quick data entry, remote control via third-party apps and has a jack for powering a USB lamp. Lest you think this is just hardware for the trenches, check out the CL-12 studio version with Penny & Giles faders and sides made of maple/mahogany.

Jamie Gamble reports that the CL-12 is a necessity for live shoots: "When I was on set of my recent projects, Maron and Shut Eye, Sound Devices' CL-12 linear fader controller was a must-have because it made recording and mixing with the 688 a breeze. It features tactile controls, sturdy design, illuminated buttons and LED metering: all great features when working in the field. It also has additional ports, which allow me to connect a USB keyboard at any point. This is great for inputting meta-data on the fly helping to provide a more detailed end result to post."

Price: \$1,995 (black), \$2,995 (studio version).



### SYNCHRO ARTS REVOICE PRO VERSION 3.2

We're all concerned with speed and efficiency, but for dialog editors, efficiency is Job One. Whether you're cutting dailies for film, chopping dialog to match last-minute picture edits

or replacing voice-over work for television, you've got to move fast, get it right the first time and avoid being the weakest link. Revoice Pro Version 3.2 brings top audio quality to its unique vocal manipulation process and provides workflow enhancements that are just shy of miraculous.

The pitch, timing, vibrato and inflection of a guide track is captured by APT (Audio Performance Transfer process) and is used to adjust the newly overdubbed audio and fit it into the production seamlessly—and quickly, too, with the ability to automate the processing; one can always choose manual for specific details. Such power is indeed useful for music production, too (for easy doubles and/or harmonies) but for sound-for-picture, we're really talking "game-changer." For example, have the director lay down the guide vocal with specific hits, inflections and timing, then conform the VO to match the guide: you've just removed considerable guesswork and the efforts of an assistant producer!

Veteran dialog, ADR and sound editor Renee Tondelli had this to say about her workflow: "Frequently I am shooting ADR at the end of the mix and need to get it in quickly. With Revoice Pro, I am able to sync ADR seamlessly with incredible accuracy in a moment. I also rely on the pitch feature so the performances can match production dialog perfectly."

Available direct for \$599 with numerous discounts available for upgrade and a three-month rental is offered for \$179.



### VIENNA SYMPHONIC LIBRARY VIENNA ENSEMBLE PRO 6

Vienna Symphonic is quite well known for its sound libraries and hugely realistic orchestral re-creations, but the new Ensemble Pro 6 addresses workflow necessities in a uniquely powerful way.

This hosting and mixing application enables a computer network with both Macs and PCs, interconnected with Ethernet cable, to host Vienna



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# 7

SERIES

## MASTER REFERENCE MONITORS

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Instruments libraries as well as third party 32- and 64-bit VST/AU instruments and plug-ins and—if integrated with Vienna MIR Pro—to mix in up to 7.1 surround. Included is the Epic Orchestra sample pack enabling “right-out-of-the-gate” utility and ability.

Even one-computer composers might take a look at Pro 6 for the new Preserve feature that keeps all your sample libraries, sounds and plug-ins loaded even as users switch between projects. It reduces load times enough for power users to take on a new hobby—figuratively, of course. Price: \$371 direct from Vienna Symphonic Library.



### YAMAHA NUAGE VERSION 1.8 AUDIO MIXING SYSTEM

It could be said that the future of professional audio-for-video production arguably lies in immersive sound for virtual reality, videogames and film/TV, and such endeavors are indeed complicated. So, efficiencies of workflow and consistent performance are necessities. Steinberg through NUAGE seeks to address such issues with a complete

and integrated system offering synergistic hyper-efficiency. The core is Nuendo/Cubase software (with a PT Bridge offered for Avid's Pro Tools), controlled via NUAGE Faders and Master Controllers, joining the analog world via a series of NUAGE interfaces, all communicating on a Dante-equipped network and achieving low latency with a PCI-Express based Dante Accelerator card.

Yamaha reports its new Version 1.8 software fully supports Nuendo's VST Multi Panner 3D, completely recreating the GUI environment on the NUAGE Master touch screen for Dolby Atmos immersive sound production.

Three-decade veteran Michelle Garuik, who specializes in mixing and sound design for Grind Music & Sound, Inc. in Los Angeles, says,

“NUAGE has sped up my workflow by 50 percent, which has allowed me to keep up with ever-shorter delivery deadlines. The system allows you multiple ways to perform tasks, so you can customize it to how you like to work. You have the choice of moving object pans around by dragging the placement ball with the touchscreen in the box view or using the corresponding knobs under the touchscreen. We will be adding another NUAGE/Nuendo system to our new studio being built next spring.”

Price: \$11,499 MSRP (Nuage Master center section), \$12,999 MSRP (Nuage Fader, 16 channels).



### ZAXCOM ZHD HIGH DENSITY WIRELESS

Glenn Sanders founded Zaxcom back in 1986 and has continually pushed the location recordist's envelope, evidenced in the company's Deva portable recorders, mixers, control surfaces and digitally modulated wireless systems. In April of this year, the company launched a new line—ZHD High Density Wireless—and the features go well beyond convenience.

TRXLA3 and TRXLT3 transmitters both utilize extremely narrow 50kHz bandwidths, as close as only 100kHz apart, allowing 60 channels of ZHD to operate in a standard 6MHz American TV channel slot. The audio is fully encrypted and there is internal backup recording right in the belt pack (with timecode), Neverclip level protection and Zaxnet networking (including Zaxnet QC Audio), allowing remote control of gain levels, power consumption and the ability to mic-check without going back to your cart. The transmitters will play back in timecode sync, allowing multitrack playback and re-records if RF is polluted or the record deck fails.

Prices: \$1,775 to \$2,075 (TRXLA3 and TRXLT3 transmitters are offered in numerous configurations). ■

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# MIX REGIONAL: PACIFIC NW

## Orbit Audio Opens Seattle Recording Arts

Seattle-based Orbit Audio recently started a new Washington State-licensed school, Seattle Recording Arts, for audio engineering and sound design for videogames. The school officially opened last summer, but studio owner/producer/engineer Joe Reineke had been working on it for a few years prior. He says he started the school because he saw a need in the community for better quality education.



Seattle Recording Arts classroom at Orbit Audio.

As a studio owner, Reineke saw many graduates from various programs come to him seeking internships and work, and he found the of them majority were undereducated and lacking real studio experience, industry understanding and even basic fundamentals. "I knew we could do better and set the bar much higher by offering a more mentorship-based approach, with small class sizes and instructors who've been working in their field for many years," he says.

Seattle Recording Arts currently offers year-long certificate courses in Audio Engineering and Sound Design for Video Games. Each start with some of the same recording fundamentals, including a Pro Tools User certification (the school is an Avid Learning Partner), and then naturally branch off into their own specialties.

The school is enrolling its fourth group of students this fall.

In other Orbit Audio news, Reineke worked with the following artists: Guns of Nevada (Reineke produced and engineered), The Mountain Flowers (Reineke was mix engineer), The Aion Frequency (Reineke produced and engineered), Marina Christopher (Reineke produced and engineered; Christopher also co-produced), and Jerry Val (Reineke produced and engineered).

The studio also has a new Studio B mix and overdub room (both acoustically treated, and designed by Guy Staley). The classroom now also serves as an overdub space and includes two Vintage Neve 1073s, UAD Apollo Twin, Argosy Halo desk, Warm Audio WA-2A, Distressor with Brit Mods, Genelec 1031As, Kemper Profiling Amp, two Apple 30-inch Cinema monitors, Sugar Percussion 26-inch four-piece kit, Wurlitzer 201 Electric Piano, and a 1979 Fender Stratocaster.



AES RLA Student Section members with special guest Sylvia Massy and RLA Academy owners Robert Lang and Marlie Pesek.

## RLS Hosts AES Robert Lang Academy With Guest Sylvia Massy

On March 25, 2016, Robert Lang Studios in Shoreline, Wash., held the very first AES Robert Lang Academy Student Section meeting with special guest, producer/engineer/writer Sylvia Massy.

"We began pursuing the initiation of the AES RLA Student Section in months prior, and by March we were accepted as an educational entity by the International AES committee to create our student section—one of two student sections in the greater Seattle area," says Marlie Pesek, Robert Lang Academy Co-Owner/Program Director. "This is a huge testimony to the growth of the Academy and to the respect and recognition it has gained over the past two years. And to have Sylvia Massy share her new book, *Recording Unhinged*, and spend some time talking with our students and staff was truly inspirational for all."

Also in March, RLA hosted the Grammy U Masterclass "How to Record a Great Demo," which contained five workshops hosted by: Tom Dyer (Home Recording), Steve Turnidge (Mastering), John Sinclair (Artist Preparation), Kee Curley (My First Demo), and Jackie Wade (Networking 101).

Throughout the year, some of the RLA guest instructors have included Roger Fisher, founding member of Heart; David Miles Hubert; Sylvia Massy; Andrew Forsman (drummer for band Fall of Troy); and Johnny Goss. In July, Robert Lang Academy became an Avid Learning Partner, providing certification opportunities for RLA students.

Most recently, RLA received an incredible gift: an approximate 1,600-title library full of audio resources dating back to the 1950s, complete with every AES journal chronicling the development of audio technology since 1953. RLA students will have access to explore this one-of-a-kind library throughout the one-year training program, and studio owner Robert Lang and Pesek are grateful to have received such an amazing collection of audio history.

"RLA is thrilled to give this library the home it deserves in our historic building and to share the library with the audio community in our surrounding area," Pesek says. "We'd like to give special thanks to Dennis Bohn of Rane Corporation and Steve Turnidge for making this possible."



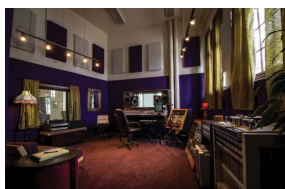
# SESSIONS: PACIFIC NORTHWEST



Alice in Chains at Synergy Productions, with engineer/producer Jason Shavey at the SSL.

## SYNERGY PRODUCTIONS, SEATTLE

Alice in Chains was at Synergy Productions, with engineer/producer Jason Shavey. They used the SSL 4000G+ and Friedman JJ-100, Jerry Cantrell Signature Head.

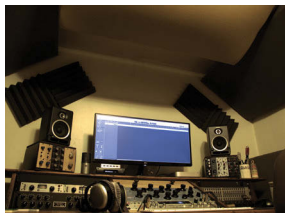


The Hallowed Halls

## THE HALLOWED HALLS, PORTLAND, ORE.

Studio manager/chief engineer Justin Phelps has completed new projects with The Shook Twins (co-produced with Gregory Alan Isakov), Poison Idea, Fruition, Lynx and her new band The Servants of Song, The Roseland Hunters featuring Nick Daniels, and World's Finest, among many others...

Producer/engineer Billy Anderson has also been in regular residence recording projects with SUMA, Witch Mountain, Eight Bells, Year of The Cobra, and Red River...Phelps has also launched Volume Bomb Records out of the studio and is utilizing the studio's in-house guitar store, Saint Frank's Music, as a brick-and-mortar for new releases...Label projects created at the studio include The Latter Day Skanks, 42 Ford Prefect, World War Four, Perfect Monster, The Thornes, and The Misfortunes of Mr. Teal...Producer Ron Nevison (The Who, Led Zeppelin, Thin Lizzy, Kiss, Ozzy Osbourne) booked a monthlong session this spring, working with Portland rock band Paradise... Capitol Records artist Brad Mackeson recorded his new album in Studio A with engineer Ryan Lewis...Other sessions have included Worth (produced by Steve Berlin of Los Lobos and engineered by Phelps), The Verner Pantons featuring Peter Buck of R.E.M. (engineered by David Streit), Love Bomb Orchestra (also engineered by Streit), and Sessions in The Box featuring Le Butcherettes (engineered by Mike Blackburn).



Mixed Metaphor Recording

## MIXED METAPHOR RECORDING, BOISE, IDAHO

Studio owner/engineer Nate Agenbroad has been engineering and co-producing artists Jeff Crosby, Brian Vernon, Damien Burrello and Jake Saunders...Agenbroad also engineered and co-produced an album with Thomas Paul that was recorded live in a hotel room as part of an annual art

event...Agenbroad also recorded a piece of contemporary classical music for eight cellos. "I was working with a single musician to record all the parts in a nice performance hall at the university, and we actually set up eight chairs in a semicircle with one ORTF pair—beyerdynamic MC930s—and a spot mic—AEA R84—and had him perform each part in a different chair," Agenbroad says. "It made for a really nice, natural spread in the stereo field without any need for panning. It's probably been done before, but I was pretty excited about that solution."...In studio upgrade news, Agenbroad built a custom workstation and acquired a Pearlman TM-1 tube mic.



Electrokitty Recording Studio

## ELECTROKITTY RECORDING STUDIO, SEATTLE

Wale was working on his upcoming album *Shine*, with engineer Chris Pack and assistant engineer GG Reynolds... Spirit Award tracked drums for its new single "Las Vegas" with engineer Reynolds. They tracked using a vintage Neve 54 Series suitcase mixer...The studio also added an Alan Smart C1 Bus Compressor.



L to R: Chris "Zeuss" Harris (producer), Wednesday 13, Deen Castronovo, Kyle Castronovo, and Roman Surman at Black Diamond Studios.

## BLACK DIAMOND STUDIOS, PORTLAND, ORE.

Kyle Castronovo tracked drums for the latest upcoming full-length album from Wednesday 13 (Murderdolls vocalist) at Black Diamond. Chris "Zeuss" Harris/W13 produced and engineered; additional engineers included Matt Jefferson and Andrew Shartle. Deen Castronovo guest appears on one song as well...Deen Castronovo also made a guest appearance drumming on the new Fear Factory album *Genexus* on a song titled

"Soul Hacker." Drum tracks were captured at Black Diamond, with Jefferson engineering...Atlantic Records artist D.R.A.M. dropped by Black Diamond to lay down some vocals. Jefferson engineered the session and used a Neumann U 87 through a Manley Voxbox for vocals...Nico and Vinz stopped by during their tour with Bruno Mars lay down some vocals with engineer Jefferson, which ended up on the song "Miracles" on the album titled *Black Star Elephant*. Jefferson used a U 87 through Manley Voxbox... Todd Hoffman (star of the hit Discovery Channel show *The Gold Rush*) recently recorded vocal covers of some of his favorite songs, including Ozzy Osbourne's "If I Close My Eyes Forever" with Portland-based singer Heidi Canfield. Both singers were captured with the AKG C414 through the Manley Voxbox, then an Empirical Labs Distressor with moderate compression going in to Pro Tools...Alex McDonald recently tracked drums for the debut EP from progressive/death metal band Senescence, and the sophomore album from orchestral prog-metal band Tyranny of Hours. The Senescence EP is currently being mixed at Black Diamond, while tracking and post-production continues on Tyranny of Hours' album. McDonald and Senescence produced, and Jefferson, McDonald, and Don Graham engineered Senescence. For Tyranny of Hours, Graham produced and engineered, and Jefferson and McDonald engineered... Dim Mak Records artist Oly recently tracked a new single, engineered by Shartle, along with Team Banzai. Shartle and Jefferson engineered and produced...The studio also recently upgraded its display to a 40-inch Philips screen.



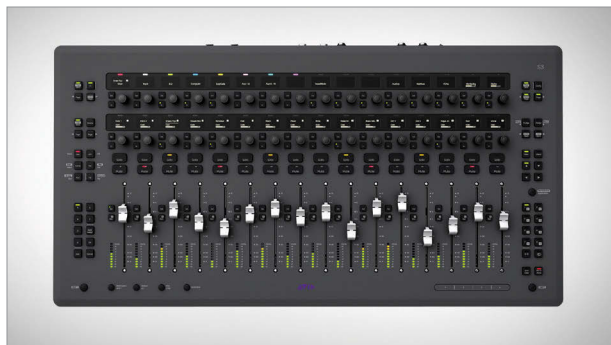
Producer Eric Lilavois talks guitar tones with the band Island Apollo.

## LONDON BRIDGE STUDIO, SHORELINE, WASH.

The studio has undergone some massive upgrades. Studio A now boasts an expansive list of outboard gear and an SSL AWS 900 console, in addition to its recently restored Neve 8048 console (upon which classic albums from Temple of The Dog, Mother Love Bone and Pearl Jam were recorded). The studio also recently integrated the JBL M2 master reference speaker system to the control room, and added a variety of mics, including Wunder

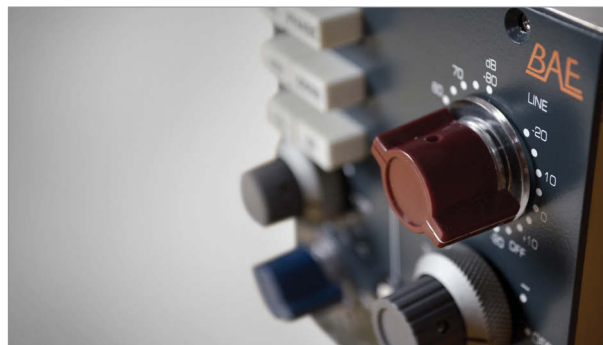
Continued on p.72

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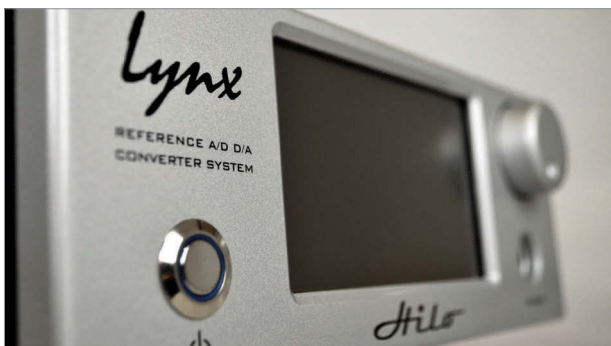
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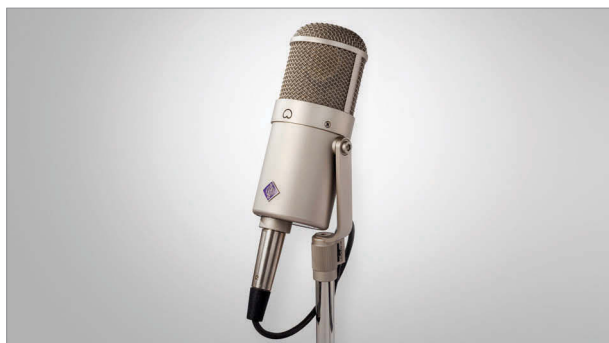
### PULTEC EQM-1S3

Based on the EQP-1A3, the EQM-1S3 mastering EQ advances the recording process with even more high band frequency options



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# Tech // new products



## AUDIENT ID4 USB INTERFACE

### Versatile, Affordable, Portable

The Audient iD4 (\$199) is packed with features, including a Class-A Audient Console Mic Preamplifier, high-performance A/D converters, a JFET DI, dual headphone outputs, monitor control and Audient's virtual scroll-wheel technology. The USB 2 ports provide audio and bus power to the all-aluminum enclosure. Also featured is Monitor Mix, allowing the user to monitor a blend of both iD4's inputs and a DAW's playback with near-zero latency monitoring during recording.



## ELYSIA KARACTER COLORING BOX

### Single-Rackspace Stereo Saturator

In addition to the complete feature set of the existing karacter 500 Series module, the karacter rack version (\$1,679) offers CV

capability. External control voltages routed to the rack allow modulation or recall of its Drive and Mix parameter settings by analog synths, MIDI-to-CV interfaces and many other sources that can be used to feed the karacter with oscillator rates, value sweeps, and setup changes. The karacter offers two individual channels that can be used in dual mono, linked stereo and Mid/Side configuration.



## ZAOR YESK WORKSTATION DESK

### Elegantly Crafted Studio Furniture

The YESK wooden studio desk from ZAOR (\$999) is positioned at a height of 37.4 inches (950 mm). The top-level is nearly five feet wide and reserved for studio monitors and computer screens, while the deeper, five-foot-wide workstation panel is positioned further forward at a height of 31.2 inches (793 mm) for positioning a variety of hardware devices. Other features include retractable keyboard trays and workstation panels with a total of 8U rackspace (split into 2x 4U).



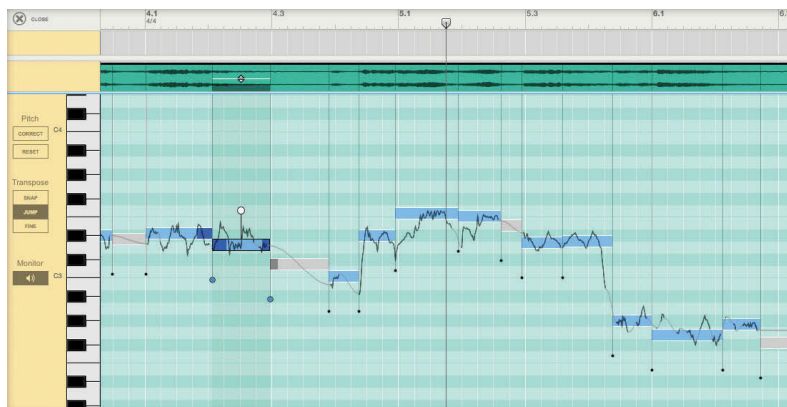
## PRESONUS STUDIO LIVE RML MIXERS UPDATED

### Line-Level Inputs for Studio/Live Use

PreSonus has released two new StudioLive RML Series models that offer line-level inputs, in addition to the XLR mic inputs found in the RM Series. Designed for live sound mixing and studio recording, StudioLive RML16AI and RML32AI mixers provide 32 internal channels and 25 buses, a 52x34 FireWire 800 recording interface, AVB Ethernet networking, and Fat Channel

signal processing on all input channels and all buses, including a 4-band parametric EQ, compressor, gate and limiter.





## PROPELLERHEAD SOFTWARE REASON 9

### New Sounds, Devices, Production Tools

Reason 9 from Propellerhead Software (\$449 new/\$129 upgrade) introduces a host of new devices, sounds and creative tools. Features include three Player devices that instantly transform any MIDI input into compelling music. Note Echo creates rhythmic, pitched MIDI delays for melodies, drum rolls and more, while Scales & Chords turns simple melodies into beautiful harmonies and chords. From classic up-and-down to polyphonic and polyrhythmic, Dual Arpeggio breathes new life into any instrument in a user's Reason rack. Reason's new Pitch Edit mode can be used to fix out-of-tune notes, adjust vibrato, change timing, create new melodies from a recording, change the dynamics, and more.



## NEYRINCK'S V-PANNER FOR DOLBY ATMOS

### Pro Tools Plug-in Control and Immersive Sound

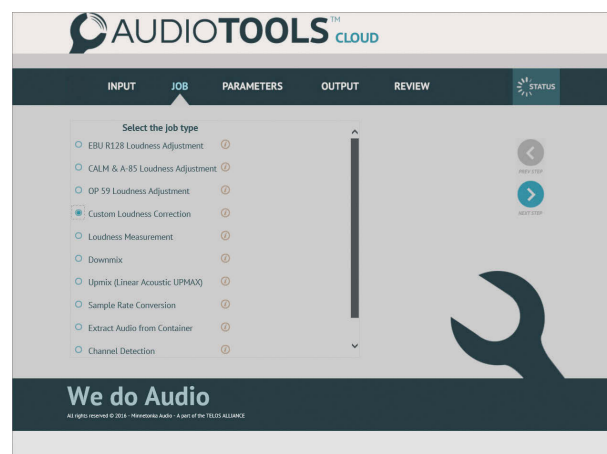
The Neyrinck system for controlling DAWs from tablets, smartphones and laptop browsers now includes a Dolby Atmos pan screen in V-Panner, and iOS versions of the V-Console app, for controlling the Dolby Atmos plug-in in Pro Tools (free for current V-Control Pro 2 owners). When using an iPad, V-Panner and V-Console can connect directly to the computer, without WiFi, using the Apple Lightning to USB, or 30-pin to USB, cables, which provide ultra-fast response and compatibility with secure facilities. The Dolby Atmos iPad screen includes controls for Z-Elevation, and Wedge, Ceiling, and Sphere Elevation modes, as well as an object size control, mirroring controls in the plug-in.



## THERMIONIC CULTURE SWIFT EQ

### Dual-Channel Tube Equalizer

The Thermionic Culture Swift EQ (\$3,999) is a 2-channel tube equalizer designed with the classic Pultec and Baxandall approaches in mind. Features include an all-tube signal path using NOS and new production tubes; shelving bass and treble lift/cut controls at two frequencies each; Presence and Air controls; adjustable gain in .75dB steps; and virtually no distortion unless driven beyond a DAW's capability. Also, it's practically noiseless.



## MINNETONKA AUDIOTOOLS CLOUD

### Online Processing for Audio, Video and Broadcast

Minnetonka AudioTools Cloud (priced per application) is an advanced audio processing solution that provides loudness control, encoding, decoding, channel management, frame rate conversion, quality control, and container management from an easy-to-use interface designed for the Amazon AWS Marketplace. AudioTools Cloud is based on Minnetonka's AudioTools Server—a platform that delivers interoperable, scalable, file-based audio automation. AudioTools Server has become the Number One enterprise-level platform for automated and unattended file-based audio processing and has helped broadcasters add Loudness Management processes to their existing video-centric file-based environments.

Continued from p. 35



From L-to-R: Gary Clark, Ciaran Bradshaw (recording engineer on session), Eamonn Griffin, Keiran Lynch, Ken Papenfus, and John Carney

VR-72 console, KRK V8 near-fields, and Genelec 1038CF far-field studio monitors. Manning the controls for Lynch was recording engineer Ciaran Bradshaw. Lynch and Bradshaw did additional recording at Westland Studios in Dublin on an SSL 4048 E Series. Music mixing for the film was done at Dublin's The Cauldron Studios on a TL Audio VTC console. Lynch prepared an extensive set of stems for the post sound team. He split out all the elements, including the guitar effects, onto separate tracks, giving re-recording mixer/post-production music mixer Ken Galvin ultimate flexibility.

## ON TO POST

At Ardmore Sound, located in Bray, County Wicklow, Ireland, supervising sound editors Brady and Fingleton handled the effects, backgrounds, Foley (with Foley mixer Jean McGrath and Foley artist Caoimhe Doyle), loop group and ADR (assisted by sound editor Peter Blayney).

Meanwhile, Galvin tackled the challenge of cutting between all of those studio-recorded tracks to make the music fit the needs of each scene. In the film, the band practices in a bedroom and a living room, and they record themselves onto cassette tape, which they play back while shooting their music videos in an alleyway and on a pier. There are fantasy sequences, and a stage performance in the school auditorium. There's even a fantasy sequence of their school performance. The challenge was to sell the believability of the music coming from the band on-screen, and then transition fluidly into a full-on score that plays over the scene.

Each situation required Galvin to employ a unique processing chain of EQ, reverb and other effects, in addition to panning and mixing. Working in Avid Pro Tools 11, Galvin chose FabFilter Pro-Q for EQ. For reverb he chose Audio Ease's Altiverb and on the vocals he went with Avid's ReVibe. To add a bit of grunge, he found that Avid's SansAmp PSA-1 amplifier emulator and the LoFi plug-ins did the job. The Varispeed feature of Avid's Time Shift plug-in and Serato's Pitch 'n Time provided convincing cassette tape flutter and wow. Waves H-Delay was useful when syncing the music in sections of the school performance scenes.

"The music was the device that moved the perspective from Conor's small, hard world into something that was much more magic and exciting," says Fingleton. A good example of their approach to the music tran-

sitions happens on the 360-degree pan shot of the band as they're starting to write a song called "Up." It begins with just Conor and his friend Eamon (played by Mark McKenna) playing guitar and piano at night. Then the camera tracks around, night becomes day and the rest of the band are suddenly present. The bass, drums, and keyboard come in one by one. As the camera pans back around to Conor and Eamon, the music has evolved from diegetic to score. "You get to experience the journey of the song from an idea to a fully formed pop song."

To pull off the music transition, Galvin says, "We wanted to hit each member of the band, so [mix-wise] they just got a little nudge. We wanted the sound to not be so even while they're playing in the scene, and then it goes into score." Working on Ardmore's main dub stage—equipped with two Avid Icon D-Control surfaces running four Pro Tools systems, Galvin started small by panning mono tracks of the individual instruments and then branched out into the full 5.1 surround as more instruments, guitar effects, and vocal layers were added, building up to the full score. In addition, he slowly pulled out the sound effects, backgrounds, and Foley to further emphasize the move away from the real world.

The sound effects were integral in helping to work the studio-recorded tracks into the world on-screen. For example, Fingleton had asked Lynch to record some wild sounds in the studio, like guitar handling movements and feedback, which she then cut in to add a live feel to the band's school performance. She and Brady recorded loop group with teenage boys yelling insults and other reactions since the crowd isn't very into the performance at the on set. For that scene, Galvin notes he was able to use a bit of the boom mic track as an effect. Since it had picked up the playback of the song in the space, it was useful for when the camera is in a wide shot at the back of the auditorium. "The playback from that day just adds a little dirtiness, a little bit of grit in the mix," Galvin says.

Since Carney attended the school where *Sing Street* was filmed, and actually played in a band on that exact stage, he had a very clear idea of how that scene should sound. Galvin explains, "He knows what those insults are and he knows what the perspective sounds like from the stage. Again, it's the band's first gig and so, for the first song, the instrumentation is a bit off-balance on purpose but as the song grows and develops they become a little more in tune with each other." ■





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Zoom H6 Handy Recorder  
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Zoom SSH-6 Stereo Shotgun Mic  
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## TIPS & TECHNIQUES

### From the Pros

#### 1 Studio Monitors Placement

Placement of your studio monitors should form an equilateral triangle. The distance between each speaker should match the distance to your listening position. The high-frequency driver should be on axis with your ears. If your monitors are placed higher than your head, turn them upside down.

#### 2 Use a Reference Track

Save yourself time and frustration by using a Reference Track when mixing. A reference track is a commercially mastered track that is similar to the track you are mixing. It's difficult for your brain to remember the relationship between Kicks and Bass, as well as other instruments. Start your mix session by listening to 60 seconds of your reference track to "reorient" your brain.

#### 3 Take Breaks Often

It's important to give your ears and mind a break during long mixing sessions. Every 45 to 60 minutes, you should take a 10- to 15-minute break. Walk around, stretch, or grab a snack. After your break, remember to listen to your reference track for 60 seconds before getting back to work.

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# Tech // reviews

## MBNM 622 E-PZ & SOLOMON LOFREQ MICROPHONES

Unique Transducers for Stereo and Low-Frequency Capture



The 622 E-PZ incorporates the Jecklin Disk into its design.

**W**hile more typical dynamic moving-coil, ribbon and condenser mics dominate most collections, it's nice to have some specialty utility operators in the locker. The MBNM 622 E-PZ and Solomon LoFReQ microphones reviewed here couldn't be more different, but they share the ability to go places and do things more common transducers won't, or can't. They are also affordable, which makes them even more enticing for anyone looking to add some unique color to their recordings.

### 622 E-PZ

The MBNM 622 E-PZ is a light and capable stereo mic. It uses two electret-boundary mics mounted on a circular, aluminum disc mounted on either side of a half Jecklin Disk. This model's disc uses some simple, thin foam mounted on its surface to reduce mid- to high-frequency reflections. The Jecklin disk is not new and is defined by Wikipedia as a "sound-absorbing disk placed between two microphones to create an acoustic 'shadow' from one microphone to the other." It was invented by Swiss radio engineer Jürg Jecklin as a spin on a description from Alan Blumlein's 1931 patent on binaural sound. Each of the mounted transducers includes an XLR connector at the back, making it easy to mount it to any flat surface and run cables to and from the array to your panel or preamp. Phantom power is necessary,

and the output of the 622 is enough, so I never had to apply much gain to get it in the range I like to record.

My first use for the 622 was to gaff tape it to a wall in an 18-foot tall live chamber. I prefer a stereo mic in this situation because of the ease of setup and usually go with an AEA R88 ribbon or C24 condenser mic. For this session, the room to the chamber was left open to the large room where the drummer was set up. As long as you leave the door only halfway open to avoid chamber leakage back to the room, it works very well to give you an isolated and natural reverb to play with in the mix. My first impression was that the 622 was a bit thin in this application. The stereo image, however, was very pleasing and did what I'd expect of the boundary mics and disc.

Next, and in another studio, I taped the 622 to the floor about 9 feet back from the front of a drum kit for use as a stereo room mic. Once again, the 622 excelled in stereo imaging and as before, it was a bit thin in the low end. With some added EQ to the bottom end, the 622 sounded much better, offering a more full-range image to the kit. Transients were well represented, providing plenty of punch on the kick, snare and tom hits. The mic's view of the room was plentiful as the omni capsules rendered a 360-degree aural view pushed into half-omni by the boundary.

On another session, a 1969 Hofner Electric guitar, a one-off with Serial #0001, was sent through a Peavey Delta Blues amp. On the front of the cabinet, I used an RCA BK5B and Neumann U87 and on the open back of the cabinet a Royer R-121. I flipped the 121 backward to naturally correct the polarity of the rear mic. Out in the room, in Studio A we opened all the wood panels to make the room more live and taped the 622 to one of the movable panels covered in FlutterFree sound diffusion. This makes the room as live as it can be all the way up to the 20-foot ceiling. The signal-flow for all the mics was then through five Shadow Hills

### PRODUCT SUMMARY

**COMPANY:** MBHO  
**PRODUCT:** 622 E-PZ  
**WEBSITE:** [www.daleproaudio.com](http://www.daleproaudio.com)  
**PRICE:** \$720  
**PROS:** Easily mounted in places where other mics can't go. Jecklin Disk imparts a unique stereo picture.  
**CONS:** 622 can lack low frequency in some applications.



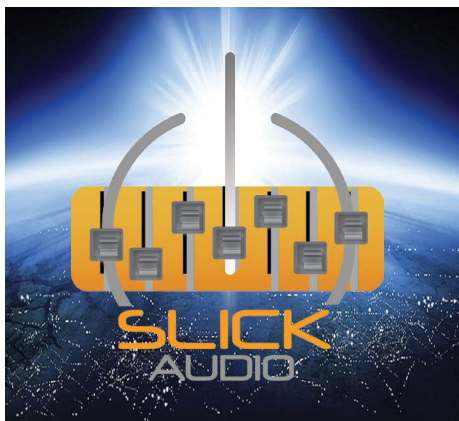
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### PRODUCT SUMMARY

**COMPANY:** Solomon Mics

**PRODUCT:** LoFReQ

**WEBSITE:** solomonmics.com

**PRICE:** \$199.99

**PROS:** Provides a great way to capture low frequencies around a kick drum or tom.

**CONS:** None found.

Golden Age preamps. The 622 mic was taken as an extra sweet step through a pair of Chandler RS124 compressors strapped together for stereo operation. The RS124's attack was set to medium with a long release. The combination of all the mics together was beautiful, with the 622 bringing the room into the blend of close mics. The compression flattened the room a bit, bringing the far reflections closer in time to the amp mics. No EQ was needed on any of the mics, which blended easily into a unique and full-range stereo picture. What the compressed 622 brought to the track was undeniably large sounding and perfect for this application.

The MBNM 622 E-PZ is a unique stereo microphone that provides a unique set of features. If you've never heard what the Jecklin disk brings to a stereo recording, this may be an easy and affordable way to bring this flavor to your sonic palette.

### SOLOMON LOFREQ

The LoFReQ from Solomon picks up where the discontinued Yamaha Subkick left off. Lending to the plus column is its svelte design, just 7.1x3.5 inches and 4 pounds, making it easy to mount on a stand and place closely to the outside of a kick drum, even when there's a second outside kick mic on duty. The LoFReQ, whose gain and impedance is designed to match a Shure Beta 52, is solidly constructed and includes an integral pad. This solves the problem that homemade or commercially available speaker mics have with providing too much gain at the output. It comes in four models including black, white, black/white (Trooper), and a Daru Jones signature model for a bit more money (\$249.95).

As you might guess, I first used the LoFReQ outside a kick drum. When I use a speaker mic, my usual go-to is the Yamaha Subkick, which always presents some problems. Although it's a great product, the turn-



The LoFReQ's design includes an integral pad for reducing its naturally hot output.

key hardware mount and speaker is imposing, especially on a smaller diameter kick. Being that it needs a companion, most often inside the drum, it made placing the occasional extra outside mic impractical. Also, the Subkick has too long a release for my taste, especially at medium to quick tempos.

The LoFReQ solves all these problems. There is no hardware other than the mic itself, which is just 7 inches in diameter, about the size of a 45RPM record, if you remember those. It also uses a smaller speaker that tightens the transient response. The integrated pad is a great idea and takes the addition of an attenuator off your setup to-do list.

On a few sessions, I paired the LoFReQ with a Shure Beta 91, Beta 52 and AKG D12VR all with great results. The level is perfect, needing little or no help from a preamp, the bloom at the back is short, making it tuck in nicely with the kick in mic, and the footprint is small, making the placement of an additional kick out mic an easy thing to do.

Next, I tried the LoFReQ under a low tom for an overdub session. The top mic was a Josephson e22s condenser to capture that attack. The LoFReQ picked up the ball at the bottom of the spectrum making the drum speak as prominently as I liked, just by increasing the LoFReQ's fader. Another possible application is to use a mic of this type on a bass cabinet, but the frequency response is too narrow and pointed at 50-60Hz and the octaves above to make this musical.

The usability and price of the LoFReQ make it a mic-locker essential. Like an SM7, Aston Spirit, or other reasonably priced and great sounding transducers, it's a must-have microphone that works great in the studio or onstage. Get one. ■



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# FLUID AUDIO FPX7 MONITORS

## Two-Way, Coaxial Speakers With Ribbon Tweeter



The FPX7s offer separate balanced TRS, XLR and unbalanced RCA inputs.

**I**f you haven't heard of Fluid Audio, it's because the company is new. Veteran monitor designer Kevin Zuccaro, who spent time at JBL and Cerwin-Vega before taking over M-Audio's pro monitor department, started the business.

The company's top-of-the-line product, the FPX7 powered monitor, features a two-way coaxial design with a ribbon tweeter centered "inside" of a 7-inch woofer. I don't recall ever seeing a coaxial monitor with a ribbon tweeter, so this may well be a first in pro monitoring. The other unique design characteristic is the fader-style volume control on the front panel of each monitor.

### THE HARDWARE

The FPX7 features a 7-inch composite woofer with a foam-surrounded hole in the center. Protruding out from this hole is a short, cylindrical, plastic stem that expands out to the tweeter housing, which is roughly three inches in diameter. The front of this housing has a widely gapped plastic grille, which exposes the ribbon element.

The FPX7's components are housed in a relatively compact MDF cabinet. While the front panel appears very small relative to the driver size, the cabinet extends a deep 10.5 inches, which might rule them out for the smallest desktop setups.

Each monitor is driven by a pair of Class-A/B amplifiers, with 90 watts feeding the woofer and 50W feeding the tweeter. On the front panel of each unit, there is a small blue fader with detents at values of  $-\infty$ , -18, -6, -3 and 0. The fader can park at positions in between the detents. Given the fact that there is no stereo link-

ing of the faders on a pair of FPX7's, relying on the locking positions seems like a more reliable means of level matching.

Logic would serve that the optimal operating level would be "0," so I set the faders to that level to start. At this setting, however, the monitors were extremely loud, even at low values on my monitor controller. On top of that, the monitors exhibited an increasing trend: a high-frequency hiss was quite evident when monitoring more dynamic material. When turning the faders down to the "-18" setting, the hiss all but disappeared, and I was able to operate my monitor controller at much more typical levels.

On the rear of each cabinet are all three common connector types, with balanced XLR and 1/4-inch TRS, as well as unbalanced RCA. A pair of three-way switches allows frequency adjustments to tune the monitors to different spaces. One switch allows the tweeter to run flat, or to be boosted or cut by  $\pm 2$  dB. The other switch is a low-frequency attenuator, which can run flat or drop the low end by 2 to 4 dB. In my office, with the monitors very close to an untreated wall, the full 4dB attenuation is a perfect fit. Meanwhile, the monitors sound full and balanced running flat in a treated control room.

### IN USE

The initial pair of monitors that I received for review had already been well broken-in, so right away they had a substantial bottom end. The upper-midrange had the kind of smooth, warm crispness that you expect from a well-designed ribbon element. In general, I was impressed. The coverage across a broad frequency response and the fast transient response both blew me away. I didn't look at the price tag for a long time because I knew they had to be crazy expensive. I was shocked when I found out that they cost less than \$600 per monitor.

During the review process, Zuccaro notified me that a firmware update was available that improved the digital crossover, so he sent a new pair of FPX7s. These, being brand new, sounded really tight and devoid of true low end. Right away, however, I could hear an improved clarity in the upper midrange. I had no complaints about their upper midrange before, but the new firmware made them sound even better. A few weeks later, the bottom end filled in and the tweeters started to sound less harsh and more relaxed.

I tracked, mixed and referenced a lot of music relying on the FPX7s, but one thing that I found particularly impressive was the way that the speakers reproduced dialog. Typically, when I edit



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dialog, I use headphones. You tend to catch more mouth clicks, missing fades, changes in room tone, and annoying little breaths with headphones. The FPX7s did such a good job of highlighting all of those little problem areas. When I double-checked my work with headphones, I was pleased to find that I hadn't missed anything. Anyone that does a lot of dialog, voice-over or book on tape editing should check these out.

When listening to any style of music, the phantom center was remarkably clear, solid and precise. I was referencing a lot of indie rock laden with synths and electronic drums, and the FPX7s were extremely crisp and punchy when playing the attack of the kicks and snares. Those elements cut well, but in a way that wasn't harsh or fatiguing. The FPX7s never failed to reproduce any of the tiny details that I looked for in any of my reference material. The stereo image was extremely wide, with all kinds of ear candy lying on the far edges of the sound field. There was also a very clear separation between the center and the sides.

When playing dense, low-mid heavy metal, the FPX7s did a great job of staying clear without muddying up. Kick and snare attacks stabbed through a wall of guitars and held the beat. The monitors did a good job of exposing the complex layers of guitars. Listening to jazz, the position of the players and the sound of the room shone through nicely. In every case, mixes

## PRODUCT SUMMARY

**COMPANY:** Fluid Audio

**PRODUCT:** FPX7 Monitor

**WEBSITE:** [www.fluidaudio.net](http://www.fluidaudio.net)

**PRICES:** \$549.99 each (street)

**PROS:** Great imaging, impressive transient response.

**CONS:** Slightly noisy when internal amps are cranked.

sounded extremely wide, but also extremely deep.

Though the woofers barely looked any larger than a typical 6-inch, the bottom end was surprisingly massive without being unruly. Running them against a pair of ADAM A5s, the bottom end was no contest, with the FPX7s bringing essentially an extra octave of lows. I shot them out against my usual Focal Twin6s, thinking that it would be an unfair contest, but the FPX7s held their own. Right away, the

FPX7s sounded brighter and crisper. I dialed back the tweeter to the -2dB setting to try to match their sound to the Twin6, and the comparison grew a lot closer. The FPX7s still seemed to have a clearer attack and more of a forward presence in the upper mids than the Twin6's did. This attack was still smooth and pleasant but pronounced. I would not say that this was negative, and as a matter of opinion, I liked the way the monitors exposed complex information in that range.

In general, the Twin6s seemed to have a more complicated lower mid-range, which set them apart from the FPX7. The body of vocals, acoustic guitars and drums filled in a lot more on the Focals. That said, the Twin6s are a three-way, so that is the difference you would expect to hear. Aside from that, there was a little extra airiness from the Focal monitors, which the FPX7s could match with the high-frequency EQ set to +2, though this pushed the upper midrange a bit. Considering that the Twin6s are three times the price, I was impressed with how well the FPX7s kept up. There were no glaring holes in the frequency response, and any frequencies that were pushed were only subtly so.

Once I got to know the FPX7s I was consistently able to produce mixes that translated to best and worst-case scenario speakers. Mixes played well on phone and laptop speakers, TV speakers, better consumer speakers, and other pro monitors alike. I was able to reliably EQ and compress with trustworthy feedback from the monitors. Their wide dispersion allowed everyone in the room to hear the mix well, even in the back of the room; the center managed to stay put. Even when I played mixes back very loudly they resisted distortion and maintained their clarity and articulation impeccably well.

I was cautious with my expectations given the fact that I had no prior knowledge of Fluid Audio, and my first experience was such a bold offering. That said, I became a fan from the moment I heard them. This price range is a crowded playing field, so there is a lot of competition from some big names, but the FPX7s are crisp, snappy and offer a great stereo image. Their full, punchy sound blows away a lot of the competition even in higher price ranges. Before you take home something else, be sure to check these out, and you may look no further. ■

*Brandon Hickey is an independent recording and film sound engineer.*

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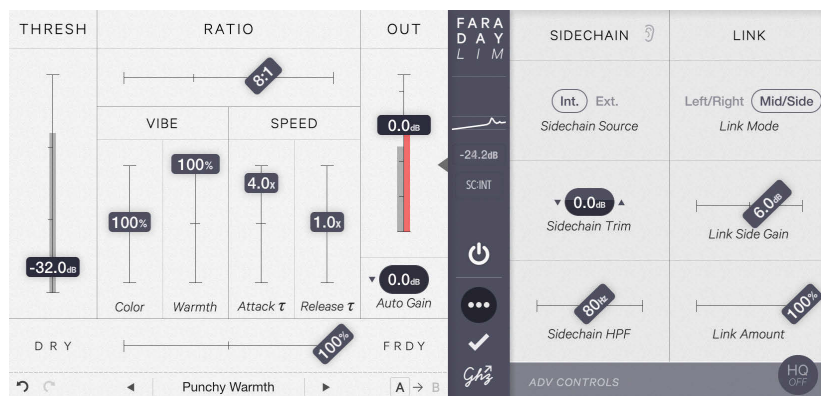
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## GOODHERTZ FARADAY LIMITER PLUG-IN VERSION 2

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### THRESHOLD AND RATIO

The Threshold control has an input level peak level meter embedded in its fader. To the left of the Threshold fader is a helpful floating arrow pointer that shows the threshold setting where compression will begin based on the peak signal present at the detector. Whenever the pointer is visible, no gain reduction is occurring at that particular moment. Compression ratio is not continuously variable, and the default is 20:1; there are also fixed 2:1, 4:1 and 8:1 choices.

### VIBE

The Vibe section has two faders called Color and Warmth, and they are not EQs. The Color fader controls the amount of transformer saturation for both the input and output modeled transformers. As expected, the total amount of Color is largely dependent on level coming into Faraday and how much compression is desired.

I “crushed” a perfectly recorded bass guitar with the Threshold set to -36 dB (max) and ratio at 2:1—the Gain Reduction Histogram went flat line in full compression at all times. Varying the Color fader from 0 percent (min) or no transformer saturation to 200 percent (max) provided a tremendous palette of transformer distortion colors—super clean and fat sounding at 0 percent and, when set to 200 percent, an unclear and thin, distorted mess with little low-frequency energy.

The Warmth control “tilts” the attack and release timing of Faraday based on the intrinsic spectral balance of the source. With Warmth set to -100 percent, the release timing is much faster for only the high frequencies producing a brighter sound. Warmth at +100 percent weighs on the low frequencies more with a longer release time causing a sluggish and darker nature, akin to severe analog tape compression.

The effect of the Warmth control is source dependent. For my smashed bass guitar test mentioned previously, it was subtle; when I set the Warmth control to +100 percent, it did bring out the sound of the pick the bass player used. Warmth at -100 percent produced a more homogenized, smooth sound.

The Faraday Limiter plug-in's GUI offers an unlimited number of undo/redo steps so you can step back or forward when setting parameters.

**G**oodhertz is a California audio software company that makes audio plug-ins and licenses audio algorithms for embedding into Mac OS and iOS platforms. The Faraday Limiter is purpose-designed not only to increase loudness but also to affect tonal color and timbral shape by exerting dynamical control in ways not normally associated with typical limiters or maximizers, hardware or software.

### THE GUI

In Pro Tools | HDX 12.5.2, Faraday opens in a diminutive square window with Threshold, Ratio, Output Level controls, plus Auto Gain, a large Wet/Dry fader, and two sections called Vibe and Speed. When selected, a list of 12 factory presets slide out in a drawer on the left side, with the main window shrinking to conserve total screen space. As soon as I selected a preset or clicked on the miniaturized main window, the preset list retracted. This design also works well for the advanced controls that slide out on the right side when selected.

Adjusting parameters in Faraday is smooth and responsive, and I liked the unlimited number of undo/redo possible when I would invariably go one tweak too far and want to retrace my steps! I also liked the small Gain Reduction Histogram that graphically shows the last 3 seconds of the limiter's action—the shapes of the attack and release times and the relative amount of gain reduction. There is also a resettable digital readout of max gain reduction that has occurred since its last reset.



## SPEED

Speed has both Attack and Release time faders. Both of these time constants are always adaptive, hence the GUI indicates no specific times in milliseconds or seconds. Multipliers from 0.1x to 8x are used, with 1x as the default. The fastest attack and release times start at the bottom of the faders at 0.1x. Gentle compression can be slow and smooth with release times of more than 150 milliseconds. I found it easy to get all the aggressive limiter action I wanted with fast attack and release times below 1x.

There is an Output Gain fader with a built-in meter to show peak levels for both the input and output level simultaneously. Another floating triangle indicator is used here to indicate where the Output (Makeup) gain would be needed to match roughly the input level for purposes of A/B comparison.

Automatic gain compensation is based on the threshold, ratio settings and where you set Auto Gain itself. I liked that the Auto Gain setting does not change when toggling through different presets.

## PRESETS, ADVANCED CONTROLS

I always look for a plug-in's factory presets when first evaluating them, and was pleasantly surprised to find a set of useful setups appropriately named. Factory presets are portable and listed in the online manual as clickable URLs.

When you click on the "Ghz" logo in the GUI, whatever parameters you have running on that instance will show up on a new Web page in your browser. You can copy and send the URL to other users, and you can copy/paste (right click) back and forth between the GUI to the company's Website.

Faraday Version 2.1 will allow user-created presets to be added to the current list of 12 factory presets in the plug-in manager. Alternatively, you may also use your DAW's preset manager and copy, rename, modify and save.

The Advanced Controls section slides out to reveal switches for Sidechain source (Internal or External), Sidechain listen, a 20 Hz to 250 Hz -12dB/octave (2nd order) variable sidechain highpass filter, and Sidechain Trim that adjusts the signal level at the detector signal pre-threshold setting and post the Sidechain HPF.

A stereo instance of Faraday adds a Link Amount fader to adjust the strength of the stereo linkage between channels. You can use conventional stereo linking or in M/S stereo mode, the Link Side Gain fader becomes active. It alters the gain of Side signal in the detector only.

I found adjusting Link Side Gain to somewhat control the stereo width for true stereo sources as well as contrived stereo presentations—i.e., four or five guitars panned across a stereo aux fader. The outer hard-panned L/R tracks could be compressed more in a recorded, mixed stereo pair.

## APPLICATIONS

On a pounding 75 BPM stereo drum loop that had a loud snare, I tried and modified the preset called Big

## PRODUCT SUMMARY

**COMPANY:** Goodhertz Inc.

**PRODUCT:** Faraday Limiter Version 2

**WEBSITE:** [goodhertz.co/faraday-lim](http://goodhertz.co/faraday-lim)

**PRICE:** \$95 MSRP

**PROS:** Best vibe-filled plug-in limiter yet.

**CONS:** Plain-Jane look of the GUI.

Kick. The bass drum came forward, yet the rest of the kit remained clear and not as obviously squashed. Using the Wet/Dry fader allowed setting the snare drum level relative to the increased ambience while adjusting the Link Side Gain and Sidechain Trim faders set stereo size.

Faraday is an obvious choice for stereo music mixes for making them louder. It is very colorful

and maybe not to everyone's taste in this application, but I was able to greatly affect both stereo imaging and tonality of a finished mix. I liked using Faraday for stereo aux buses, stereo instruments and occasionally for reverb returns.

I tried Faraday across a sampled stereo piano track, and it produced the classic rock 'n' roll piano sound I remember from my youth. It sounded compressed but not too dulled and filled out the song's track nicely with good sustain, harmonic density and a bright character.

I used Faraday as a more conventional single-channel vocal compressor for a female singer. I am finding that Faraday works better at more extreme settings than other plug-ins where I'm going for a compressor effect. Yes, I can hear the artifacts, but they sounded good and vibey in this case. I always used HQ Mode.

The Faraday Limiter is super-useful and all about vibe! I don't think of it as a limiter but more as tone-sculpting tool. Highly recommended! ■

*Barry Rudolph is an L.A.-based recording engineer and educator.*

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baries, like multiple mic positions or true legato, but they have a certain sound that fits what Clouser hears in his head.

"The sound of the recordings, and the players, and the instruments that were captured in those older libraries, often sound darker and thicker to me, and seem to mesh better with other sounds in my palette," he says. "It's just like with vintage outboard gear and microphones—they have a certain sound and I understand why people go to great lengths to have Fairchild and Pultec in their racks. I seem to do the same thing with sample libraries."

When it comes to more delicate passages, such as those for solo cello or GuitarViol (a cello-guitar hybrid handcrafted by TogaMan Guitars), Clouser likes to perform those live. "Like many composers, I find that it's easier to get gigantic, epic sounds from in-the-box orchestral simulations than it is to get delicate, exposed solo instrument passages," he says. As for that GuitarViol, Clouser explains, "It has a guitar fretboard but an arched bridge of a cello and it's played with a bow. It allows people who can work a guitar fretboard but maybe not a cello fretboard to achieve cello-like sounds and playing techniques."

In addition to TV series, Clouser also composes for film, notably the aforementioned *Saw* franchise and *Resident Evil: Extinction*. For the upcoming horror film *The Neighbor* directed by Marcus Dunstan (screenwriter for *Saw IV* and *Saw V*), Clouser chose a non-orchestral approach. The film takes place in rural Mississippi, so Clouser wanted "a sound palette that fit the setting of the story. Guitar seemed like a natural choice." He did much of *The Neighbor's* score work with Parker Guitar's Adrian Belew's Signature MaxxFly guitar. "Parker guitars are unusual and strange instruments anyway, but their Adrian Belew Signature model is a super hot-rod version. It has a Sustainiac sustainer pickup in it, as well as the sound modeling engine from the Line 6 Variax modeling guitars."

With the Line 6 Variax modeling technology, Clouser can use the same guitar to make unlimited new sounds. For example, he can start with a steel-string acoustic guitar simulation and then use the software engine to individually pitch shift the strings an octave in either direction. "A lot of happy accidents can come from fiddling with the settings on a modeling guitar. I don't see them used much among my contemporaries, but I think that they are an invaluable tool for getting a wider spectrum of tones that I can coax just out of my Les Pauls, for instance."

For both film and series scores, Clouser composes in Apple's Logic 10 and uses a Pro Tools 11 setup on a separate Mac Pro as his stem recorder, for easy delivery to the dub stages, which generally have Pro Tools-based workflows. His studio, located in Topanga, Calif., has 5.1 surround monitoring via a Dynaudio Air System. Clouser says, "I was very disappointed to learn that system was recently discontinued. Fortunately, I have two complete 5.1 sets and a variety of stereo sets. It's a lifetime supply, but still they are really my favorites."

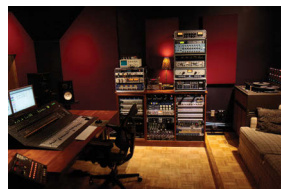
Although his approach to mixing and mastering film scores is different from his TV score approach, Clouser still uses many of the same in-the-box processing plug-ins, like tools from UAD and Waves, particularly Waves' signature series offerings like the Jack Joseph Puig and Manny Marroquin bundles.

"I use some of the signature series plug-ins, originally meant for rhythm guitar and backing vocals, on sounds like weird, bowed metal instruments that might need some harmonic excitement or stereo widening but not a chorus or flange," he explains. "I've also gotten really great results from the Steven Slate plug-ins, mostly the virtual rack plug-in into which you can insert various EQ and compressor modules. Some of those have been quite surprising in terms of the heft and girth that they can add to a sound." ■

Continued from p. 55

Audio CM67, and Neumann U 47s and a KM 56. The studio also commissioned guitar amplifier mastermind Mike Soldano to create a custom "London Bridge" 50 watt amplifier, and recently archived the entire Death Cab For Cutie catalog, transferring everything from cassette tapes and demos to 1/2-inch masters and 2-inch reels...Megs McLean was recently in the studio with producer Geoff Ott. The project featured Ben Smith of Heart on drums, Shohei Ogami on guitar and bass, and Amber Sweeny singing backing vocals. Everything was recorded and mixed in Studio One using UAD plug-ins and an Orion 32 interface, Wunder Audio CM67 on vocals, through the Neve console. The project was mastered by Ed Brooks of Resonant Mastering...Producer Eric Lilavois just wrapped back-to-back projects with artists Givers and Takers and Island Apollo, and is set to return for Naomi Wachira's upcoming album. Givers and Takers was tracked to 2-inch tape though the Neve. Lilavois used a Telefunken M80 on the snare, with a combination of U 67s as overheads, AEA ribbon mics, and a Subduker subkick to capture the drum tones. Vocals were primarily recorded in LSuite B, with the studio's original vintage U 87. For Island Apollo, Lilavois and the band set up multiple stations all over the studio to be able to multitask. All of the drums mics were summed down to the studios ADR Compex compressor limiter...Musician and drummer KJ Sawka recently collaborated with RxGF, combining electronic, rock and drum 'n' bass stylings, produced and engineered by Jonathan Plum. Sawka plays a completely custom-made kit, which was miked with Telefunken ELA M 260 for overheads, and baffled off in the studio's large drum room with a pair of U

87s outside the baffles, providing the option for tight snappy drums while also being able to blend in the big drum room sound.



The Tonic Room

## THE TONIC ROOM, BOISE, IDAHO

Brett Netson and Snakes worked on the *Scavenger Cult* EP, with Netson producing and Jason Ringelstetter engineering. They used an MCI JH24 tape machine, API, Germanium, and Avalon preamps...Lounge On Fire worked on material with producer/engineer Ringelstetter (Lounge On Fire also produced). They used Pro Tools HD4, Neve 88r6, SSL Xlogic G Series compressor, Soundelux U95S, and Neumann U 87 Ai...Clarke and Himself worked on material with Netson producing and engineering. They used an MCI JH24, Fulltone Tube Tape Echo, modified Soundcraft Series 600, MCI JH 110, and Dangerous Music BAX equalizer...Faded Leroy was with producer/engineer Ringelstetter. They used Pro Tools HD4, SPL Transient Designer 4, SPL Vitalizer, and Great River MP-500NV...Avenue B was with producer/engineer Ringelstetter (Avenue B also produced). They used Pro Tools HD4, Neumann U 87 Ai, Tapco 4400 spring reverb, and Audio-Technica AT4047s...Recent studio additions include the vintage 2-inch MCI JH 24 tape machine, the vintage 1/4-inch MCI JH 100 tape machine, Elysia Xfilter stereo equalizer, Great River MP-500NV mic pre's, a Royer R-122 ribbon mic, and a Dangerous Music BAX equalizer. ■



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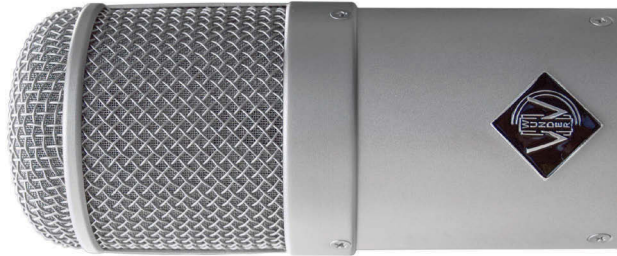
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## BOSE MODEL 812 LINE ARRAY, F1 SUBWOOFER

Full Range, Portable, Powered Loudspeaker

**B**ose may not be the first brand that comes to mind when you think portable line array, but the company's track record for innovation is certainly well established. Recently, Bose turned its efforts toward developing small-format line array systems. One of those is the F1 Model 812 Flexible Array, the subject of this review.

### POWER AND FLEXIBILITY

The Model 812 is a bi-amplified, powered portable line array with eight midrange/high-frequency drivers and a 12-inch woofer that extends the frequency range down to 52 Hz (-3 dB). What's really unique about the Model 812 is that the mid/high drivers are mounted on a flexible baffle with a 100-degree waveguide. The two middle drivers are fixed, pointing straight ahead. The top and bottom drivers are grouped in sets of three on panels that normally face straight ahead (same as the middle two) but may be directed up or down, respectively. This allows the vertical coverage angle to be modified to accommodate the venue.

Illustrated very clearly in the manual, each coverage pattern has a distinct application. The straight pattern is for situations where the 812s are at the same height as a standing audience. The J pattern is for venues where the 812s are elevated (e.g., on stage), and the audience is seated, thus directing coverage down toward the seats. The inverted J pattern is intended for "raked" seating where the first rows of seats are at the height of the P.A. and the rear seats are raised. The C pattern is useful in raked auditoriums where the front rows are lower than the 812s, and seats are elevated toward the rear of the room.

Initially, I thought the flexible baffle was a bit of a gimmick but that proved not to be the case—it works quite effectively. Specs for the Model 812 are minimal: nominal dispersion for the C pattern is stated on the Website as 100x40 degrees (HxV\_ and amplification is 1,000 watts, Class-D.



The Bose F1 Line Array assembles quickly and offers three possible coverage patterns.

Found on the rear panel are two inputs with independent volume control. One is a Combo jack with a mic/line switch. The other uses a 1/4-inch TS/TRS jack or sums a pair of stereo RCA jacks to mono. Given the Combo jack's mic/line switch, you could use the Model 812 for a karaoke gig without a mixer, but that'd be a waste of resources because it's capable of much more. An XLR line output feeds audio to another 812 or F1 Subwoofer; its EQ switch (labeled Full Range and With Sub) engages a 100Hz HPF for the 812. Another switch determines the operation of the front-panel LED, with positions for Off, Power (the LED is on when the speaker is powered) or Limit (the LED is normally off but turns on when limiting is applied). Multi-color LEDs are provided for input Signal/Clip, system Power/Fault and Limit.

### INTEGRATING THE SUB

Execution of the 812's molded enclosure is smart. Handles are built into the top and rear, making it relatively easy to carry.

Threaded M8 inserts enable flying, and the bottom panel accepts a standard 35mm pole or the F1 Subwoofer's included support stand.

A pair of Model 812s can create quite a stir, but the real muscles flex when you combine them with the F1 Subwoofer. Also a powered design, the F1 Sub is a fine little beast in a reasonably sized box. Two 10-inch woofers generate a maximum SPL of 130 dB peak and LF response down to 40 Hz (-3 dB). The F1 Sub's enclosure aesthetically matches the 812 and includes a mounting bracket that nests with the cabinet for transport, or snaps into the top to support an 812. Rear panel features of the F1 Sub include a pair of Combo line-level inputs; XLR line outs with Thru/HPF switch, volume control, polarity reverse and the same System LEDs as the 812. All models have IEC power inlets and on/off switches.

### SPECS BE DAMNED!

It's just as well that I wasn't buried in 'specs because it would have taken all of the fun out of using this P.A. For many of the tests,



## PRODUCT SUMMARY

**COMPANY:** Bose Corporation

**PRODUCT:** Model 812 Line Array,  
F1 Subwoofer

**WEBSITE:** [www.bose.com](http://www.bose.com)

**PRICE:** F1 Model 812 Flexible Array,  
\$1199.95 each; F1 Subwoofer  
\$1199.95 each

**PROS:** Excellent sound; easy setup with  
built-in stands; manageable package.

**CONS:** A bit on the pricey side; no phan-  
tom power on the Model 812 mic input.

an F1 Subwoofer was placed at either side of the stage in a 200-seat auditorium at Mercy College (Dobbs Ferry, N.Y.) and an 812 was set atop each F1 Sub's stand. The output from a Behringer X32 was connected to the 812's input, EQ set to With Sub, and the 812's output was patched to the F1 Sub's input. Volume controls were set to nominal (though I eventually cranked them up to see how loud they'd play). This system rocked. At the front of the room the system could play way louder than necessary, and at the back of the room, it was still almost loud enough to smack your gut.

Of course, brute force is not enough, and the F1 System is not a brute. I used it for rap, rock, pop and electronica, and it sounded great in all cases: extended at both ends, balanced and smooth, no horn harshness that plagues a lot of P.A. speakers. The F1 System provided excellent transient response on percussion, and tight, powerful, articulate bass. Imaging during the electronic performances was surprisingly good—sitting almost directly in front of the P.A. on house right, I could still hear the array on house left, and coverage across the middle was consistent.

The Model 812's ability to modify vertical coverage is impressive. During sound check for the initial performances, it became apparent that the front few rows were not hearing the midrange and highs properly. A quick snap of the bottom driver panels fixed the issue, creating a

J pattern that clearly focused the bottom part of the array toward the neglected seating area. As an experiment, I placed the P.A. on the floor, in which case the rear rows were not being covered due to the rake. Changing the top array panel fixed that in seconds.

The manual doesn't say much regarding what happens electronically when adjusting the baffle, mentioning that the EQ curve is changed—but I suspect there may also be some phase adjustment to keep the drivers coherent. Regardless, the concept is effective and avoids the coverage issues that challenge conventional boxes.

## IT'S A HIT

The Bose F1 System is impressive. It sounds fantastic, breaks down into components that fit into a car, requires no external electronics or fussing with a crossover, and can adapt to venues requiring a variety of vertical coverage patterns. The review system would make a killer band or portable DJ system. It may be a tad pricey for those in the MI market, but anyone with professional requirements absolutely needs to hear the Bose F1 System. ■

*Steve La Cerra is a New York-based live sound and recording engineer.*

## Continued from p. 37

"We want to morph from cow sounds to screaming sounds to hell sounds without giving away the story," explains Linden. "The idea is to keep referencing back to concepts so each time you see Quincannon, you feel what his character was like. The music and sound design changes in the playback process a lot because there was no way for the producers to hear music completely against sound design. It was an ongoing thing with [Porter] having to write new cues. It wasn't just melodic lines, but frequency lines that in some cases push accents into music or pull effects back. A lot of times we would re-mix scenes up to three times because the producers were hearing things for the first time."

One of the signature sounds on *Preacher* is Custer's voice of God, which has its own restriction issues. The voice was initially processed by Mike Babcock, who also put together its design elements. It is augmented by sound designer Steve Avila and, depending on the scene, reprocessed and treated in the mix stage for its unique combination of effects, voice and music. "The voice tends to be treated so it sits with everything else we do with a lot of pitching," says Linden. "I relied a lot on Waves UltraPitch because you can set pitches and delays for each pitch. Again, the big issue is, how do you get it to play on the dynamic range of TV? I spread it around the room with a lot of pitches and delays so everything isn't coming out of one speaker center with limited dynamic range. You get the big feel by imaging and pitching."

"When the preacher's voice wants to command somebody," Yawn

explains, "on the effects side, we would have design elements working with the dialog side. The effects are modulated low-end working with the modulation of the dialog, creeping in and out and peaking with the dialog performances."

This is apparent in the baby cry element and also an amniotic heartbeat that goes with the voice of God. Hearing those synthesized creates the idea of the theme for the viewer, either consciously or unconsciously. Another example is the character Saint of Killers, who has a three-part nightmare in the first, fourth and eighth episodes, repeating itself quicker and quicker.

"We pulled from the Pro Tools sessions from the first and fourth episode," elaborates Yawn. "[Paul] and [Linden] did a rough mix on the third installment at the beginning of the episode. Our editors took those pieces and assembled them for the later part where it repeats itself. We had the audio files reference the original ones off the server, so during the mix, if we had any adjustments in the beginning part of the third installment that it would update itself in the files in the later part of the show where it reoccurred.

"It was a lot of work because not only did we have to assemble the stems, we had to assemble the elements that made those stems and preserve the Pro Tools mix automation from Icon within that going forward so if there were internal tweaks we would have everything. I've worked on a lot of feature films and television shows. That was probably one of the most complex conforms that I've been involved with." ■



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Engineer for Carlos Santana, Stevie Ray Vaughn



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### The Model 473

[www.vintech-audio.com](http://www.vintech-audio.com)

Continued from p. 47

"Instead of Pro Tools, where everything is one track, straight down, with Nuendo, the folder tracks are actually like folders on your computer. There are actually tracks inside the folders," he explains. "For me, when I'm cutting in the pre-dub configuration, which is what I usually do, it means my pre-dubs are grouped together, so all my insects are grouped together, all my birds will be in the birds folder, but they're still operating in separate tracks inside those folders. And I can have folders inside folders. Instead of looking at a page that has hundreds of channels where I have to constantly scroll down, I can see everything in this. I can do audio mixdowns and bounce them in nonreal time into the session in whatever format I want. If I'm doing a 24-bit, 48k WAV file bounce, it will automatically name them all and bounce them at one time," O'Farrell says, adding there is a built-in 4-channel equalizer with built-in compression and gates.

This system also is capable of making multiple marker tracks. On his MacBook Pro laptop, O'Farrell and his assistant of 25 years, Bill Burns, displayed how they can work on a film on an airplane or in a hotel room with Nuendo, with the film and guide track loaded.

"If I want to rehearse Bryan Cranston doing a line, it prints the dialog on the screen, and if I want to get Bill to record it..." O'Farrell says, as Burns dubs it.

O'Farrell can hear it back with Cranston and Burns to see how it lines up. It will stack takes.

O'Farrell, who just finished up Warren Beatty's *Rules Don't Apply*, says, "This is a deep system and sometimes people get confused," O'Farrell says. "I think people have gotten very comfortable with Pro Tools. There's always a week of, 'Why can't I use this key and why doesn't that work,' but then the love factor sets in. Most people who use it really enjoy it." ■

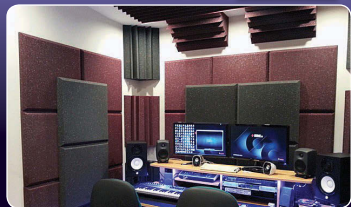


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Achieve unprecedented style and performance for your compact and mobile MOTU studio

## Apple MacBook Light. Years ahead.

MacBook is more than just a new notebook: it's the future of the notebook. And now, with sixth-generation Intel processors, improved graphics performance, faster flash storage, and up to 10 hours of battery life, MacBook is even more capable. With a stunning 12-inch Retina® display, highly responsive full-size keyboard, Force Touch trackpad, versatile USB-C port, and silent fanless operation with no moving parts or vents, MacBook is perfect for your MOTU studio.

Now available in four aluminum finishes: gold, silver, space gray, and for the first time on a Mac, a gorgeous rose gold.



## MOTU UltraLite AVB

### Mobile recording with best-in-class analog

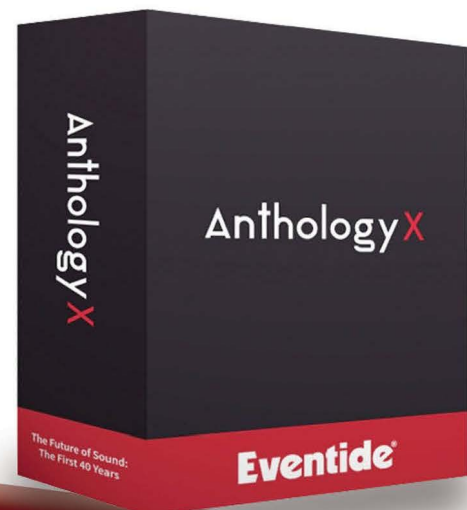
The latest in MOTU's best-selling, award-winning UltraLite interface series, the UltraLite AVB delivers 36 simultaneous audio channels (18 in plus 18 out), DSP mixing and effects, wireless control over wi-fi, AVB audio networking, and best-in-class analog audio quality for on-the-go mobile audio recording. The eight balanced analog outputs deliver a stunning 117 dB dynamic range.



## Eventide Anthology X

### The best Eventide effects in one bundle

Seventeen mixing, mastering and multi-effect plug-ins based on 40 years of Eventide studio mainstays like the H910, H949, H3000 Factory, Band Delay, and Omnipressor. Includes future classics like UltraChannel, UltraReverb, Quadravox and Octavox. A true must-have for any size MOTU studio.



Value Added  
Reseller  
Professional Audio

# MOTU





## Zynaptiq UNMIX::DRUMS

### Boost or attenuate drums in mixed music

UNMIX::DRUMS is the world's first audio plugin that lets you attenuate or boost drums in mixed music, in real-time. Using advanced source signal separation technology, boost drums by +18 dB or practically remove them completely, either on a full mix or on a drum bus. Shape and enhance the impact of your drums like never before. UNMIX::DRUMS opens up exciting new options for mastering, music production, sample-based music creation, mash-ups, remixes and DJ sets.

## Neumann TLM 103

### Large-diaphragm cardioid microphone

The TLM 103 combines a capsule drawn from the legendary U87 with tried-and-true transformerless circuitry to deliver classic Neumann sound to any project studio, professional facility or performance venue. Incredibly low self-noise, robust feedback suppression and solid construction make the TLM 103 a must-have mic for any situation.



## Focal Trio6 Be

### 450W 3-way studio reference monitor

The Trio6 Be was designed to meet the standards of the most demanding engineers. This dual monitor is the new reference in its price range owing to its extreme neutrality, its precise stereophonic imaging, and its ability to resolve the most minute sonic details, while its Class G amplifiers deliver SPL levels to suit all musical styles.



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## Evolving Transducers



By Kevin Becka

**I**t wasn't that long ago that we started trusting digital enough to be all-in. Since then, and especially lately, the evolution of digital products has been stunning. As prices have gone down, features, capabilities and sound quality have ballooned. And while manufacturers have paid the most attention to the tools at the middle of our signal flows, the transducers at the front and back end have chugged along. Not that there hasn't been anything new, just not at the pace of the digital links in the chain.

That said, I've been noticing some great new developments that are taking transducers to a new level. At the front end, the microphone, there have been some exciting new products and design tweaks that have been well accepted. Never afraid to innovate, Audio-Technica bowed the AT5040 in 2012 using four rectangular capsules, and more recently, the AT5045 took the concept to new highs. I reviewed the side-address, fixed-cardioid condenser in the November 2015 issue of *Mix* and it quickly became my favorite mic produced in the last 10 years. It's a stunning performer.

Steven Slate announced his Virtual Microphone System a couple of NAMMs ago, and it's now a reality. It's an all in bundle, including a microphone, preamp and a plug-in that digitally simulates classic large-diaphragm transducers. The names of the plugs thinly veil their intentions—that is, to offer digital models of a U 47, 251 and C800 microphone, plus 1073 and EMI V76 preamps. Fabrice Gabriel and his team provide the digital know-how. Fabrice is a guy who hasn't hit a foul ball in his career; everything he touches is excellent. The plug-in couldn't be simpler. It offers a single horizontal fader that ramps the model from 0 to 150 percent, letting you add as much or as little of the modeled effect as you'd like.

More recently, Erik Papp and Chris Townsend released the Sphere L22 microphone. The L22 expands on Slate's VMS, offering an impressive combination of physical design and plug-in models and controls. At the start, the mic has two discrete capsules, one facing front and the other the back. The cable breaks out to dual XLRs, which are recorded to two tracks in your DAW. When used with the Sphere DSP plug-in, you can model classics like a U 47, M 49, U 67, U 87 (old and new) and C12. Also, there are hybrid models including a 4038, 451, and even an SM57.

Adding to the mix is a nine-position polar pattern control, three-position highpass filter, and axis control allowing you to rotate the mic without changing the polar pattern. Think of this as being able to change your mic position up to 180 degrees, after you record—a

stunning possibility. There's also a proximity control where you can add or subtract proximity after the fact.

Sennheiser expects to ship its AMBEO 3D virtual reality microphone and plug-in by the end of this year. The mic captures high-quality audio on four axes and then uses digital tools to expand the sources to other formats, including 9.1. AMBEO 3D is mostly driven by immersive, consumer 3-D video systems from GoPro and others, but that never stopped studio audio engineers from getting onboard. The product offers venue modeling software for live performance (DJs), greater audio landscapes for gaming and digital entertainment systems like Oculus. The demo I saw at the Sennheiser booth at NAMM was excellent. It was a piano performance in an empty concert hall. I could rotate 360 and look around the venue from my "seat", while AMBEO 3D provided believable dynamic audio.

Another new innovation comes from MXL. The DX-2 is the first mic of its type featuring separate cardioid and super-cardioid dynamic capsules in the same body. You may say, "That's been done," but the ability to crossfade between the two capsules at the mic is a new look at sound shaping. Nextgen would be an app where you could control this remotely!

In the live world, DPA's d:facto handheld mic offers a range of adapters for wireless use plus a dual personality like the DX-2. The supercardioid front lobe focuses on the source, while the back lobe, which is smaller than on a normal supercardioid, offers minimum bleed.

At the back end of the chain are some interesting speaker developments, including the Fluid Audio FPX7 active monitor reviewed this month by *Mix* writer Brandon Hickey. Fluid is a new company helmed by Kevin Zuccaro, who had a hand in some of the speaker designs for JBL, Cerwin-Vega and M-Audio. While an active, coaxial near-field monitor is nothing new, the inclusion of a ribbon tweeter in the design is.

Currently in review by *Mix*'s Steve La Cerra are the Genelec 8350 and 7360 Smart Active Monitors and Sub. Genelec has offered room calibration and networking on many models, but this is the latest incarnation. Add the Genelec Loudspeaker Manager, where you can control up to 30 monitors and subs in a room, and things get fascinating. Watch for Steve's review in our AES issue.

It's nice to see the bookends of our world, the devices that capture and move air, integrating digital and tweaking designs in new ways. Just as the AT5040 spawned the AT5045 years later, look to the products mentioned here to wake up the industry and push new transducer innovations. And if you're at AES in Los Angeles at the end of the month and see me on the floor, let's talk about it! ■



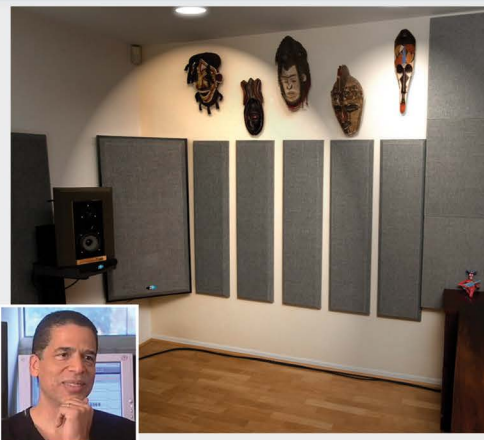
# Primacoustic... better design, better performance, amazing results!



"The ease of install really allowed us to experiment with placement and with the quality of the treatments, we achieved the sonic balance we were looking for!"

~ **Tommy Lee**

Founding member - Mötley Crüe.



"Being able to fine-tune a room on site makes all the difference. The Impaler mounting system make the panels easy to install and let you make adjustments without trashing the surface. It works!"

~ **David Rideau**

Engineer/producer - Janet Jackson, Sting, TLC, J-Lo.

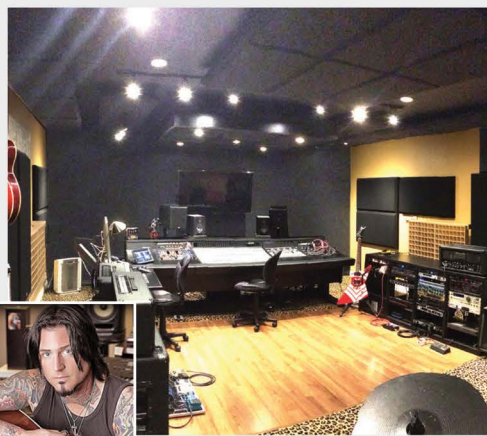


"The Primacoustic is up and kicking butt at my new studio in Santa Monica. I love the way the control and tracking rooms sound now... and so does everyone that records here!"

~ **Butch Walker**

Engineer/Producer - Avril Lavigne, Fall Out Boy, Pink.

***"I love the way the control and tracking rooms sound now... and so does everyone that records here!" ~ Butch Walker***



"When building The Leopards Nest studio, we tested a number of different acoustic treatments and chose Primacoustic. It was easy... Primacoustic did the best job and my studio sounds amazing!"

~ **Jason Hook**

Guitarist - Five Finger Death Punch.



"We've got a mixture of bass traps, diffusion and clouds and the result was phenomenal. It ended up costing less than 25% of the custom solution and it turned out very cool."

~ **Keb' Mo'**

Roots music legend



"Not only does my room sound amazing, it's also really beautiful!!!"

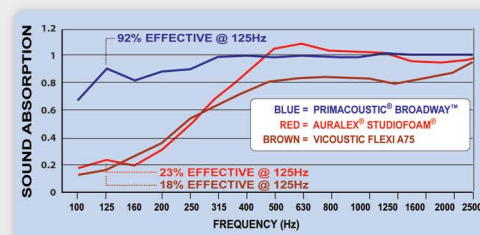
~ **John Rzeznik**

Performer/artist/producer - Goo Goo Dolls.

***"Not only does my room sound amazing, it's also really beautiful!!!"***

~ **John Rzeznik**

*Primacoustic Broadway™ high-density glass wool acoustic panels perform well where the others fail, in the critical low frequencies.*



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**David Rosenthal**

*Musical Director and Keyboardist for Billy Joel*



## UltraLite AVB

"I use the UltraLite AVB in my keyboard rig for every performance. Multiple units, in fact. The sound quality is incredible, and the UltraLite is so compact, rugged and reliable. I've been touring with Billy Joel for 23 years, and MOTU gear has always been there for me."



Learn more at [motu.com/ultralite](http://motu.com/ultralite)

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