

The Sound Of Sound

Hey, just punch it up on that digital box!

By Frederick J. Ampel

In a world of increasing digitization and electronic origination of everything from voice mail prompts to virtual customer support, the pro audio industry has also migrated towards less “natural” sources.

Of course, there remains the world of orchestral, operatic and folk music performances (for example) as unremittingly “live” acoustic events, but even these supposedly sacred spaces have been quietly infiltrated by electronic sources, synthesized music support and all kinds of “augmentation.”

What this “less human involvement” trend has created is a lack of true awareness of what things actually sound like, and how acoustic sources create a “space” or congregate to

become a performance as perceived by the listener.

Without exposure to un-reinforced natural acoustic sources, it is extremely difficult to have any kind of mental image of what people, instruments – and most importantly, multiple sources or groups of anything – sound like. Devoid of this mental “file,” the tendency is to assume that every source needs to be processed or helped in some way in order to sound right.

Most certainly a portion of this predicament has been created by the world of sampling and the stunning capability growth for digital keyboards/synthesizers. Literally anything that produces sound waves can be sampled and then re-used whenever

and wherever it is desired.

No need to find someone who knows how to play, use or operate that device; no need to deal with people and their numerous “issues;” and most importantly, no need to pay them. Punching up that cembalo dulcimer sample on a digital keyboard is way faster and easier than actually getting a person to play one.

FROZEN MOMENT

The problem is that however accurate the sample may be (and this varies drastically depending upon the sampling device/method and from pre-recorded loop to pre-recorded loop), it's still just a sample – a minuscule, frozen moment of some portion of the acoustic output of the particular source.

It is most certainly not a high-definition picture of the whole of the source, especially not of that source as heard by a live listener with all of complex harmonics and ear/brain/room interactions.

I frankly don't care how high the sample rate, or what kHz it was archived at, or how slick the microphones were – or any of that. It's all irrelevant.

The sample library size needed to truly re-create any natural source beyond the ability of the ear to discern the difference is so huge as to be outside the realm of feasibility for all practical purposes.

Yes, I'm sure enough storage devices could be “stacked up” to accomplish the task (terabytes at least) but this would be for just one specific guitar and player (for example). But change one string and it's necessary to



start over.

Think about the legendary Hammond B3/Leslie combination. Move just one tone bar a fraction of an inch and there is a wholly different set of parameters – and there are lots of tone bars and lots of possibilities. Pardon me while I fire up the Cray supercomputer to calculate the possibilities; I'll get back to you with an answer in a couple of months.

This doesn't mean the ear can't be fooled into thinking it heard the real thing (at least sort of), just as multi-channel time differences can be used to create localization effects or perceptible positioning of a source. But it's not the real thing, just close enough to be gotten away with. Sometimes.

There's a remark supposedly attributed to George Martin: "If you want real strings, hire string players." Another phrase, more familiar, is that close only counts in horseshoes, hand grenades and nuclear weapons.

REAL & RIGHT

Why does all this matter to the live performance industry?

Because the people who create the cash flow we depend upon use their ears to determine the success or failure of our efforts. Sure, they may not know you're using a sample or may not know how much processing is being applied, but they do know if it sounds real and right to their ears. And they paid for the tickets.

Any sound reproduction attempt should be focused on producing a convincing and realistic presentation of what is happening "on stage" or wherever the live source(s) are. This means recognizing some essential rules of sound that more often seem to be forgotten (if not ignored) in current practice. These rules are like the T-shirt showing Einstein's face and the phrase, "186,000 miles per hour is not just a good idea, it's the law."

Unlike the absolute rules of physics (at least non-quantum physics), these rules of sound are like the edge barriers on freeways – stay in your lane and it's fine, drift too far and...

Fact 1: Not everything in a mix needs

to be heard all the time. Music is a dynamic entity and it flows over time, while instruments move in and out of focus. Trying to make everything audible at once leads to mush.

Sure, if it's a corporate gig and the CEO is speaking, the voice must be heard, just like the lead vocal. But even the head honcho has to take a breath now and then.

Fact 2: Unless you're Phil Spector, a wall of sound is a bad idea. Music needs space around both the total program and each individual part. Think in 3-D not 2-D. Think vertically and horizontally.

Way, way back in the early 1970s, when I was just a newbie engineer,

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one of the old dogs of the studio wandered in late one night while I was working on "my stuff." He just stood there, and then when the 16-track stopped, he said, "nice sounds, but you have no space between the speakers."

He then proceeded, in about 10 minutes, to redo the mix so the rhythm section sat in the middle, stacked up, while the instruments spread out left to right and top to bottom, making nice holes for vocals and solos. You could even hear the cool reverb effects I'd spent so much time on.

Fact 3: If it's too loud, it's too loud. Proving the physical performance limits of the PA can be reached proves nothing – except that you have the wrong focus. Loudness is no substi-

tute for quality or aesthetics and is not a requirement.

Just because a few band members are deaf does not mean the entire audience has to be added to the rolls of the hearing impaired. Besides, as level goes up, the ability to discriminate between the various parts of any performance goes down. The ability to discern subtleties vanishes into the dB haze.

Fact 4: Mixing is a subtractive art, not a game of how many faders can be pushed to the stops. About 99.44 percent of the time, less is more. Watch the really good mix engineers. They don't just jam everything up and try to make sense of the subsequent cacophony. Rather, there is blend, scale, assessment and control. (In fact, years ago the job used to be referred to as a "balance engineer.")

Fact 5: If it doesn't make sense, it won't sound good. THINK before reaching for that knob or throwing technology at something. Just because something can be done does not mean it should be done.

Having a rack of signal processing on hand does not imply that every device must be applied to every performance. The gear won't spoil if it's not used. Before inserting that EQ, that compressor, etc., decide why. What's the goal?

Fact 6: It's still ultimately all about the performance, not your technical genius. Showing how cool you can be only shows how little you understand about why you're there in the first place.

I like to think about this whole process using another slogan seen on bumper stickers many moons ago: "E=MC2, +/-2 dB." In other words, the rules are there, but this is live audio. Some maneuvering room is vital to function.

Be smart, be flexible – it will always sound better if you do. ■

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