# Creating Space and Depth

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Recently I've been seeing a lot of people asking how to create space and depth in their mixes, so I figured it was a good time to write down my thoughts on the subject. When I talk about depth and space, I'm referring to that 3 dimensional aspect of a song, where some instruments sound like they are farther away from you the listener. It can also refer to the times when it sounds like the music you're hearing was performed or recorded in a very specific location, such as a performance hall.

Contrary to popular belief, it's usually not as simple as just putting a reverb on certain sounds. While that can be a part of the solution, more often than not it often ends up making things worse in the wrong hands. Don't get me wrong, for many people a single reverb might be all they need to add space to a mix, but there's certain things you need to keep in mind if you go this route.
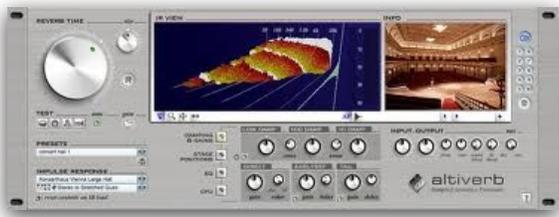
For starters, not all reverbs are created equal, and the better a reverb you use, usually it will make your job a lot easier. With cheaper and less CPU intensive reverbs, often you end up just washing the sound out, versus actually adding any depth to it. It does the opposite of your intent, and makes sounds harder to place sonically. I personally find convolution reverbs the most realistic, but they're certainly not the only options. So tip number one would be to use the best reverb at your disposal if you want depth, and you're not trying to create a special effect.

One of the most important aspects of reverb is the pre-delay, which (in simple terms) controls how long after a sound is heard that the reverb starts. Think about clapping your hands in a room, and the reverb tail that sound makes. You don't instantly hear the reverb when you clap your hands, it takes time for the sound to reach the walls, then bounce off and interact with the other reflections to create the reverb. A good rule of thumb is that sound travels 1 foot per millisecond in air (at room temperature). So if you are 15 feet from the nearest wall, that means that it will take approximately 15ms for the reverb to start.

You can use this to your advantage when setting up your reverb, since you can use the pre-delay to help determine not only how big a room is, but also where your instrument is in the room. Keep in mind that this is only a general guideline though, with most reverbs the pre-delay parameter often controls a much more complex set of interactions, so as always, use your ears and do what sounds best. Generally I find 15-30ms is a good range to start with, rarely do I use more than that though.

The last reverb tip I'll offer is to use less than you really think you need. Often I hear people really soaking sounds in reverb to create depth, when in real life, our ears only need a tiny bit of this sound to accurately place the location of a sound. Using too much ends up sounding more unnatural than not using any at all. Same with the size of the reverb, you don't need to use really long reverb decay settings to create the sense of a large space.

Having written all that, I have to admit that I pretty much never use reverb anymore to create depth. I'll usually use a delay instead, as I find having a slowly decaying delay can often create more space than a reverb will, without cluttering up the mix or washing things out too much. Coming up with a delay setting that conveys depth usually requires more experimentation than reverb, so unfortunately I have less concrete advice to offer here. After all, delay is only mimicking the sense of space true reverberation offers, in real life we rarely if ever hear things as only discrete delays.

Stereo and ping pong delays work well as they let the effect fill the sides of your stereo imaging, while the core sounds can remain centered. Likewise using a delay that low pass filters each successive repeat can simulate the sound of the delays being absorbed by items in the "room" you're creating, much like what happens in real life (I.E. furniture will over time absorb the reverb reflections in a room). Again, if you're after a sense of realism, use less than you think you need, the point is to HINT at space with delays, not drop the listener into a huge pool of them.

Regardless of which method you prefer, reverb or delays, if you want to place multiple instruments in a space, you need to set each of these to varying amounts of the effect. Or use different reverbs for close instruments, and different reverbs for instruments further away. The key to this technique is to make the reverbs or delays as close as possible to each other tone wise, varying only the controls that convey the actual space or distance the listener is from the sound source. And of course, you don't want to add the effect to all your instruments, as that will make everything feel far away, and your song might lack any impact or contrast.
Space and depth are not just created with effects alone though, there's two other aspects of your mixdown you need to to pay attention to.

The first is panning. Having every sound in your song panned dead center might ensure the greatest compatibility on a club sound system, but when it comes to realism, it doesn't work very well. It's like going to a concert where every musician in the band is standing single-file in a line with you in front of them. In addition to making it harder to mixdown and combine multiple instruments, it doesn't add much stereo interest. So move things around left to right in the sound stage. This helps convey a lot of information about where instruments are in relation to each other, and honestly is just more exciting to listen to most of the time.

Two pitfalls I often see people fall into with panning though, are putting too many instruments to the sides, or putting them too far out to the sides.   You don't want every single sound in your song to be coming from only the left or the right speakers (usually, maybe that's what you DO want, weirdo!). Maybe it worked for the Beatles, but they didn't have much choice and you do. So be selective about what you pan, and how far to each side you pan it. I get a lot of songs sent to me for mastering where the artist went crazy with their panning, and as result,

there's nothing in the center of sound stage. EVERYTHING is panned somewhat left or right, and it creates a dead spot right where you want things to be front and center.

In general, I try and keep the most important instruments in the song closer to the center of my sound stage. If not dead center, then at least not panned very far out to the sides. Things like pads, effects, strings, etc are usually filling more of a supporting role, so they can afford to be out to the sides. When panning instruments further to the sides, pay attention to the overall balance of the mix too. You don't want more instruments in the left side of the mix than in the right, or vice versa. It makes things sound unbalanced, and gives the impression that one speaker is louder than the other. If you have something loud panned left, pan something equally loud to the right. Simple.

The last thing I want to bring up is the issue of dynamics. No, not going to talk about the loudness wars (this time!), but dynamics do a lot to create depth in a song. Think of it this way, when you compress something in your song, it's often to make it more prominent and in your face, right? Well if everything is loud and in your face, then what is further back in the mix creating depth? Compress what you will, just keep in mind that some dynamics in the song will really help you create depth in your mixdown. Balance the loud stuff with quieter, more dynamic sounds and you win on both fronts.

As sort of a subset of dynamics, is the issue of how busy a song is. Depth and space are conveyed by the way sounds decay and fade away over time. So if your mixdown is so busy that nothing ever really has time to decay (or it does so masked by other sounds), then it's that much harder to put that feeling of space in your song. You don't need to be firing 1/16th notes all the time on all tracks, at least not if you want your song to have any sort of 3-dimensional aspects. It's often said that the notes you don't play are as important as the notes you do play, and this is especially true when it comes to creating depth in a mixdown. Keep that in mind when writing and arranging your track, and your job will be so much easier when you want to address this later on.

On a more personal note, if this guide (or any of my other guides) has helped you in your music making, please consider a small $1 donation via pay pal to the email address below. Even a dollar here and there really helps me and my family out more than you can realize. Thanks, and I hope you find this guide useful.

Peace and beats,

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I'm the owner of Inner Portal Studio a Seattle-based facility with over 15 years experience providing quality mastering and mixdowns of electronic music for producers around the world. I have been writing, releasing, performing and DJing electronic music of all genres for over 20 years. You can find my blog, original music and DJ mixes, as well numerous audio production related tutorials available for free at http://tarekith.com.

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