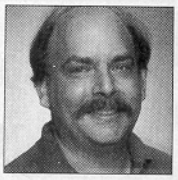
DRUM MACHINE PROGRAMMING



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MORE TIMING TRICKS

TIMING AND MUSIC. IT SEEMS THE pendulum of change has been swinging the other direction lately. When drum machines were first introduced, the notion of having a recorded drum track with perfect timing was manna from the gods. Perfect was hot. Recently, though, manufacturers have been trying their best to bring human time and feel back into the machine. Perfect is cold. Machine-generated rhythm tracks are often pedestrian, lifeless, tedious, and just plain dull.

Almost any model drum machine can produce realistic and persuasive rhythm tracks. But it's up to you to make it happen. Programming a convincing drum track is, in many ways, similar to commanding an acoustic set of drums. A cheap drum set can sound great under the sticks of a master. Conversely, the best custom-built kit can sound like trash if the drummer doesn't have a clue. Drum machines are no different; they depend on the player.

Many programmers solve the mechanical drum dilemma by bypassing the drum machine's internal sequencer altogether. By programming rhythm tracks directly into a computer-based sequencer, you can use your drum machine exclusively as a sound generator. Then again, drum machine sequencers can be extremely nimble at performing certain tasks (such as copying patterns, deleting selected voices, and chaining patterns into songs). Is it possible to get the best of both worlds? Maybe so.

I'm sure that you've heard recordings where the drum track alternates between one or two standard beats throughout the entire tune. The results are usually tedious and lifeless because that isn't the way real drummers play. Most drum machine manuals suggest that you work in short patterns of one to two measures. Short patterns tend to be convenient and conserve memory because the same patterns can be called up in various sections of the song. But drummers don't usually think in repetitive chunks. Every bar flows into the next and, like snowflakes, no two measures are exactly the same. Tip #1: Set your drum machine's pattern length to eight or 16 measures before recording.

Real drummers don't play little plastic buttons with their fingers, they use sticks. Tip #2: The most realistic way to program a drum machine is from a drum pad, period! Even if you've never held a pair of sticks in your life, the physical sensation of hitting something is going to impart a certain amount of realism to your programming. Beg, borrow, or steal (well, maybe not steal) some sort of percussion controller. Connect the controller's MIDI out to your drum machine's MIDI in and adjust MIDI note numbers so that the pad is firing the hi-hat sound. Start flailing.

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Don't hear quite enough dynamic variation? Try tip #3: Adjust the pad controller to a different velocity curve setting. When programming from pads, your hardest stroke should have a MIDI velocity under 127. Drummers are always capable of hitting a drum or a cymbal just a little bit harder for those special situations where the music needs an additional kick in the pants. If you're peaking the MIDI velocity at anything under "strokes that could kill mortal humans," adjust the velocity curve! Also, check the drum machine's MIDI or sound menu to ensure that a "fixed" dynamics mode isn't inadvertently turned on.

Still don't have the right feel? Well, what we've done so far is make the dynamic contrasts between strokes a little more convincing by programming the machine in a lifelike manner, but we haven't yet addressed the issue of quantization. Tip #4: Do all your drum machine programming in high-resolution mode. Trust me on this, it's not as scary as it seems. Keep in mind, though, if your drum machine tops out at a course resolution (24 ppq, for example) then "high-res" recording won't do much good. Fortunately, most current machines have a resolution of 96 ppq or higher.

Start by recording your hi-hat track. Once done, enter the sequencer's step programming mode and fix any fluctuations that seem too loose. Once you're happy with the result, add the bass drum, snare, and any other sounds you want included in your pattern. As before, go back into step mode to fix any offending notes. Don't fix them all. Only tweak the ones that bother you.

Getting a real drum feel into a machine is actually a matter of phrasing. Since drummers work with sounds that have very little sustain, they aren't capable of creating phrases based on variations of duration. Instead, they work to create the aural illusion of long and short notes by slightly changing the dynamic shading and timing. When you program from pads, and in high-resolution mode, the machine is more likely to capture these faint timing and velocity variations.

Tip #5: Record a scratch drum track and listen to it while you work out the other MIDI tracks. Then start over and record your final drum track. A drummer responds to the phrasing of the rest of the band, and your drum machine can do the same.

The end result of all your time and trouble will be patterns that sound more like a real drummer than a drum machine. Variations in dynamic contrasts and timing aren't the end-product of some complex algorithmic formula. These subtle changes come from musical expression. And that's what it's all about. ■

Norman Weinberg teaches percussion and electronic music at Del Mar College in Corpus Christi, Texas. His latest project is establishing the World Percussion Network for the Percussive Arts Society.