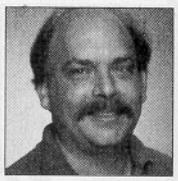
DRUM MACHINE PROGRAMMING



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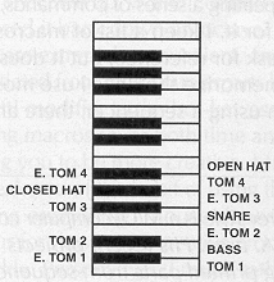
EXPLORATIONS IN ARPEGGIATION

ONCE UPON A TIME, ARPEGGIATORS were a common sight around the studio. Several analog synths included internal arpeggiators, and dedicated arpeggiators were produced by several manufacturers. With the advent of MIDI, drum machines, and computer controlled sequencers, arpeggiators seem to have come upon hard times.

This month's installment refers to the arpeggiator on E-mu's Emax sampler, but the techniques throughout can be applied to most other arpeggiators (such as Oberheim's Cyclone). The Emax's arpeggiator has several programmable parameters. Adjustments can be made to tempo, note value, number of extensions, arpeggiated interval, two additional harmony intervals, arpeggiation mode (up, down, up/down, forward assign, backward assign, or random), clock (either internal or slaved to MIDI), and "Cruz" control. Let's take a look at how some of the features can be applied in a creative way.

Most people think of arpeggiators in terms of their melodic or harmonic functions. Let's say you program the arpeggiator to perform three extensions using the interval of a perfect fourth. If you hold down *C*, the arpeggiator will choose between the pitches of *C, F, B♭*, and *E♭*. The exact ordering of pitches depends on the mode setting, while the rhythm is determined by the tempo and note value. If you hold down both *C* and *E♭*, notes *E♭, A♭, D♭*, and *F* (an octave higher than the first *F*) will be added to the collection of possible notes.

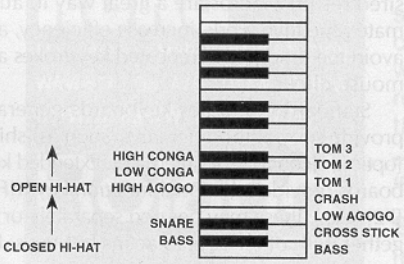
Arpeggios are very idiomatic techniques for certain instruments. Piano, guitar, harp, banjo, and mandolin are a few examples of acoustic instruments that can use an arpeggiator in a natural manner. But how about drum and percussion sounds? An arpeggiator can be a creative partner if you're looking for some new beats or fills for your drum tracks. Try this setup:



Twelve drum sounds are assigned to the first octave. Four acoustic tom samples are mapped to *C, D#, F#*, and *A*. Electronic tom sounds are mapped to *C#, E, G*, and *A#*, and the remaining notes have bass drum, snare drum, open hi-hats, and closed hi-hats assigned to them.

If the arpeggiator is programmed to perform three extensions with the interval of a minor third, then holding down *C* will fire acoustic toms, playing *C#* will fire electronic toms, and *D* will create beat patterns. From this point, you can experiment with the mode settings and note values. For increased enjoyment, you could add a harmony setting of a major second. Holding down *C* will play acoustic toms along with the bass, snare, and hi-hats.

This leads to yet another idea. Since the Emax is capable of layering two samples under each key, you might try this arrangement:



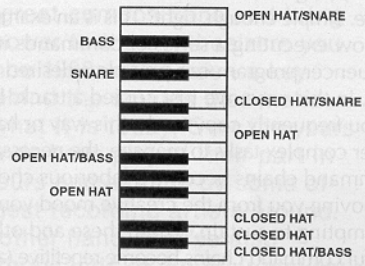
In this case, closed hi-hats are placed under the first six notes of the octave and open hi-hats are placed under the second six. Additional drum and percussion sounds are organized throughout the octave and layered on top of the hi-hat sounds.

This time the organizational plan is the interval of a major second. This will allow for five extensions within the octave, and two different percussion kits. As shown in the figure, playing *C* will fire a bass drum, cross-stick snare, agogo bells, and congas. The *C#* will produce sounds of a bass drum, snare, cymbal crash, and three toms. All of the sounds will be combined with a hi-hat (either open or closed).

If your tastes run toward more ethnic patterns, you might try assigning several African or Latin American instruments to the keyboard. Realistic African grooves can be created by using a wide variety of shakers, talking drums, log drums, and mbira samples. Latin grooves can be created with timbales, congas, surdo, guiro, or quica samples.

As you might expect, laying samples under each key may create a texture that's a little busy. Most drummers will leave out a note or two, or play a hi-hat without an obligatory bass drum stroke. The trick to creating more interesting arpeggiated percussion patterns lies in leaving room for silence. One method of creating silence is to release the key, thus performing a rest.

Here's another technique:



This time, we've placed a series of drum samples at intervals of a major third, taking care to leave some of the note locations empty. When the mode is set to random arpeggiation and six extensions, the sampler will randomly pick between firing five percussion sounds and two rests.

An interesting feature within the Emax's arpeggiator is "Cruz." When this function is turned on, holding down two notes will cause the note value to double, holding down three notes causes the rhythm to triple, and so on. If you set the basic note value to quarters (for example), then you can alter the rhythm in real time by pushing down or releasing additional keys.

Adding "Cruz" to the sounds in the above percussion map will produce some interesting patterns. Holding down both *C* and *D* keys will produce a fairly busy eighth-note pattern. Since the major thirds stacked above the C# are all empty, holding down the *C* with the C# together will create a more moderate eighth-note groove. Holding down *C, C#*, and *D* will produce triplet patterns, and if you add the *D#* — 16th-note rhythms.

Since most arpeggiators will slave to external sync or send their own MIDI timing information, it's easy to interface an arpeggiator to an external sequencer. Once your arpeggiated masterpieces are residing in the computer, you can tweak them further to produce new grooves. ■

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