DRUM MACHINE PROGRAMMING

NORMAN WEINBERG

EXPLORATIONS IN ARPEGGIO

Once upon a time, arpeggios 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 ADDR drum machines and computer-controlled sequencers, arpeggiators seem to have come upon hard times.

This month's installment refers to the arpeggiator on Emu's Emulator, but the techniques throughout can be applied to most other arpeggiators (such as Oberheim's Cyclone). The Emulator's arpeggiator has several programmable parameters. Adjustments can be made to tempo, note value, number of extensions, arpeggiation interval, two additional harmony intervals, arpeggiation mode (up, down, up-down), forward assign, backward assign, or random. The clock mode may be internal or slaved by MIDI, and "Craze" 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 see how 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, and G. 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 D, the arpeggiator will choose between the pitches of C, F, G, and A. If the note value is higher than the first, it will be added to the collection of possible notes.

Arpeggiators can be very useful techniques for certain instruments. Piano, guitar, harp, harpsichord, and marimba parts can be imitated with an electronic 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. By this setup:

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 organization 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, snare, toms, snare, and cymbal. 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 that either opens or closes. If your tastes run toward more ethnic patterns, you might try assigning several African or Latin American instruments to the keyboard. Realistic African percussion can be created by using a wide variety of shakers, talking drums, log drums, and inhibita sounds. Latin grooves can be created with electronic cymbals, congas, tam-tams, and other drums. As you might suspect, laying sounds under each key may create a voice that's a little busy. Most drummers will leave out a note or two, or play a hi-hat without an obligation for drum stroke. The trick is to create more interesting arpeggiated percussion patterns but in flowing room for silence. One method of creating silence is to release the key, thus performing a rest. Here's another technique:

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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 six notes. An interesting feature within the Emulator's arpeggiator is "Craze." 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 "Craze" to the sounds in the above percussion map will produce some interesting patterns. Holding down both C and D will produce a fairly busy eighth note pattern. Since the major third stacked above the C is an octave, holding down the C with the D in tandem will create a more moderate eighth note groove. Holding down C, D, and F will produce triplet patterns, and if you add the D#1 - 13th note rhythm.

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