

Create bigger sounds using layering



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Introduction

At some point in your career of music-making you might encounter the problem that your synthesizers just aren't sufficient for creating sounds big or fat enough for your tracks. This could, for example, be a really heavy bass or a big lead synth. Luckily, there is a technique of achieving these sounds. That technique is layering.

What layering is all about is pretty obvious, yet many electronic producers fail to apply it to its full potential. In essence, layering is "stacking" synths on top of each other, having them produce different sounds to more precisely achieve output in the areas of spectrum you desire. Let's say, for instance, you want to produce a really heavy bass sound. This could consist of a sub-bass (clean sinus waves at low frequencies); a middle consisting of distorted saw waves with some filter modulation and possibly a 3rd synth playing high octaves to the middle waves. Very few synths come with more than 2-3 oscillators (the oscillator is the component of a subtractive synthesizer that produce raw waves from which sound is built), and in this particular case, we will need 5-6 or more. That is why we will need to layer our synthesizers to produce the sound we're looking for.

Method

Layering can be achieved in a number of ways: The first, and (possibly) most obvious, is to put 2-3 keyboard players next to each other, playing the same melody on different synthesizers. Naturally, this is a very imprecise and probably inefficient method of achieving the sound you want.

Fortunately, the modern day computer has made an unlimited number of totally synchronized keyboard players and an almost unlimited number of synthesizers available for us. The most basic way to layer synths on a computer audio sequencer is to simply create a number of different tracks with different synths on them and insert the same melody on each track. This can consume some time though, and thus we have virtual instruments that can contain (or combine) several synthesizers on the same track. This makes us able to play all our different synths via the same keyboard and adjust parameters on all of them by turning one knob. This can be particularly useful when you want to make modulations to the filter cutoff, creating a sweep effect. In order for the effect to be achieved, all filter cutoff knobs must be turned at the same time.

I'm going to show you an example of how you can utilize smart layering in *Propellerheads Reason* using *Reasons Combinator* component when producing a big bass sound. This is possible in many audio sequencers – *Ableton Live* sports the *Instrument Rack* which has similar features.

Build a big bass using Reason's Combinator

For this tutorial you will need to have a copy of Propellerheads Reason 3 (or newer). I am going to show you, step by step, how to program a big bass sound using Combinator. You will also need to have some basic knowledge on how to operate Reason and how to program synthesizers.

1. First of all, open up Reason and create a Combinator
2. As you can see, Combinator opens with an initial patch with no containing instruments. This is okay. We'll start by clicking in the black void inside the Combinator and create a line mixer. I have also composed a small melody in the sequencer to preview my sound.



3. Create your first Subtractor. We'll program it to serve as the sub, setting the two oscillators as sinus, in the octave you wish. Try to set the octave appropriate to the melody you have created, so that it is as deep as possible without being inaudible. Name this synth "sub".



- Now, create the next synth. We'll call this one "middle" and we're going to make it produce a harsher sound using saw waves. I made a slightly detuned sound, ranging in 2 octaves. I added fuzz distortion (Scream 4) and some EQ to take some bass away (it was interfering with the sub). Notice that the melody plays back on both synths at once.



- I've continued the process and created 2 additional synths: Square L and R. These are basically the same (except that slightly detuned from each other). They add a bit more power to the middle spectrum. Square L is panned left and Square R is panned right.



- As you can see, I've made a few changes to the levels on the mixer in order to get the balance I want.



- Here comes the cool part! We're going to program the knobs on the Combinator so that we can modulate some of the parameters the synthesizers have in common. First off, let's make a frequency knob. Untoggle the "show devices" button, and press the "show programmer" button. Here you'll see an overview of the instruments. Aren't you happy you named all your synths now?
- Click the device number 3, named "Middle". Now, on the right where it says "modulation routing", press "target" where it says rotary 1 and choose "filter freq". You have now assigned rotary 1 (knob 1) to modulate the filter of you middle synth! If you want, you can name the rotary "frequency".
- Now do the same thing for Square L and R, assigning their filter freq to rotary 1. Please note that if you have followed my synth programming precisely, you will need to assign rotary 1 to "filter2 freq" since I have assigned a notch filter on filter 1 and a regular low-pass on filter 2. We want to modulate the regular low-pass filter.



- Now do the same thing over again, but this time, assign "filter res" to rotary 2 on the respective synths.
- Save you preset! Congratulations, you have created a huge bass sound in 10 simple steps! In total we needed 8 oscillators for our sound, which is why we had to use layering.

Produce a “chord synth” using Ableton Live 7’s Instrument Rack

Inspired by Kraftwerk’s “Tour De France Etape 1”, I’m going to demonstrate how to build a layered preset that produces big chords from a small amount of input notes. It basically consists of 4 oscillators; 2 square waves with a 7 semitone interval between them, and 2 “resonated noise waves” panned to each side respectively, to generate some depth in the chord.

1. Open up Ableton Live and create a new MIDI channel. From your Live Device browser, drag an “Instrument Rack” to the channel.
2. Drag an “Analog” device into the Instrument Rack where it says “Drop MIDI effects, audio...”.
3. We’re going to program a patch consisting of 2 square waves – the first one will play the actual note we’re pressing on our keyboard or sequencer, and the other one will play a note displaced by 7 semitones (a perfect fifth). I’m going to program mine to have a fast attack, long decay and no sustain. Furthermore, I’ll assign a filter envelope so that the sound will slowly “close itself” as it decays into silence.



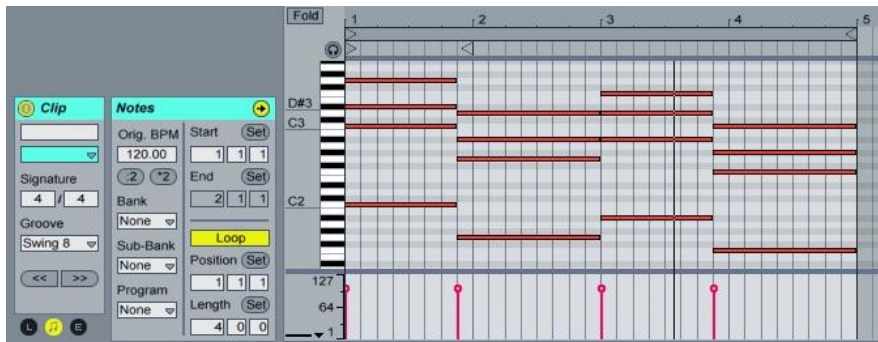
4. At this point, we want to add another Analog synth to play our “resonated noise” sound. Press the “Show/Hide Chain List”. From here you can get an overview of all the instruments featured in your Instrument Rack. At the moment we only have the one Analog synthesizer we added.



5. Add another Analog synthesizer. This part of the patch is a bit trickier to program. Basically what I want to do, is make two noise oscillators panned to each side (left and right). I want to put a powerful resonant filter on them, and have the keyboard key decide the filter frequency. This means that the Analog synth will produce a resonant tone that follows the key that is played through the Live sequencer.



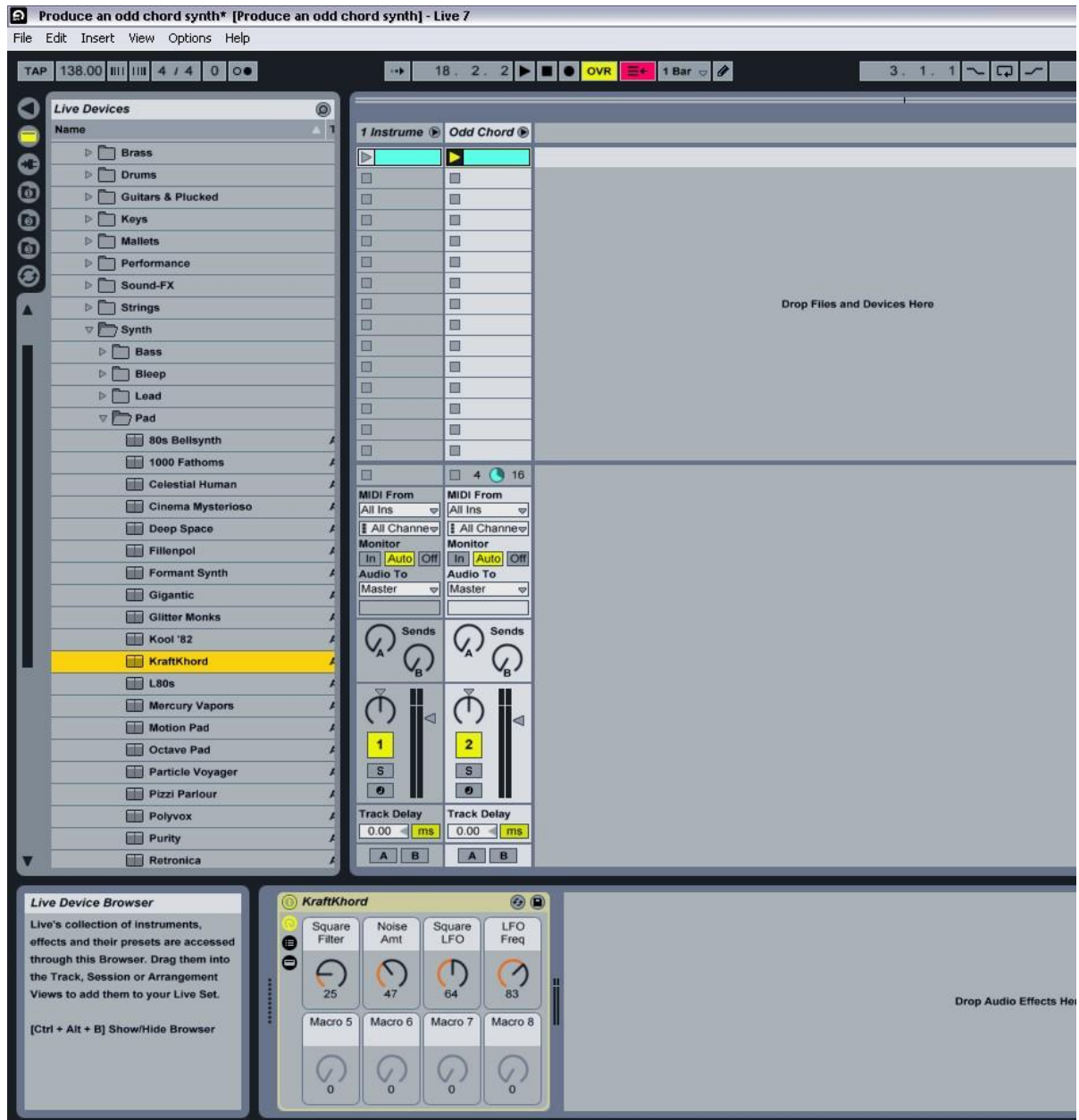
6. I've turned down the volume on the resonant noise synth to make the patch sound more balanced. Now, put in some simple chords to listen to your patch. I've chosen a |Cm|Gm|B^b|Fm| chord progression.



7. Now that the patch itself is in order, let's assign some macros. You can do this very easily. Press the "Show/Hide Macro Controls" button on the left. All you have to do is right click on a the parameter you want to assign to a macro button and choose "Map to macro...". I've chosen to map my primary synth's filter frequency to macro 1, the volume of the noise oscillators to macro 2 and some LFO Filter modulation controls to macro 3+4.



- Now you can untoggle the “Show/Hide Chain List” and the “Show/Hide Devices” and have fun with your new combined synth patch with easily accessible macro controls. If you would like to save your new preset, all you need to do is drag it up inside your instruments list (under Instrument Rack).



The tip of the iceberg

Please note that the features I've demonstrated in these tutorials are just the tip of the iceberg – there are many other useful elements of the layering devices to be discovered, including *key zones*, *velocity zones* and *map modes*.