

SFX 002

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1 Random sine pairs

Figure 1 summary

- timebase 90ms
- two random numbers
- two oscillators
- sum both oscillators

Two oscillators A loadbang starts the metronome. Each 90ms a new pair of random numbers are chosen in the range 0 to 3000. The audio output is the sum of two sine wave oscillators whose frequencies are the two random numbers.

Sound effect Groups of unrelatedly moving sinewaves invoke a water like effect. The brain can easily track two slowly moving independent random melodies, but as the speed and frequency range increase it gets more difficult. Try changing the ranges and metronome speed to find two "fusion" points. One is somewhere between 80 - 150 ms where we stop segregating the notes and hear a constant "stream". The other at about 20ms we stop hearing grains or steps of change and the sound fuses into a "texture".

2 control room sound effects

Figure 2 summary

- 3 oscillators in simple FM
- 4 random values
- base offset
- sum 2 oscillators
- random scaling
- random offset
- input to FM oscillator

Random sine pairs

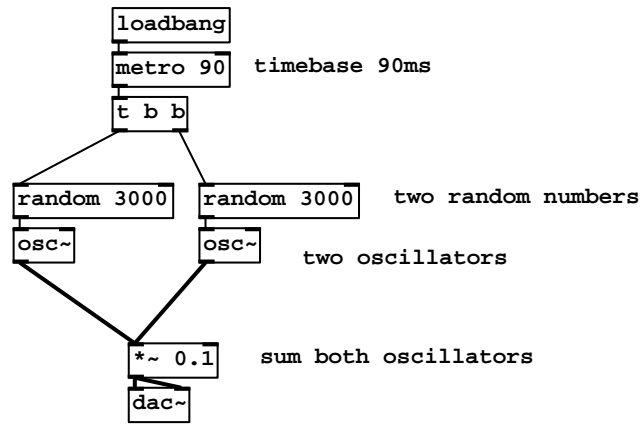


Figure 1: sine-pairs

Four control signals There are 4 randomly moving values used to make this sound. The first two are frequencies for a pair of sine wave oscillators, as in the last patch. This time we set the minimum frequency of both oscillators to 20Hz. The scale the sum is multiplied by a random amount of 500, then its base is shifted up when added to a new random up to 3000. This is used as the frequency input to a third oscillator.

Sound effect A waveform moves in frequency over a range of 3000Hz, but at the same time its harmonics vary wildly. Modulation performs another kind of fusion on sine waves, it causes one wave to "carry" another. In this example we seem to hear one very complex source whose properties are changing rapidly rather than two or three distinct components.

3 self modifying sound effects

Figure 3 summary

- timebase varied by random amount
- same synthesiser DSP as before

Control loop Here we see an example of a message domain control loop. On each metronome bang a new metronome speed is selected. Now not only the main frequency and harmonics vary but the pattern of change is also random in speed.

Sound effect Uses, robots, radio effects, computer notifies.

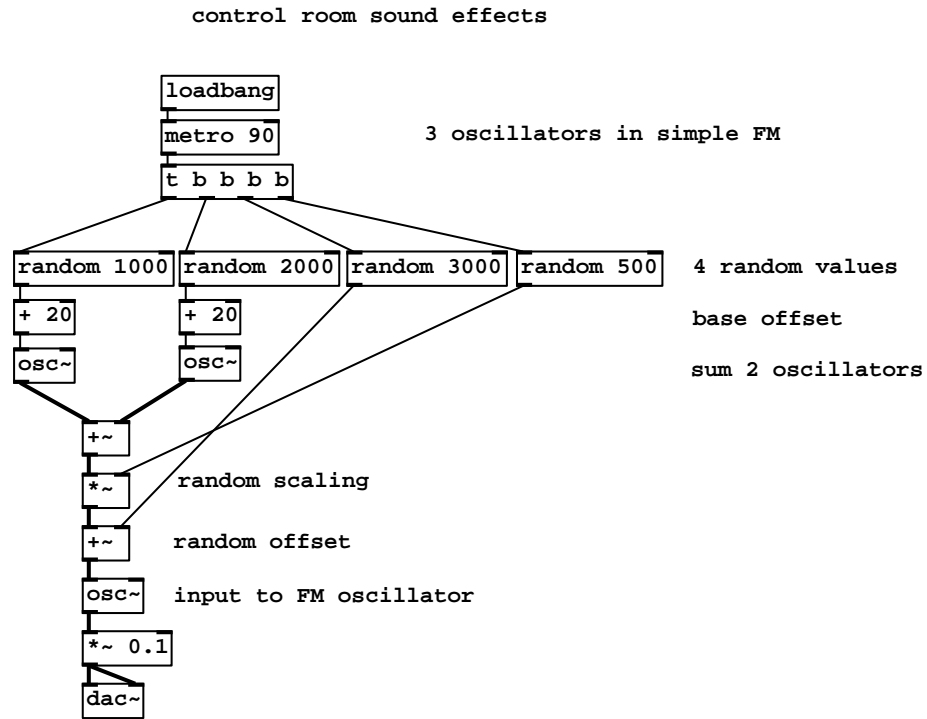


Figure 2: fmsfx

4 links

SFX-002.pdf

self modifying sound effects

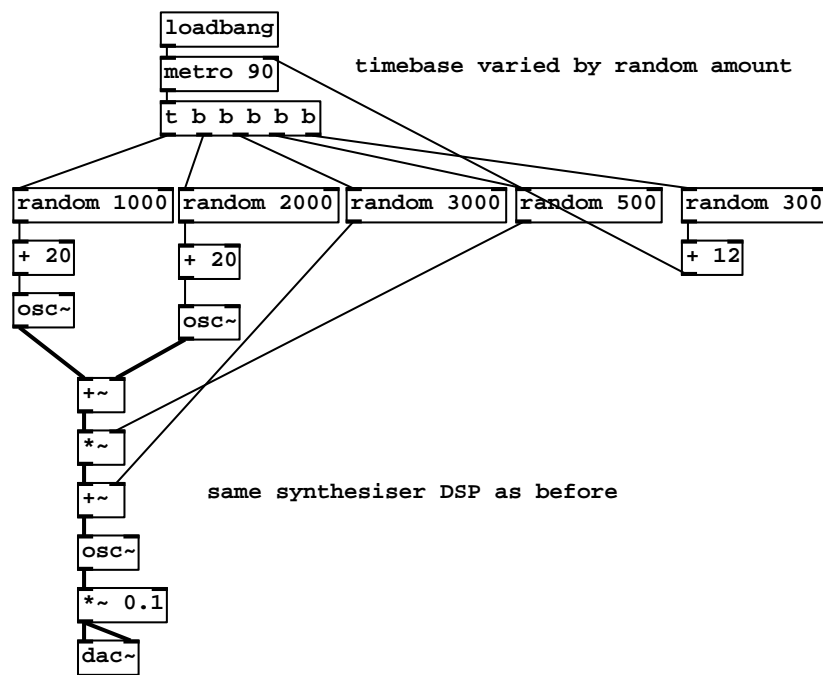


Figure 3: selfcontrol