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Introductions and initial Questions

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Introductions and initial Questions (#p2859)

by **shreeswifty** » Sat Oct 08, 2016 12:44 pm

Hello

i am a noobie to SpinCad obviously. I purchased a Tiptop Z-DSP module for my Eurorack Synthesizer with the hopes of developing a chip of my own. I am familiar with Visual Data flow programming languages like Pure Data and Max/Msp/Jitter so i am hopeful i can successfully grok SpinCad.

My Intention is to develop a patch/set of programs that will emulate Iannis Xenakis' GENDYN system. It's already inside of SuperCollider as Gendy1, 2 & 3 and uses a set of Distributions [cauchy, weibull, etc..] paired with a number of breakpoints and frequency relationships to make wonderful stochastic noises as both a sound generator and a sound modifier on an incoming stream.

I am asking here if that is completely impossible with SpinCad please don't hesitate to pop my balloon. I would rather move on than forcing a square block in a round hole. but most of the Distros are just math, so i am hopeful over the next year or so i can understand how to translate that into SpinCad and make something cool.

I would appreciate and love any introductory caveats and hints.

I am on Macintosh, with the software "SpinCad Designer" Working so far but i also have a dual boot of windows 10 on my laptop because i was not sure if there were some windows only features that i might need.

It would be AMAZING and wonderful if one could import a Max or Pd patch. [And it would be wonderful to walk on the moon, yeah i know] but i worked on this stuff in Grad school and the sounds are just amazing, hence my interest still

<http://gerard.paresys.free.fr/Theme/Theme7.html> (<http://gerard.paresys.free.fr/Theme/Theme7.html>)

Is there a way to use random distributions in SpinCad?

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Re: Introductions and initial Questions (#p2860)

by **Digital Larry** » Sat Oct 08, 2016 12:52 pm

There is a noise block, and there is a sample and hold block. You can generate random numbers at fixed or random intervals with these.

These random numbers can set things like delay times, LFO speeds, filter frequencies, etc.

I am not really sure what these things you are talking about do, so it's hard to say whether it's possible or not. Certainly it is not possible to convert a Pure Data patch to FV-1 code using SpinCAD.

SpinCAD makes a lot of things much faster to implement but it does not cover all structural possibilities, including some common ones such as pot-skipping code.

Maybe if I can get some more details on what you're trying to accomplish I can say whether or not SpinCAD might do it.

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Re: Introductions and initial Questions (#p2861)by **shreeswifty** » Sat Oct 08, 2016 1:18 pm[http://cmc.music.columbia.edu/courses/g ... gendy3.pdf](http://cmc.music.columbia.edu/courses/g...gendy3.pdf) (<http://cmc.music.columbia.edu/courses/g6611/spring2012/week12/gendy3.pdf>)

is the explanation of the Gendy opcode but basically

The users selects a distribution:

The distributions are (adapted from the GENDYN program in Formalized Music):

- 0- LINEAR
- 1- CAUCHY
- 2- LOGIST
- 3- HYPERBCOS
- 4- ARCSINE
- 5- EXPON
- 6- SINUS

Where the sinus (Xenakis' name) is in this implementation taken as sampling from a third party oscillator.

That would be:

durdist- Choice of distribution for the perturbation of the current inter control point duration.

with:

adparam- A parameter for the shape of the amplitude probability distribution, requires values in the range 0.0001 to 1 (there are safety checks in the code so don't worry too much if you want to modulate!)

ddparam- A parameter for the shape of the duration probability distribution, requires values in the range 0.0001 to 1

THEN FREQUENCY OF COURSE:

minfreq- Minimum allowed frequency of oscillation for the Gendy1 oscillator, so gives the largest period the duration is allowed to take on.

maxfreq- Maximum allowed frequency of oscillation for the Gendy1 oscillator, so gives the smallest period the duration is allowed to take on.

THEN FINALLY

ampscale- Normally 0.0 to 1.0, multiplier for the distribution's delta value for amplitude. An ampscale of 1.0 allows the full range of -1 to 1 for a change of amplitude.

durscale- Normally 0.0 to 1.0, multiplier for the distribution's delta value for duration. An ampscale of 1.0 allows the full range of -1 to 1 for a change of duration.

The control Points/Break points allows for modulation [CV]

initCPs- Initialise the number of control points in the memory. Xenakis specifies 12. There would be this number of control points per cycle of the oscillator, though the oscillator's period will constantly change due to the duration distribution.

knum- Current number of utilised control points, allows modulation.

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Re: Introductions and initial Questions (#p2865)by **Digital Larry** » Sat Oct 08, 2016 6:12 pm

Well, since I had no clue about this when I designed the blocks, it's unlikely that you can get this behavior out of SpinCAD. There's no multi-segment control curve generator. Doesn't mean you couldn't do something directly in Spin ASM.

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Re: Introductions and initial Questions (#p2866)by **shreeswifty** » Sat Oct 08, 2016 9:48 pm

i spoke with Chris Clepper form Tiptop and he said it probably wouldn't work

I am not interested in reinventing a wheel here just having some programming fun and making a set of effects for a chip of my own.

i am sure with all the hard work you have already done and example you have shared i can fashion something cool

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Re: Introductions and initial Questions (#p2867)

by **Digital Larry** » Sat Oct 08, 2016 10:19 pm

I will be really surprised if you can't get something "cool" going pretty easily.

So just to boil this down, it's a general purpose modulation scheme based on piecewise functions over time? And those functions can have different shapes per segment?

I've done some simple envelope generators similar to this in a more limited scope, so I'm not sure why it would be "impossible" in Spin ASM. And once you can do it in Spin ASM, I can most likely make it into a reusable block in SpinCAD. I can see linear and exponential curves being straightforward to calculate. The others, not so much.

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