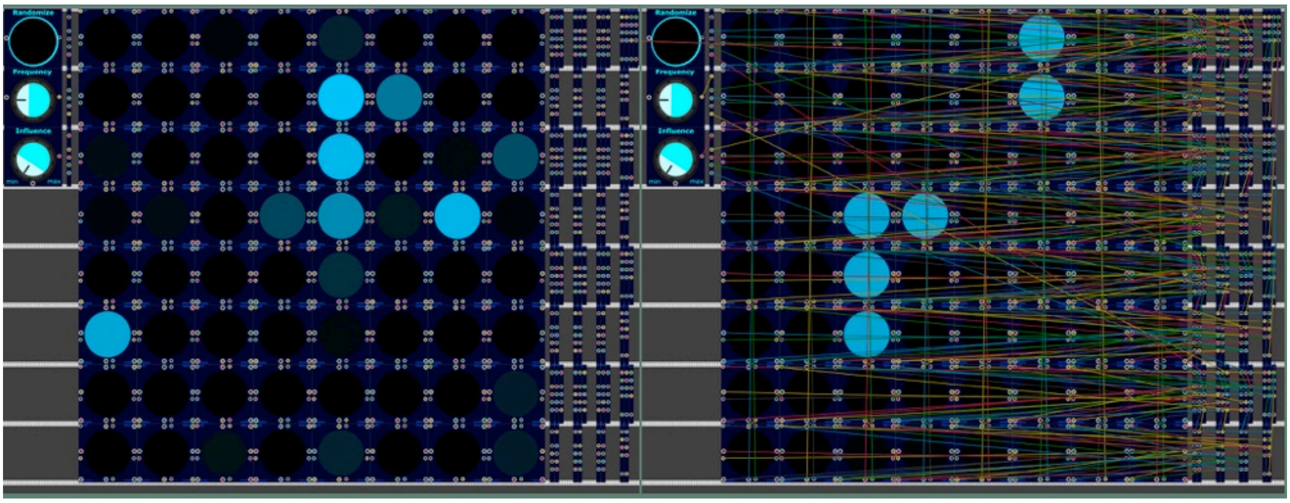


Introduction

Luci is based on the ideas exposed by **Jose M. Berenguer** in his book *"Luci, sin nombre y sin memoria." (2007)*. Please find more here: http://www.sonoscop.net/jmb/masluci/lucingles.html.

The name “Luci” is a common abreviation of spanish *Luciérnaga*, meaning *Firefly*, and refers to the clouds of this insects which in some tropical environments use their bioluminiscence for attracting mates, and show the kind of syncronization phenomena evoked by this model.

The main idea is that each Luci cell has an internal signal rising from 0 to 1 at a speed determined by the Frequency parameter. When this internal signal reaches 1, it goes back to zero and triggers an impulse thru its four output ports. Each Luci cell also has four inputs to receive trigger impulses coming from connected nearby cells. When she receives one of this incoming triggers, Luci advances her phase in an amount determined by the Influence parameter. So, aside from playing with different parameter values, we can connect many Luci cells in different topologies to experiment with the interesting synced behaviors arising.

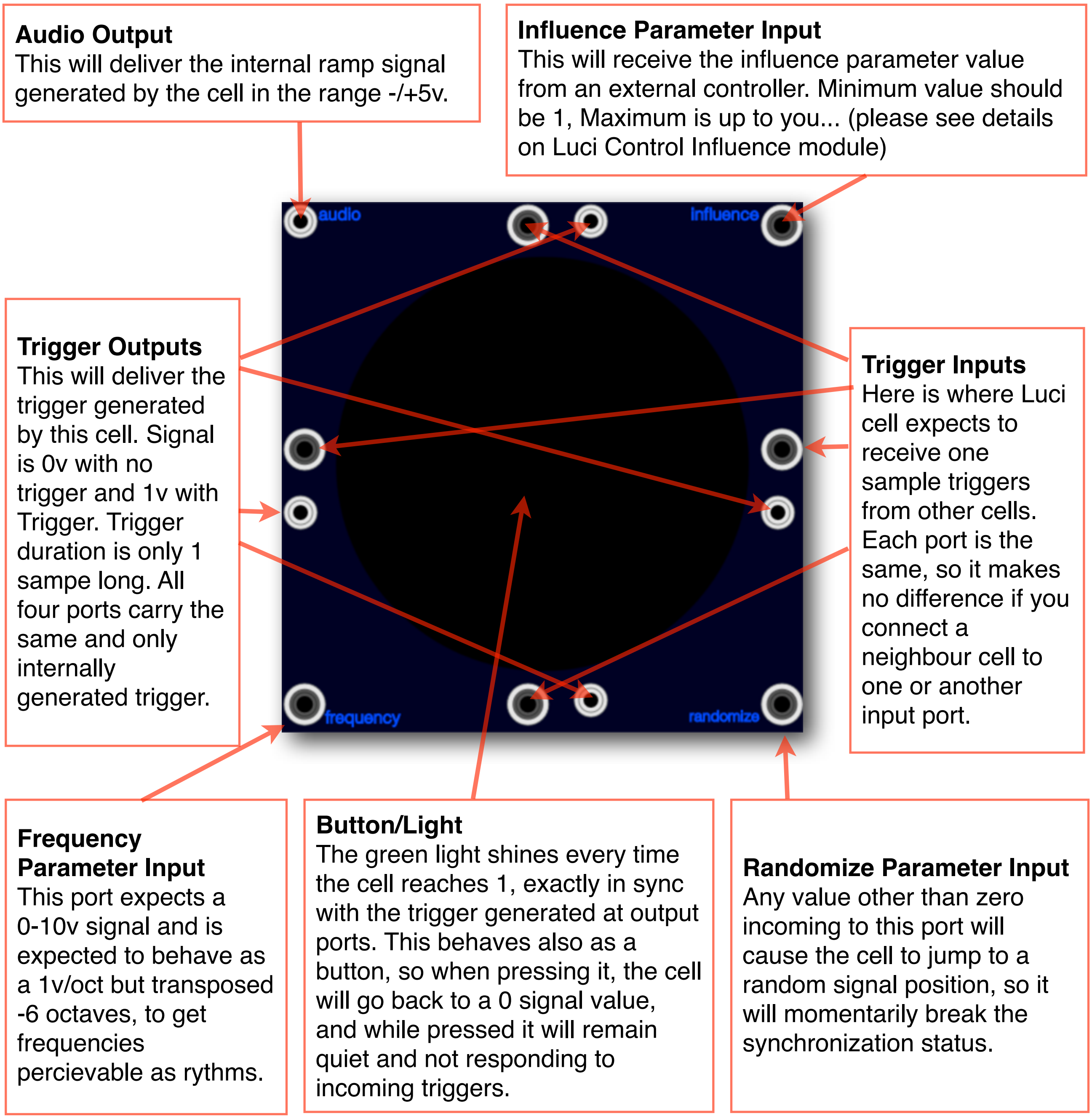
In this release, a patch is delivered with a simple squared topology of 8 cells per side, where each cell is connected to the four closer cells siting on her north, east, south and west. Cells on the extreme of rows and columns are connected side to side, giving a kind of “infinite” or “closed” network of triggers.

User is suggested to modify such topology, connecting diferent quantities of cells in different arrangements. That is the reason why we did not offer a single module with a fixed configuration of cells (whose topology could then only be changed by code) and instead we supply discrete cells modules and complementary parameter adjusting, signal routing and mixing modules for you to experiment with; using the cabling features of VCV.

After installing the package, user is suggested to Load the `Luci8x8_base.vcv` patch found in the `/res` folder, only as a starting point.

Modules description

Luci Cell



Audio Output
This will deliver the internal ramp signal generated by the cell in the range -/+5v.

Influence Parameter Input
This will receive the influence parameter value from an external controller. Minimum value should be 1, Maximum is up to you... (please see details on Luci Control Influence module)

Trigger Outputs
This will deliver the trigger generated by this cell. Signal is 0v with no trigger and 1v with Trigger. Trigger duration is only 1 sampe long. All four ports carry the same and only internally generated trigger.

Trigger Inputs
Here is where Luci cell expects to receive one sample triggers from other cells. Each port is the same, so it makes no difference if you connect a neighbour cell to one or another input port.

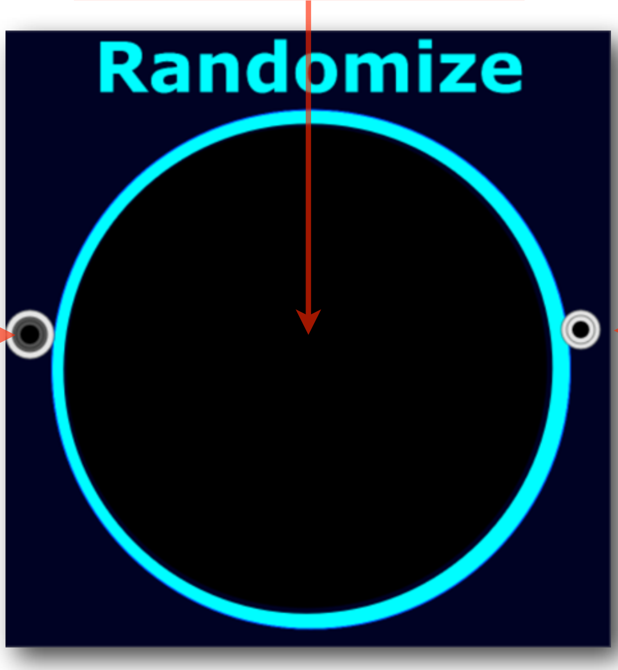
Frequency Parameter Input
This port expects a 0-10v signal and is expected to behave as a 1v/oct but transposed -6 octaves, to get frequencies percievable as rythms.

Button/Light
The green light shines every time the cell reaches 1, exactly in sync with the trigger generated at output ports. This behaves also as a button, so when pressing it, the cell will go back to a 0 signal value, and while pressed it will remain quiet and not responding to incoming triggers.

Randomize Parameter Input
Any value other than zero incoming to this port will cause the cell to jump to a random signal position, so it will momentarily break the synchronization status.

Luci Ctrl RND

Button/Light
Manually trigger the output port

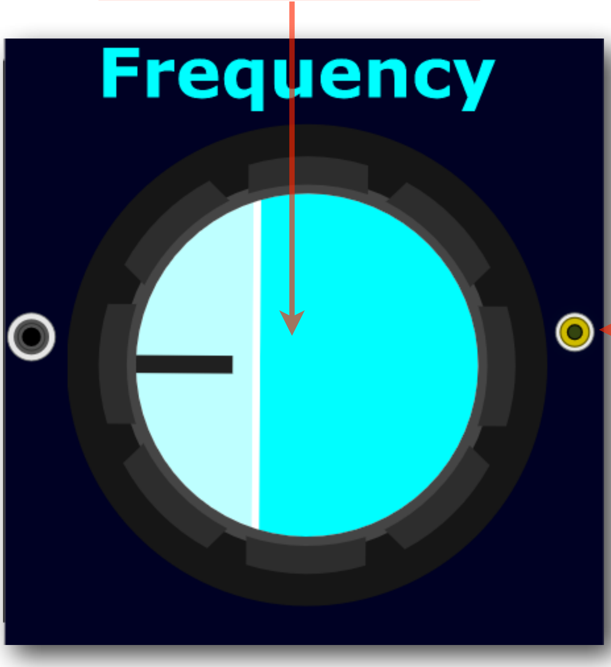


Input port
Triggers received here will be copied on output port. Use it to trigger your Luci setup from an external sequencer, etc.

Output port
Delivers the button generated trigger and copies any eventual external trigger received on the input port

Luci Ctrl FREQ

Frequency Knob
Manually adjust frequency

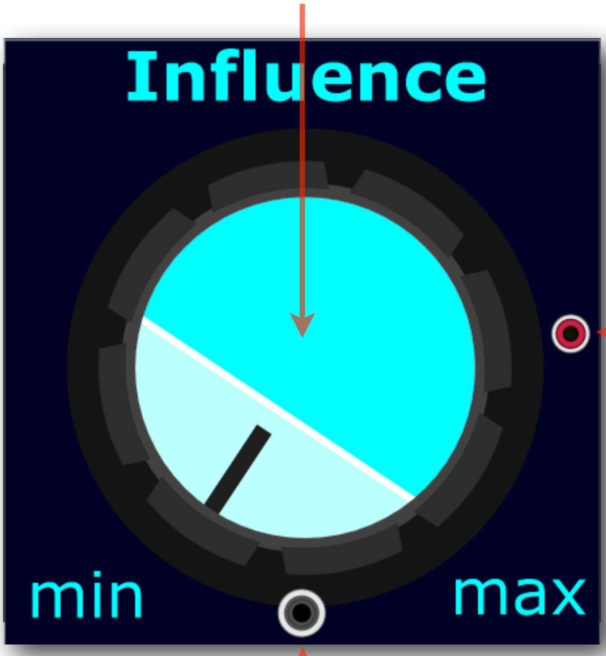


Input port
Use it to externally modulate. 0~10v expected.

Output port
Delivers the control signal of the button added to the eventual control signal present at input port.

Luci Ctrl INFLUENCE

Influence Parameter Knob
Manually adjust influence parameter. This parameterdetermines how much the phase of a cell wll advance when receiving external triggers from connected cells. In this release the range for this parameter goes from 1 (that is, no influence, as it acts as a multiplier) to 1.1. The time function to reach full sincronicity is frequency dependant, so the same inluence value in a defined network of cells will give faster full sync times the higher the frequency is.

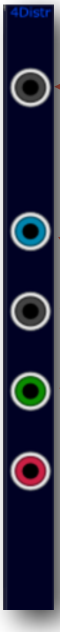


Output port
Delivers the control signal of the button added to the eventual control signal present at input port.

Input port
Use it to externally modulate.

Luci 4 Param Distr

This is a simple convenience module. Signal received on the input port will be copied to the 4 output ports. Several modules used in cascade allow to distribute a single conected parameter control knob module values to as many connected cells as needed.



Input port

Output ports

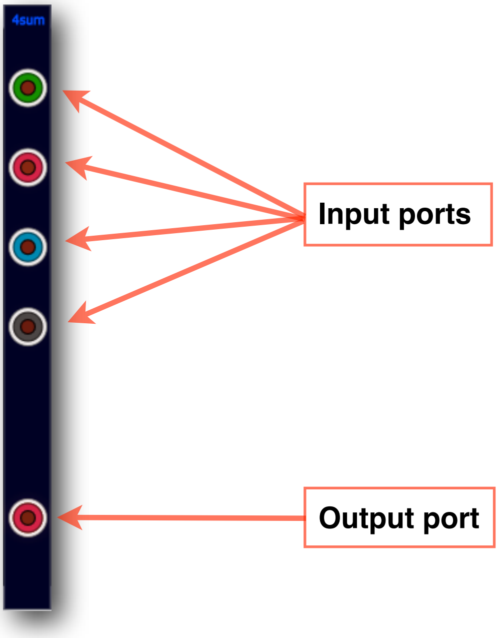
Luci 4 Audio Sum

This is a simple convenience module for mixing 4 audio signals into one.

It is a dirty shortcut that barely deals with the large dynamic range obtained with the 64 cells on the example patch.

Signals on the four input ports will be summed up and divided by 4 to keep it at 0dB, so depending on the phase of feeded signals, can be a real waste of dynamics.

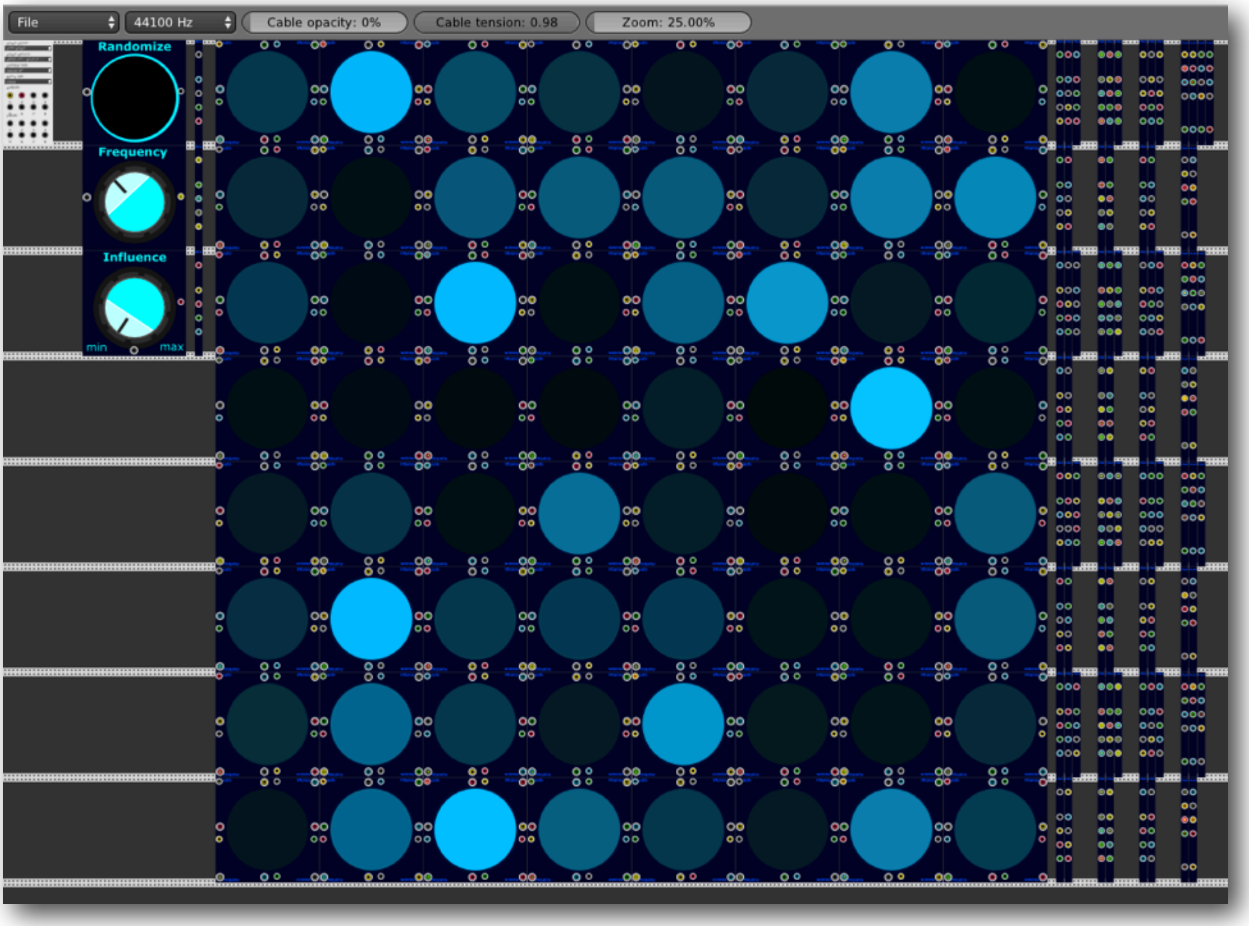
There is plenty room for improvement here...



Example patch description

Luci8x8.csv

Please find latest version here:
https://github.com/NonLinearInstruments/NLNRI_VCVRackPlugins/blob/master/res/Luci8x8.vcv



44100 Hz

Cable opacity: 0%

Cable tension: 0.98

Zoom: 25.00%

As stated on the introduction, this patch is only an example of what can be done with Luci.

Here we have a square arrangment of 8 x 8 Luci cells. Each cell is conected to her 4 neighbours and all of them share the same frequency and influence parameters. A convenience Randomize button is supplied, also shared by all the cells. Generated audio signals are sumed together and connected straight to the audio interface. Also adjusting cable opacity, connections will be made visible and its function should be self-explaining.