## Computer Card: Goldfish (Documentation)

Thank You to Tom Whitwell and Chris Johnson without whom this would not exist

## What is it?

Goldfish is a weird delay/looper for both audio and CV... and a bunch of other stuff too! It is arranged into 3 mostly separate sections based on each row of outputs: Audio, CV, Pulses. These sections can be interconnected to achieve all kinds of effects. Explanation of how things work on the next page. Most of the code is just ruined versions of elements of <a href="Chris Johnson's Utility Pair project">Chris Johnson's Utility Pair project</a> (Looper, Delay, Quantiser, and Clock Divider, all accounted for)

Goldfish can be a... Delay (patch your own feedback/mix), a looper, a quantizer, a clock divider, a CV mixer, a phaser(?), a vibrato, a chorus, a Karplus Strong synth (kind of), a drone machine, a chaotic noise generator, a bad reverb... and maybe more!

## **Tidbits**

The delay/looper is loosely inspired by Morphagene (but without pre-recorded samples and... different)

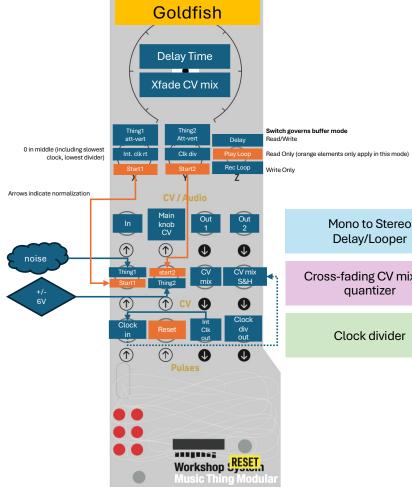
The CV mixer is loosely inspired by the CV Mix circuit in the Moog Mother-32 if it had a baby with a DJ mixer. Each of the two channels is normaled to something useful (noise, adjustable constant voltage from -6 to 6V) and then when you input signals they replace these and can then be attenuverted. Automation of the xfade is also possible.

The Sample and hold functionality is based on a technique used in the Moog Mavis: Regular sampling of a repeating signal gives you a repeating pattern (sometimes). Add the quantizer and this can be used as a fun (and unstable) sequencer.

The clock divider is simple but by combining it with the reset trig input allows you to set a sequence loop length

Have fun and DO reach out if you have issues/questions. PRs and emails welcome. dessertplanet.dune@gmail.com

| Switch position  | Audio/CV Row  | CV Row  | Pulses Row  |
|--|---|---|---|
| <b>UP</b> Delay Mode  Read/Write buffers  simultaneously                                       | Input1 Audio/CV in Input2 modulate time (attenuverted by main knob) Output1 delay out 1 Output2 delay out 2, different time/phase based on main knob + CV | Input1 mix input 1, attenuverted by x  Input2 mix input 2, attenuverted by y  Output1 real time CV mix output  Output2 S&H of CV mix, quantized to major scale                                  | Input1 clock input for S&H (internal clock used when not present) Input2 (not used) Output1 Clock output Output2 Clk Divider output |
| MIDDLE  Loop playback mode Read from buffers, don't record anything new                        | Input1 Audio/CV in  Input2 modulate speed (attenuverted by main knob)  Output1 loop out 1  Output2 loop out 2, different phase based on main knob + CV    | Input1 start position 1 (takes effect on reset)  Input2 start position 2 (takes effect on reset)  Output1 looped CV  Output2 S&H of CV mix, quantized to major scale (sample timing NOT looped) | Input1 clock input for S&H (internal clock used when not present) Input2 reset loop Output1 Clock output Output2 Clk Divider output |
| DOWN  Record to a clean loop. Longer hold in down position records a longer loop up to maximum | Input1 Audio/CV to be recorded Input2 (unused) Output1 monitor recorded audio/CV Output1 monitor Recorded audio/CV  | Input1 mix input 1, attenuverted by x  Input2 mix input 2, attenuverted by y  Output1 CV mix to be recorded  Output2 S&H of CV mix, quantized to major scale                                    | Input1 clock input for S&H (internal clock used when not present) Input2 - Output1 Clock output Output2 Clk Divider output          |



Mono to Stereo Delay/Looper

Cross-fading CV mixer + quantizer

Clock divider