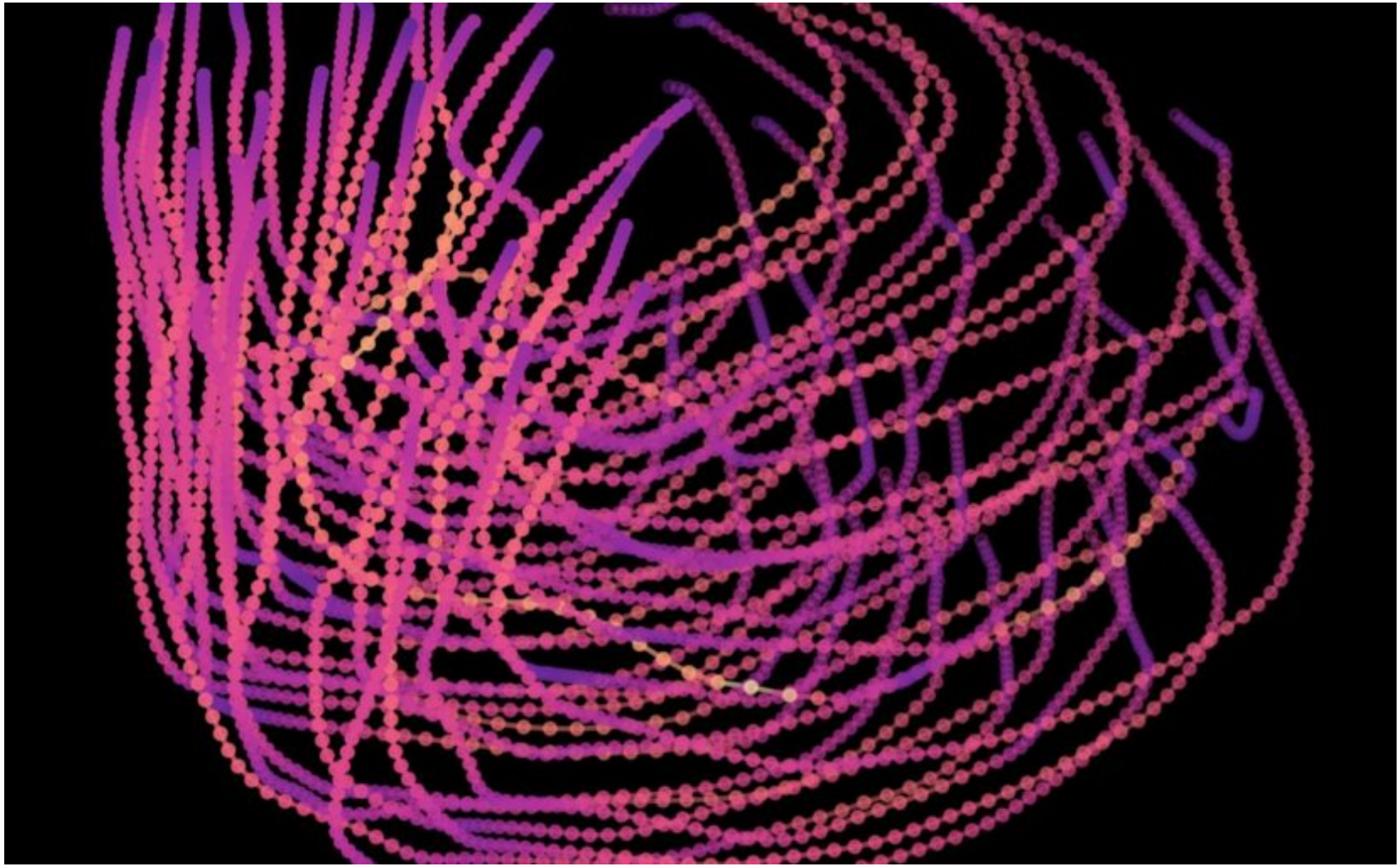
do wavetables with fantasia!

thanks Dave!

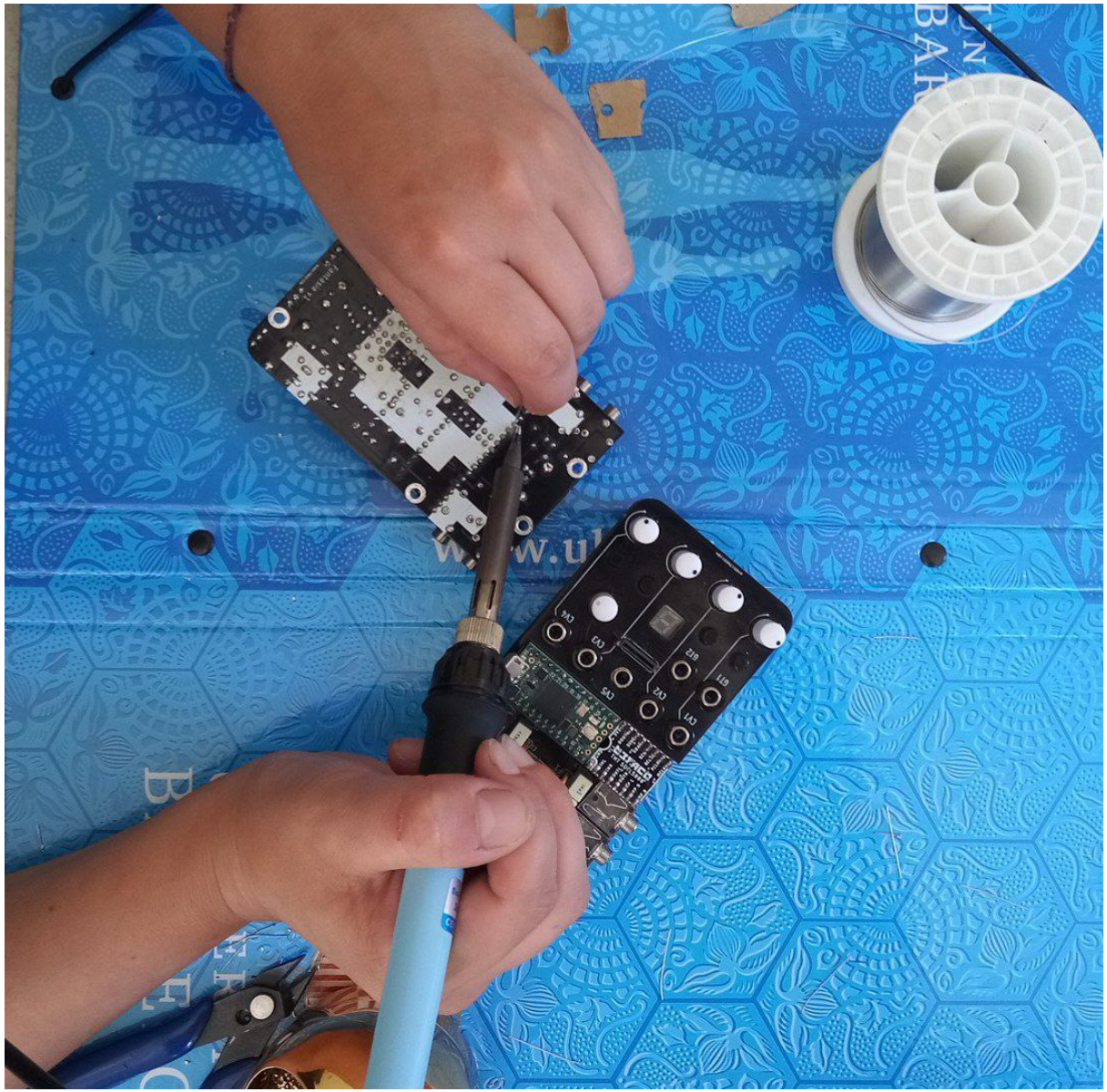
Maybe you remember us!

Foto: Simão Bessa

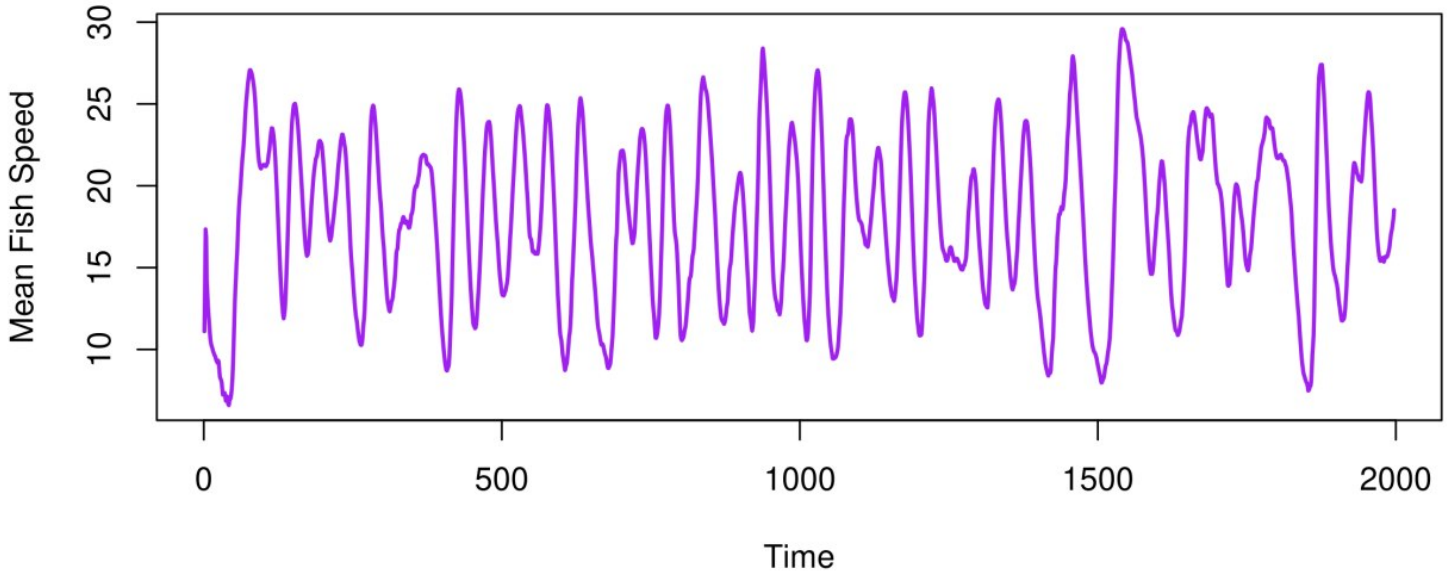


Wavetables / Waveshapes
Iván Paz & Julia Múgica

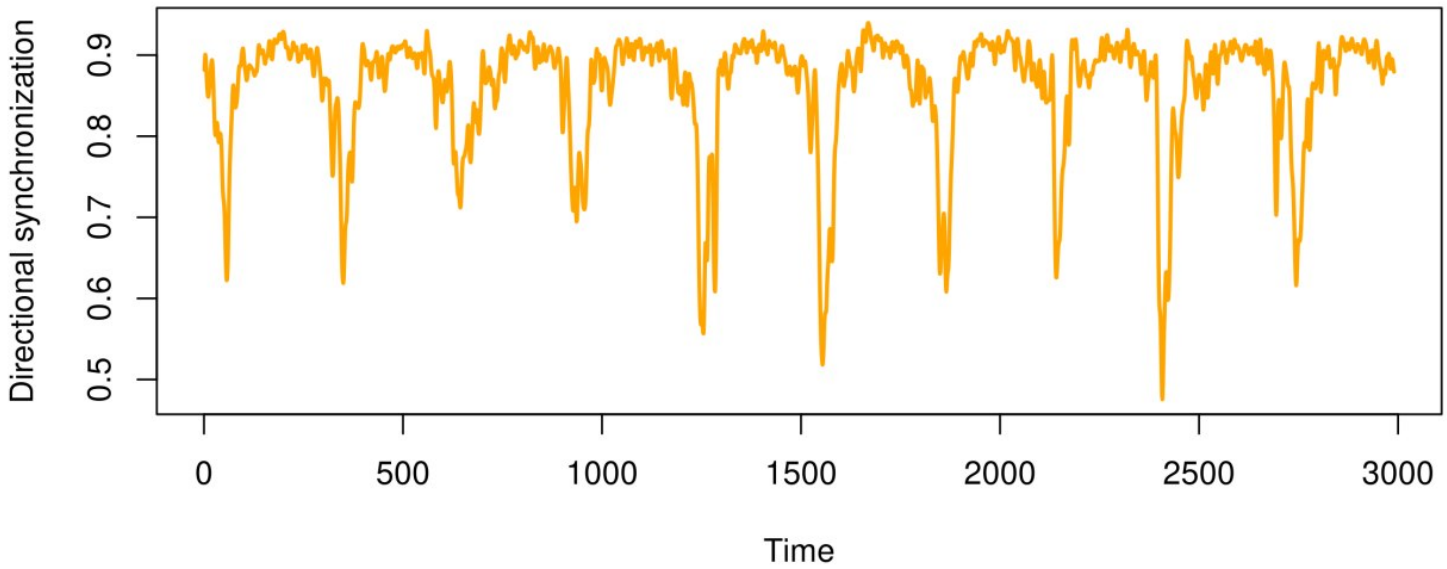
these are fish freely swimmimg in a tank.



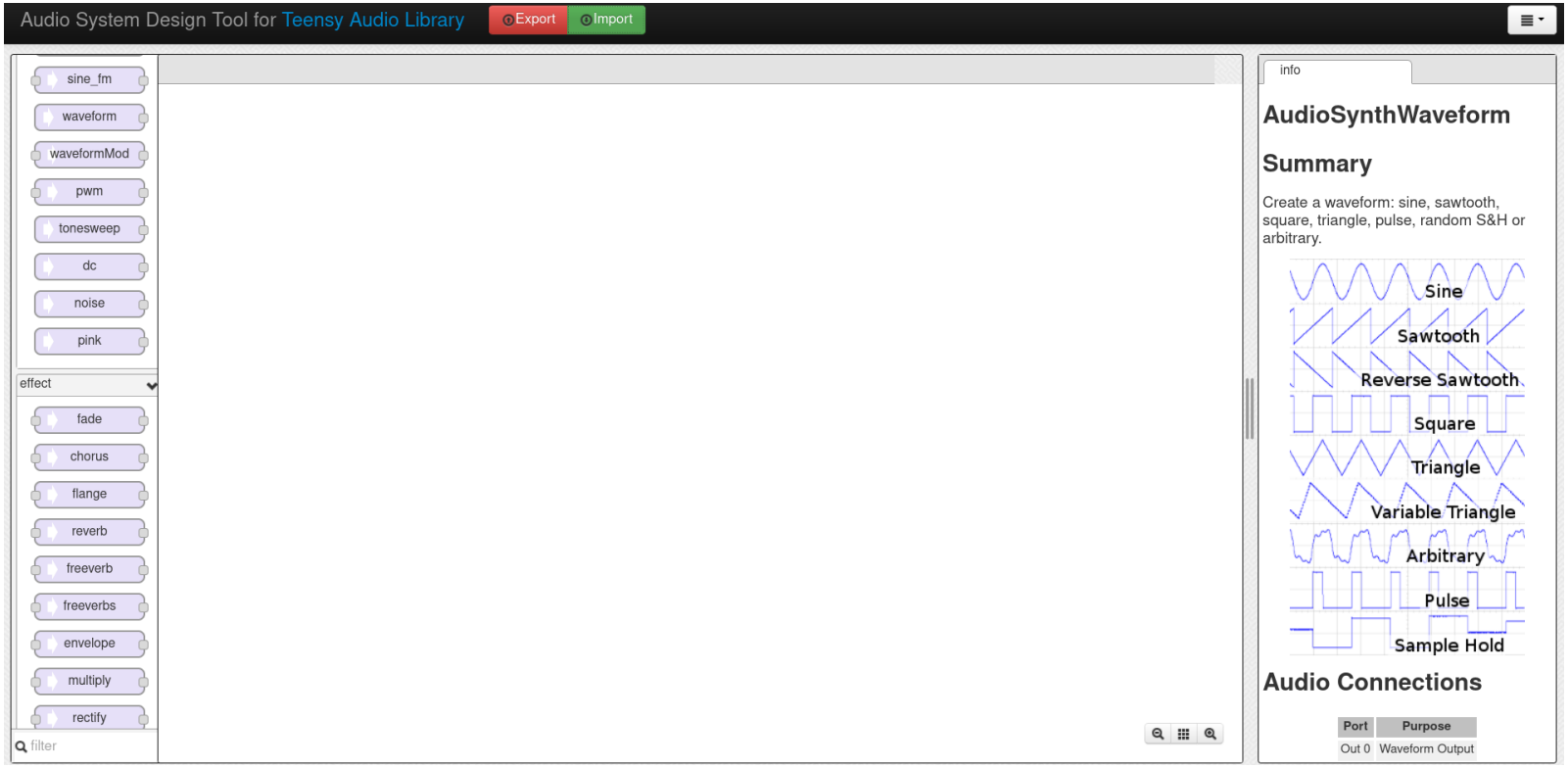
fantasia! http://famfest.info/about-2/



wavetables! mean speed wave shape of a group of particles



wavetables! mean directional sincronization of a group of particles



You need

1. Teensyduino https://www.pjrc.com/teensy/td_download.html
2. Audio System Design Tool for Teensy Audio Library
   https://www.pjrc.com/teensy/gui/index.html

ARBITRARY WAVEFORM

Input: array of 256 values.

16-bit integer

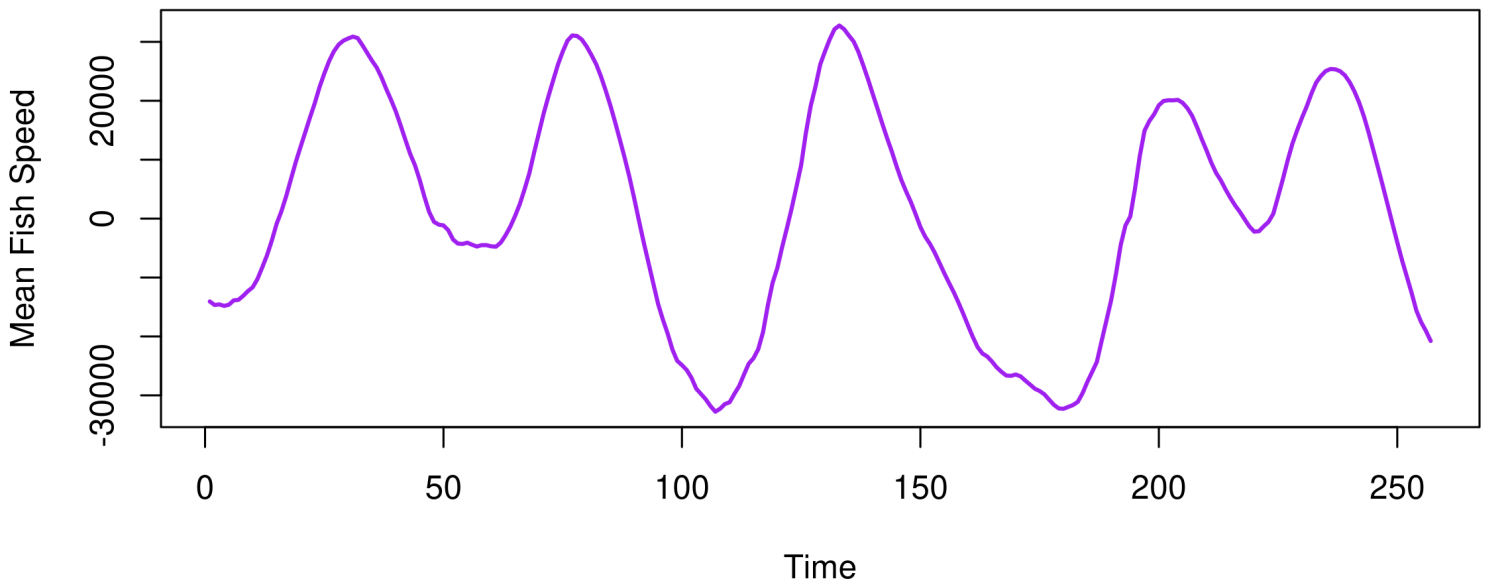
Range: -32768 to +32767

Scale your data!

Your maximum value as 36767 and your minimum value as -36767

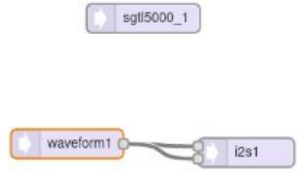
$$scaled\_value = \frac{((value - min(value)) * (32767 - (-32767)))}{(max(value) - min(value)) - 32767}$$

If you have too many points to grasp in 256 values the shape of your data wave, you can eliminate some values.


Mean Fish Speed
-30000
0
20000
0
50
100
150
200
250
Time

STEPS

1. Create your audio system setup:



2. Declare and fill your arbitrary waveform array with 256 values:

   int16_t v1_array[256] = {-18317, -8507, 1624 … }

3. Choose waveform ARBITRARY_WAVEFORM as mywaveform, assign it, set amplitude, and shape of the wave with array it in setup():

```
int my_wavetype = WAVEFORM_ARBITRARY;
waveform1.begin(my_wavetype);
waveform4.amplitude(1);
waveform1.arbitraryWaveform(v1_array, 400);
```

4. You can either link your wave frequency to one of the Pots, like this:

   waveform1.frequency(PotValue1*500);

   or you can add filters and effects, other waveforms and assign them to the Pots and Buttons.

GitHub repository

https://github.com/xustafu/Fantasia