ALGORAVE INDIA

Hydra Beginner Workshop

The basic basic

Open https://hydra-editor.glitch.me in Chrome or Firefox
[ctrl + enter] RUN 1 LINE OF CODE
[alt + enter] RUN 1 BLOCK OF CODE
[ctrl + shift + enter] RUN MULTIPLE LINES OF CODE OF CODE

OR

Open atom with everything installed
[shift + enter] RUN 1 LINE OF CODE
[alt + enter] RUN 1 BLOCK OF CODE
[ctrl + alt + enter] RUN MULTIPLE LINES OF CODE OF CODE

The most basic visual

A boring black to white gradient

osc(1).out()

Add more lines

osc(20).out()

Make it move

osc(20, 0.03).out() Change the value of 0.03 to change speeds

Add some colour to it

osc(20, 0.03, 1).out()

Most functions in Hydra follow this pattern function (value, animation speed, variation)

Transforms

.rotate(angle in radians)

*To convert degrees to radians multiply it by (3.14/180) so 90º is 90 * (3.14/180) = 1.57*

*osc(20, 0.03, 1).rotate(90 * 3.14 / 180).out()*

In a pinch you can just do

osc(20, 0.03, 1).rotate(1.5).out()

Or if you are having fun just make something up and put that as the value of rotation.

Move in X axis

scrollX(Percent of the screen)

To the right .scrollX(0.5) and to the left .scrollX(-0.5)

.scale(size, x multiplier, y multiplier)

So something like scale(0.5) will reduce size by half and .scale(1, 0.5, 1) will squeeze from the sides

Effects

.pixelate(pixels, pixels)

Will break down the visual into the number of pixels specified

.kaleid(number of sides)

Will make fun house of mirrors style kaleidoscopic visuals. Change the value to specify the number of copies.

.color(red, green, blue)

Colour up boring patterns

.colorama(amount)

Shift colours to different colours

.contrast

Add contrast

.invert(amount)

Invert color.

Blending modes

.add(texture, amount)
.mult(texture, amount)
.diff(texture, amount)
.blend(texture, amount)

More reading material

https://github.com/ojack/hydra/blob/master/docs/funcs.md

Making things move

Option 1: Parameters

Some functions have a speed parameter

```
eg. osc(10,1)
    rotate(0, 0.5)
```

Option 2: Arrays of values

Instead of passing a single value, give multiple value in arrays

eg. shape([3,4,5])

Add a fast function at the end of the array to control speed

eg. voronoi().scale([1,2,3].fast(0.25))

Option 3: Pass a function as a parameter

Use fat arrow syntax for functions () => function()

```
eg. () => Math.sin(time)
    () => a.fft[0] // For audio reactivity
```

Inputs and Outputs

Specify the output buffer with this syntax out(o0), or out(o1)

Inputs can be specified with s0.initCam(), s0.initScreen, s0.init({src: source})

Modulation

Works like blend modes but transforms positions of pixels instead of colours.
eg. osc(100, 0).modulate(osc(10,0)).out()

P5 With Hydra

Start with

```
p = new P5()
s0.init({ src: p.canvas })
```

Some differences with normal P5js

Works in instance mode so every P5 function must be preceded by a p. Think of p5js running inside a variable.

Eg. width needs to be written as p.width
rect(x, y, width, height) needs to be written as p.rect(x, y, width, height)

Functions need to be written as "anonymous functions"

```
Eg. function draw() {}
        becomes
    p.draw = () => {}
```