Live coding workshop @VU

Rialto VU, De Boelelaan 1111, 1081 HV Amsterdam

> 13.00 Welcome

> 13.10 Livecoding

> 13.30 eerie_ear

> 14.00 Break

> 14.15 Hydra (functions walkthrough + Q/A**)**

> 15.00 Break

> 15.15 Activity/ Performance

Live coding workshop @VU

> 13.00 Welcome

> 13.10 Livecoding

Manifesto
Errors and crashes encouraged. Ability to create our own environment.
https://tidalcycles.org/docs/around_tidal/toplap_manifesto

Environments

Timo https://github.com/tmhglnd/mercury-playground
Hanging Mercury yesterday

Felipe
https://github.com/narcode/codeklavier
Performance

Netherlands Coding Live (nl_cl)
https://netherlands-coding-live.github.io

Alex McLean
https://tidalcycles.org

> 13.30 eerie_ear (Me)

Performances 2023

Diffract @Klankvorm - AV Quadraphonic performance

Patterns in modulation @ICLC AV Quadraphonic performance

Granular MIDI @Vroooom 97 - AV performance

Shall We - Acousmatic music

YT https://www.youtube.com/c/eerieear
IG https://www.instagram.com/eerieear/
IMDB https://www.imdb.com/name/nm3623083/

> 14.00 Break

> 14.15 Hydra

Hydra is written in JavaScript and compiles to WebGL under the hood. The syntax is inspired by analog modular synthesis, in which chaining or patching a set of transformations together generates a visual result.

Hydra documentation

Getting started
https://hydra.ojack.xyz/docs/#/getting_started

Hydra functions
https://hydra.ojack.xyz/api/

Hydra Book
https://hydra-book.glitch.me/#/

Hydra Web Editor
Examples
https://hydra.ojack.xyz/?sketch_id=eerie_ear_1
https://hydra.ojack.xyz/?sketch_id=eerie_ear_2
https://hydra.ojack.xyz/?sketch_id=eerie_ear_3

Collaborative
https://pixeljam.glitch.me
https://flok.cc

https://hydra.ojack.xyz/garden/

Signal flow
sourceType(parameters,parameters))
.functionName(parameters,parameters)
.output()

Hue, Saturation, Brightness
https://www.techtarget.com/whatis/definition/hue-saturation-and-brightness

Hydra functions
Five types of functions in hydra: **Source, Geometry, Color, Blend, Modulate.**

Sources

Noise (scale = 10, offset = 0.1)
Voronoi (scale = 5, speed = 0.3, blending = 0.3)
Osc (frequency = 60, sync = 0.1, offset)
Shape (sides = 3, radius = 0.3, smoothing = 0.01)
Gradient (speed)
Src (texture)
Solid (r, g, b, a = 1)

Geometry

Rotate (angle = 10, speed)
Scale (amount = 1.5, xMult = 1, yMult = 1, offsetX = 0.5, offsetY = 0.5)
shape(4).scale(1.5,1,1,()=>time/50,()=>time/50).out(o0)
Pixelate (pixelX = 20, pixelY = 20)
Repeat (repeatX = 3, repeatY = 3, offsetX, offsetY)
RepeatX RepeatY (reps = 3, offset)
Kaleid (nSides = 4)
Scroll (scrollX = 0.5, scrollY = 0.5, speedX, speedY)
ScrollX ScrollY (scrollOffset = 0.5, speed)

Color

Posterize (bins = 3, gamma = 0.6) (gamma = smoothness)
Shift (r = 0.5, g, b, a) (phase offset where 0.5 = 180 degrees)
Invert (amount = 1)
Contrast (amount = 1.6)
Brightness (amplitude of wavelength)
Saturate (relative bandwidth)
Hue (phase) osc(1,0,1).hue(0.5).hue(() => Math.sin(time/8)).out(o0)

Thresh (threshold = 0.5, tolerance = 0.04)
Luma (threshold = 0.5, tolerance = 0.1) (black to transparent)
Color (r = 1, g = 1, b = 1, a = 1)
Colorama
Sum (**r g b** a) (scale = 1, offset)
noise(2).layer(gradient().r(0.4,0.6)).color(1,1,0).out(o0)

Blend

Add (texture, amount = 1)
Blend (texture, amount = 0.5)
Mult (texture, amount = 1)
Diff (texture only)
Mask (texture only) (similar to mult but transparent)
solid(1,1,1,1).mult(osc()).layer(osc(10,-0.1,2).mask(shape(4,0.4))).layer(osc(100,0.03,2).mask(shape(8))).out(o0)
Layer (texture only)
amount color workaround: solid(1,0,0,1).layer(shape(4).color(1,1,1,**0.8**)).out(o0)
amount luma workaround: osc(30).layer(osc(15).rotate(1).luma()).out(o0)
Sub (texture, amount = 1)
similar to diff + keeps black + Thanks foreFDHKJammount
https://hydra.ojack.xyz/?code=YiUzRCgpJTNEJTNFb3NjKDE2JTJDMCUyQzMpJTBBb3NjKDQlMkMwJTJDMCklMEElMkYlMkYlMjAlMjAlMjAuZGlmZihiKCkpJTBBJTJGJTJGJTIwJTIwJTIwLnN1YihiKCklMkMxKSUwQSUyMCUyMC5zdWIoYigpJTJDMC4yNSklMEElMjAlMjAub3V0KG8wKQ%3D%3D

Modulate

modulateRepeat (texture, repeatX = 3, repeatY = 3, offsetX = 0.5, offsetY = 0.5)
shape(4,0.9).modulateRepeat(osc(10), 3.0, 3.0, 0.5, 0.5).out(o0)
modulateRepeatX modulateRepeatY (texture, reps = 3, offset = 0.5)
modulateKaleid (texture, nSides = 4)
shape([100,4],0.5).modulateKaleid(osc(10,-0.05,0),1).out(o0)
modulateScrollX modulateScrollY
Modulate (texture, amount = 0.1) osc(30,0,2).modulate(noise(2),1).out(o0)
modulateScale (texture, multiple = 1, offset = 1)
shape(4).modulateScale(gradient().g(),2,0.5).out()
modulatePixelate (texture, multiple = 10, offset = 3)
noise(3).modulatePixelate(osc(3),80,4).out()
modulateRotate (texture, multiple = 1, offset)
osc().modulateRotate(shape(4,0.5),1.57).out()
modulateHue (texture, amount = 1)
src(o0).layer(osc(4,0.5,2).mask(shape(4,0.5,0.001))).modulateHue(src(o0).scale(1.005),1).out()

```
src(o0)
.modulateHue(src(o0).scale(1.05),1)
.layer(osc(20,-0.05,1).rotate().mask(shape(100,0.5)))
.modulateHue(osc(200,1,4),0.6)
.out()
```

External Sources

initCam

initImage

```
s0.initImage("https://upload.wikimedia.org/wikipedia/commons/thumb/d/db/Eyckbaptism.png/1920px-Eyckbaptism.png")
osc(6,-0.06,0.3).modulate(src(s0),0.5).out(o0)
```

```
s0.initImage("https://upload.wikimedia.org/wikipedia/commons/thumb/d/db/Eyckbaptism.png/1920px-Eyckbaptism.png")
osc(6,-0.06,0.3).modulate(src(s0),0.5).modulateScale(osc(()=>time/16).modulatePixelate(src(s0).thresh(),0.8)).out(o0)
```

initVideo

```
s0.initVideo("https://media.giphy.com/media/AS9LIFttYzkc0/giphy.mp4")
src(s0)
.saturate(5)
.modulate((src(s0).r().scale(1.15)),0.1)
.layer(src(s0).mask(shape(4,0.1,0.8),0.5))
.mult(shape(4,0.6,0.4))
.out(o0)
```

Init (custom canvas)

initScreen

```
D:\ee\LIVE\230112 LCC Klankvoorm\all
// s0.initScreen()
src(s0)
// .colorama(0.2)
.sub(osc(12).kaleid(2).mult(src(s0).thresh()).luma(),4)
.out(o0)
```

Synth Settings

Render

Update

SetResolution
Hush

setFunction

Speed
osc().modulate(osc([20,40],-0.2).modulate(noise(1))).kaleid(80).out()
speed = -0.1

Bpm
Time
shape(2,0.8).kaleid(()=>6+Math.sin(time)*4).out(o0)

Mouse
Width
Height
shape(4,0.01,0.3).scroll(() => -mouse.x / width, () => -mouse.y / height)
.modulate(src(o0) .scale(1.2))
.out(o0)

Array
Fast
Smooth

Ease
Off
Set

Fit
shape().scrollX([0,1,2,3,4].fit(-0.2,0.2)).out(o0)

Audio
Ifft
setSmooth
setCutoff
setBins
setScale
Hide
show

> 15.00 Break

15.15 Activity/ Performance

Music performance with tidalcycles, would you do my visuals?

Collaborative
https://pixeljam.glitch.me
https://flok.cc