

TOUCHDESIGNER WRSHP 101 - 1

A Homage to the Bauhaus

9:00 – 10:30

Vorkurs 1 : Stefan Kraus

Vorkurs 2 : The Bauhaus

Vorkurs 3 : Experimental Art and Design

10:30 – 10:45

Break

10:45 – 12:15

Vorkurs 4 : Touchdesigner

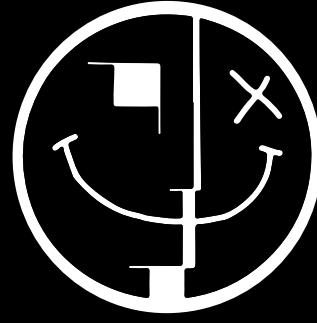
12:15 – 13:30

Lunchbreak @ Bâtiment H

WIFI:

THU MAY 23 2019





TOUCHDESIGNER WRSHP 101 - 1

A Homage to the Bauhaus

THE ART OF CONTROL
THU MAY 23 2019

13:30 – 15:00

Übung 1 - Ludwig Hirschfeld-Mack - Optischer Farbmischer

15:00 – 15:15

Break

15:15 – 16:45

Übung 2 - Alma Siedhoff-Buscher – Kleines Schiffbauspiel

16:45 – 17:00

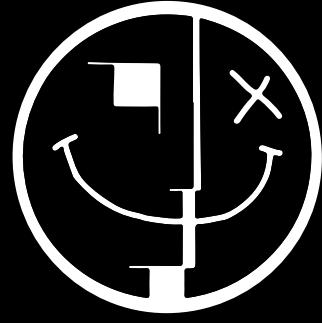
Break

17:00 – 18:00

Wrap up & Individual Consultation

Documents and Files : <https://github.com/MXZEHN/TD-WRSHP-GENEVA-5-2019>

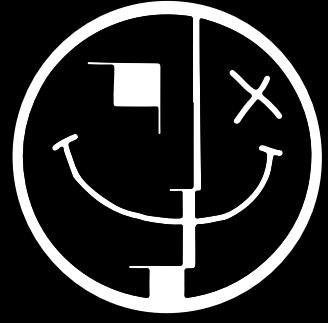




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Experimental Media Art and Design

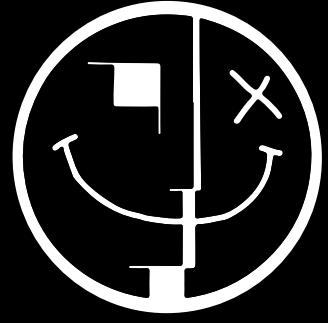




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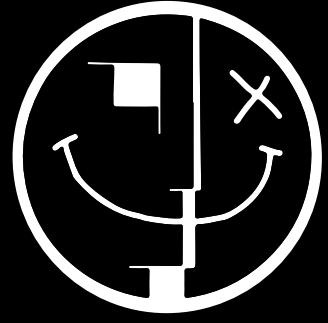
**Media Art explores and
exploits the narrative po-
tential of new technolo-
gies**





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Interactive media systems
can be controlled / perfor-
med in real time



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**Media in this sense
includes everything
that can be controlled
by us**

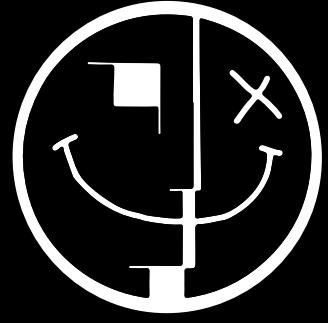


<https://www.whitevoid.com>



<https://www.whitevoid.com>





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Art:

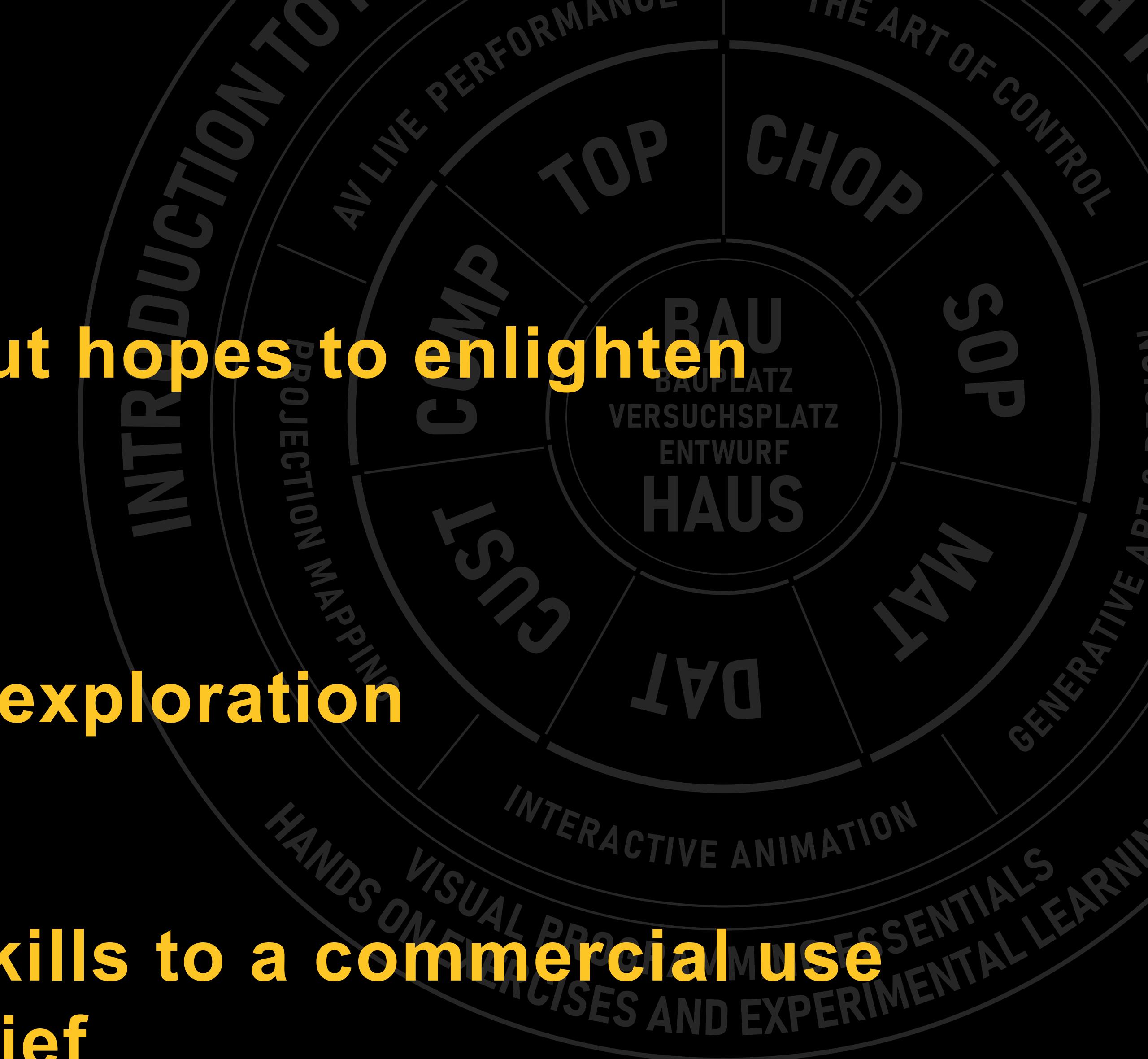
has no commercial goal but hopes to enlighten through experience

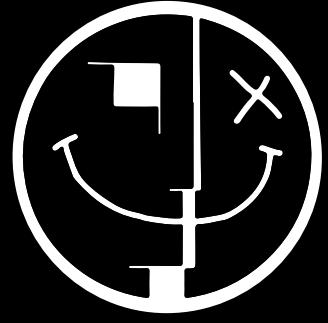
Experimental:

an open result process of exploration

Design:

puts the same tools and skills to a commercial use based on a (customers) brief

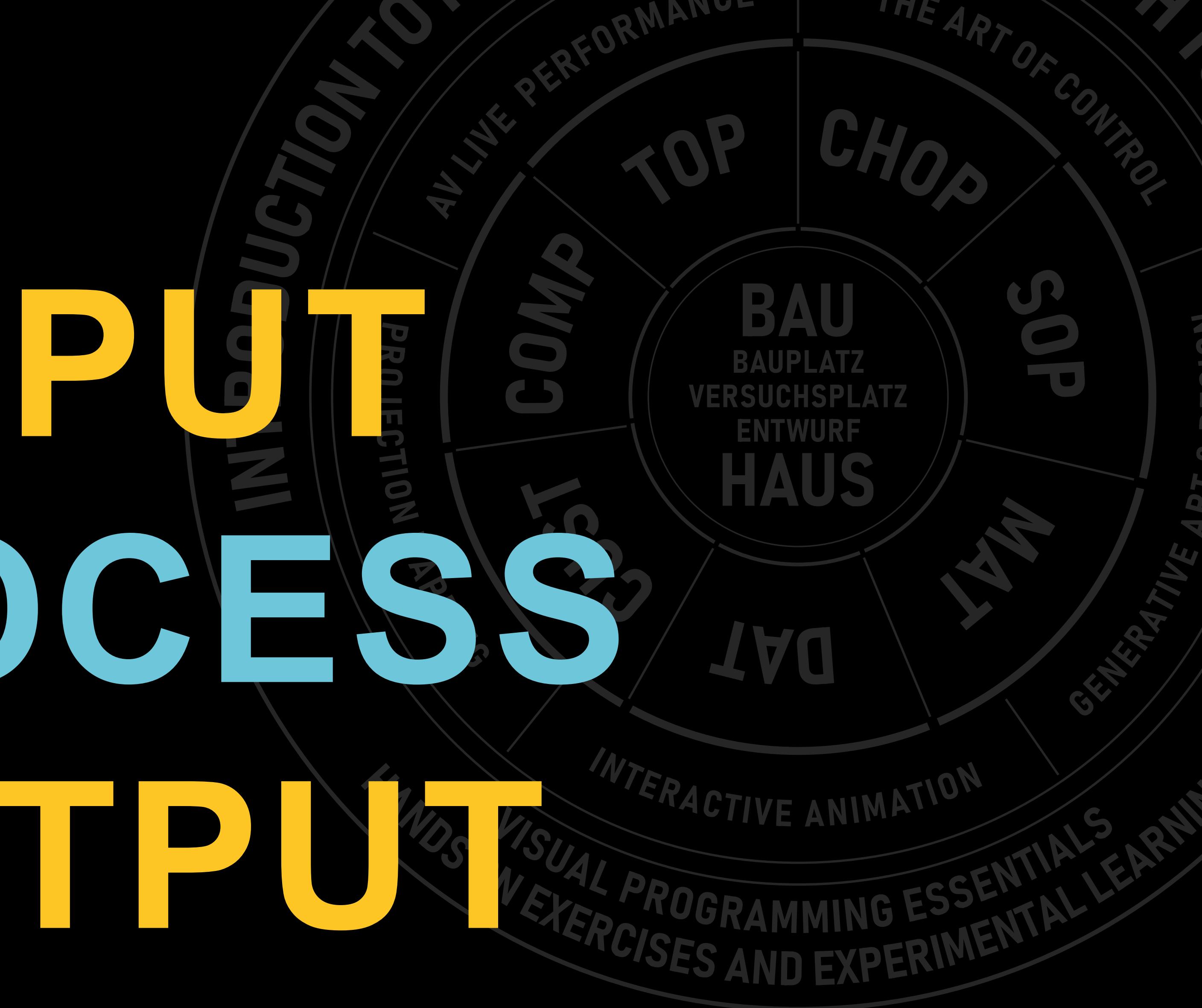


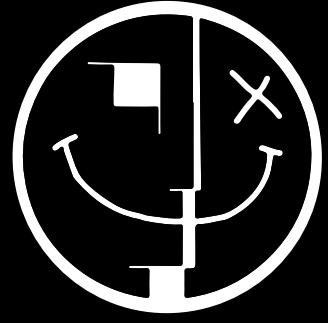


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INPUT
PROCESS
OUTPUT

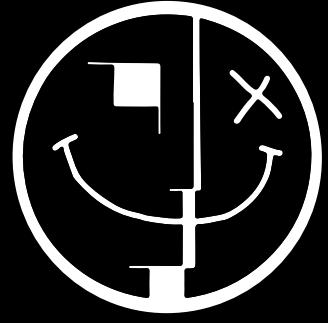




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Programming Production Tools Creative Coding





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Creative Coding

Processing / <https://processing.org>

OpenFrameworks (C++) / <https://openframeworks.cc>

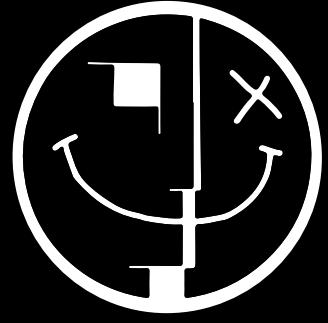
Cinder (C++) / <https://libcinder.org/about>

Game Engines

Unity / <https://unity3d.com>

Unreal / <https://www.unrealengine.com>





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VJ Software

Resolume / <https://resolume.com>

VDMX / <https://vidvox.net>

Modul8 / <http://www.garagecube.com/modul8>

MadMapper / <http://www.garagecube.com/madmapper>

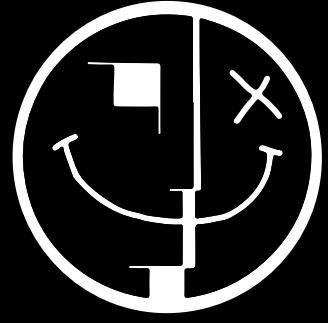
COGE / <https://imimot.com/coge>

Millumin / <https://www.millumin.com/v3/index.php>

HeavyM / <https://heavym.net>

SMODE / <https://smode.fr>





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Media Server

D3 / <https://www.disguise.one/en/products>

Pandoras Box / <https://www.coolux.de/de>

Green Hippo / <https://www.green-hippo.com/hippotizer-media-servers>

Wings / <https://avstumpfl.com/en/server-control-systems/software>

Watchout / <https://www.dataton.com/products/watchout>

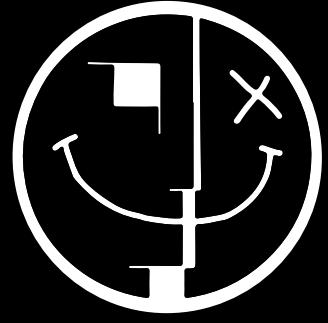
Lighting Hard- & Software

E:cue / <https://www.osram.de/ecue>

Madrix / <https://www.madrix.com>

GrandMA / <https://www.malighting.com/de>





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Node based Programming

VVVV / <https://vvvv.org>

Max+Jitter / <https://cycling74.com/products/max>

Pure Data / <https://puredata.info>

Isadora / <https://troikatronix.com>

Cables / <https://cables.gl>

Notch / <https://www.notch.one>

Ventuz / <https://www.ventuz.com>

XOD / <https://xod.io>

Nodes in other interesting software

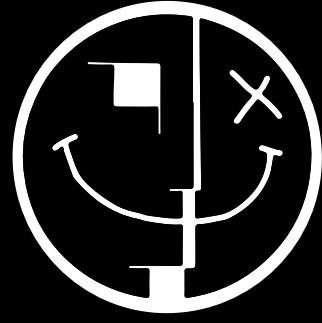
Nodal – Musik / <http://nodalmusic.com>

Nuke – Compositing / <https://www.foundry.com/products/nuke>

Houdini – 3D FX / <https://www.sidefx.com/products/houdini>

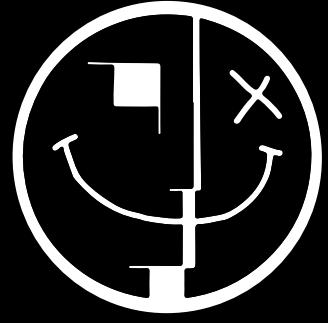
Substance Designer - Materials / <https://www.allegorithmic.com>





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So what about Touchdesigner? Applications & Examples



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live design & performance

Show / Concert / Event / Exhibition / Fair / Theater

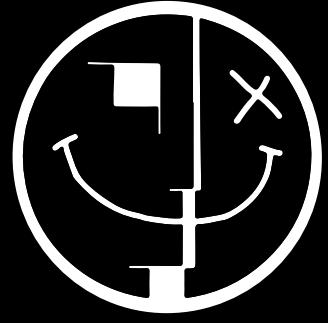
research and development

Data Visualisation / Research / Education / Prototyping

experimental

...

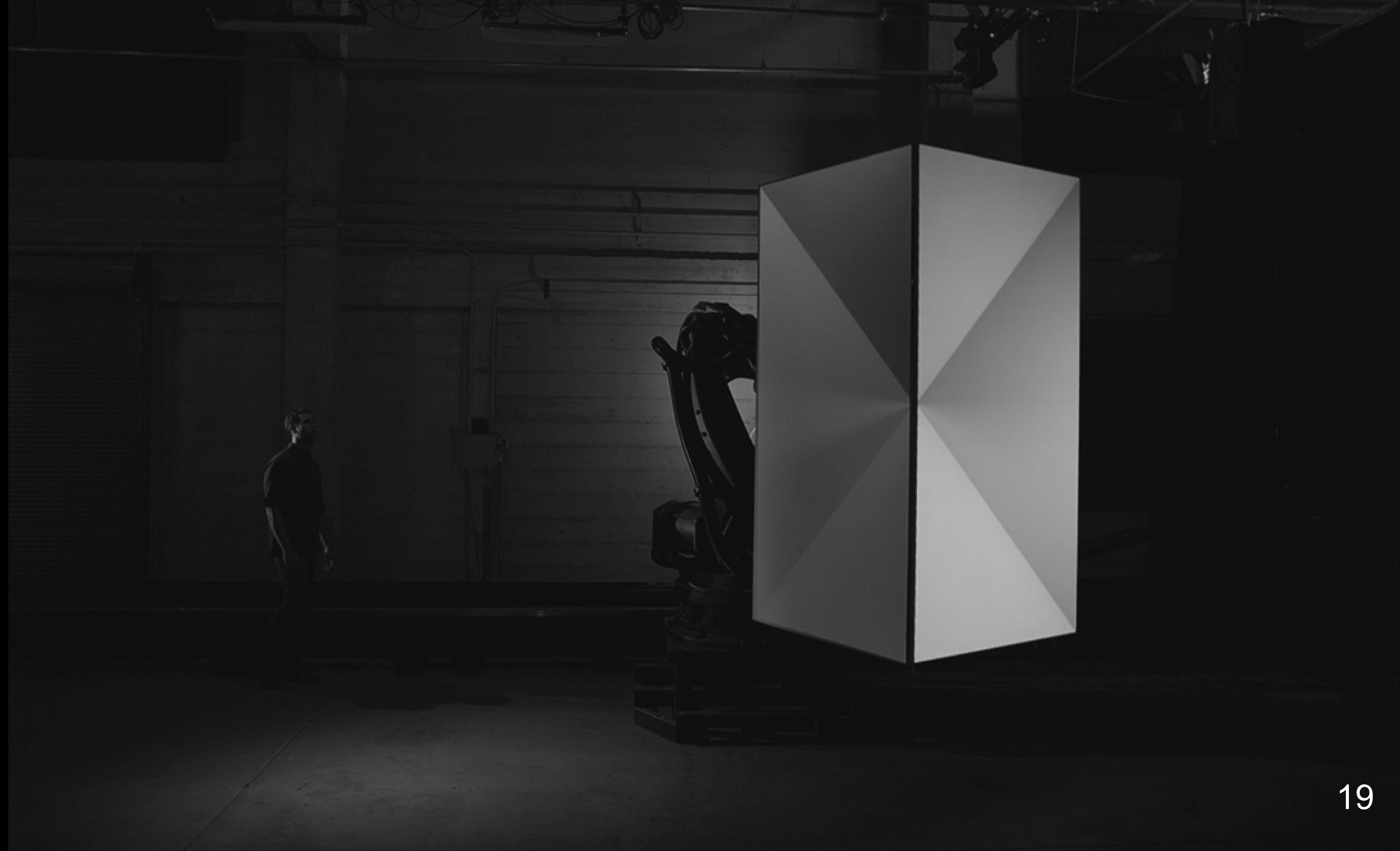




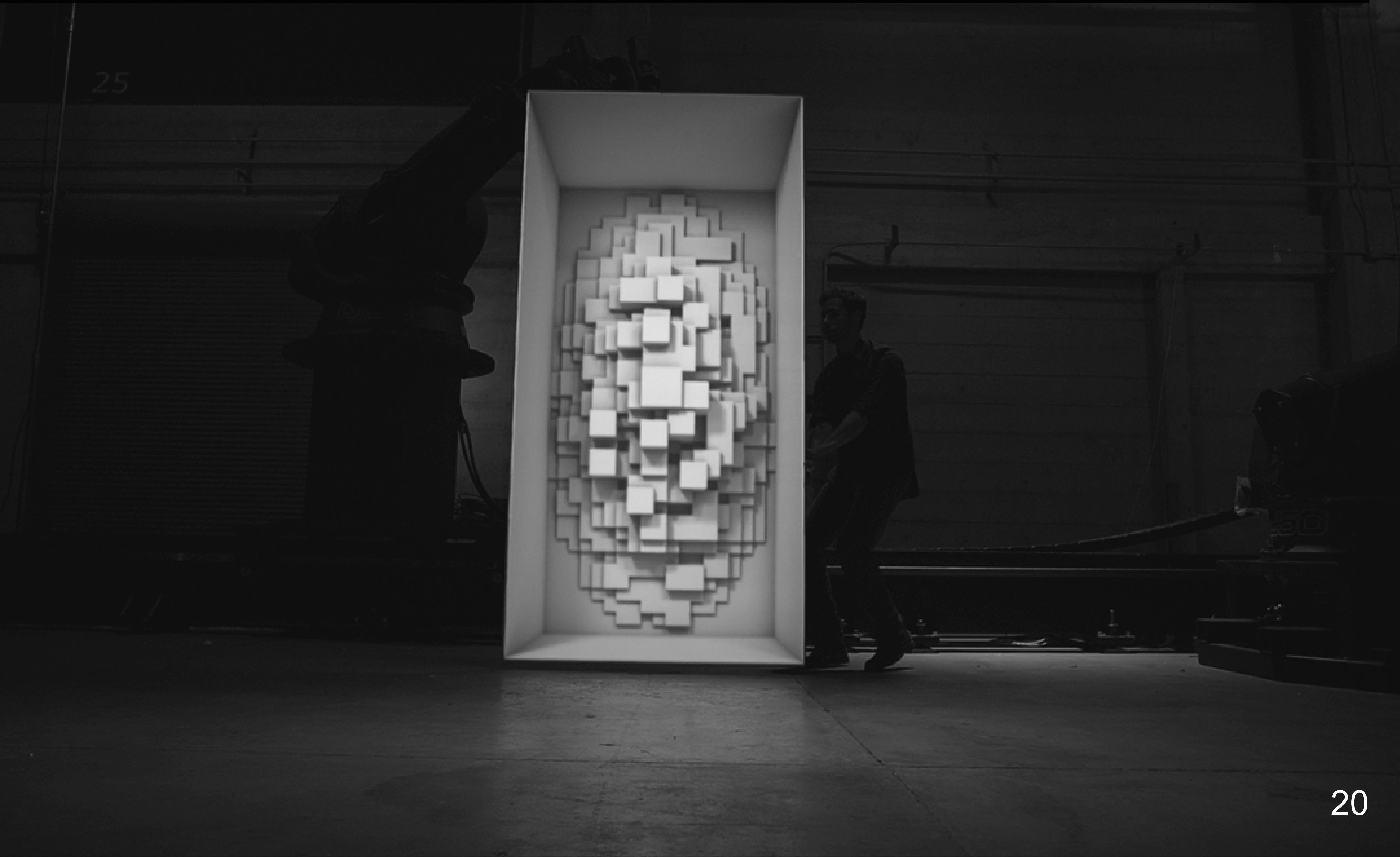
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CONNECT
EVERYTHING
WITH EVERYTHING

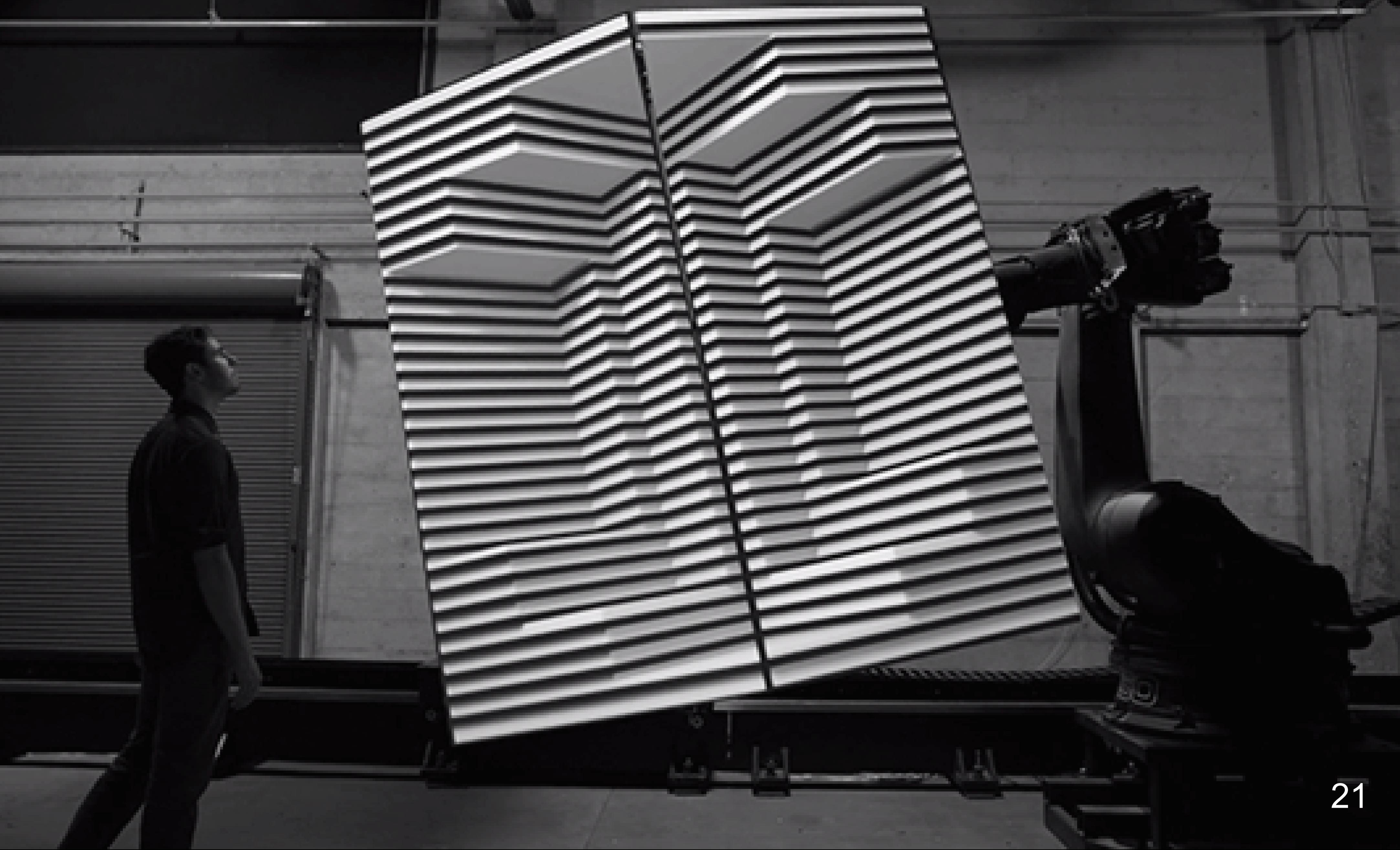
<https://gmunk.com/BOX>

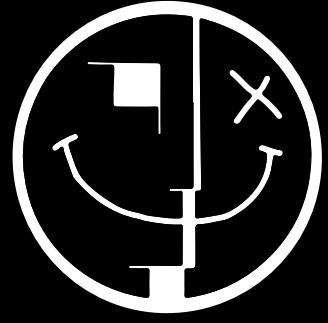


<https://gmunk.com/BOX>



<https://gmunk.com/BOX>





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read, translate and send everything

DMX, Artnet, MIDI, OSC, JSON, Serial, TUIO, RS322, Audio, Video, Text, Sheets, Web, Mobile, Light, Ableton, CV

build custom applications

make your programs private for reselling

with a pro license, e.g. GeoPix / <https://www.enviral-design.com>

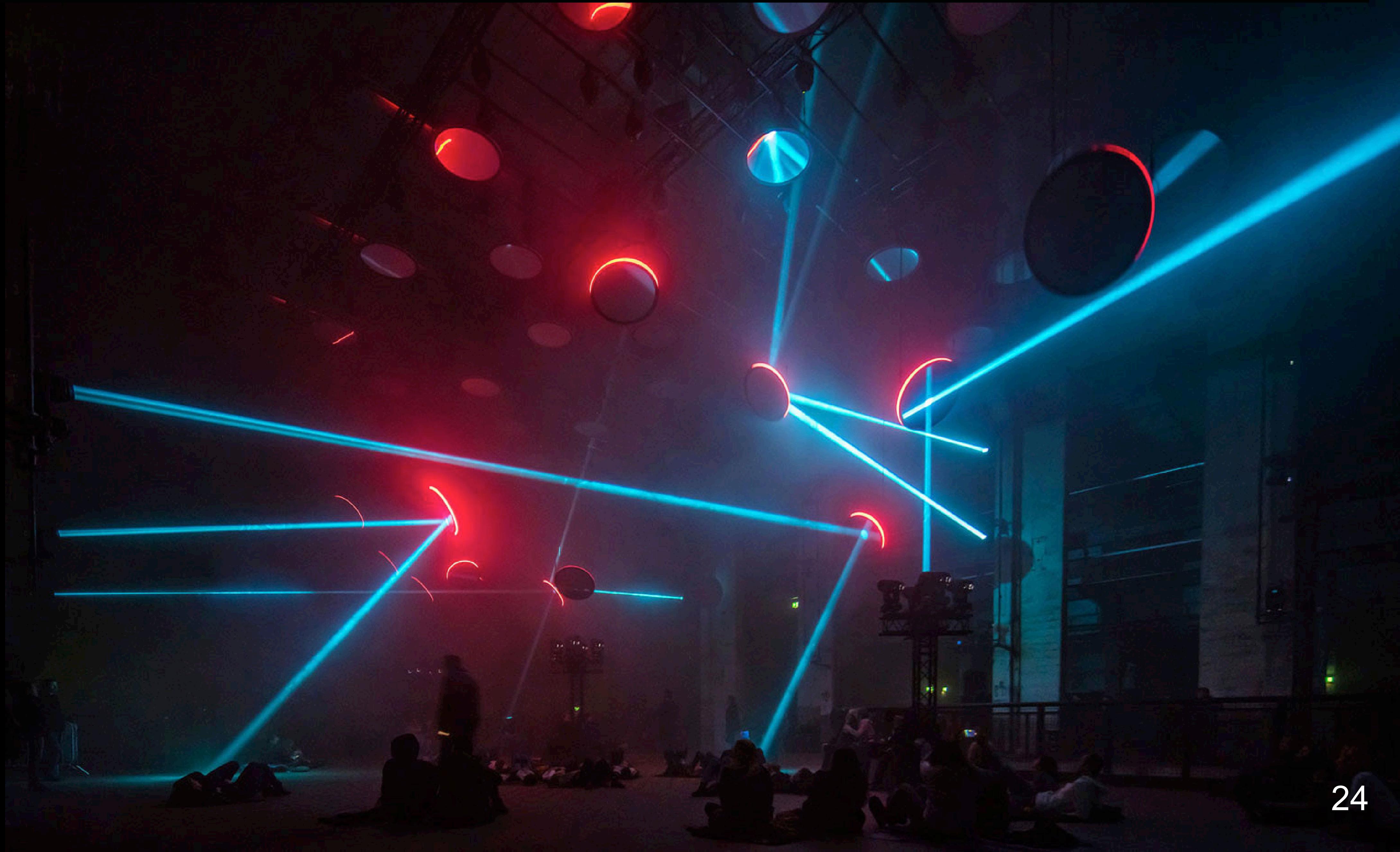
build custom media servers with multiple outputs

e.g. Luminosity / <https://github.com/IntentDev/Luminosity>

<https://www.whitevoid.com>

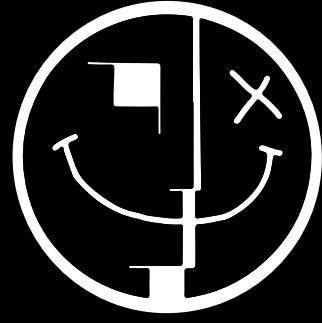


<https://www.whitevoid.com>



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realtime animation

Effects, Motion Design, 3D Animation, Mixing and Routing, Data driven visual content (Music, Data Base, Sheets, Interaction) and Simulations (Physics, Particles) output to wild formats incl. 360°

lighting & laser design

Moving Lights, LED Fixtures, Lasers, LED Sculptures

virtual & augmented reality

prototype VR experiences with VIVE, Oculus, Hololens

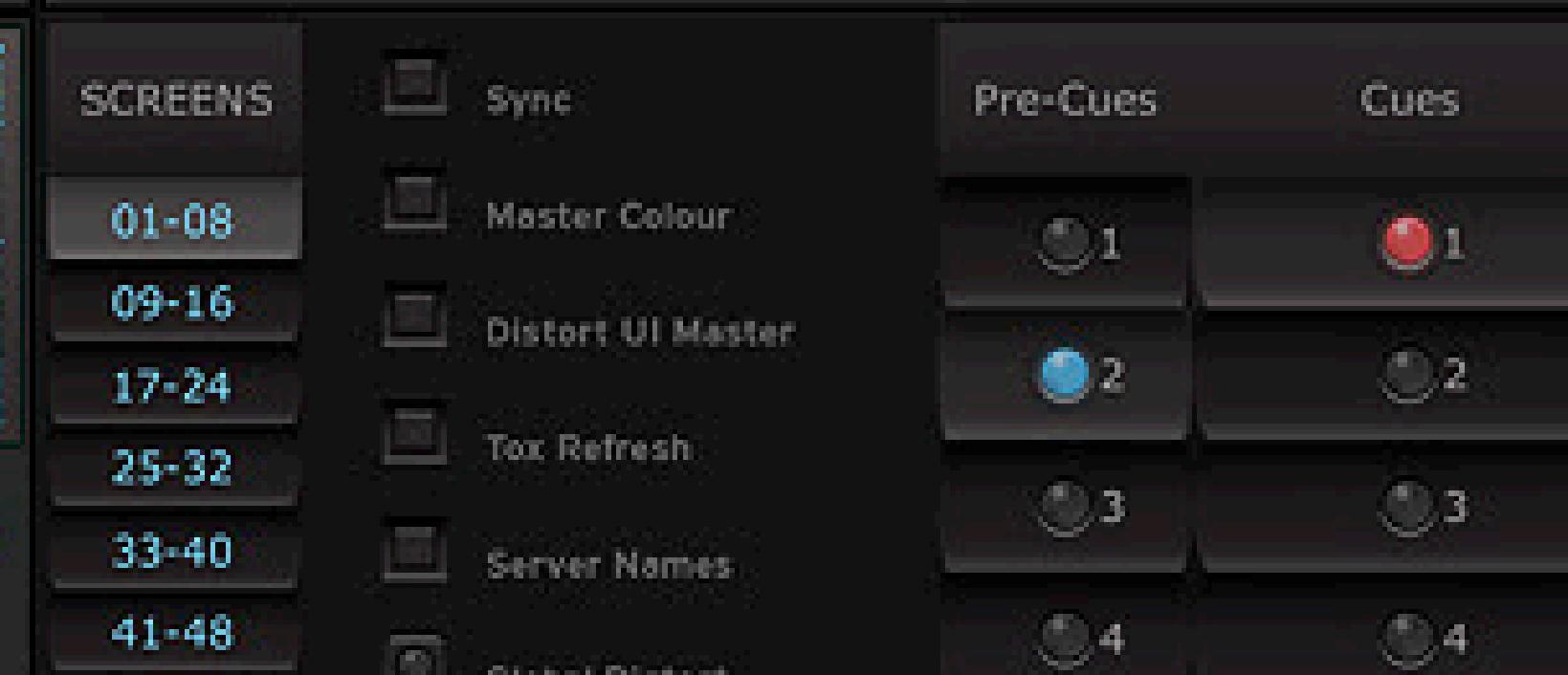
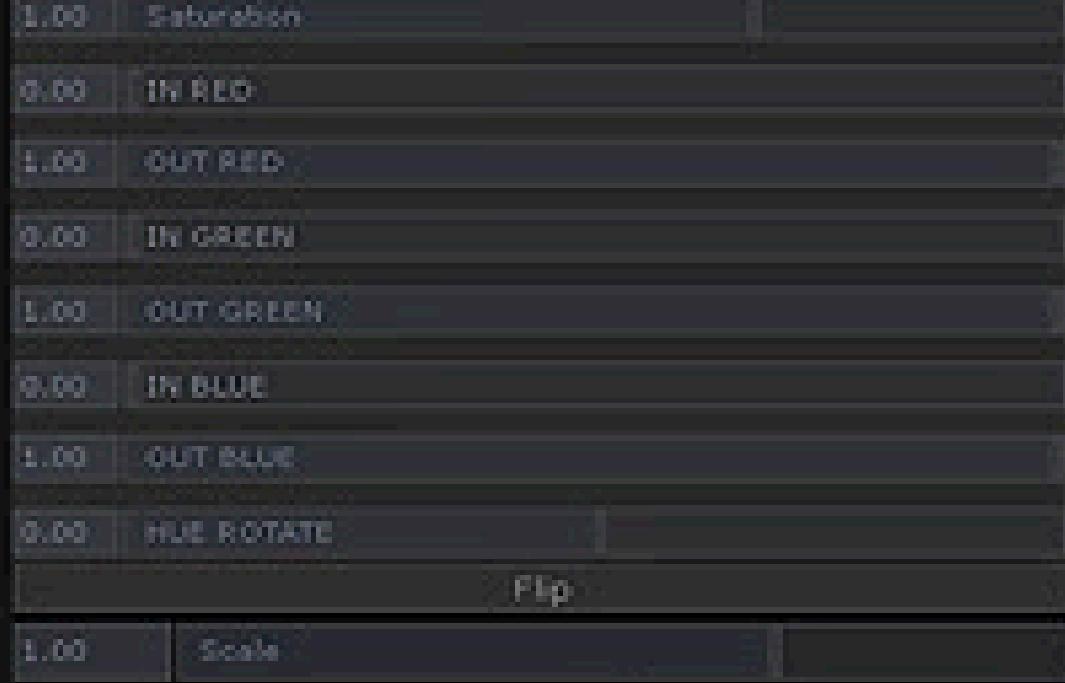
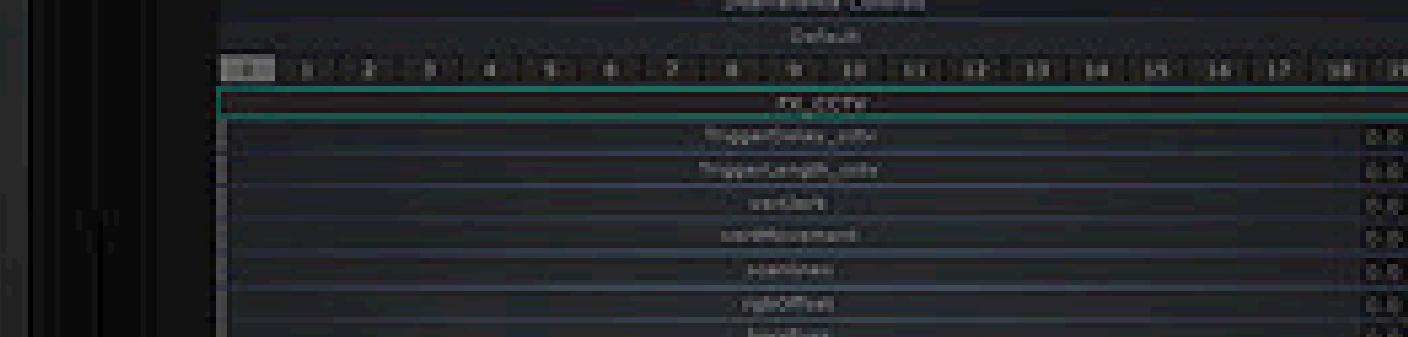
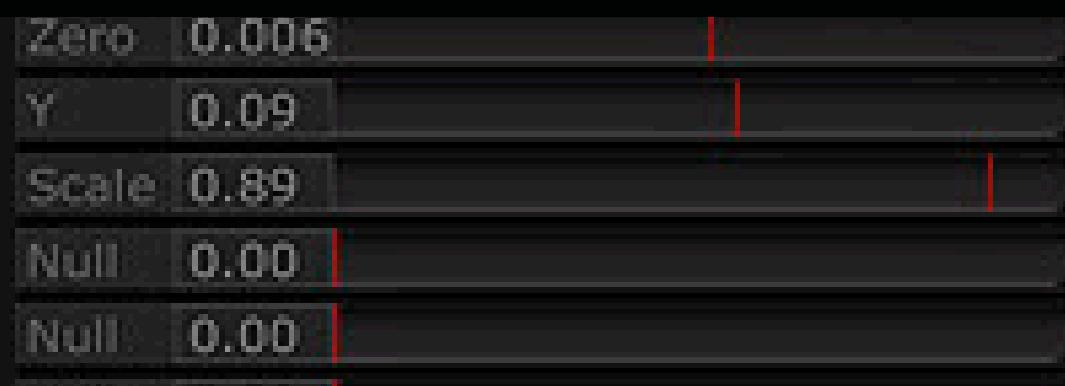
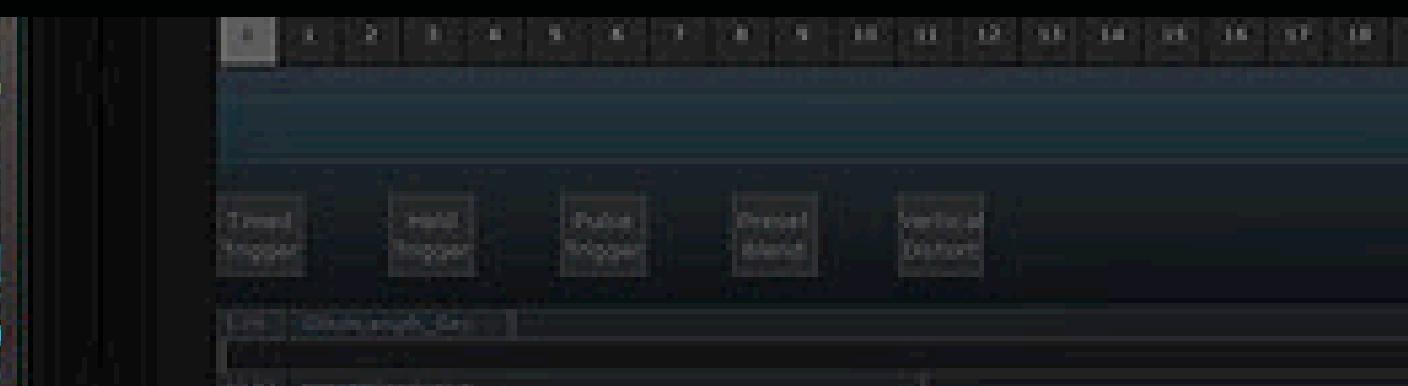
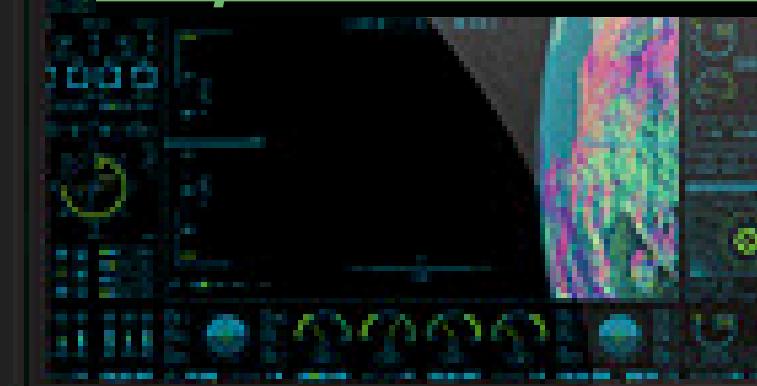
<http://www.soma-cg.com>





CUE 1

OSDFT Master Control Number of Monitors 11 SETUP

<http://www.soma-cg.com>

8

29

https://www.instagram.com/vjrez_tokyo/



https://www.instagram.com/vjrez_tokyo/

The screenshot displays a complex digital performance setup with the following components:

- Left Column (Layers):** Contains four main layer sections labeled +A1, +A2, +B1, and +B2. Each section includes a preview window, file path (e.g., FILE 1 ACT01 SHINTARO LOGO 01.4), and various parameters like TILING, SCALE, ROTATE, POSITION X, POSITION Y, and SPEED (set to 100.00%).
- Middle Column (Effects):** Features two main effect sections: **EFFECT** and **SIDE BOX**. The EFFECT section includes Brightness, Gamma, Contrast, and Black Level controls. The SIDE BOX section includes a preview window, file path (FILE 1 SHINTARO LOGO 01), and parameters like TILING, SCALE, ROTATE, POSITION X, POSITION Y, and SPEED (set to 100.00%).
- Bottom Left (Visuals):** A grid of 16 preview windows labeled S1 through S16, each showing different visual effects such as light leaks, patterns, and logos.
- Bottom Right (Extention D):** A section labeled EXTENTION D featuring a preview window, file path (FILE 1), and parameters like TILING, SCALE, ROTATE, POSITION X, POSITION Y, and SPEED (set to 100.00%).
- Right Side (Global Controls):** Includes a header with FPS: 60, MAPPING, GUIDE, and LAYER PARAMETER (BLACK, COLOR). Below this are sections for TIME, RENDER, SUB MAP, LEVEL (set to 0.00), CONSOLE, and REZ NET. The LEVEL section has options for MULTI, ADD, and OVER. The CONSOLE section has checkboxes for ON/OFF, LAYER PARAMETER, GRABMASTER, and various REZER sections. The REZ NET section has checkboxes for ON/OFF, LAYER FRAME, and LAYER FRAME TSX.

https://www.instagram.com/vjrez_tokyo/

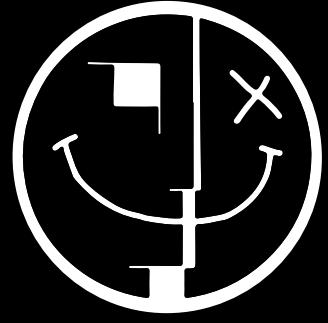
The screenshot displays a complex VJ software interface with a dark theme. It features several panels and controls:

- Top Left:** A grid of 8x8 cells labeled "ACTIVE LAYER". Each cell contains the text "Cell is empty.".
- Top Middle:** Three identical layer preview panels for "A", "B", and "C". Each panel shows a red circular logo with a white butterfly and the text "LED-MASH".
- Top Right:** A "LAYER PREVIEW" panel showing three versions of the "LED-MASH" logo with different color overlays (red, green, blue).
- Bottom Left:** A "VISUALS" panel containing a 5x5 grid of cells, each labeled "Cell is empty.", with a red border around the bottom row.
- Middle Left:** Three "LAYER PARAMETER" panels for layers A1, B1, and C1. Each panel includes controls for FILE, STILING, SCALE, ROTATE, POSITION X, POSITION Y, and SPEED (set to 100.00%).
- Middle Center:** A "VIDEO DEVICE IN" panel showing a camera feed at 128x128 pixels with a value of 0.00x. It also includes "CAMERA FX" settings.
- Middle Right:** A "LAYER PARAMETER" panel for "EFFECT" with controls for BRIGHTNESS, GAMMA, CONTRAST, and BLACK LEVEL. It also includes "MAIN MAP" and "SUB MAP" settings.
- Bottom Right:** A "CONSOLE" panel with "CENTER ONLY" and "REZ NET" checkboxes. It also includes sections for "EXTENTION A", "EXTENTION B", "EXTENTION C", and "EXTENTION D".
- Far Right:** A vertical column of controls for "ageHa BASIC LED SET(3FACE)" including "TIME", "RENDER", "SUB MAP", "LEVEL", "MON COLOR", and "CONSOLE" checkboxes.

https://www.instagram.com/vjrez_tokyo/

The interface is divided into several sections:

- BASE LAYERS:** Contains four preview windows labeled A1, A2, B1, and B2, each with controls for FILE, STYLING, ZSCALE, ZROT, POSITION X, POSITION Y, and SPEED.
- MAIN BANK:** A large grid of 20 cells, each labeled "Cell is empty".
- VIDEO DEVICE IN:** Preview window showing a green screen with controls for BRIGHTNESS, CONTRAST, and BLACK LEVEL.
- EFFECTS BANK:** Preview window showing a blue screen with controls for EFFECT, VELLO, FOG, GLITCH, GLOW, and DISTORTION.
- SUB LAYER:** Preview window showing a dark brown screen with controls for SIDE BOX, STYLING, ZROT, POSITION X, POSITION Y, and SPEED.
- SIDE BOX:** A grid of 16 cells labeled 01 through 16, each labeled "Cell is empty".
- PARAMETERS:** Preview window showing a purple screen with controls for BASE FX, LAYER PARAMETER, COLOR, and FEEDBACK.
- EXTRA LAYERS FOR MAP:** Preview window showing a purple screen with controls for EXTENTION A, OVER, LAYER PARAMETERS, and EX1 through EX6.
- EXTRA LAYER FOR MAP:** Preview window showing a red screen with controls for EXTENTION D, LAYER PARAMETER, COLOR, and FEEDBACK.
- MASTER PREVIEW:** Preview window showing three circular displays for LED 36x34, LED 19x19, and LED 36x34.
- MAP PREVIEW:** Preview window showing a map with controls for TIME, RENDER, SUB MAP, LEVEL, and CONSOLE.
- COLOR CONTROL:** Preview window showing a blue screen with controls for COLOR, ZCOLOR, and MIX COLOR.
- OPTIONS:** A sidebar with various settings like REZ NET, GRANDMASTER, and SPEED SIDE BOX.



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web & mobile interaction

connect to users via the internet

use mobile Apps to control Media Installations

use Web Content in AV Installations

Connect to APIs to gather Data

tracking

Use Kinect, Intel RealSense, Leap Motion, OpenCV and more to learn about the environment and enable touch free interactions

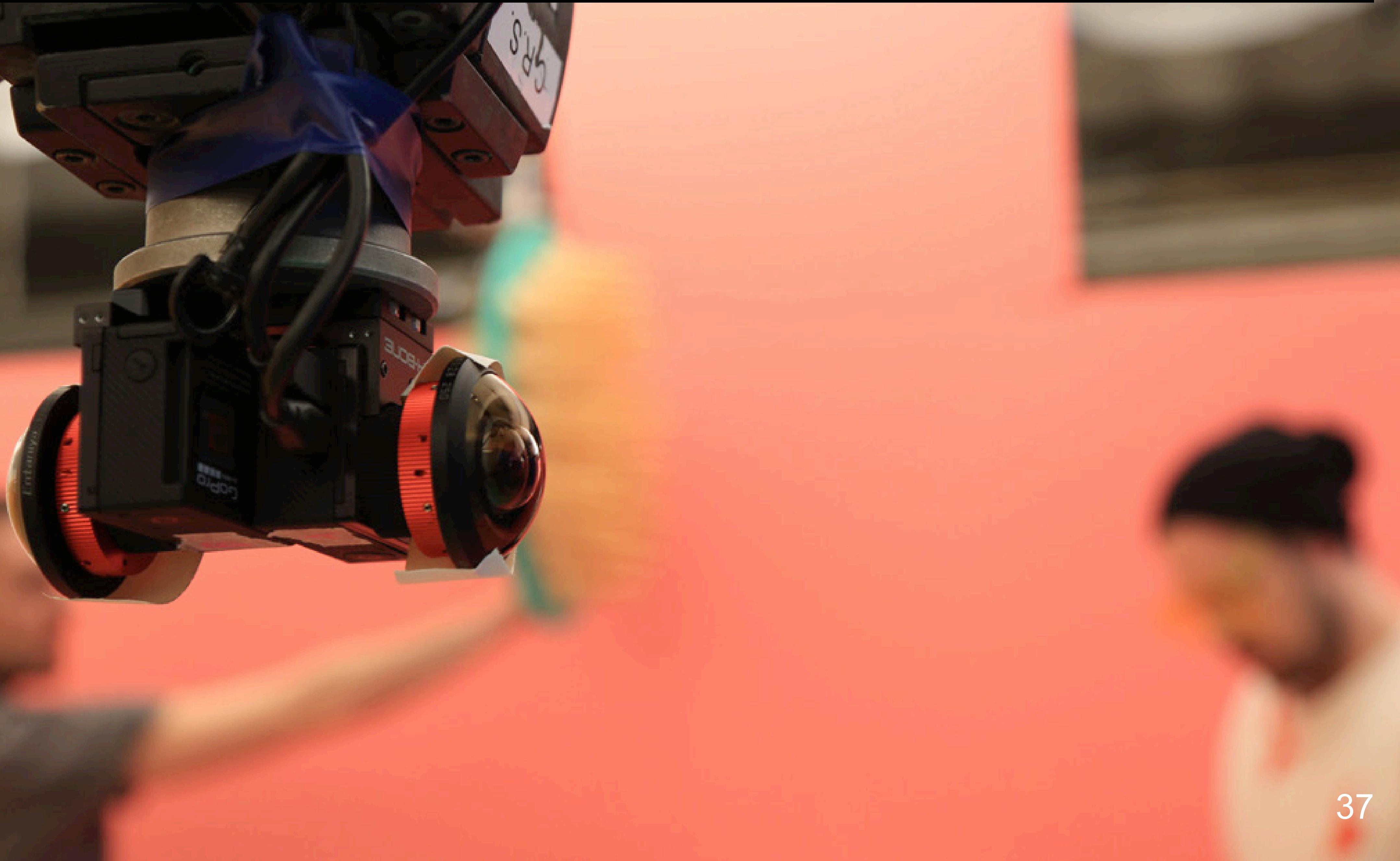
<https://www.derivative.ca/Events/2016/FutureOfMusic>

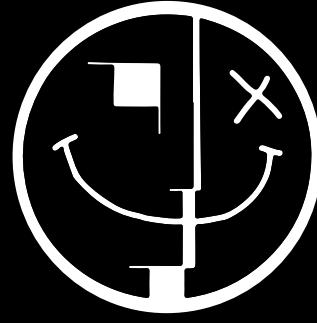


<https://www.derivative.ca/Events/2016/FutureOfMusic>



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extend the functionality

use scripting and coding to extend functionality

Shader Authoring (GLSL)

scripting in Python allows to use numerous Libraries

from within Touchdesigner

programming custom nodes in C++ (z.B. Vincent Houze)

projection mapping

keystoning with Stoner

creative mapping with Kantan Mapper

projector calibration with CamSchnappr

<https://www.derivative.ca/Events/2015/Luminosity/>



<https://www.derivative.ca/Events/2015/Luminosity/>

The screenshot displays the Lumino software interface, featuring a 3D scene editor and a control panel.

Control Panel (Top Right):

- Levels:**
 - Pre Key Level On
 - Pre Key Brightness (M 1.0)
 - Pre Key Gamma (M 1.0)
 - Pre Key Contrast (M 1.0)
 - Pre Key Opacity (M 1.0)
 - Pre Step Size (M 0.0)
 - Pre Step Threshold (M 0.0)
 - Pre Step ClampLow (M 0.0)
 - Pre Step ClampHigh (M 1.0)
 - Pre Step Soften (M 0.0)
 - Chroma Key On
- Feedback:**
 - Mix (M 1.0)
 - Pre Opacity (M 0.09)
 - Brightness (M 1.0)
 - Opacity (M 1.0)
 - Hue (M 9.74)
 - Saturation (M 1.04)
 - Scale X (M 0.9)
 - Scale Y (M 0.9)
 - Translate X (M 0.0)
 - Translate Y (M 0.0)
 - Rotate (M 0.0)
- Strobe:**
 - Trigger (Qtr 8th 16th)
 - Square
 - Saw Dwn
 - Smooth
 - Mode
 - Hue
 - Saturation
 - Value

Scene Editor (Bottom Left):

The scene editor shows a 3D space with glowing orange and red particles. The interface includes a grid, a camera view, and various controls for lighting and effects.

Library (Bottom Left):

	Bank4	Bank5	Bank6	Bank7	Bank8	Bank9	Bank10	Bank11	Bank12	Bank13	Bank14	Bank15	Bank16
<19	Bank20	Bank21	Bank22	Bank23	Bank24	Bank25	Bank26	Bank27	Bank28	Bank29	Bank30	Bank31	Bank32
Scene2	Scene3	Scene4	Scene5	Scene6	Scene7	Scene8							
soTron_17_1	NeoTron_16_1	Lighter Than Air	Video In	Particles	SacredGeo	Curves							
HeadsUp_14_1	HeadsUp_16_1	NeoTron_20_1	HeadsUp_18_1	HeadsUp_19_1	HeadsUp_20_1	NeoTron_19_1							
soTron_22_1	NeoTron_25_1	HeadsUp_17_1	NeoTron_26_1	NeoTron_27_1	NeoTron_24_1	NeoTron_23_1							
HeadsUp_08	HeadsUp_09	HeadsUp_10_1	HeadsUp_11_1	HeadsUp_12_1	NeoTron_28_1	Spherical							
HeadsUp_02	HeadsUp_03	HeadsUp_04	HeadsUp_05	HeadsUp_06	HeadsUp_07	HeadsUp_08							

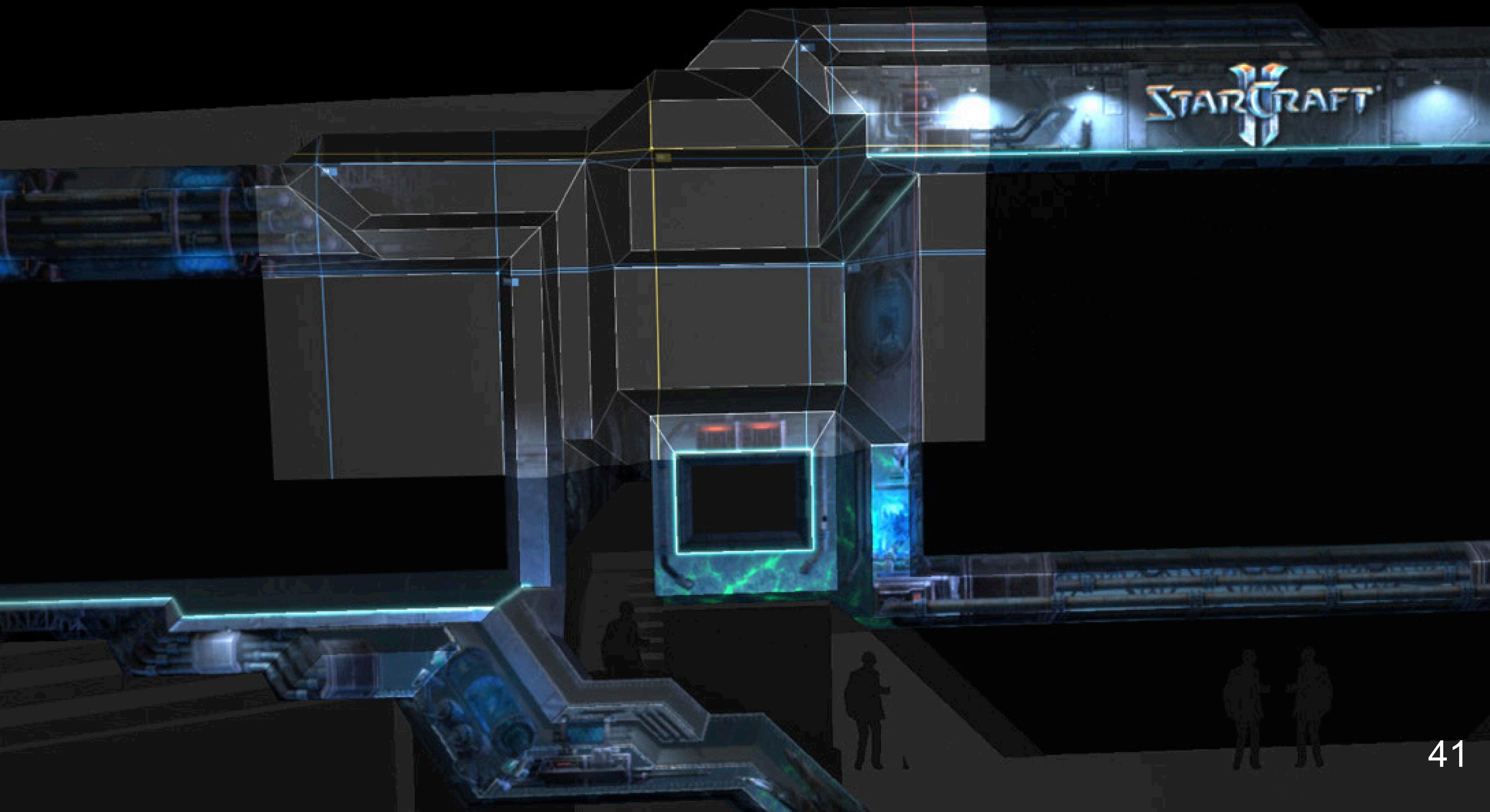
Control Grid (Bottom Right):

	Clip 5	Inserts	Sources	Sends	Aux 2	Inserts	Sources	Sends	Master	Inserts	Sources	Sends
1	No Effect	O	None P	No Effect D	Clip 4	No Effect	Clip 4	No Effect O	1	No Effect	O	Au
2	Levels	D	Over P	Feedback D	Clip 3	Feedback	Clip 3	Feedback O	2	Levels	D	Au
3	No Effect	O	None P	No Effect D	Clip 2	No Effect	Clip 2	No Effect O	3	No Effect	O	Au
4	No Effect	O	Over P	No Effect D	Clip 1	No Effect	Clip 1	No Effect O	4	No Effect	O	Au
5	No Effect	O	None P	No Effect D	None P	No Effect	None P	No Effect O	5	No Effect	O	Au
6	No Effect	O	Over P	No Effect D	Over P	No Effect	Over P	No Effect O	6	No Effect	O	Au
7	No Effect	O	None P	No Effect D	None P	No Effect	None P	No Effect O	7	No Effect	O	Au
8	No Effect	O	Over P	No Effect D	Over P	No Effect	Over P	No Effect O	8	No Effect	O	Au
9	No Effect	O	None P	No Effect D	None P	No Effect	None P	No Effect O	9	No Effect	O	Au
10	No Effect	O	Over P	No Effect D	Over P	No Effect	Over P	No Effect O	10	No Effect	O	Au
11	No Effect	O	None P	No Effect D	None P	No Effect	None P	No Effect O	11	No Effect	O	Au
12	No Effect	O	Over P	No Effect D	Over P	No Effect	Over P	No Effect O	12	No Effect	O	Au
13	No Effect	O	None P	No Effect D	None P	No Effect	None P	No Effect O	13	No Effect	O	Au
14	No Effect	O	Over P	No Effect D	Over P	No Effect	Over P	No Effect O	14	No Effect	O	Au
15	No Effect	O	None P	No Effect D	None P	No Effect	None P	No Effect O	15	No Effect	O	Au
16	No Effect	O	Over P	No Effect D	Over P	No Effect	Over P	No Effect O	16	No Effect	O	Au

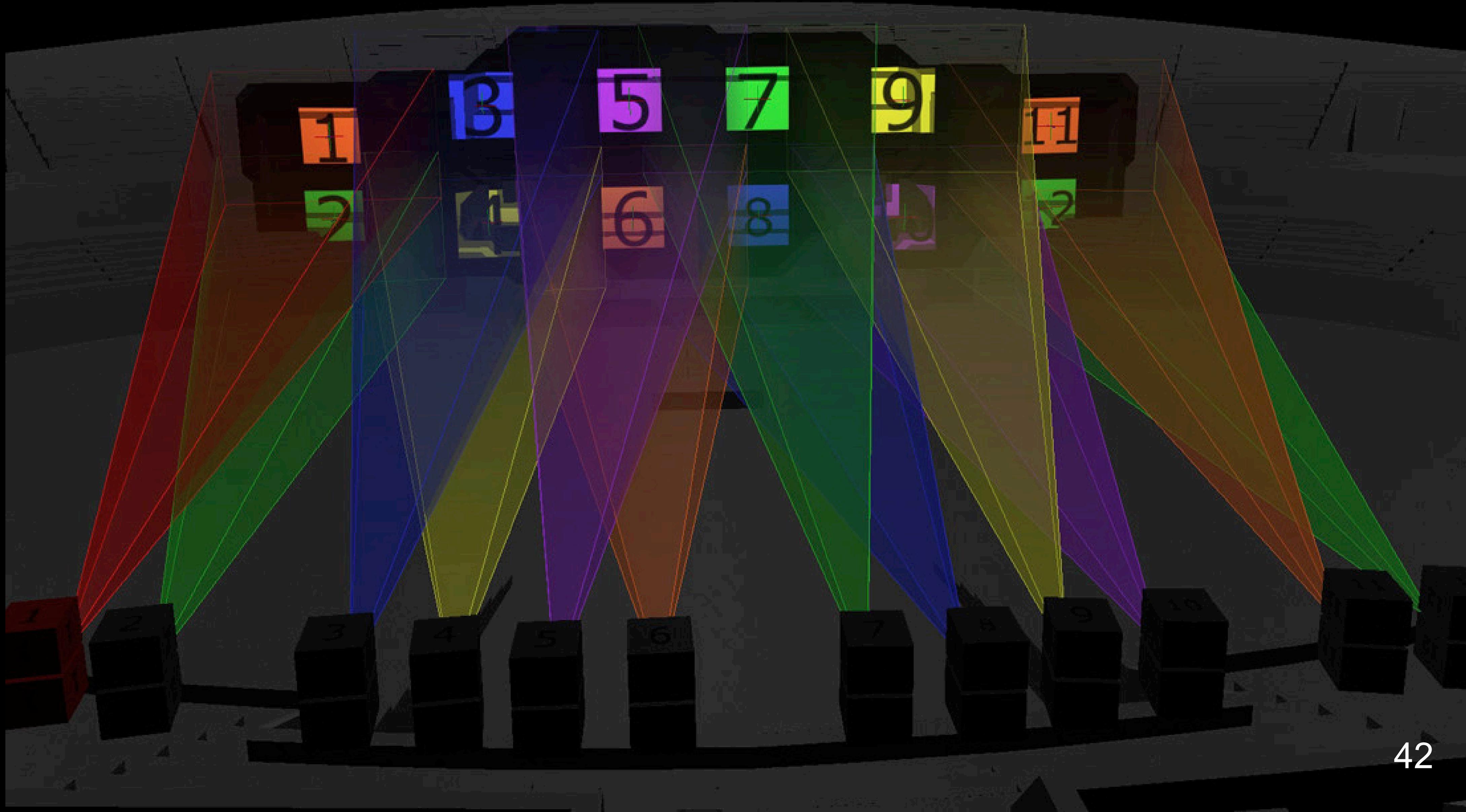
Inserts (Bottom Right):

	Clip 1	Clip 2	Clip 3	Clip 4	Clip 5	Aux 1	Aux 2	Aux 3	Aux 4	Aux 5	Au
1	Clip Lane 1 Over 1.0 L	Clip Lane 2 Over 1.0 L	Clip Lane 3 Over 1.0 L	Clip Lane 4 Over 1.0 L	Clip Lane 5 Over 1.0 L	None Over 1.0 L	None Over 1.0 L	None Over 1.0 L	VideoIn1 Over 1.0 L	VideoIn2 Over 1.0 L	Video Over 1.0 L
2											
3											
4											
5											

<https://www.derivative.ca/Events/2015/Luminosity/>



<https://www.derivative.ca/Events/2015/Luminosity/>



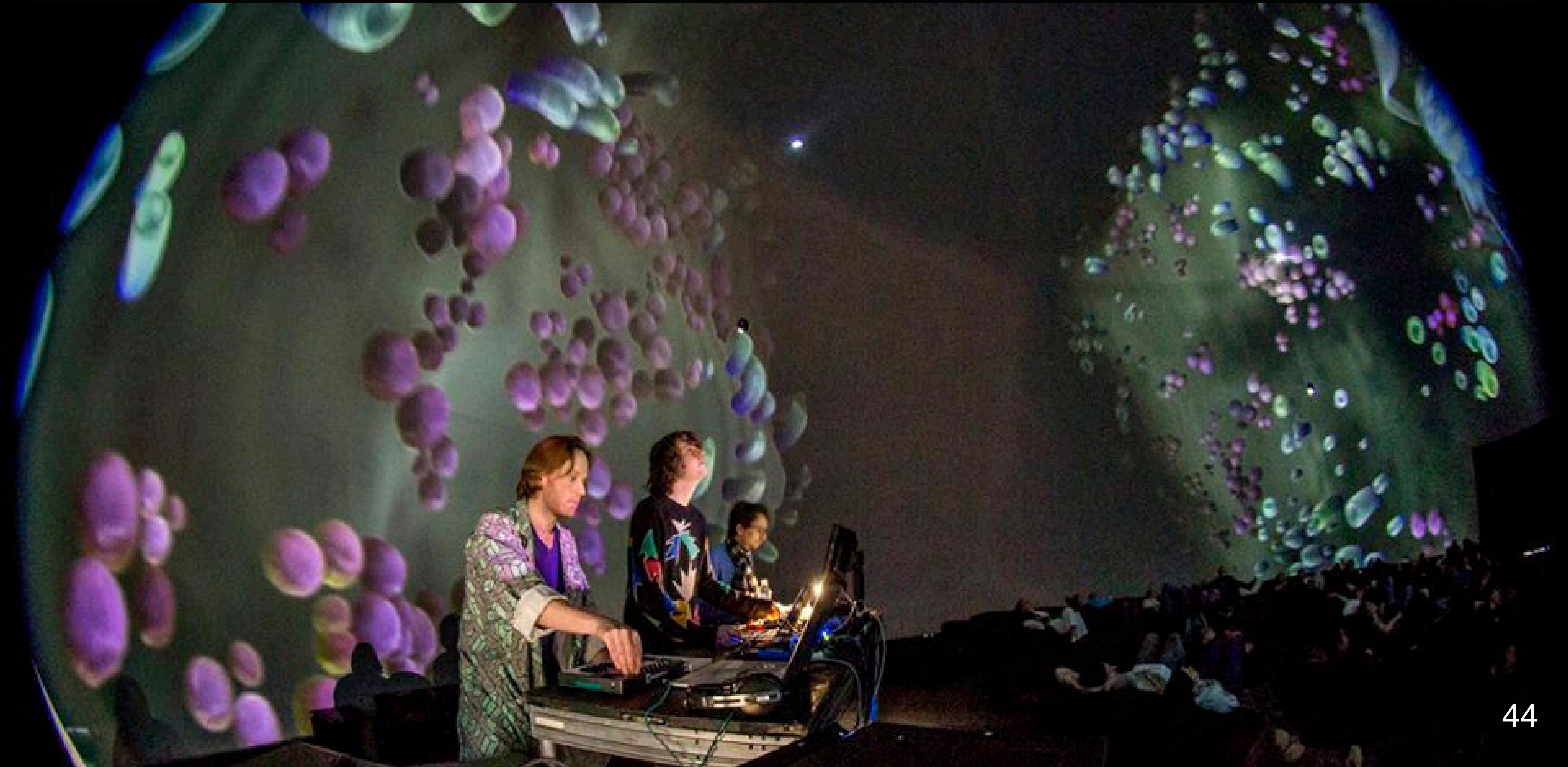
<https://vincenthouze.com>

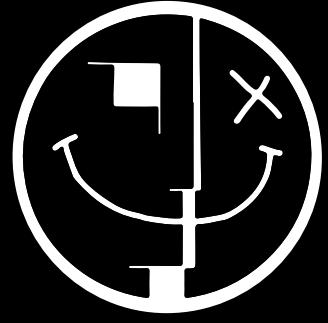
<http://www.daveandgabe.care/projects>



<https://vincenthouze.com>

<http://www.daveandgabe.care/projects>





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what hardware do we need?

PC over MAC

NVIDIA over ATI & INTEL

QUADRO over GTX

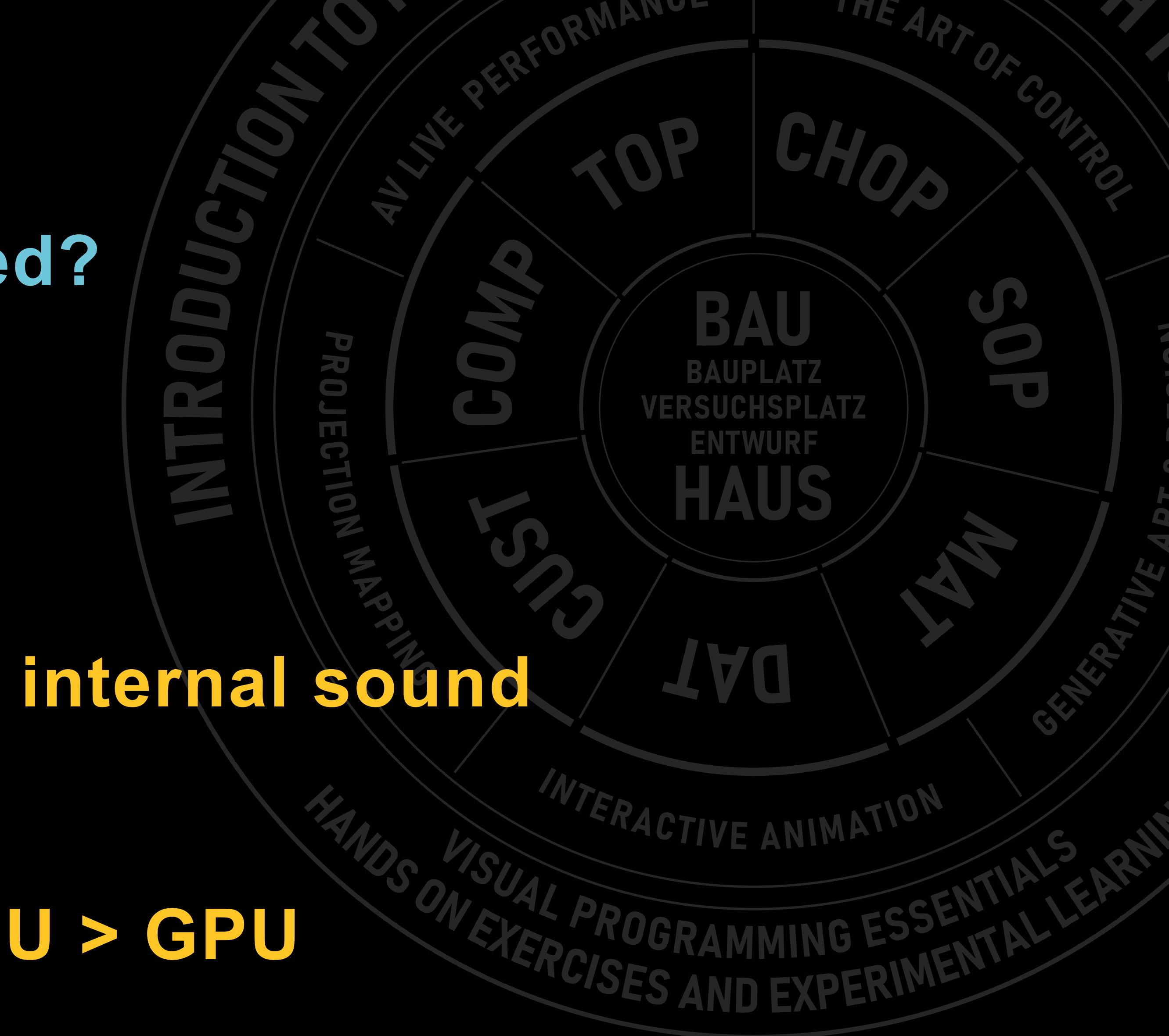
external sound card over internal sound

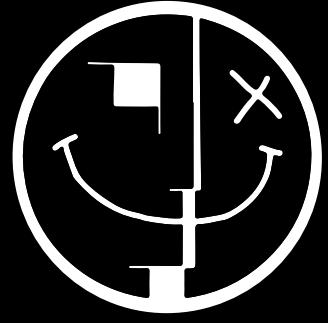
for video playback

hard disc > memory > CPU > GPU

for generative content

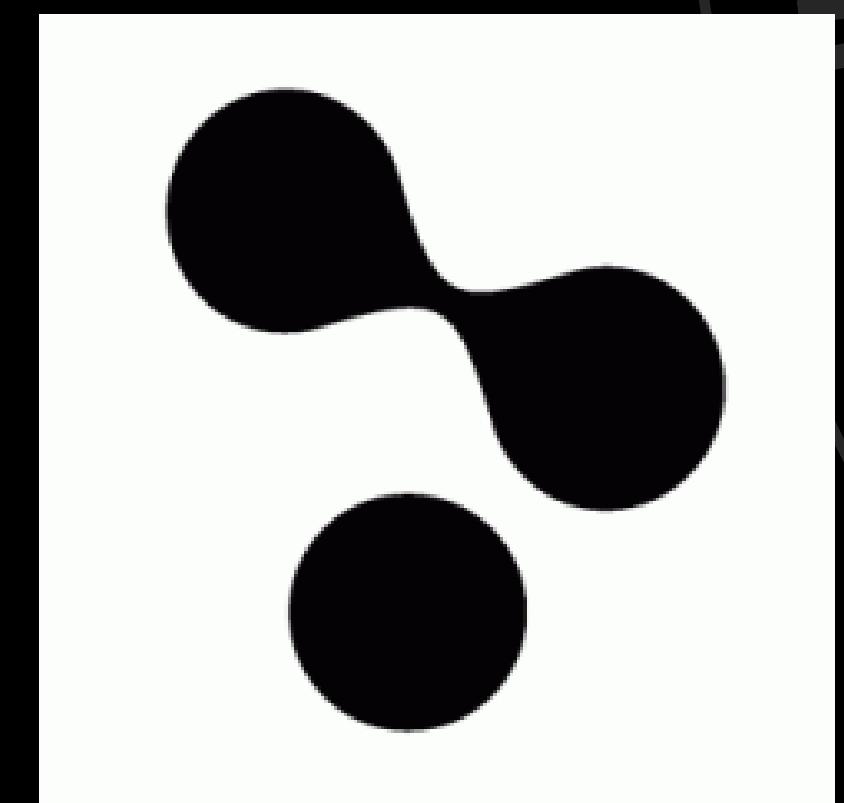
GPU > Memory > CPU

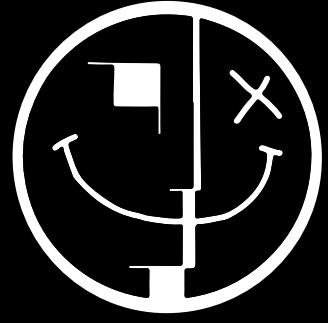




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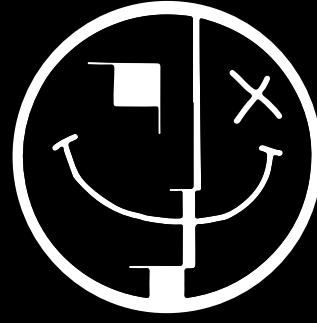
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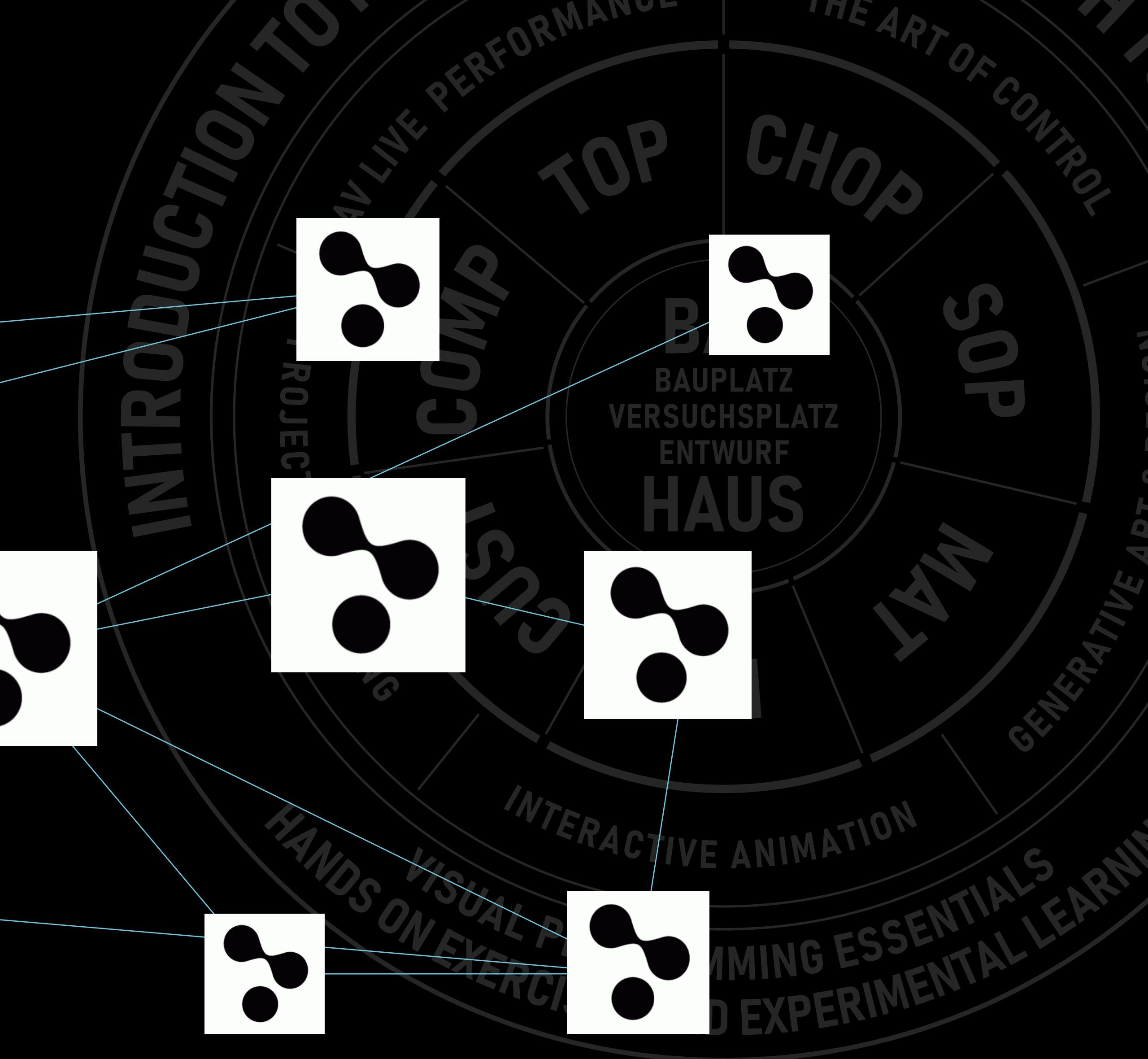
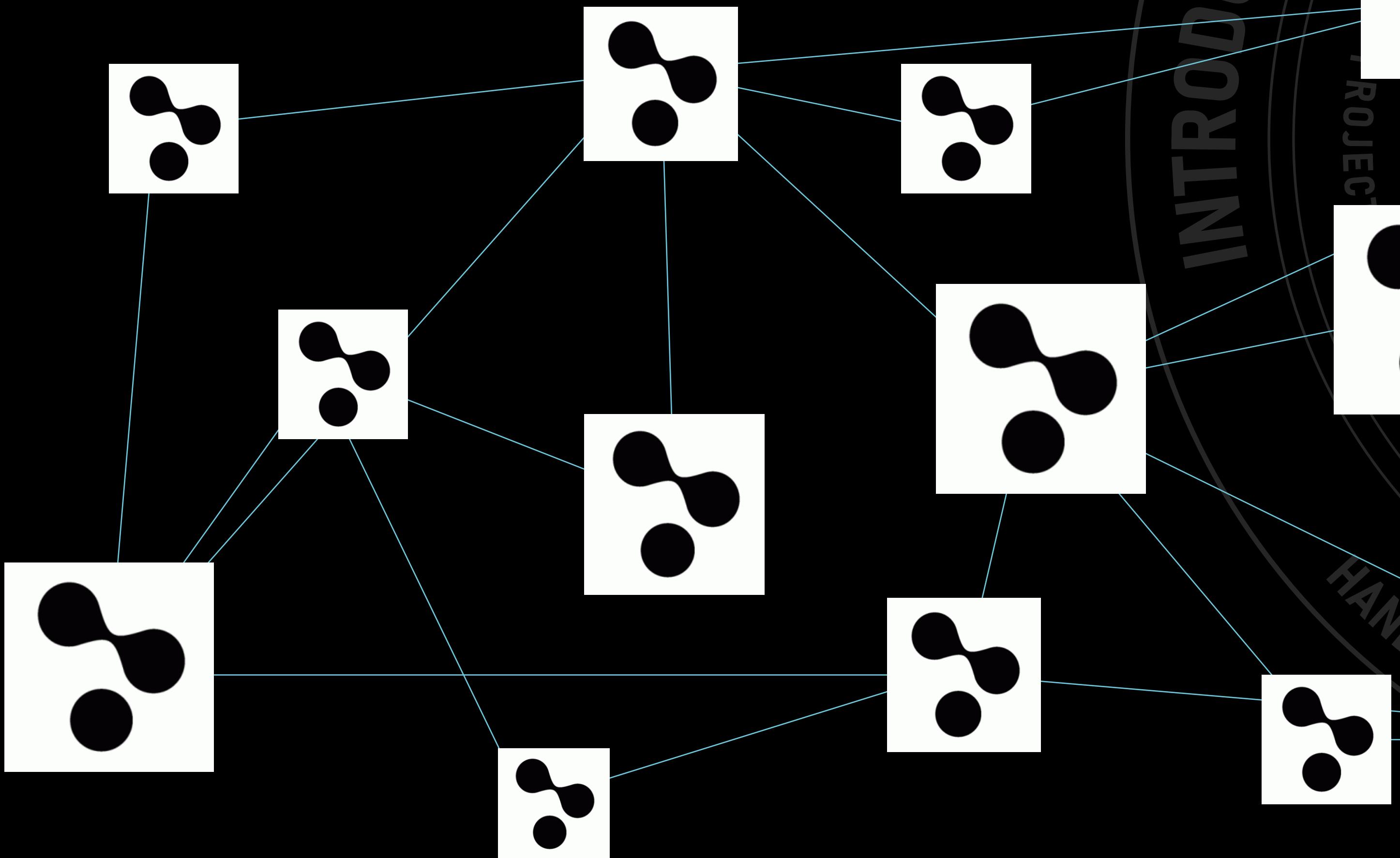
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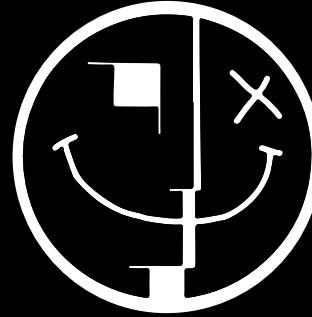
Do not consider
yourself alone
warrior Become part
of a community



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Free Learning Resources

Matthew Ragan / <https://matthewragan.com/touchdesigner-workshop-yale-2017/>

The WIKI / [https://docs.derivative.ca/Category:Tutorials#First Things to Know about TouchDesigner](https://docs.derivative.ca/Category:Tutorials#First_Things_to_Know_about_TouchDesigner)

More Learning Resources

Elburz & nVoid / <https://learntouchdesigner.com/>

Lichtpfad Studios / <https://lichtpfad.selz.com/de>

MXZEHN / <https://mxzehn.de/tutorials>

Where to get help & connect

Forum / <http://www.derivative.ca/Forum>

FB Help Group / <https://www.facebook.com/groups/touchdesignerhelp>

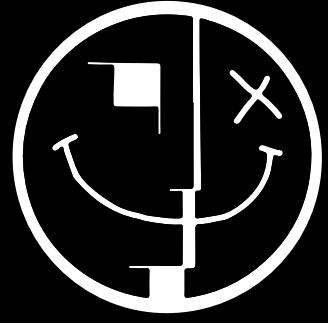
TouchDesigner on Discord / <https://discordapp.com>

More stuff

ChopChopChop Asset Store / <https://chopchopchop.org>

Richard Burns TD Plugin Store / <https://touchdesignerplugins.com>

Elburz Templates / <https://template.elburz.io>



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Share Video between Apps:

Syphon / <http://syphon.v002.info>

Spout / <http://spout.zeal.co>

NDI / <https://www.newtek.com/ndi/tools>

Hardware IO:

Arduino / <https://www.arduino.cc>

Enntec DMX / <https://www.enttec.com>

Datapath FX4 / <https://www.datapath.co.uk>

Magewell USB Capture / <https://www.magewell.com/capture/usb-capture>

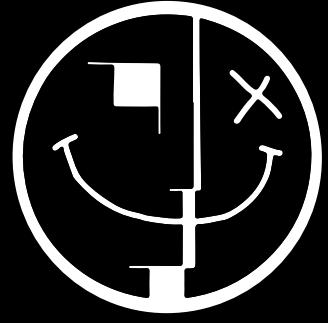
Wacom / <https://www.wacom.com>

Leap Motion / <https://www.leapmotion.com>

Real Sense / <https://software.intel.com/en-us/realsense/d400>

ZED / <https://www.stereolabs.com/>





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Helpful Software:

Ableton Live / <https://www.ableton.com/de/live>

Audacity / <https://www.audacityteam.org>

Blender / <https://www.blender.org>

OBS / <https://obsproject.com>

Mapping Matter / <http://www.mappingmatter.com>

OSC / MIDI

TouchOSC / <https://hexler.net/software/touchosc>

Lemur / <https://liine.net/en/products/lemur>

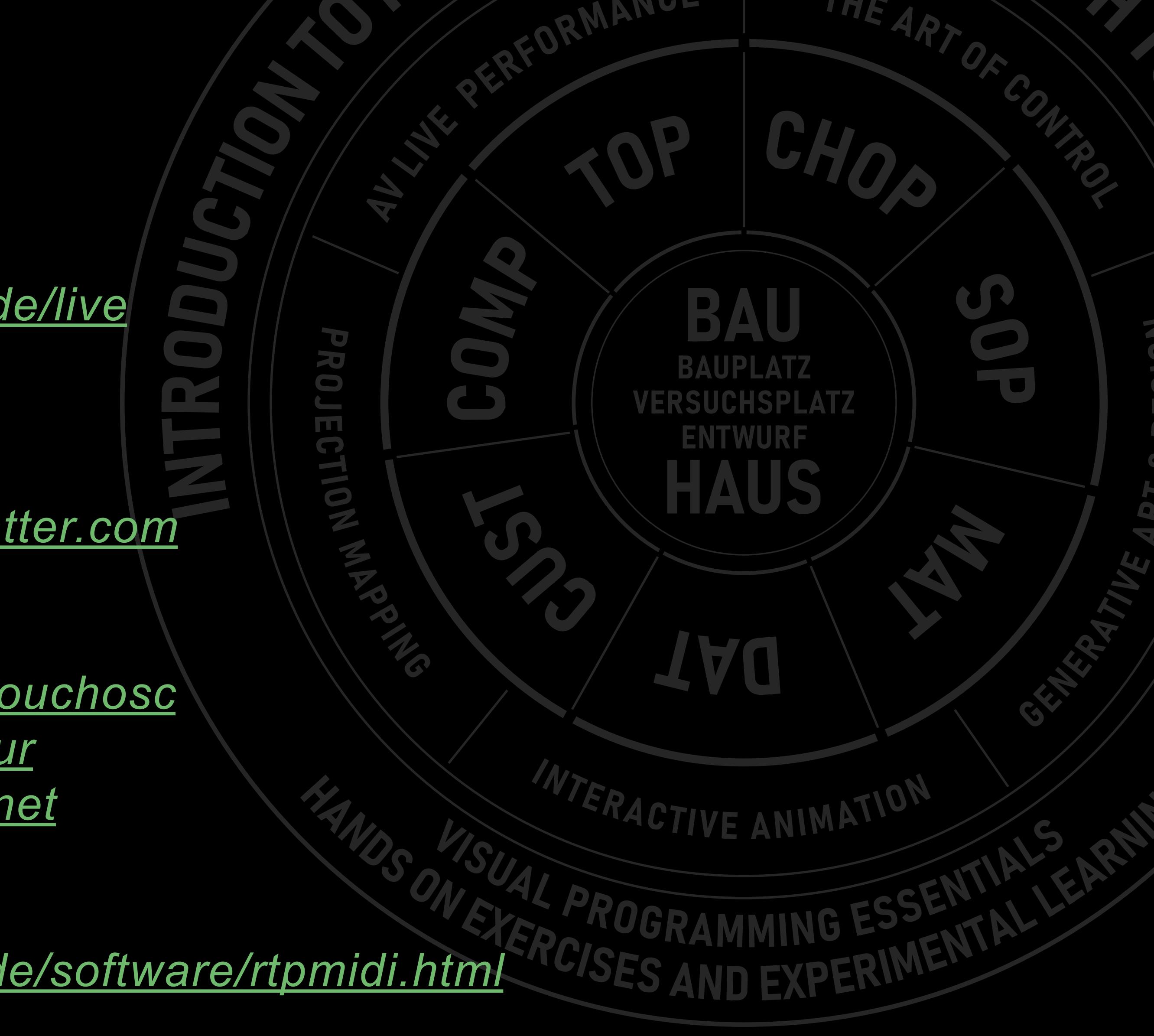
Open Stage Control / <https://osc.ammd.net>

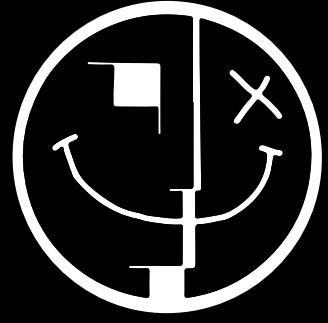
Vezer / <https://imimat.com/vezer>

OSSIA / <https://ossia.io>

RTP Midi / <https://www.tobias-erichsen.de/software/rtpmidi.html>

MIDI Ox / <http://www.midiox.com>





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More stuff

Text Editor / <https://www.sublimetext.com>

BPM / FPS Calculator / https://www.vjamm.com/support/av_bpm.php%3Flang=en.html

Artnet Monitor / <https://www.lightjams.com/artnetominator/>

Video Encoder / <https://ffmpeg.org/>

Sound Drivers / <http://www.asio4all.org/>

3D Package / <https://www.blender.org/>

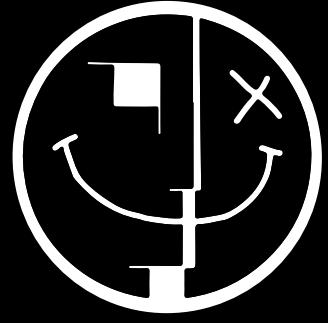
Intermediate Codec / <https://en.wikipedia.org/wiki/CineForm>

MultiDisplay Splitter / <https://www.datapath.co.uk/datapath-products/multi-display-products/datapath-fx4>

Intermediate Codec / <https://en.wikipedia.org/wiki/CineForm>

IoT Flow Programming / <https://nodered.org>

Network Applications / <https://nodejs.org>



TOUCHDESIGNER WRSHP 101

A Homage to the Bauhaus

Übung 1

Ludwig Hirschfeld-Mack ,Optischer Farbmischer‘

Ludwig studied at the Bauhaus from 1919-1925 and was working in the schools print workshop.

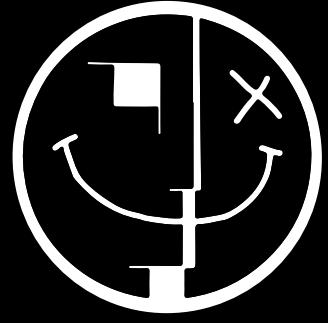
He is most know for the „Reflektorische Farblichtspiele“, which he developed with Kurt Schwerdtfeger.

They are an early example of expanded cinema that was performed live alongside the music.

Ludwig was visiting the Vorkurs of Johannes Itten, who was lecturing about color. As part of this work, Ludwig developed a set of ,Optische Farbmischer‘ that have become very popular and can be bought until today.

<https://www.bauhaus100.de/das-bauhaus/koepfe/studierende/ludwig-hirschfeld-mack/>





TOUCHDESIGNER WRSHP 101

A Homage to the Bauhaus

Übung 2

Alma Siedhoff-Buscher ,Kleines Schiffbauspiel‘

Alma studied at the Bauhaus from 1922-1927 and was working in the schools weaving and wood workshops. She was designing childrens toys, furniture and paper crafts. After she married a fellow 'Bauhäusler' she left the Bauhaus. She was killed in 1944 in a bomb attack in Frankfurt.

Since 1977 re-editions of her work are being sold in Museum shops.

<https://www.bauhaus100.de/das-bauhaus/koepfe/studierende/alma-siedhoff-buscher/>

