

TOUCHDESIGNER BEGINNERS MUNICH

9:45 – 11:30

Myself : Stefan Kraus

Experimental Art and Design

11:30 – 11:45

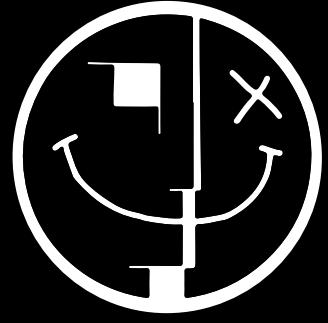
Break

11:45 – 12:30

Vorkurs 4 : Touchdesigner

12:30 – 13:30

Lunchbreak



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A Homage to the Bauhaus

13:30 – 15:15

Übung 1 - Ludwig Hirschfeld-Mack - Optischer Farbmischer

15:15 – 15:30

Break

15:30 – 17:15

Übung 2 - Alma Siedhoff-Buscher – Kleines Schiffbauspiel

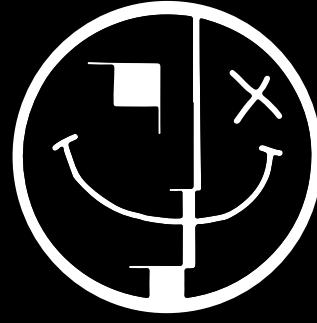
17:15 – 17:30

Break

17:30 – 18:15

Übung 3 - Walter Gropius – Total Theater

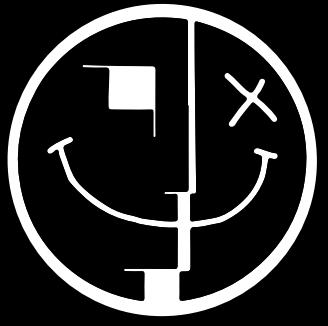
Documents and Files : https://github.com/MXZEHN/TD_WRSHP_BHS-BERLIN_7-19



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A Homage to the Bauhaus

Experimental Media Art and Design

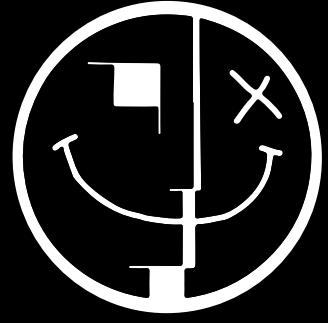




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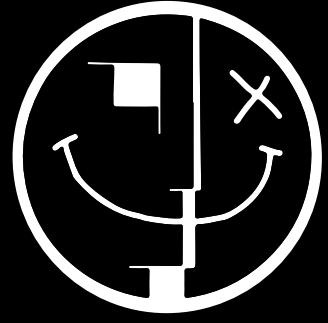
A Homage to the Bauhaus

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



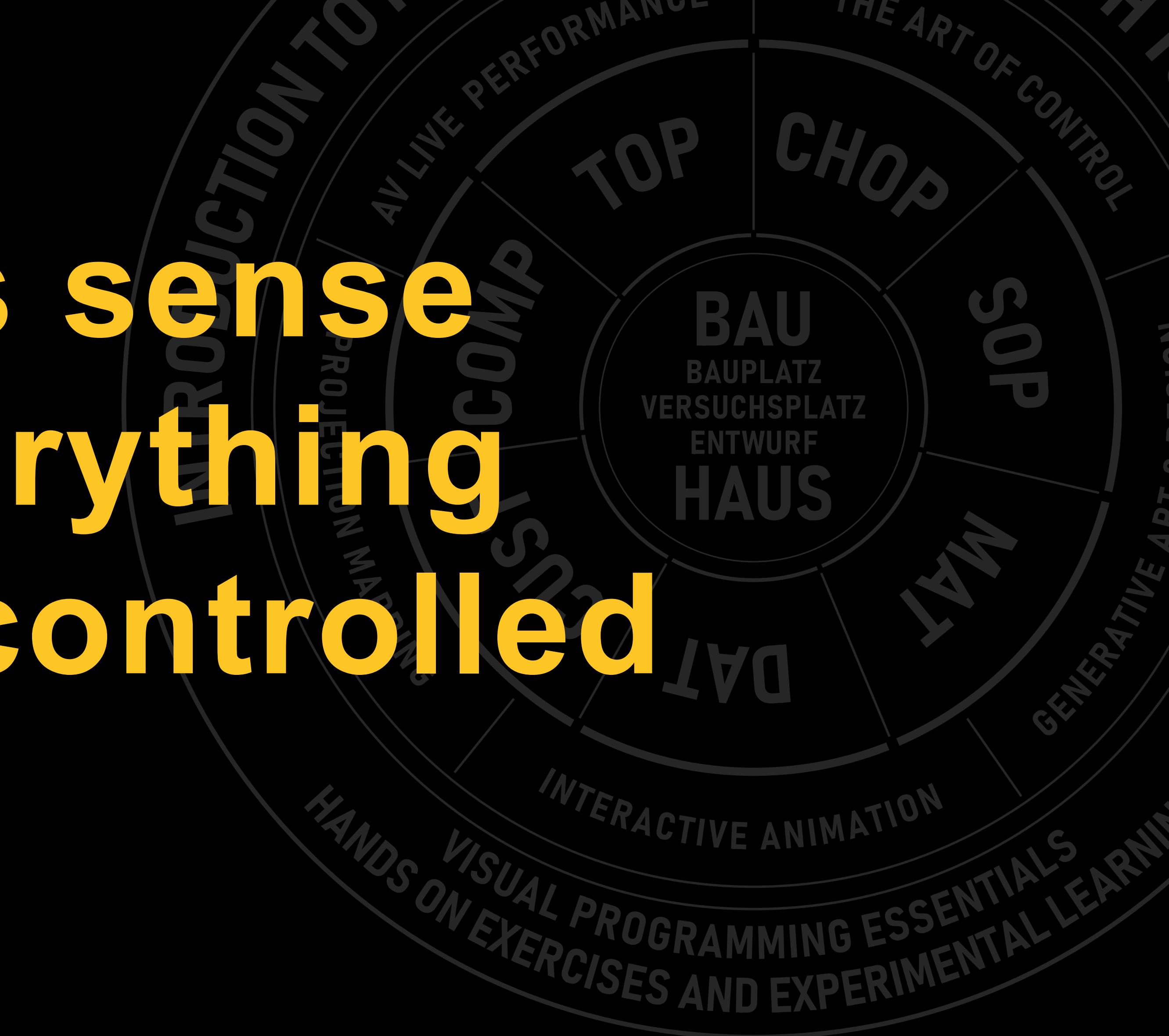
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A Homage to the Bauhaus

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

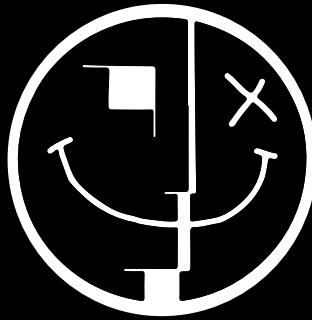


<https://www.whitevoid.com>



<https://www.whitevoid.com>





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Art:

has no commercial goal but hopes to enlighten
through experience

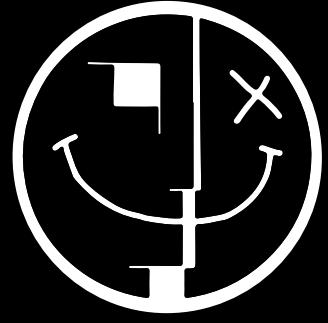
Experimental:

an open result process of exploration

Design:

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

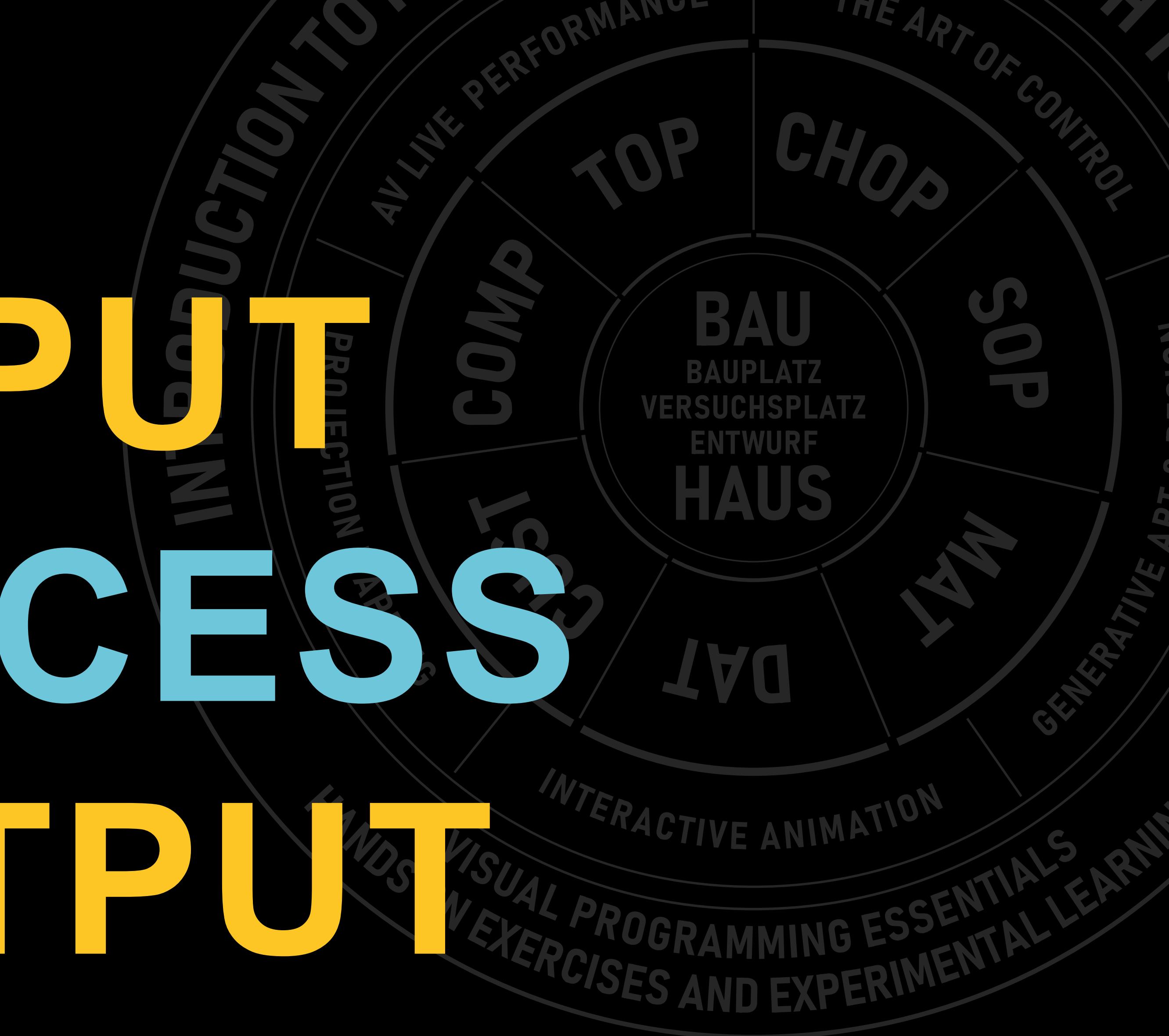


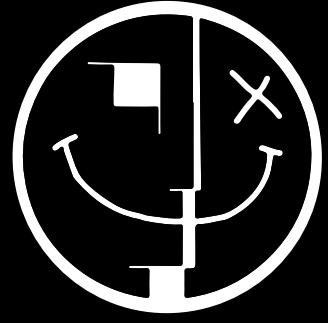


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INPUT
PROCESS
OUTPUT

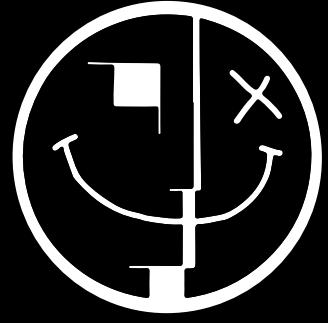




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Programming Production Tools Creative Coding





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Creative Coding

Processing / <https://processing.org>

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

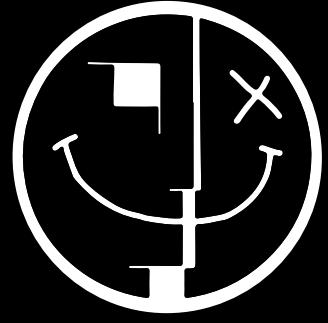
Cinder (C++) / <https://libcinder.org/about>

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>

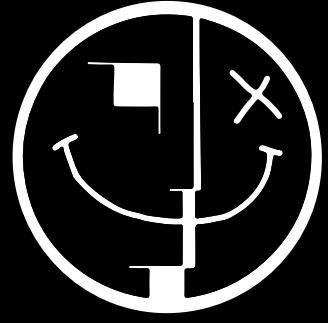
COGE / <https://imimot.com/coge>

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>

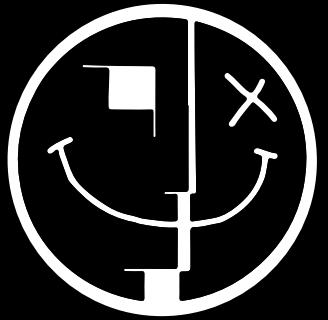
Lighting Hard- & Software

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>

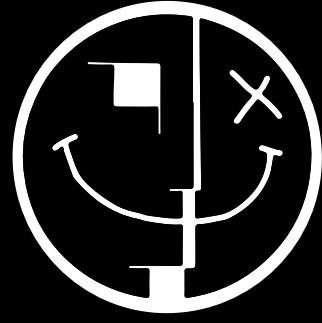
Nodes in other interesting software

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

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

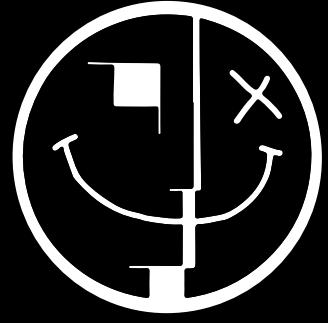
Houdini – 3D FX / <https://www.sidefx.com/products/houdini>

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

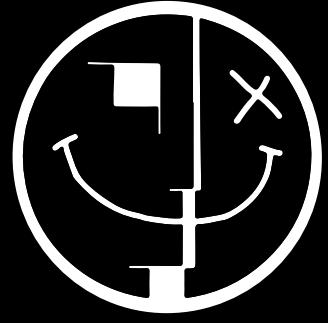
research and development

Data Visualisation / Research / Education / Prototyping

experimental

...



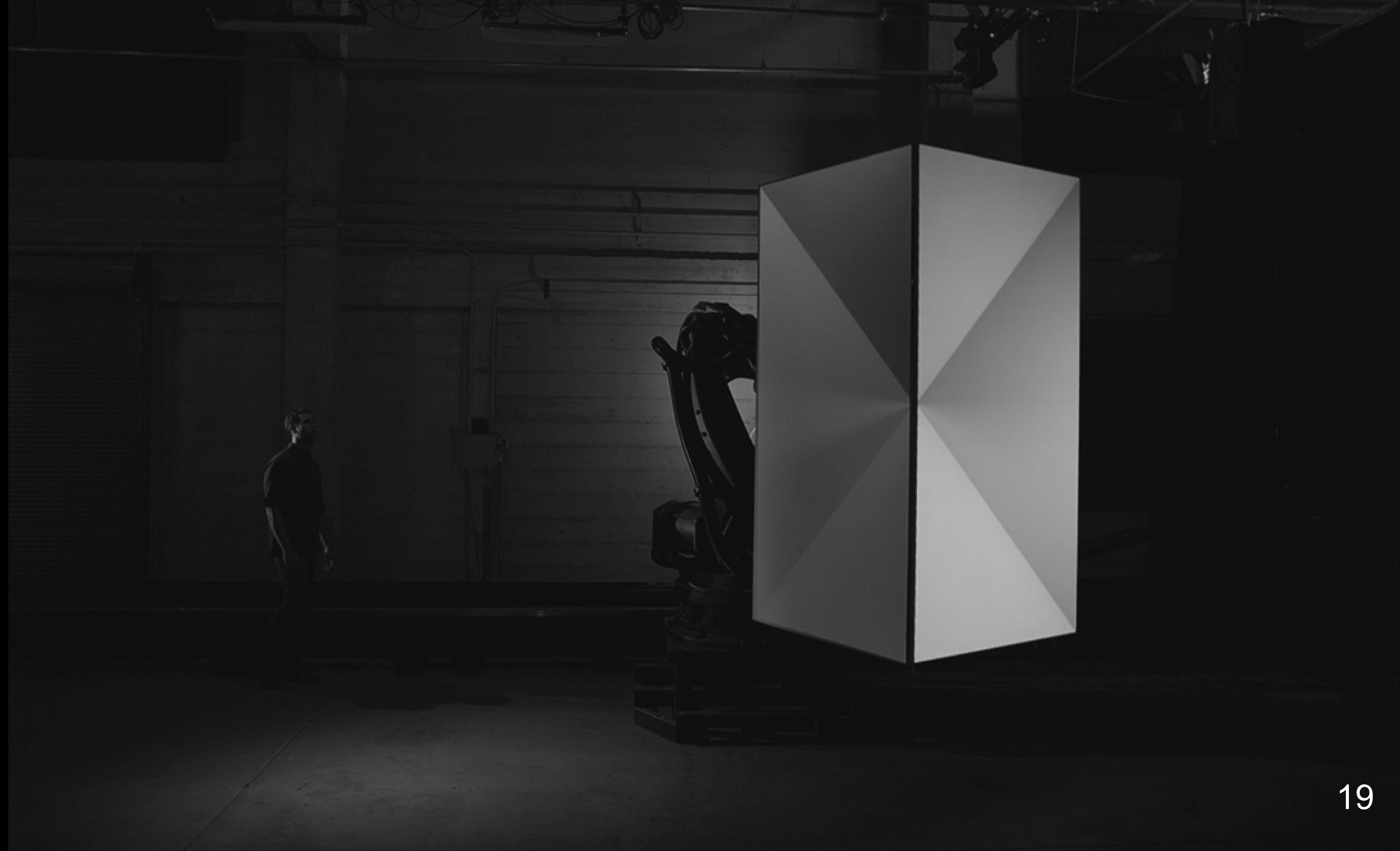


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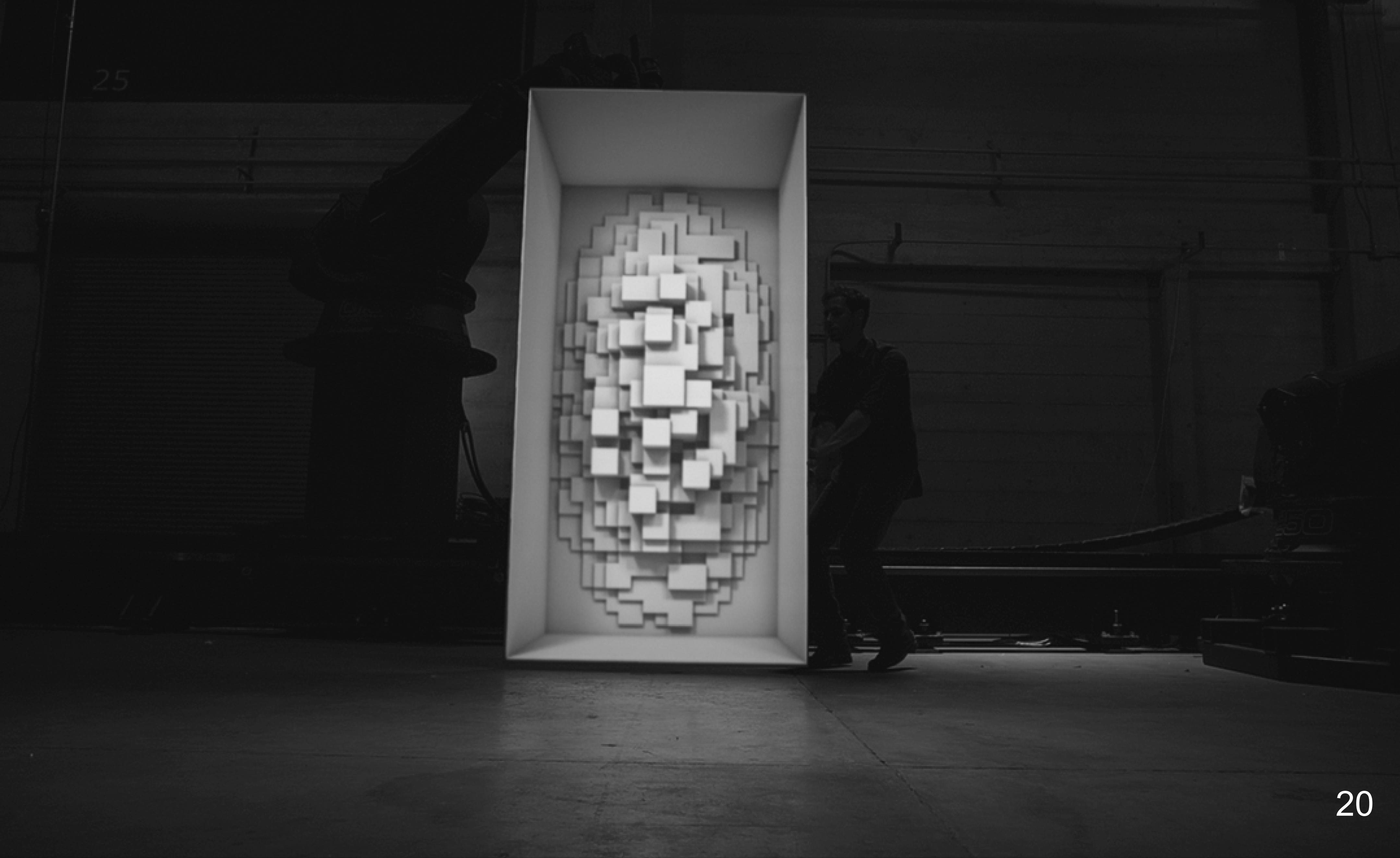
CONNECT
EVERYTHING
WITH EVERYTHING



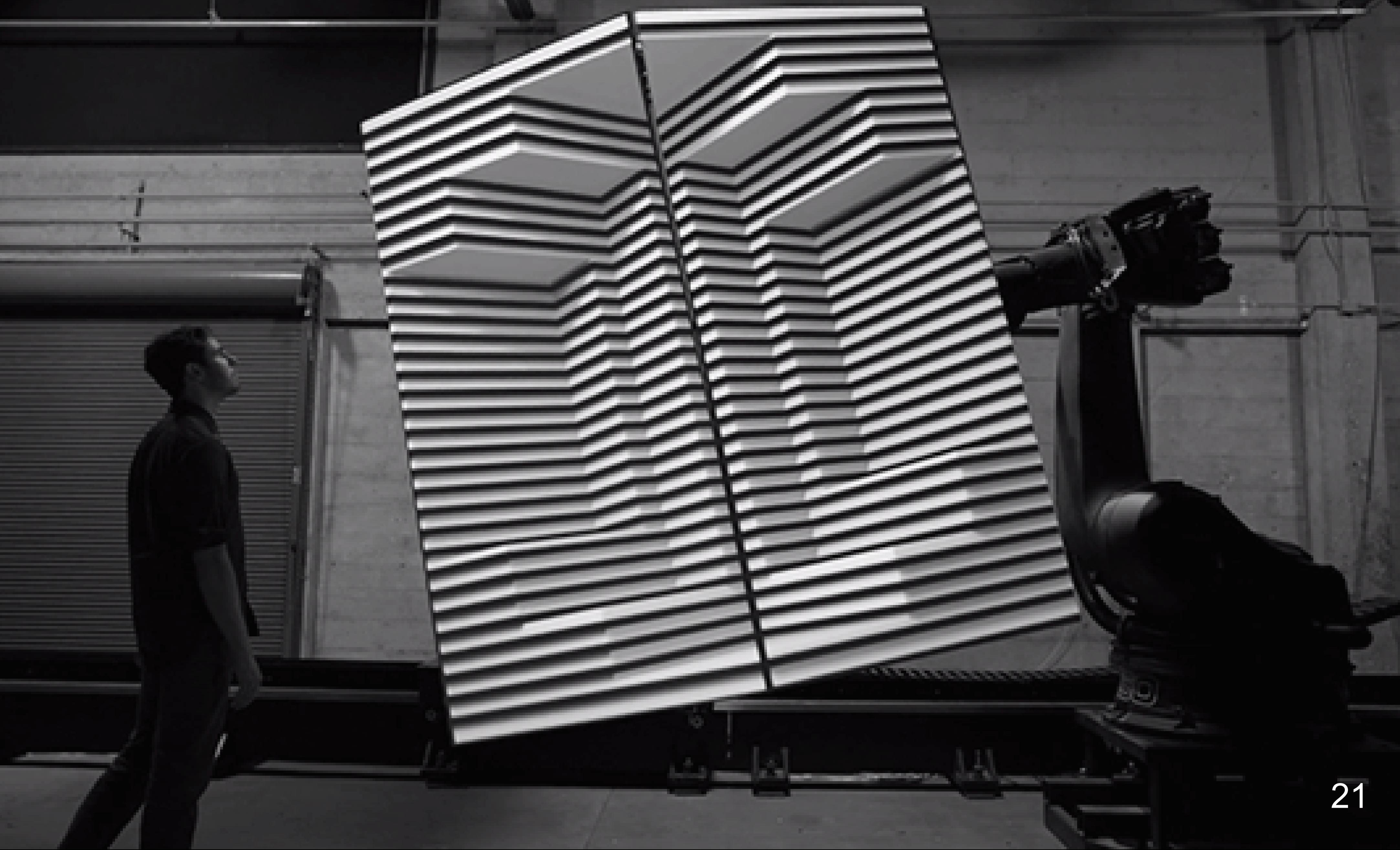
<https://gmunk.com/BOX>

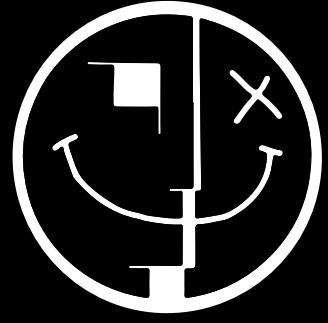


<https://gmunk.com/BOX>



<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>

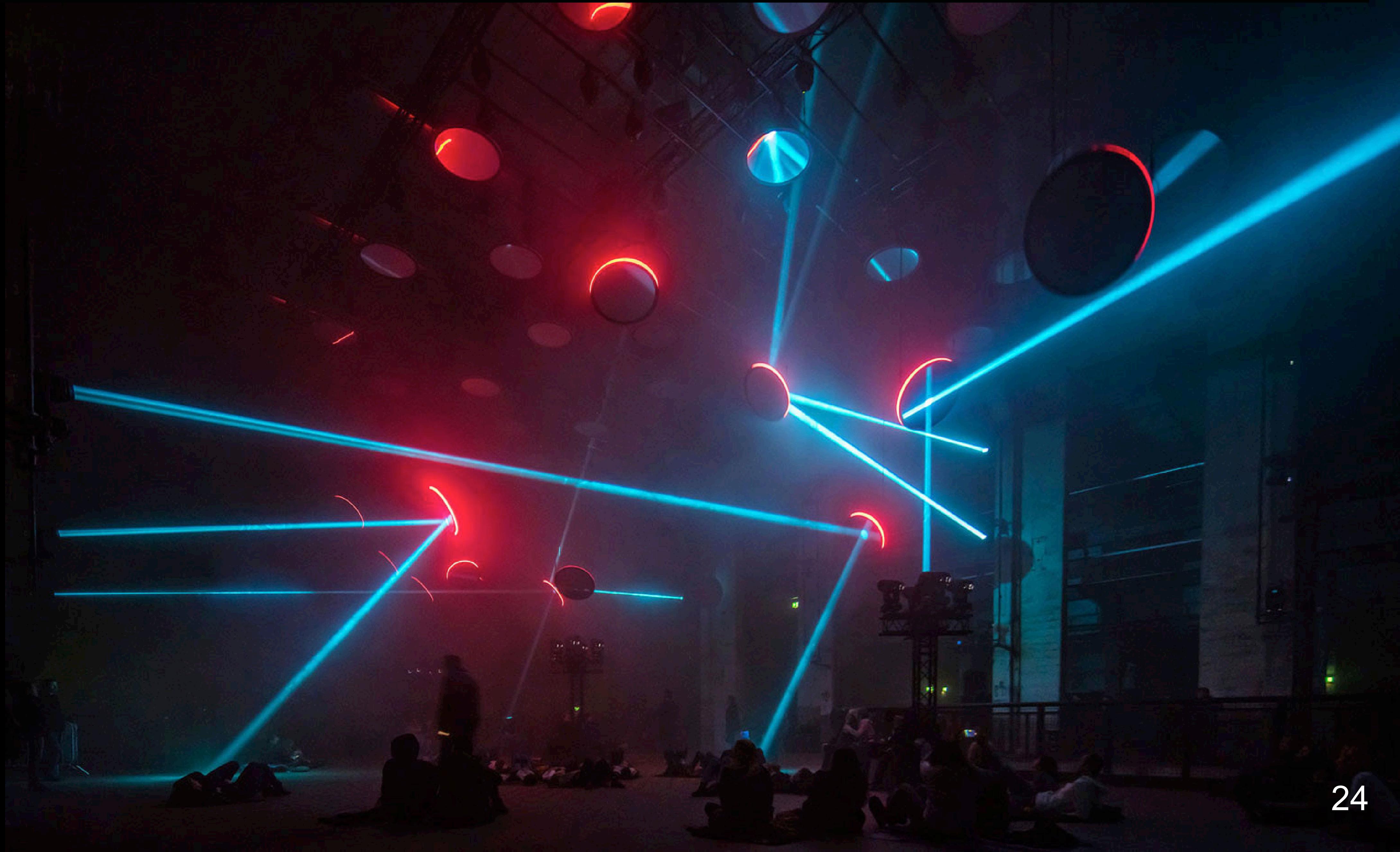
build custom media servers with multiple outputs

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

<https://www.whitevoid.com>

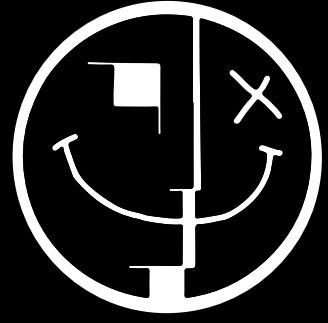


<https://www.whitevoid.com>



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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

OSD/PT Master Control Number of Monitors: 11 SETUP

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

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



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

The screenshot displays a complex digital performance software interface, likely for a DJ or VJ setup. The interface is organized into several sections:

- Left Column:** Contains four layer preview windows labeled +A1, +A2, +B1, and +B2. Each window shows a video frame with various visual effects applied, such as color washes and geometric patterns. Below these are controls for **SPEED** (Normal Speed Val. 100.00%) and **POSITION X**/**Y**.
- Middle Column:** Contains two layer preview windows labeled +C1 and +C2. These also show video frames with visual effects. Below them are controls for **SPEED** (Normal Speed Val. 100.00%) and **POSITION X**/**Y**.
- Bottom Left:** A section titled "VISUALS" containing a grid of small thumbnail images representing different visual effects or templates.
- Top Right:** A large preview window showing a multi-layer composite of the visual effects from the other sections. It includes a zoom tool and a "LAYER PREVIEW" button.
- Right Side:** A vertical column of controls and preview windows for "EFFECT", "BASE FX", "EXTENTION", "EXTENTION D", and "SPEED / SIDE BOX". These sections contain various parameters like **BRIGHTNESS**, **CONTRAST**, **LEVEL**, and **STRETCH START**.
- Bottom Right:** A section titled "MAP" showing a grid-based map with various colored cells (red, green, blue) and labels like "LEGO BASE", "LEGO TRUCK", and "LEGO JET".
- Bottom Far Right:** A section titled "CONSOLE" with various checkboxes and controls for "TIME", "RENDER", "SUB MAP", "LEVEL", and "REZ NET".

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

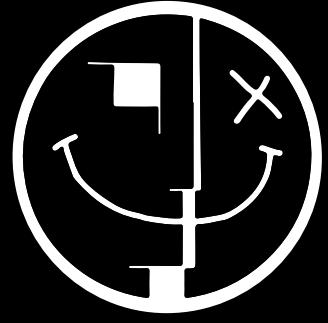
The screenshot displays a complex digital control interface, likely for a video mapping or stage visualization system. The interface is organized into several panels:

- Top Left:** Three identical panels labeled "+A1", "+B1", and "+C1". Each panel contains a "FILE" section (0x0, 00:00:00.0, 00:00:01.0, FPS: 1), a "LAYER PARAMETER" section (STILING, XSCALE, ZROTC, POSITION X, POSITION Y), and a "SPEED" section (VAL. 100.00%, NORMAL SPEED).
- Top Middle:** A panel labeled "+A2" and "+B2". It includes a "VIDEO DEVICE IN" section, a "CAMERA FX" section (VAL. 0.00x, SETTING, TRANSFORM), and a "LAYER PREVIEW" section.
- Top Right:** A panel titled "ageHa BASIC LED SET(3FACE)" showing three circular preview windows with a butterfly logo and a color bar.
- Middle Left:** A panel labeled "+A1" and "+B1" containing "LAYER PARAMETER" and "SPEED" sections.
- Middle Center:** A panel labeled "+SIDE BOX" with sections for "LAYER PARAMETER" (NORMAL, MIRROR1, MIRROR2, MIRROR3, BLACK ST, WHITE ST, INVERT ST), "INVERT 1" and "INVERT 2", and "LAYER PARAMETERS" (COLOR, PHASE, NX, NCOLORAT, X COLOR, X COLOR, STILING, RESET, X COLOR, X COLOR, X COLOR, X COLOR).
- Middle Right:** A panel titled "EXTENTION A" with sections for "LAYER PARAMETER" (FEEDBACK, XXPARK1, XXPARK2, XSCALE, XXPARK1, XXPARK2, XSCALE, XXPARK1, XXPARK2, XSCALE) and "LAYER PARAMETERS" (EX1, EX2, EX3, EX4, EX5, EX6, C1, C2, C3, C4).
- Bottom Left:** A panel titled "VISUALS" showing a 5x4 grid of cells, all labeled "Cell is empty."
- Bottom Center:** A panel titled "EXTENTION D" with sections for "LAYER PARAMETER" (FILE, STILING, XSCALE, ZROTC, POSITION X, POSITION Y, X COLOR, X COLOR, X COLOR, X COLOR) and "LAYER PARAMETERS" (EX1, EX2, EX3, EX4, EX5, EX6, C1, C2, C3, C4).
- Right Side:** A vertical column of panels including "TIME", "RENDER", "SUB MAP", "LEVEL", "CONSOLE", "REZ NET", "SPEED / SIDE BOX", and "UNDER CONTROL".

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

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

- BASE LAYERS:** A section containing four base layer preview windows, each with controls for FILE, STYLING, Z SCALE, Z ROTATE, POSITION X, POSITION Y, and SPEED.
- VIDEO DEVICE IN:** A preview window for a video device input, showing a green screen with a camera effect.
- EFFECTS BANK:** A section containing three effect preview windows: EFFECT, SIDE BOX, and BASE FX.
- SUB LAYER:** A preview window for a sub-layer, showing a brown grid with numbered cells (01-16).
- PARAMETERS:** A section for adjusting parameters across various layers, including SIDE 1, SIDE 2, and SIDE 3.
- EXTRA LAYERS FOR MAP:** A preview window for extra layers used in a map, showing a purple grid with numbered cells (EX 1-6).
- COLOR CONTROL:** A section for color control, showing a blue grid with numbered cells (EX 1-6).
- MAP PREVIEW:** A large preview window at the bottom right showing a butterfly logo on a grid.
- OPTIONS:** A sidebar on the right containing various settings and checkboxes.



TOUCHDESIGNER BEGINNERS BERLIN

A Homage to the Bauhaus

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

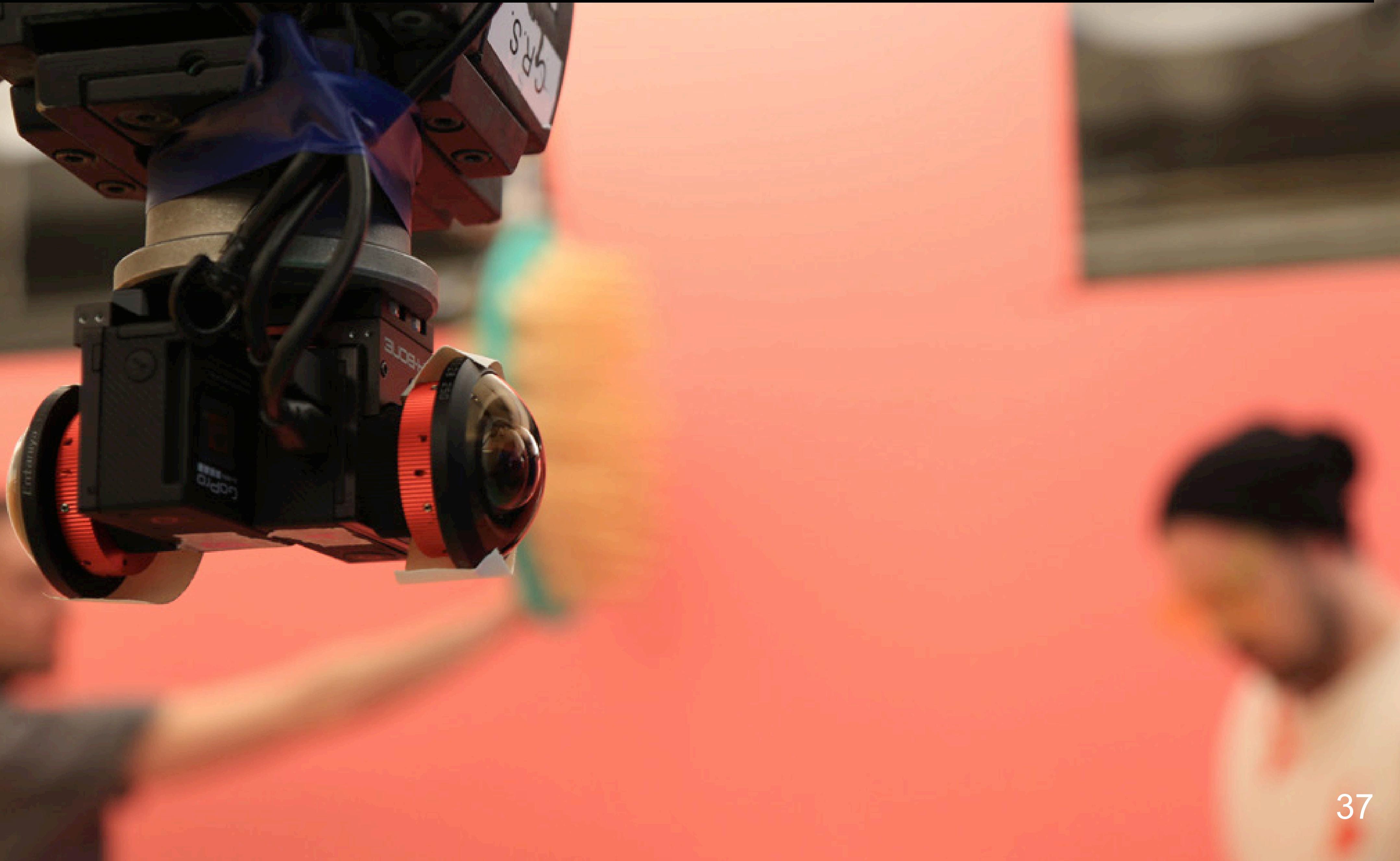
<https://www.derivative.ca/Events/2016/FutureOfMusic>

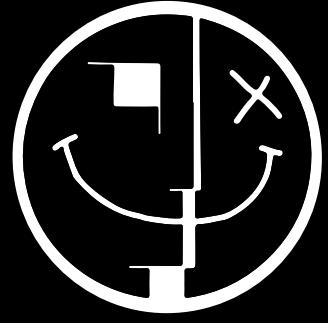


<https://www.derivative.ca/Events/2016/FutureOfMusic>



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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

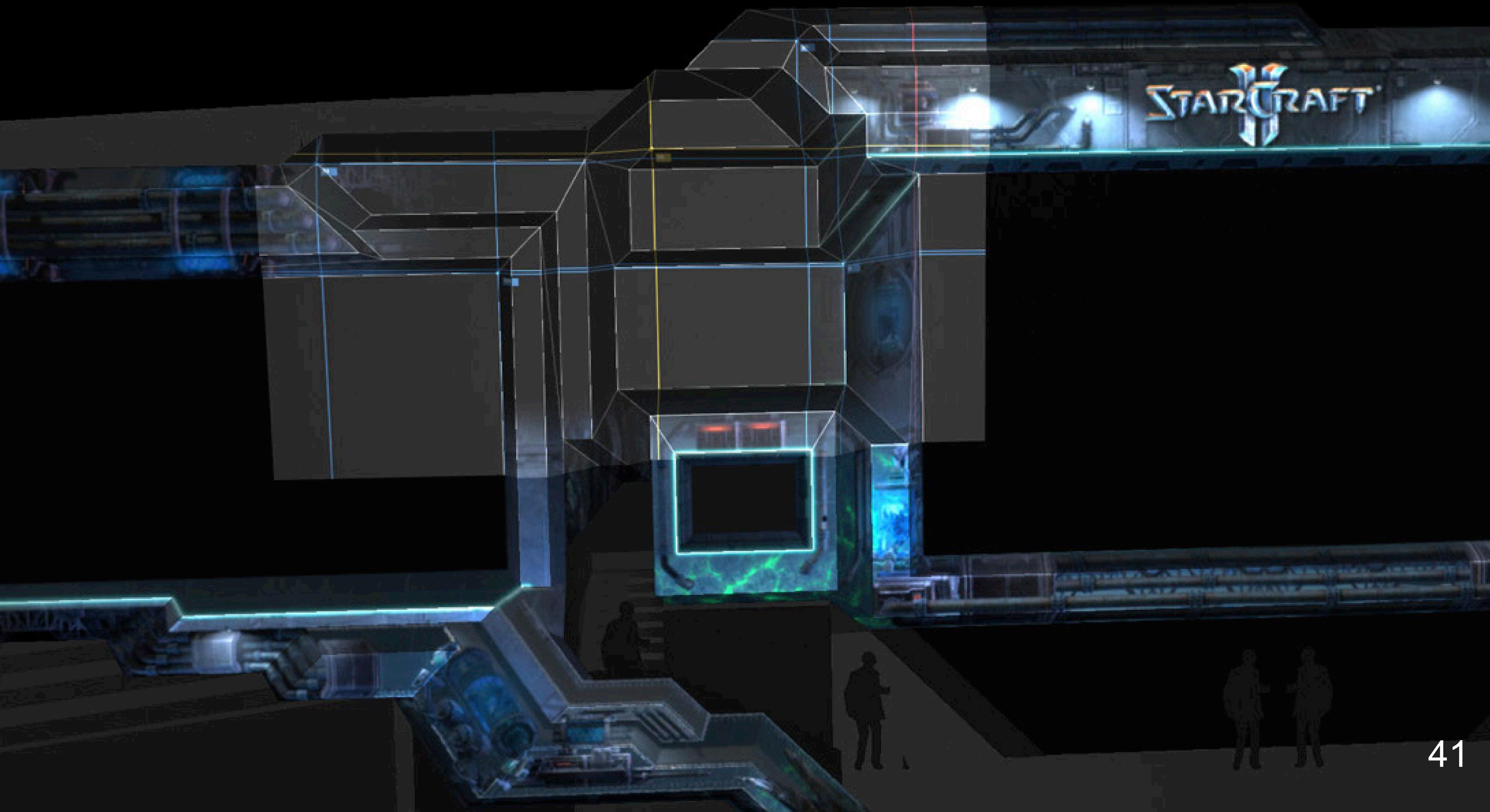
<https://www.derivative.ca/Events/2015/Luminosity/>



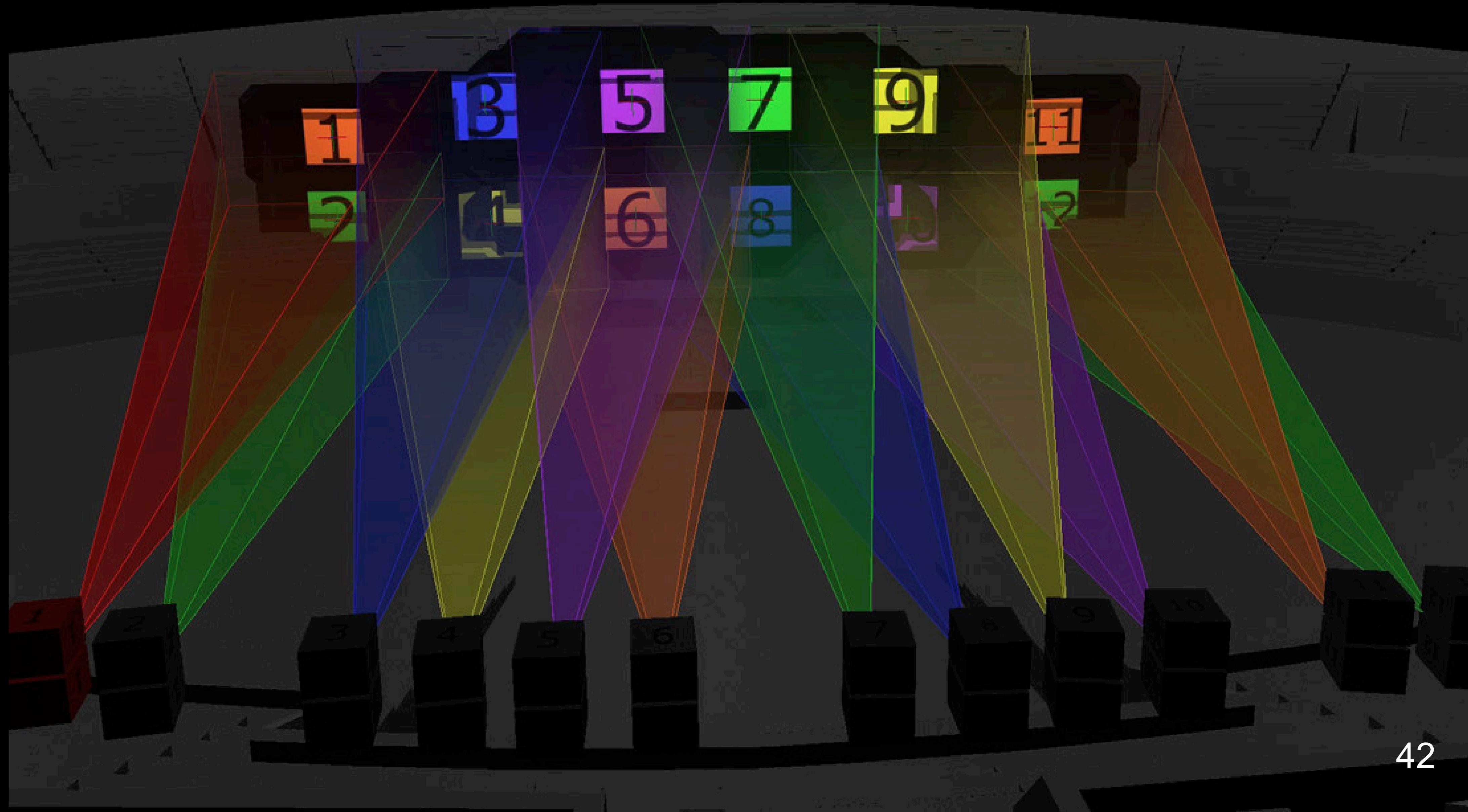
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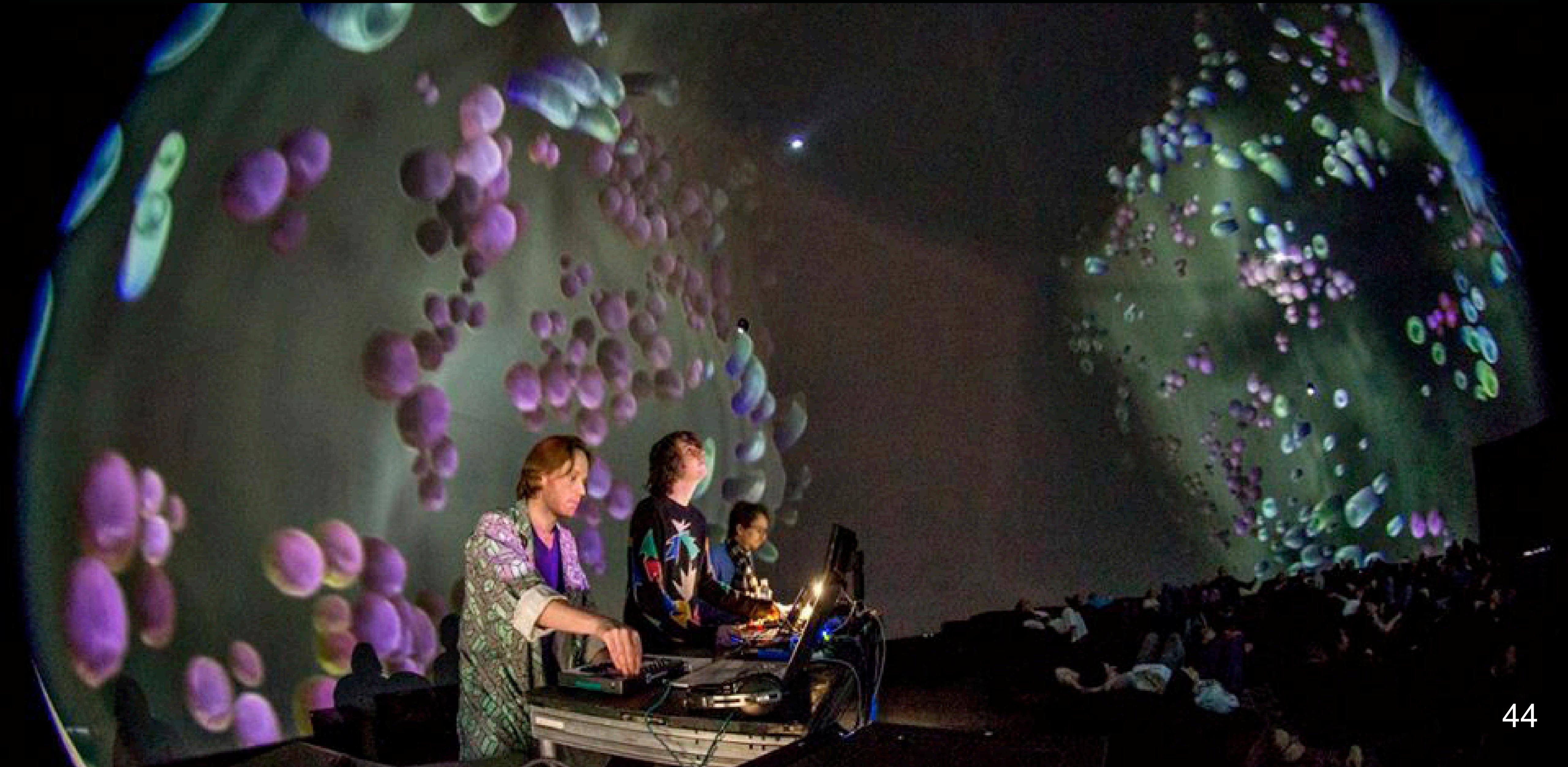
<https://vincenthouze.com>

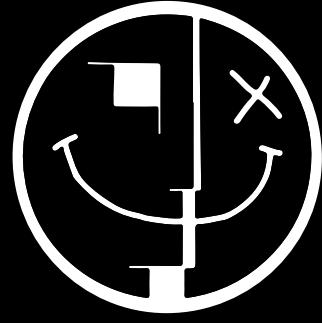
<http://www.daveandgabe.care/projects>



<https://vincenthouze.com>

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





TOUCHDESIGNER BEGINNERS BERLIN

A Homage to the Bauhaus

what hardware do we need?

PC over MAC

NVIDIA over ATI & INTEL

QUADRO over GTX

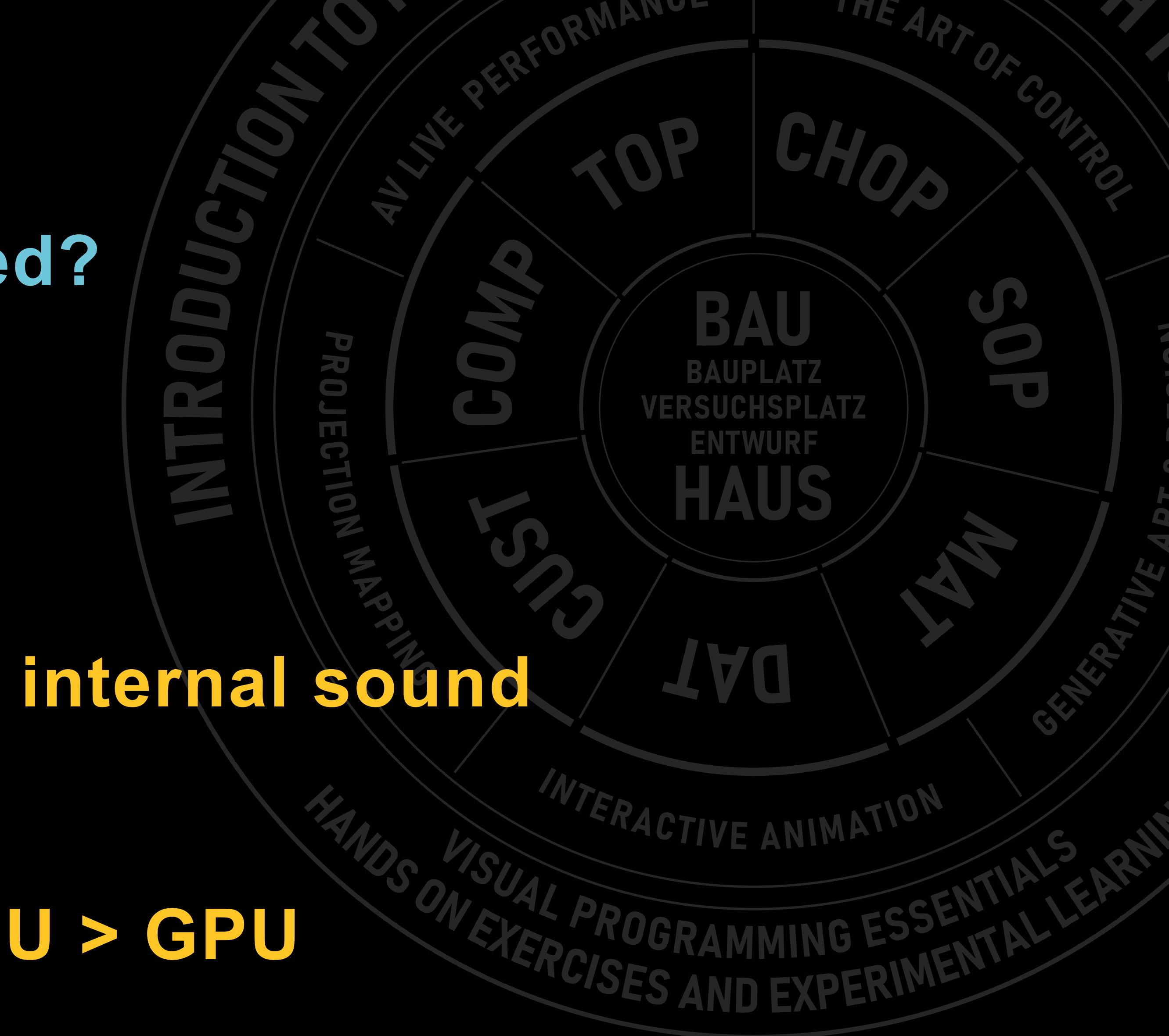
external sound card over internal sound

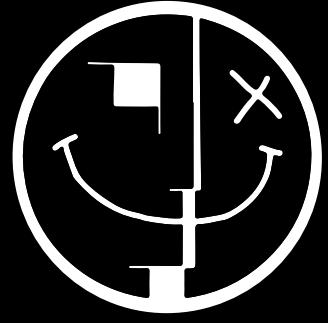
for video playback

hard disc > memory > CPU > GPU

for generative content

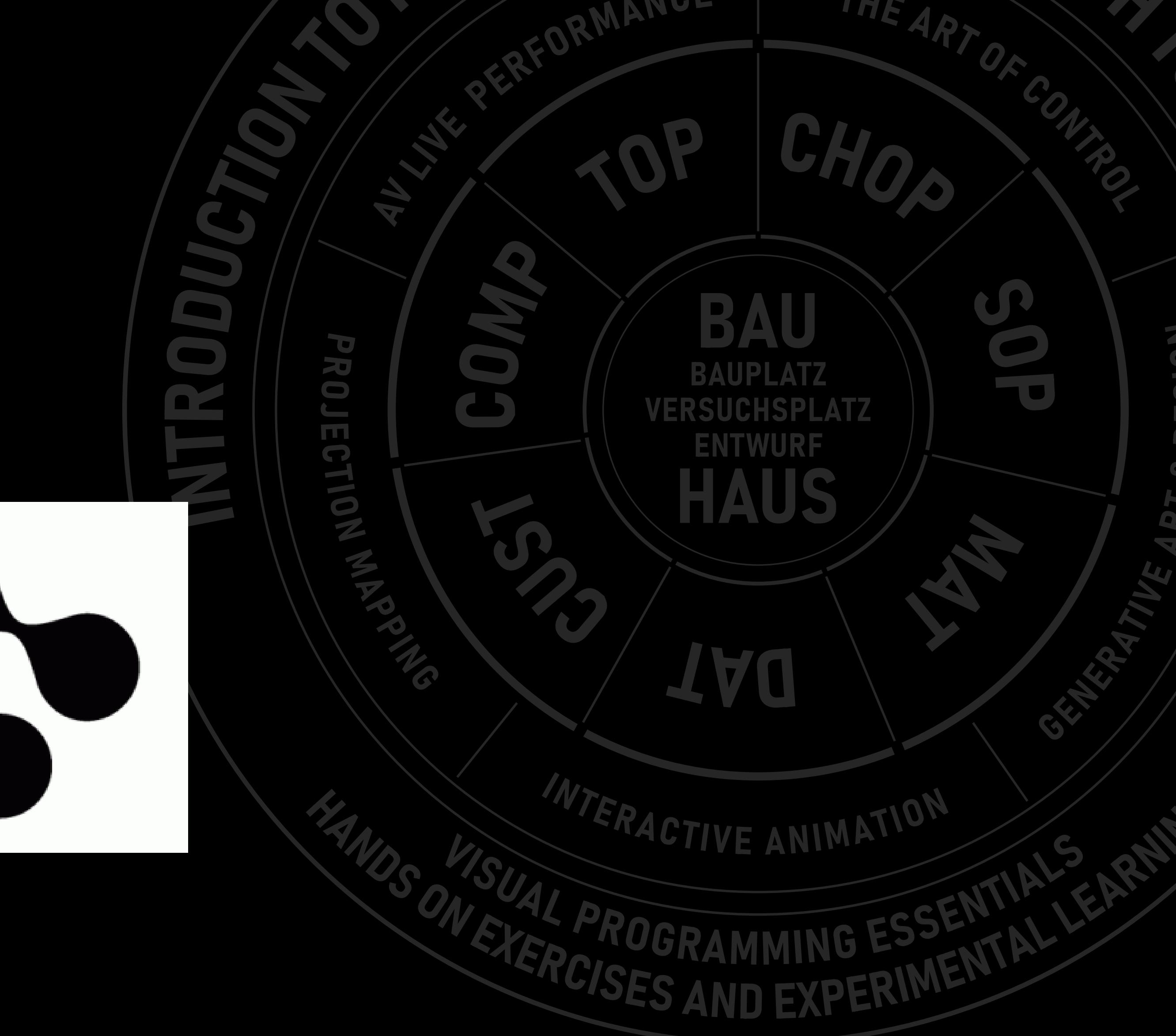
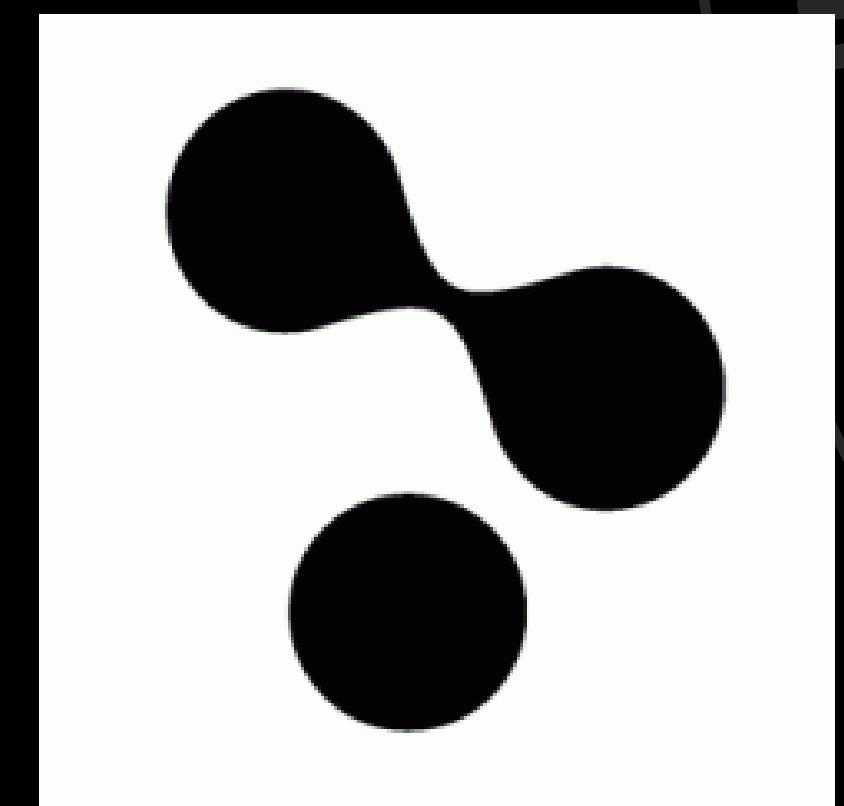
GPU > Memory > CPU

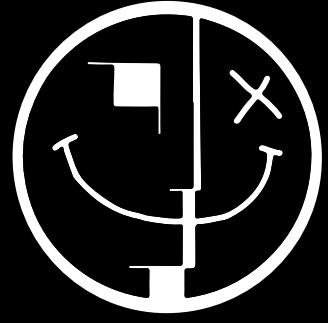




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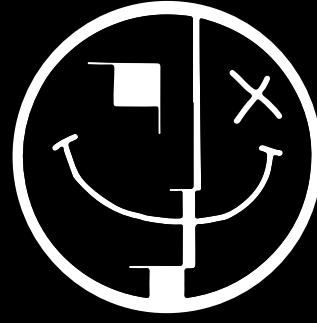




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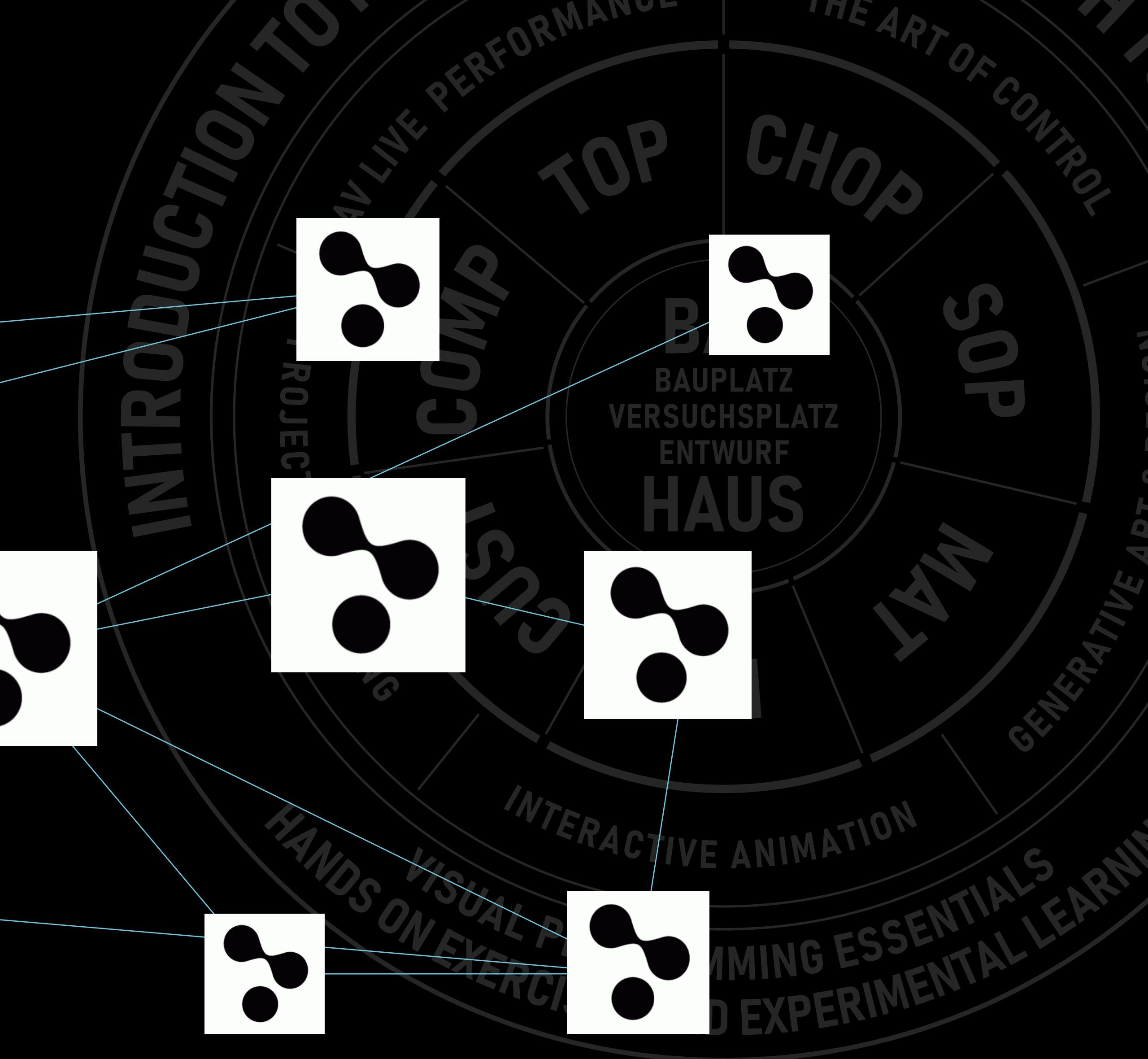
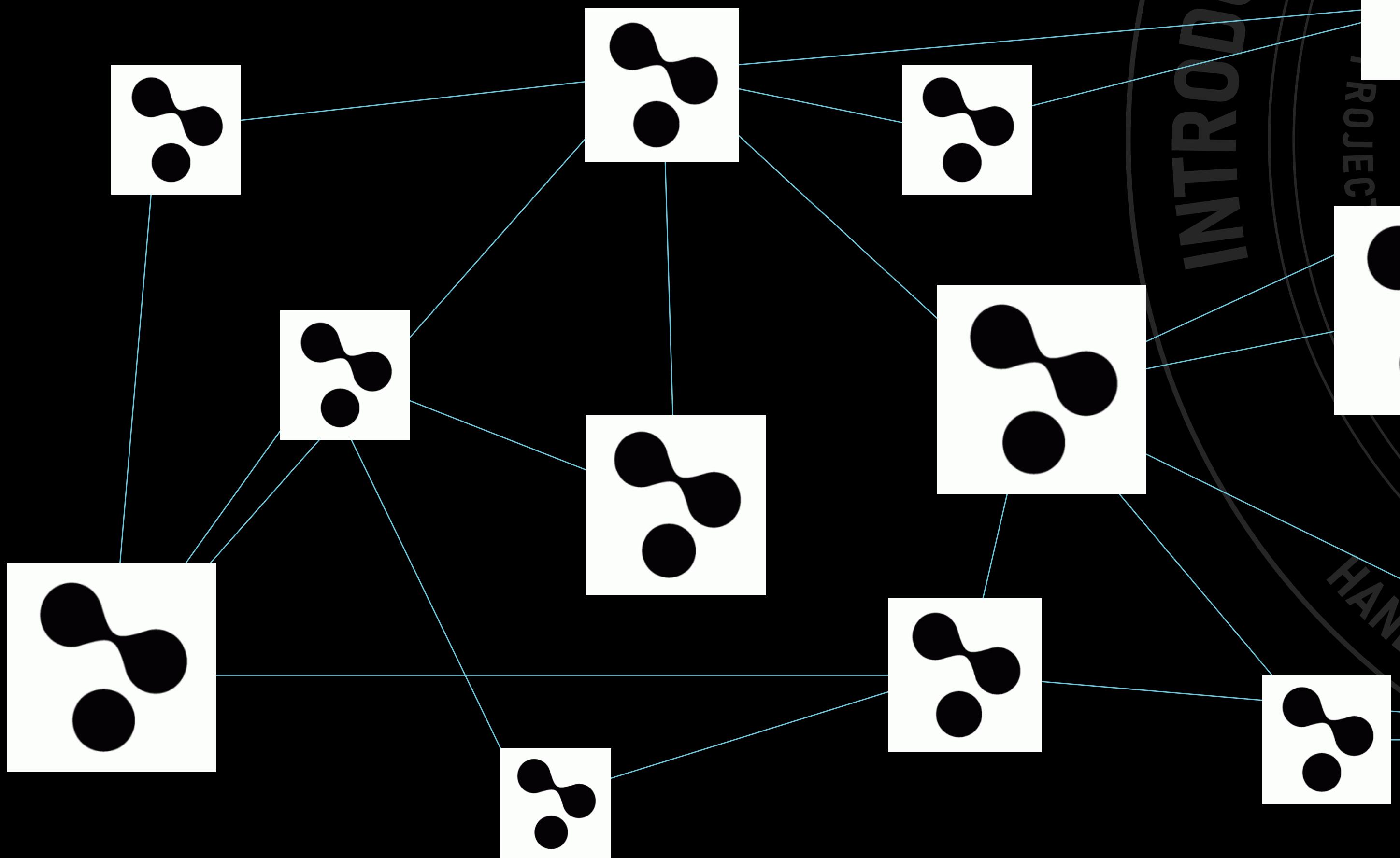
Do not consider
yourself alone
warrior Become part
of a community

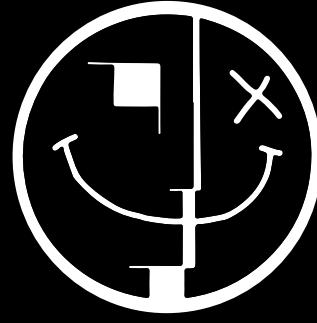




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Free Learning Resources

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

The WIKI / https://docs.derivative.ca/Category:Tutorials#First_Things_to_Know_about_TouchDesigner

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>

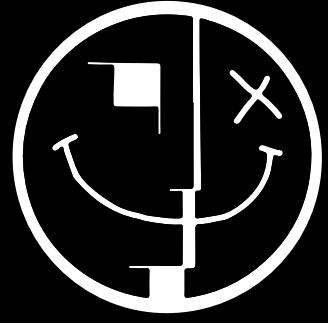
TouchDesigner on Discord / <https://discordapp.com>

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>

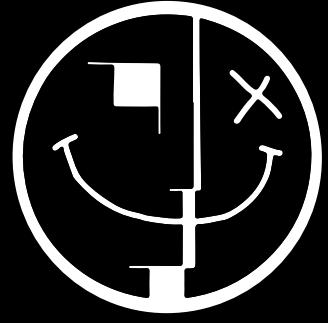
Wacom / <https://www.wacom.com>

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>

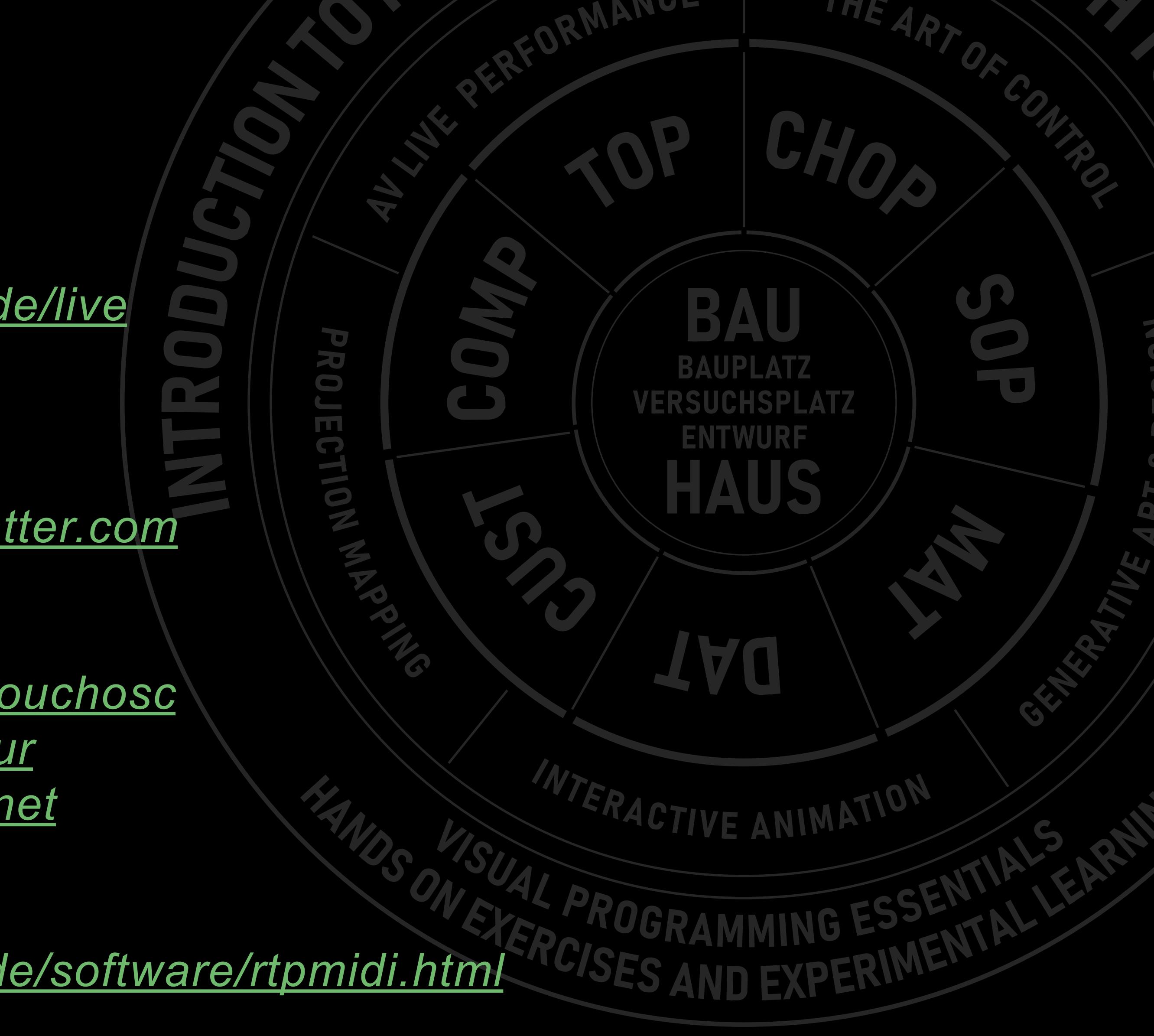
Open Stage Control / <https://osc.ammd.net>

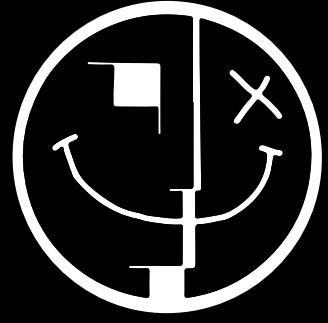
Vezer / <https://imimot.com/vezer>

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/>

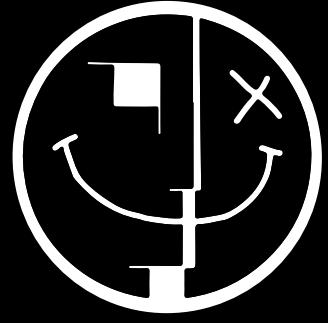
Intermediate Codec / <https://en.wikipedia.org/wiki/CineForm>

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 BEGINNERS BERLIN

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.

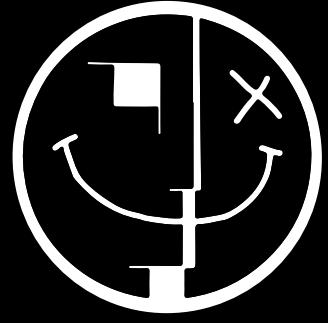
He is most know for the „Reflektorische Farblichtspiele“, which he developed with Kurt Schwerdtfeger.

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/>





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A Homage to the Bauhaus

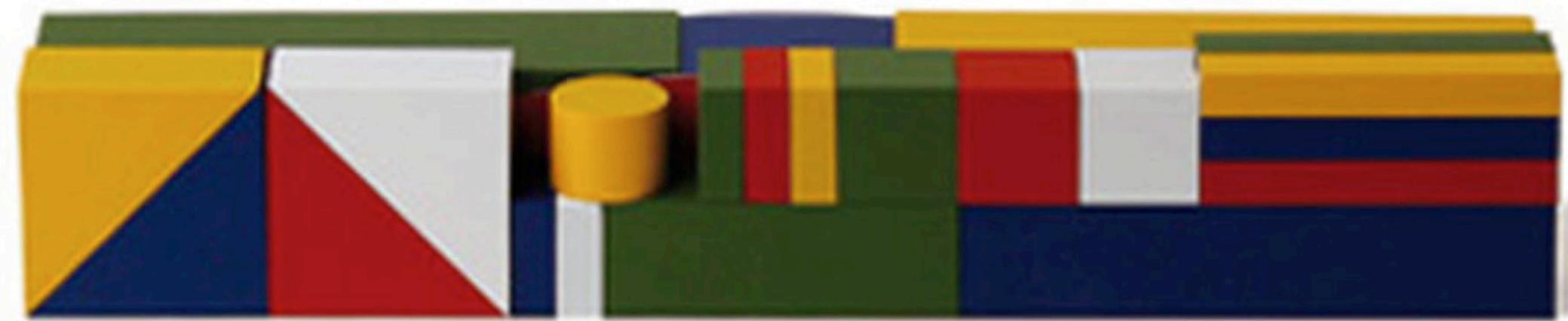
Übung 2

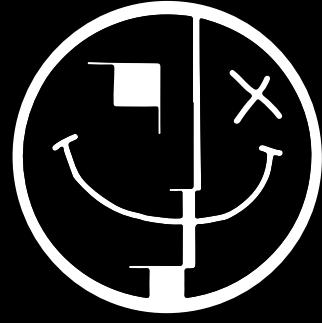
Alma Siedhoff-Buscher ,Kleines Schiffbauspiel‘

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 1044 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/>





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Übung 3

Walter Gropius

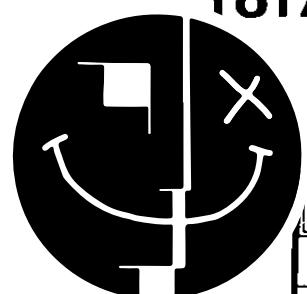
„Das synthetische Total Theater“

„The division between action and audience is overcome.
Words, lights and music no longer have a fixed place...
The place and the space for the action changes“

In 1926 Walter Gropius designed a new theater for Volksbühne
playwrite Erwin Piscator as a „Raummaschine“.

The stage immerses the audience. The action can happen
on parallel stages and light, sound and film projections
expand the space.

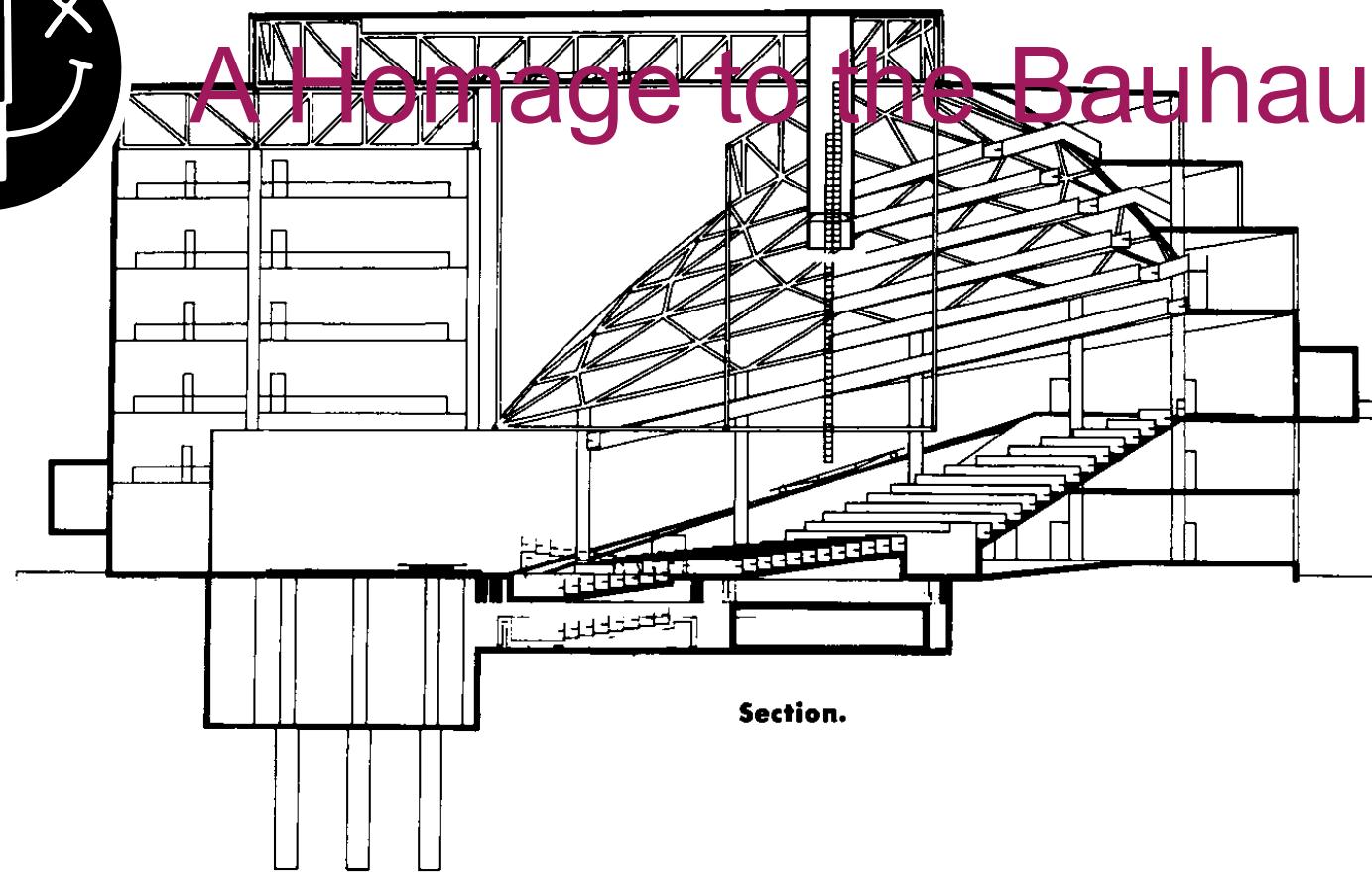
<https://www.bauhaus100.com/the-bauhaus/people/masters-and-teachers/gunta-stoelzl/>



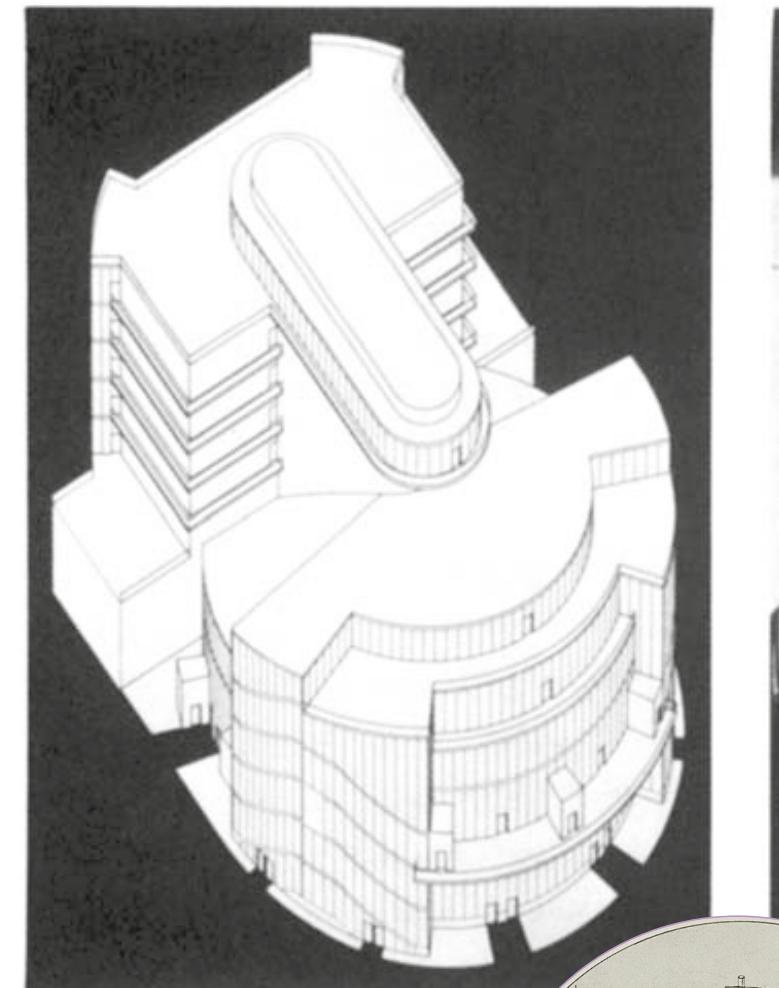
TOTAL THEATER

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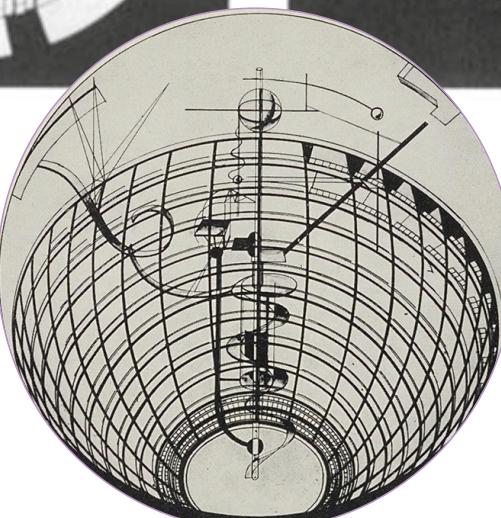
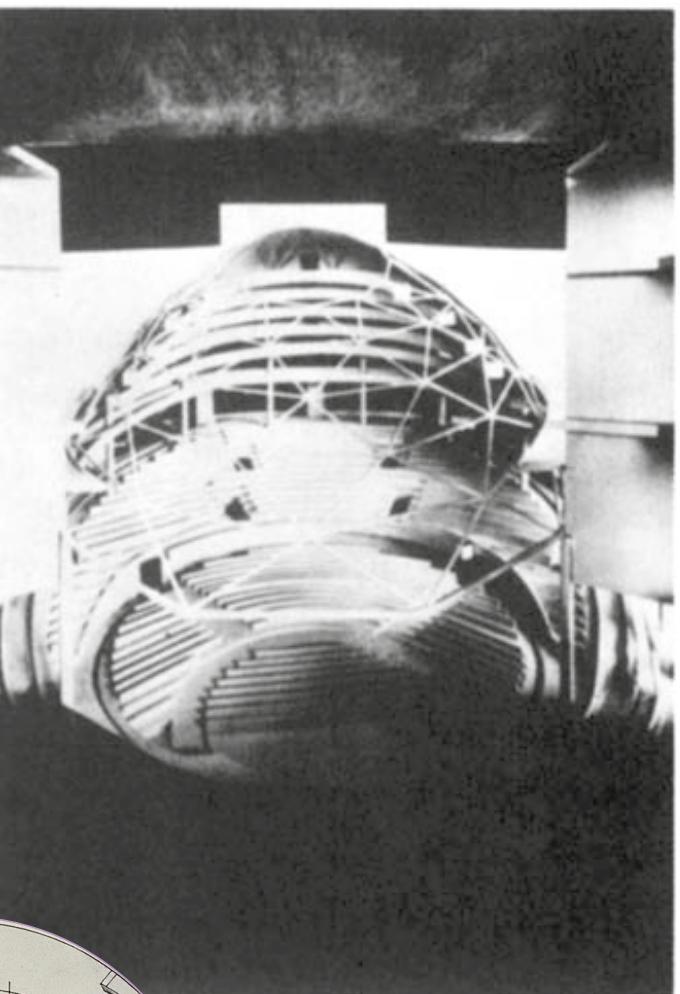
A Homage to the Bauhaus



Perspective of the exterior.



View into the auditorium (model).



Plan showing the use of the center stage.

Plan showing the use of the proscenium stage.

Plan showing the use of the deep stage.

View into the auditorium from above.



PLANS AND MODEL OF THE SYNTHETIC "TOTAL THEATER," 1926

This theater provides a stage in arena form, a proscenium and a back stage, the latter divided in three parts. The 2,000 seats are disposed in the form of an amphitheater. There are no boxes. By turning the big stage platform which is solidary with part of the orchestra, the small proscenium stage is placed in the center of the theater, and the usual set can be replaced by projecting scenery on twelve screens placed between the twelve main columns supporting the structure.

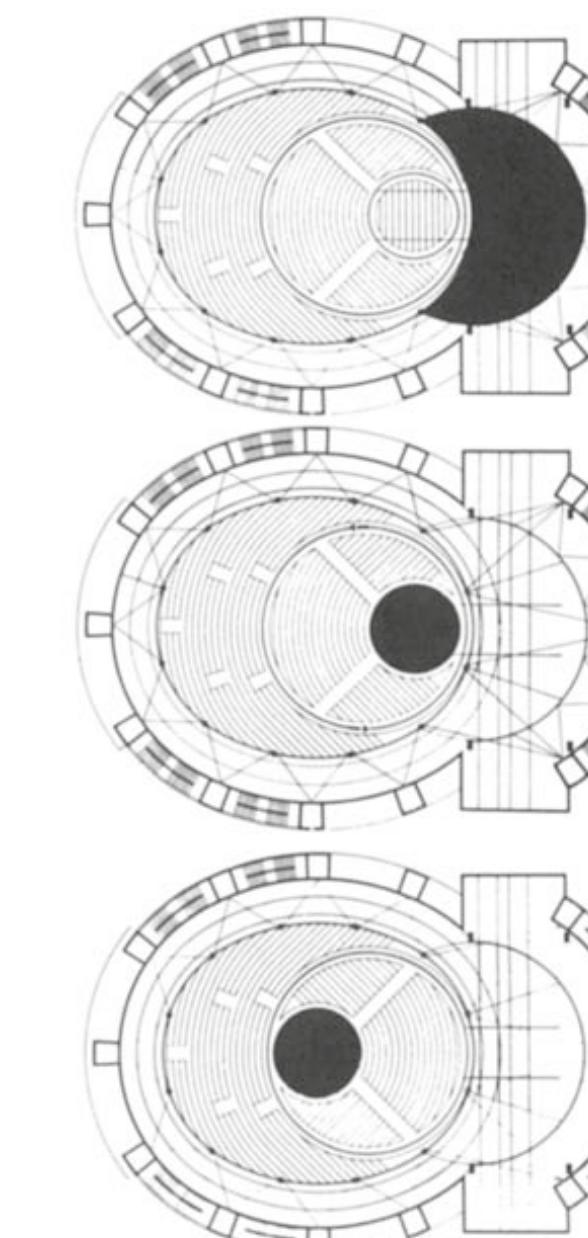


Photo Jerry Cooke Pix

The whole postwar-reconstruction problem - so vast and complex - hangs upon our ability to cooperate. The architect as a coordinator by vocation should lead the way - first in his own office - to develop a new technique of collaboration in teams. The essence of such technique will be to emphasize individual freedom of initiative instead of authoritarian direction by a boss. Synchronizing all individual efforts by a continuous give and take of its members a team can raise its integrated worth to higher potentials than the sum of the work of just as many individuals.

Walter Gropius.

