

TOUCHDESIGNER WRSHP 101

Experimental Media Art and Design for Beginners

10:00 – 10:45

Experimental Media Art & Design : Stefan Kraus

Touchdesigner @ Monomango : Lois Kainhuber

Touchdesigner on Stage : Wieland Hilker

10:15 – 10:30

Coffee Break I

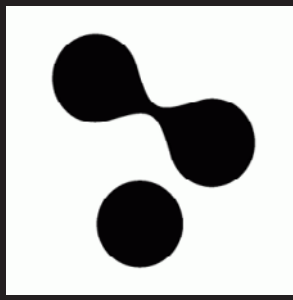
11:30 – 13:30

Introducing Touchdesigner

Rendering an animated 3D Scene

13:30 – 14:30

Lunchbreak / next door



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14:30 – 15:45

A (very) simple audiovisual synthesizer

15:45 – 16:00

Coffee Break II

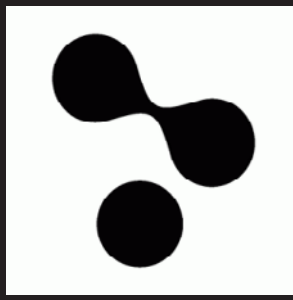
16:00 – 18:00

A live Video Mixer with audio driven Effects
Building an analogue clock with Instancing

18:00 – 18:30

Questions and Answers

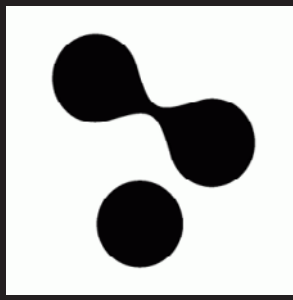
Documents and Files : https://github.com/MXZEHN/TD-WRSHP-BERLIN-2_2019



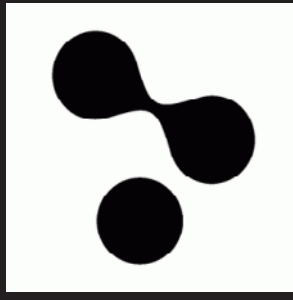
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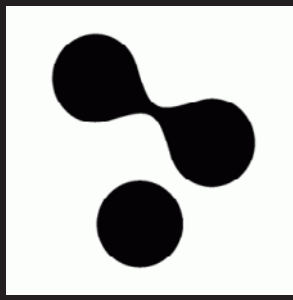
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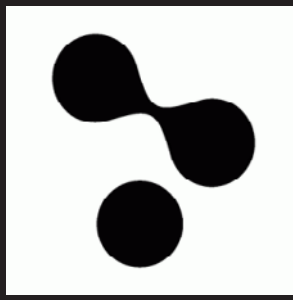
Media Art explores and exploits the narrative potential of new technologies



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



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



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Art:

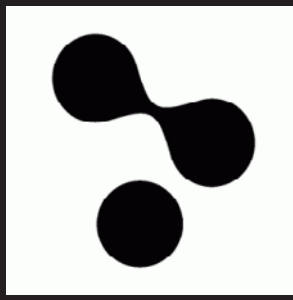
has no commercial goal but hopes to enlighten through experience

Experimental:

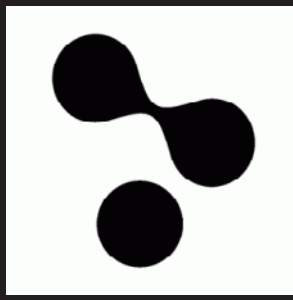
an open result process of exploration

Design:

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



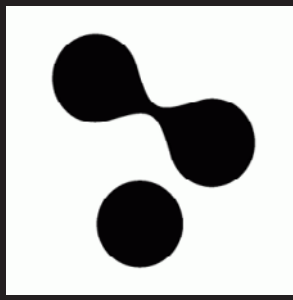
INPUT PROCESS OUTPUT



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Programming Production Tools Creative Coding



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Creative Coding

Processing / <https://processing.org>

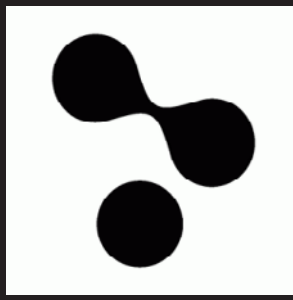
OpenFrameworks (C++) / <https://openframeworks.cc>

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>

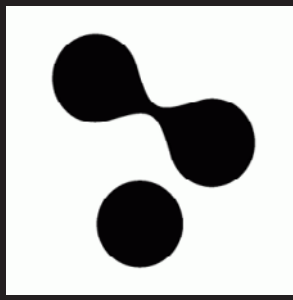
MadMapper / <http://www.garagecube.com/madmapper>

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

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>

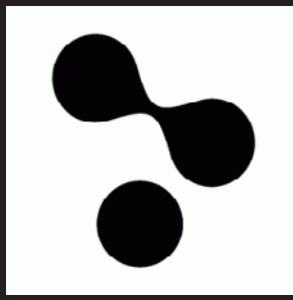
Watchout / <https://www.dataton.com/products/watchout>

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>

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

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

XOD / <https://xod.io>

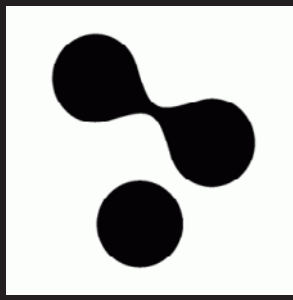
Nodes in other interesting software

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

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

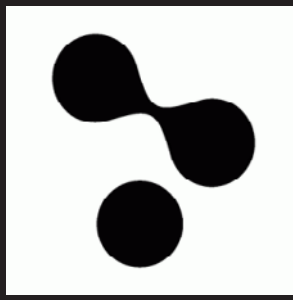
Houdini – 3D FX / <https://www.sidefx.com/products/houdini>

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



So what about Touchdesigner?

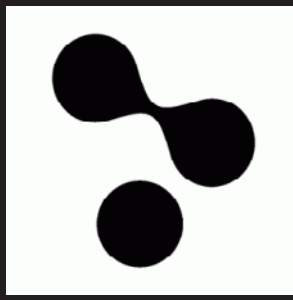
Applications & Examples



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CONNECT EVERYTHING WITH EVERYTHING



TOUCHDESIGNER WRSHOP 101

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read, translate and send everything

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

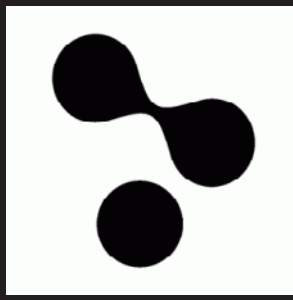
build custom applications

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>



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realtime animation

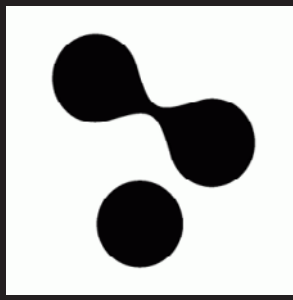
Effects, Motion Design, 3D Animation, Mixing and Routing, Data driven visual content (Music, Data Base, Sheets, Interaction) and Simulations (Physics, Particles) output to wild formats incl. 360°

lighting & laser design

Moving Lights, LED Fixtures, Lasers, LED Sculptures

virtual & augmented reality

prototype VR experiences with VIVE, Oculus, Hololens



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web & mobile interaction

connect to users via the internet

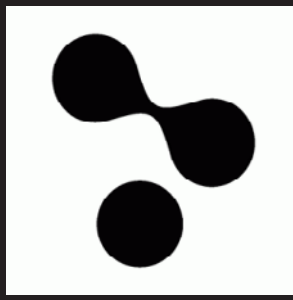
use mobile Apps to control Media Installations

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



extend the functionality

use scripting and coding to extend functionality

Shader Authoring (GLSL)

**scripting in Python allows to use numerous Libraries
from within Touchdesigner**

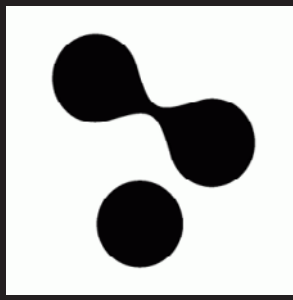
programming custom nodes in C++ (z.B. Vincent Houze)

projection mapping

keystoning with Stoner

creative mapping with Kantan Mapper

projector calibration with CamSchnappr



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live design & performance

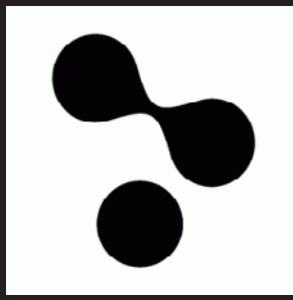
Show / Concert / Event / Exhibition / Fair / Theater

research and development

Data Visualisation / Research / Education / Prototyping

experimental

...



what hardware do we need?

PC over MAC

NVIDIA over ATI & INTEL

QUADRO over GTX

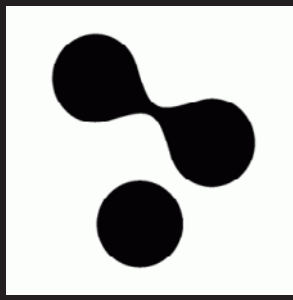
external sound card over internal sound

for video playback

hard disc > memory > CPU > GPU

for generative content

GPU > Memory > CPU



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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>

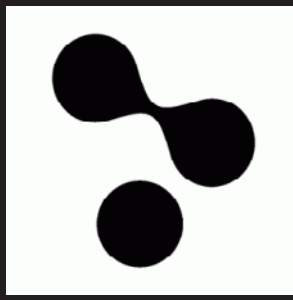
Magewell USB Capture / <https://www.magewell.com/capture/usb-capture>

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>

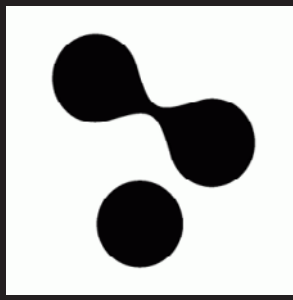
Open Stage Control / <https://osc.ammd.net>

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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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

Buy Learning Resources

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

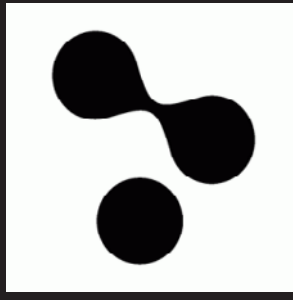
Lichtpfad Studios / <https://lichtpfad.selz.com/de>

Where to get help

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

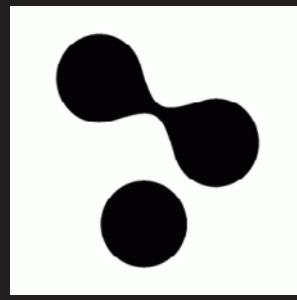
FB Help Group / <https://www.facebook.com/groups/touchdesignerhelp>

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



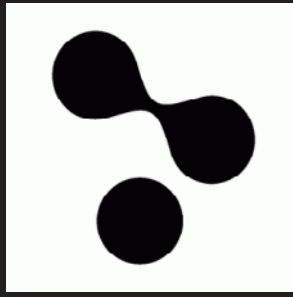
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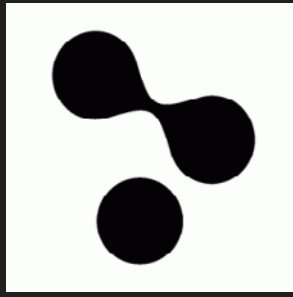
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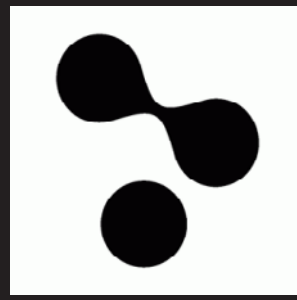
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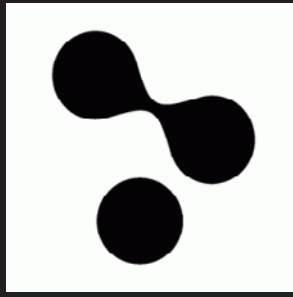
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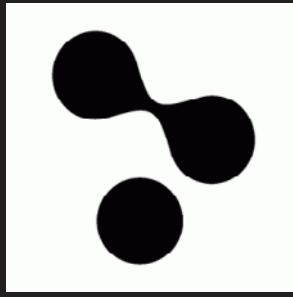
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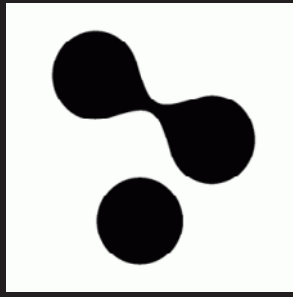
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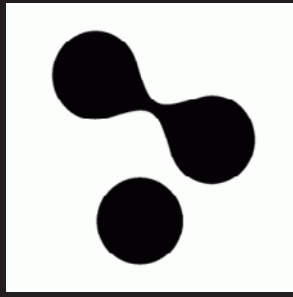
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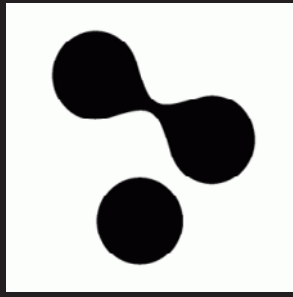
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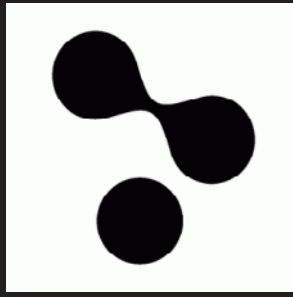
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