PV259

Programování generativního designu

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organizace

Úvod do problematiky programování vizuálních výstupů pro grafický design a umění

Výuka orientovaná prakticky - práce na zadáních

Prezentace studentských prací – každý 1x za semestr

organizace

Barva - barevné palety skrze interpolaci, zpracovaní barevné palety z obrazu, organizace ploch podle programovaných hodnot.

Tvar - organizace rytmicky řazených tvarů, komplexních modulů v rastru, generování růstové struktury, programování štětců, štětce pro kreslení písmem a komplexními moduly.

Písmo - parametry vektorového písma, programování hodnot ovlivňující velikost písma, orientaci písma, vizualizace písma v textu, práce s křivkami, programovaná mutace písma.

Náhodnost a šum, oscilační křivky.

Atraktory, stromové diagramy, dynamické datové struktury.

cíle

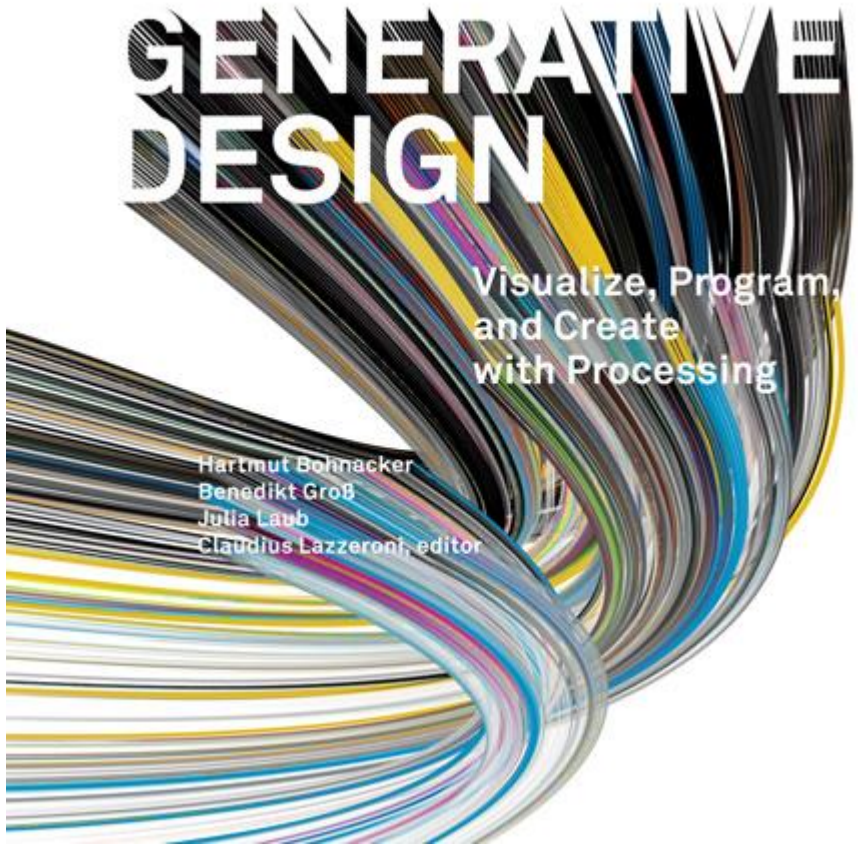
Rozvíjení interdisciplinárního uvažování

Zkušenost s uplatněním kreativního kódování ve vizuálním díle

Rozšíření možností především v tvorbě grafických návrhů

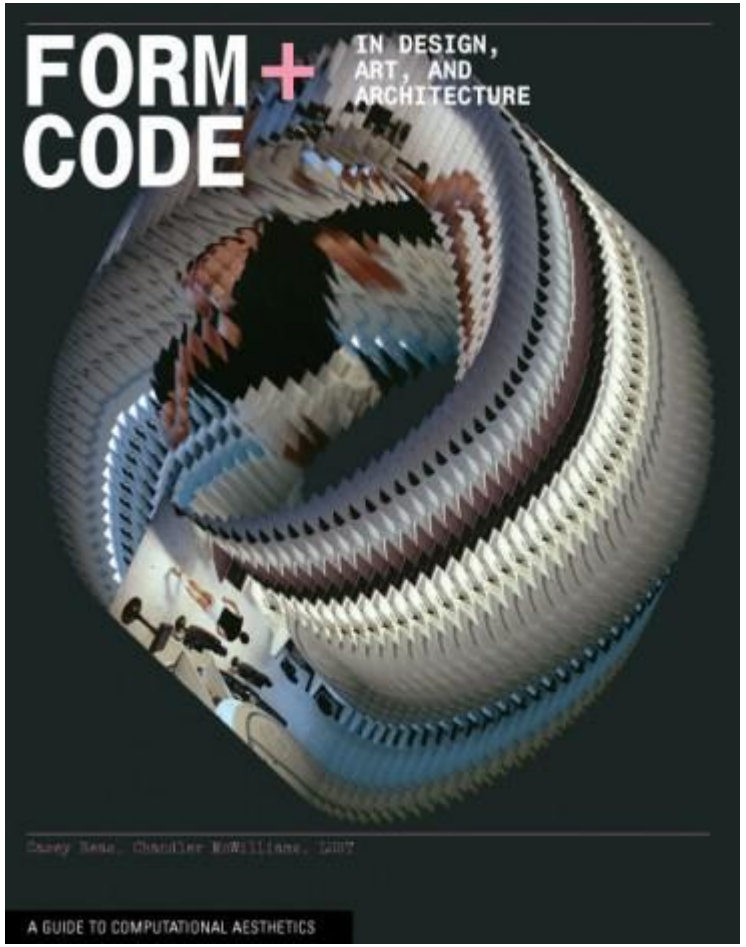
Radost

Studijní materiály



http://www.generative-gestaltung.de/code

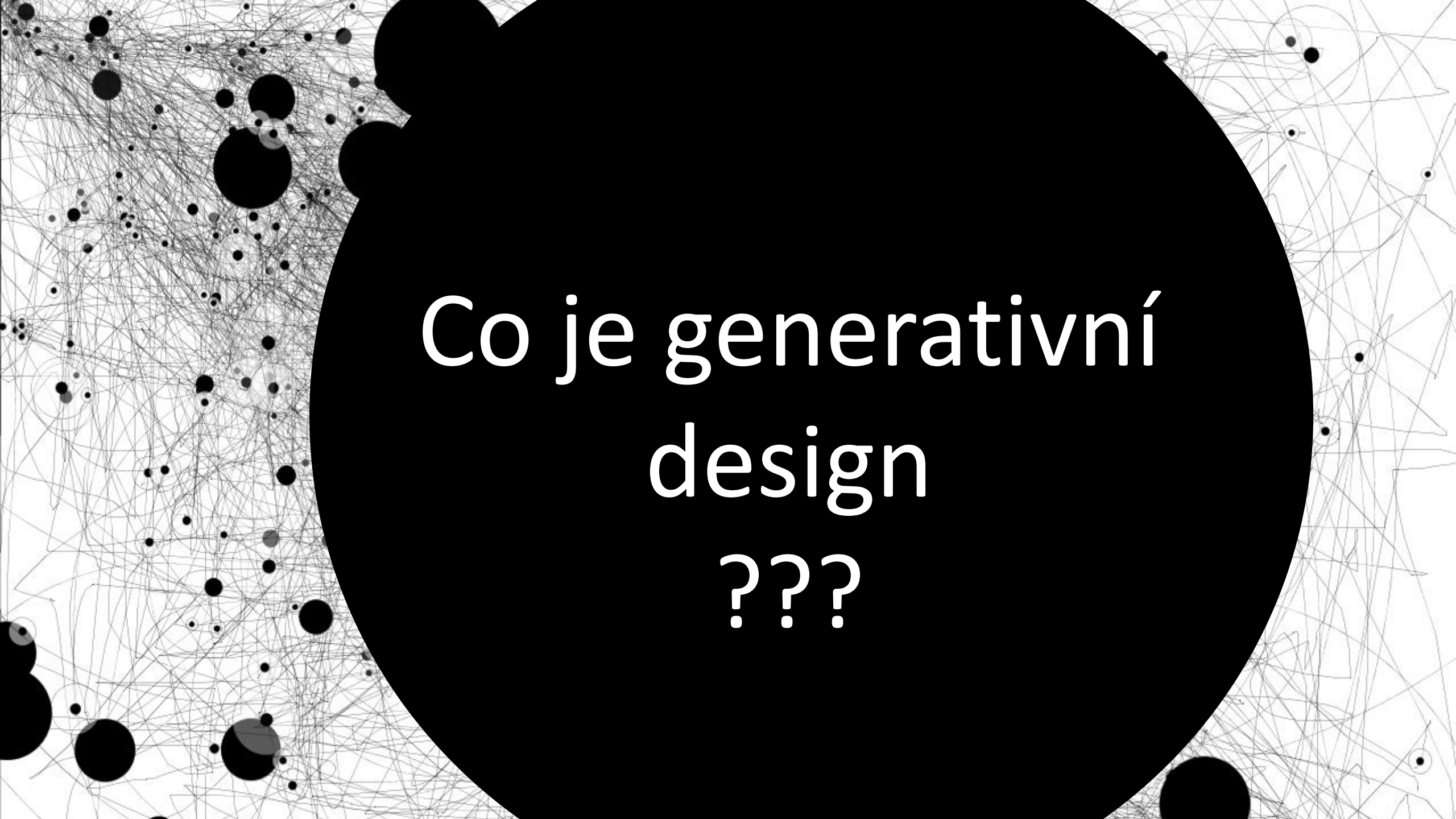
Studijní materiály



http://formandcode.com/

Inspirace

https://vimeo.com/60735314


Co je generativní
design
???

interaktivní aplikace
zpracování dat
generování vizuálních výstupů
tvorba vlastních nástrojů
vizualizace
animace

V širším smyslu je to dílo, které bylo vytvořeno pomocí autonomního systému, který v procesu určuje výslednou podobu díla.

Koncepce je dílem autora, je to tedy jeho dílo?

X

Systém je tvůrcem?

Příklady

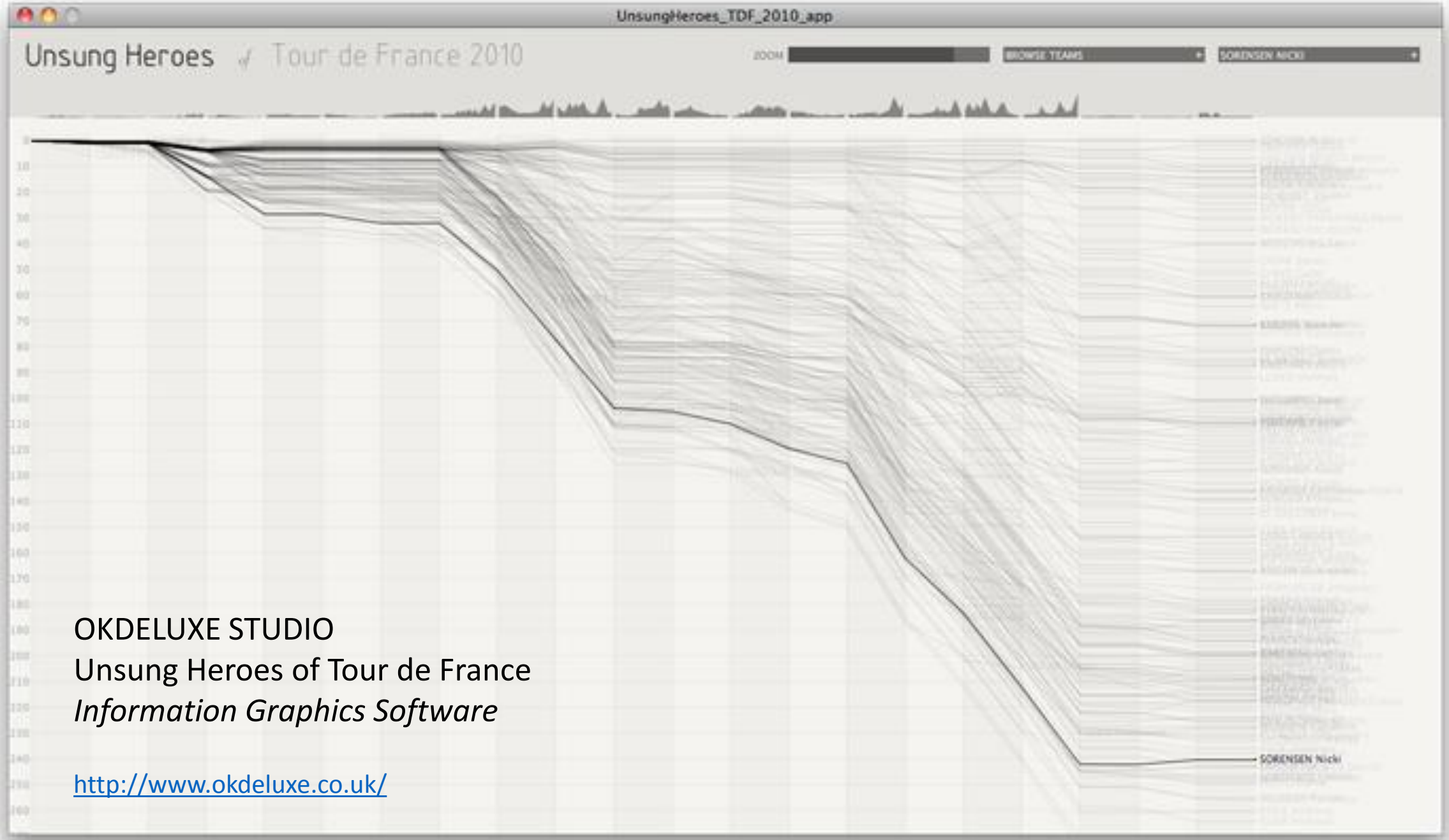
Actelion is a biopharmaceutical company.
Its visual identity is based on the idea "From medical industry to medical magic".

ONFORMATIVE STUDIO
Actelion Imaginery Wizard
corporate imaginery tool
2011

http://www.onformative.com/work/actelion-imagery-wizard/

UNIVERSAL EVERYTHING
Forever in VA
20 000 generovaných pohlednic
2008

//www.universaleverything.com/projects/forever-at-the-va-2/



OKDELUXE STUDIO
Unsung Heroes of Tour de France
Information Graphics Software

http://www.okdeluxe.co.uk/

N-e-r-v-o-u-s s-y-s-t-e-m
Kinematics
online aplikace pro úpravu 3D objektů pro tisk
2014

https://vimeo.com/80893331

Projděte si práce těchto studií

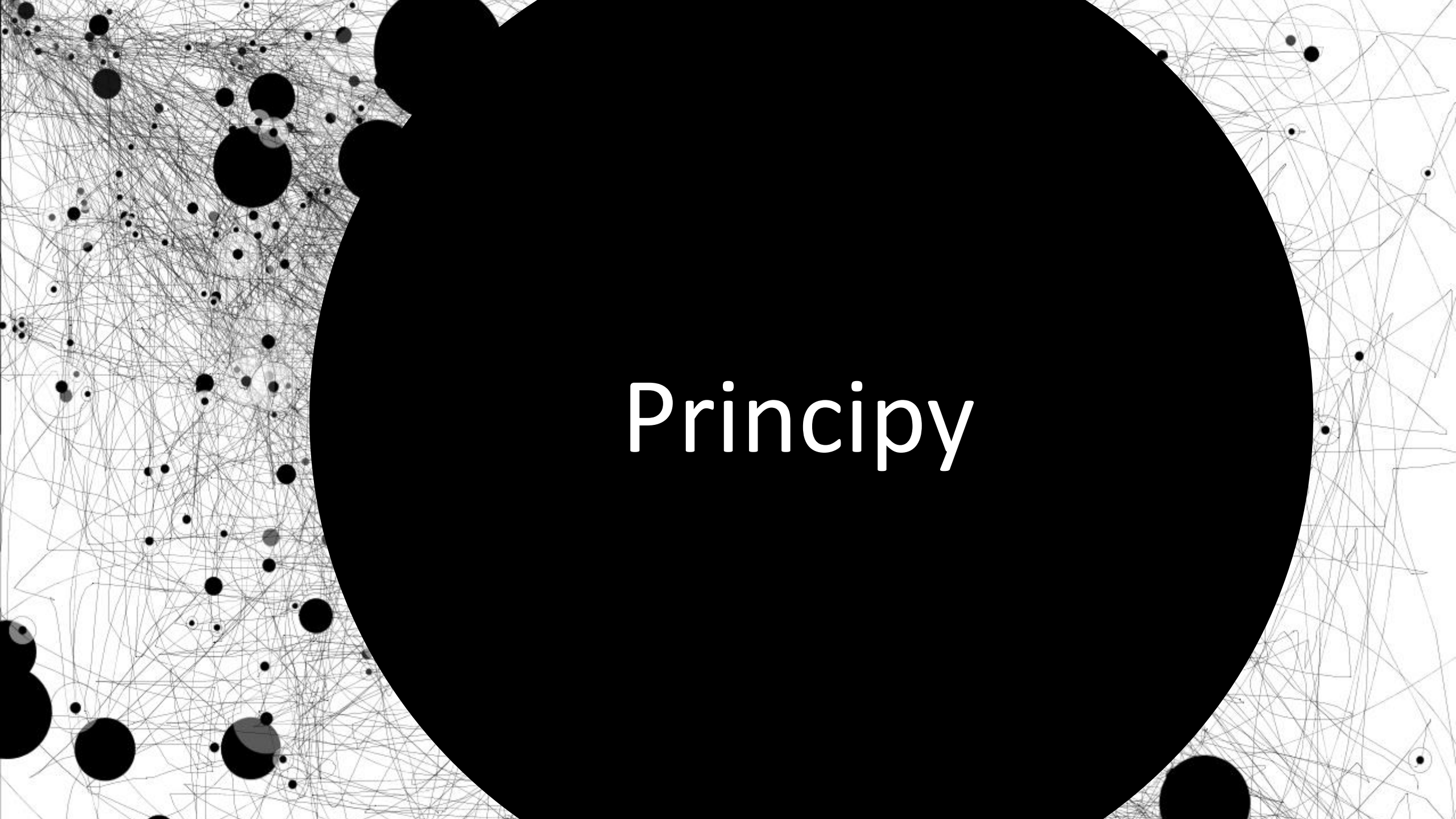
Okdeluxe Studio, UK
Onformative Studio, D
Universal Everything, UK
Nervous System, USA

http://www.okdeluxe.co.uk/

http://www.onformative.com/

http://www.universaleverything.com/

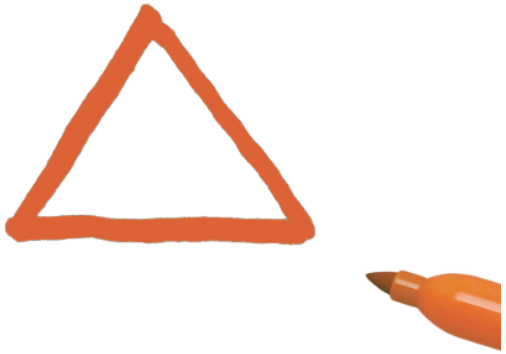
http://n-e-r-v-o-u-s.com/


Principy

Generativní design není nový styl, je to nová pracovní metoda.

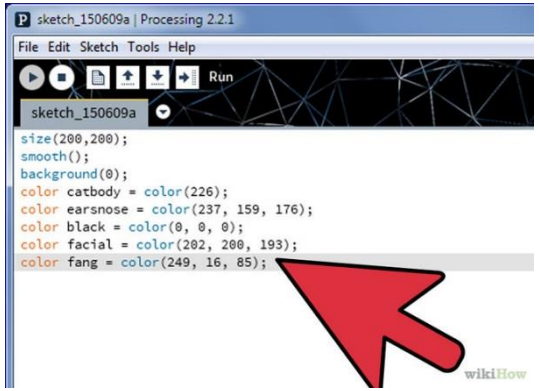
nápad

vizuální výstup



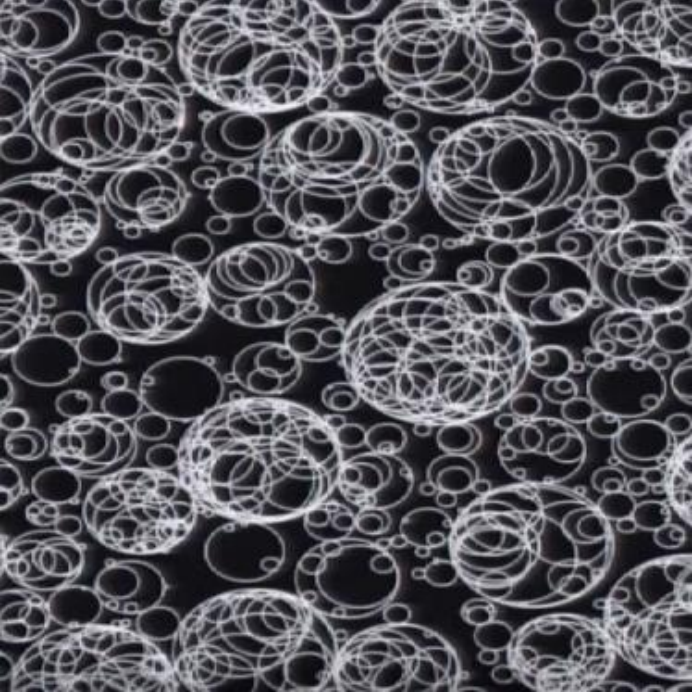
nápad

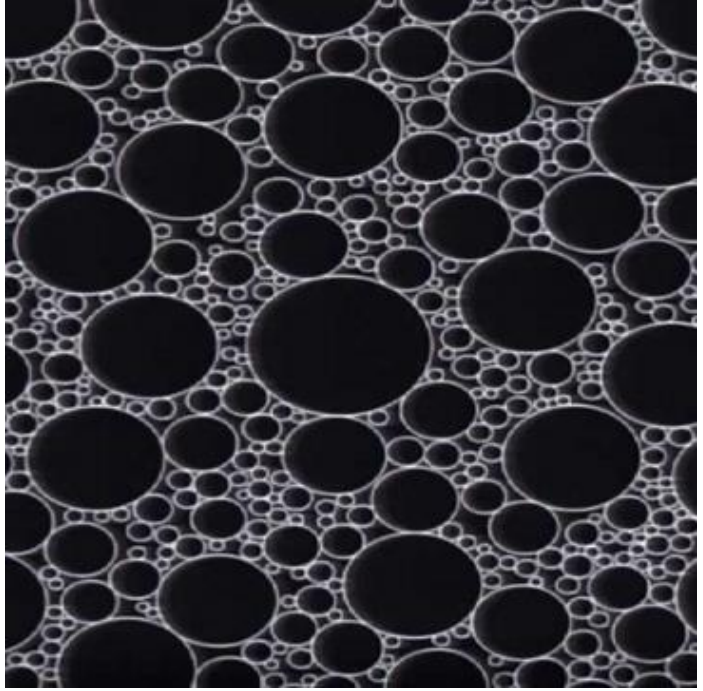
stanovení parametrů

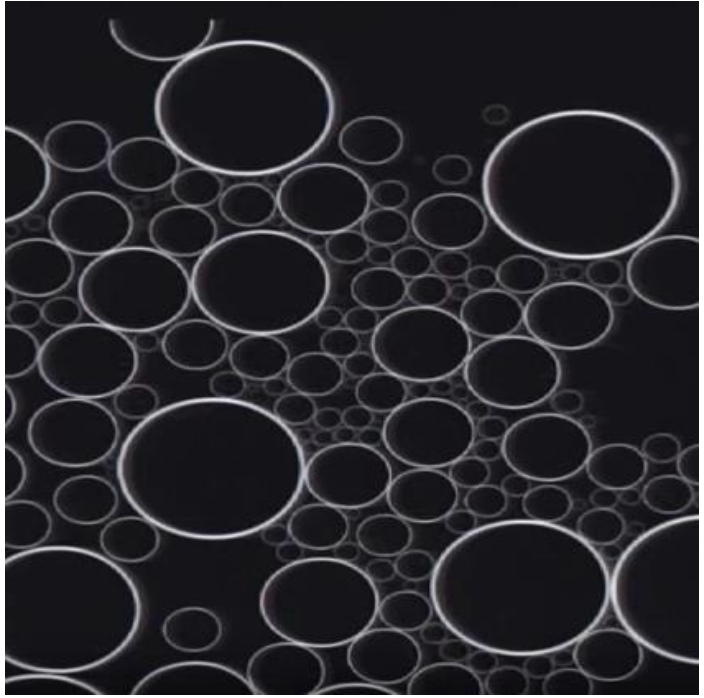


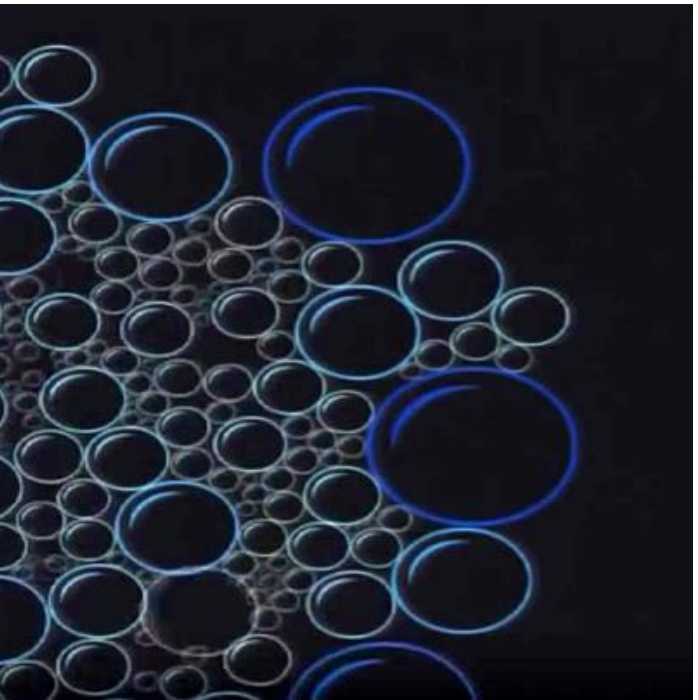
kód

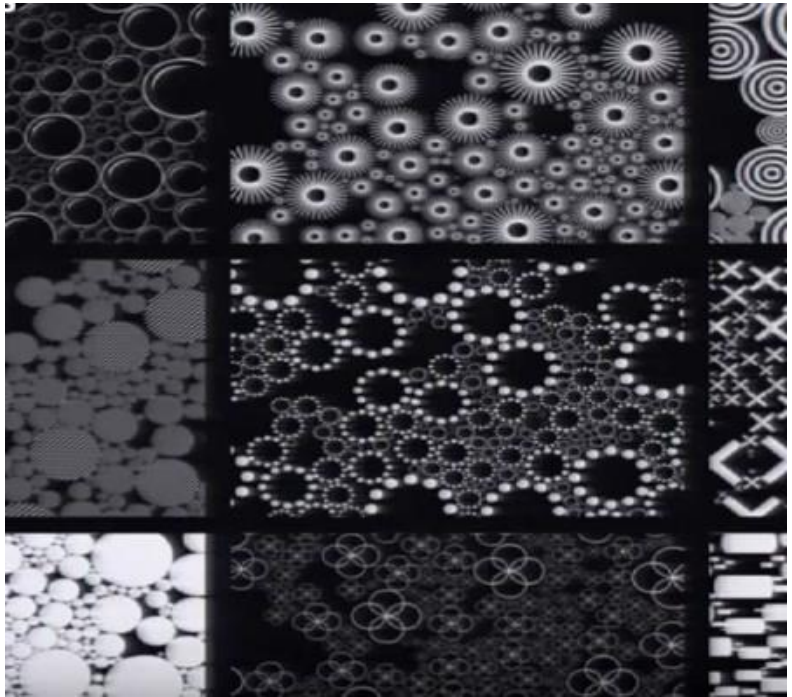
vizuální výstup





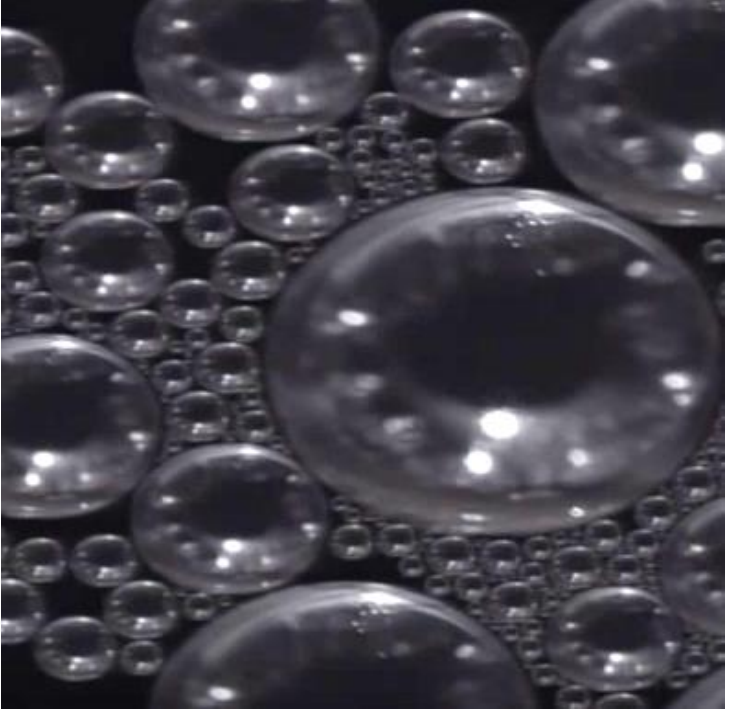


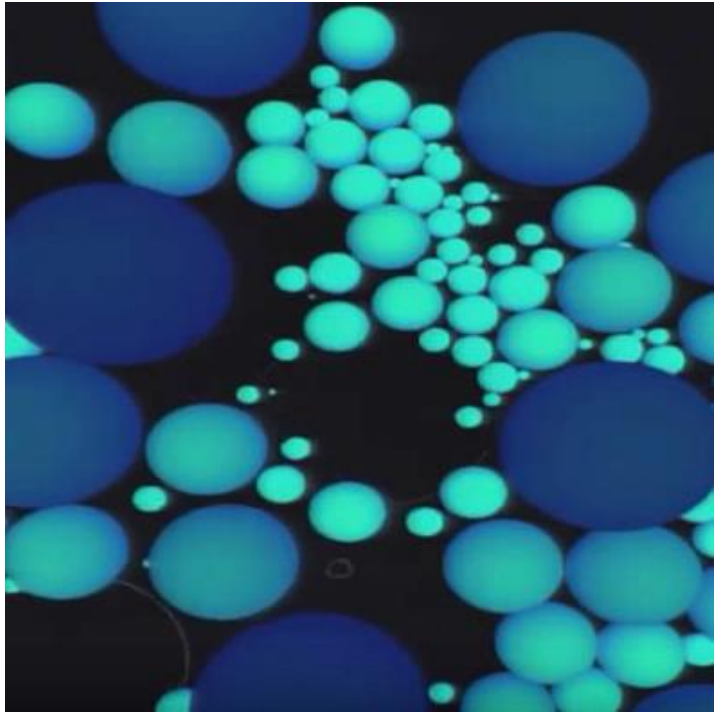


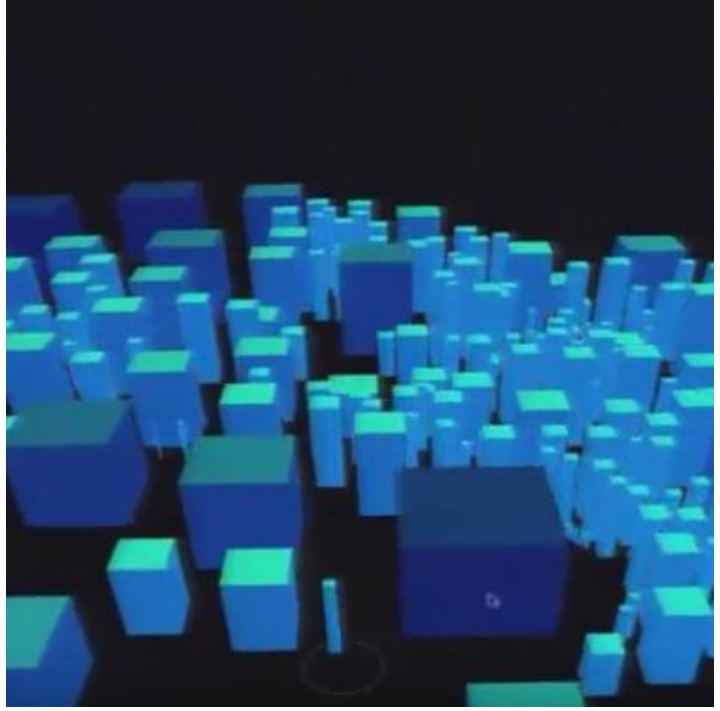


CÉDRIC KIEFER
z předášky CPEU2 - Generative design
2012

https://www.youtube.com/watch?v=7vITr__QOc4







BUBBLES: 69
OLDEST BUBBLE:
41 BUBBLES DIED
TIME RUNNIG:

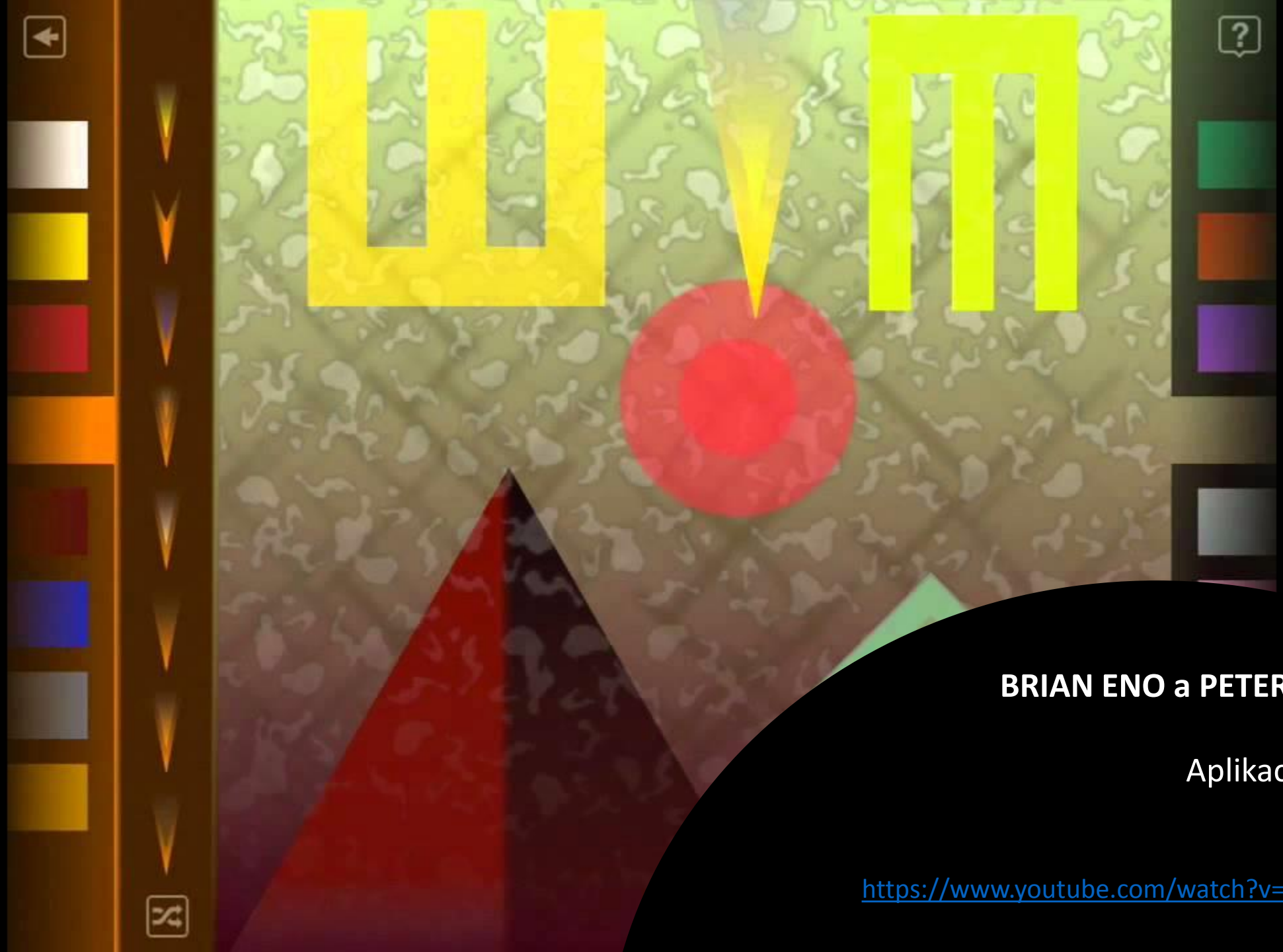
Stručná
historie

Rules-based Art

Generative Art

WOLFGANG AMADEUS MOZART
Hudební hra s kostkou
1787
https://www.youtube.com/watch?v=9Zdg6Ec4mVw

In 1787, Mozart wrote the measures and instructions for a musical composition dice game. The idea is to cut and paste pre-written measures of music together to create a Minuet.



BRIAN ENO a PETER CHILVERS

Scape

Aplikace pro Ipad

2015

https://www.youtube.com/watch?v=8zNLlKRrUVk

How to make a Dadaist Poem (method of Tristan Tzara)

To make a Dadaist poem:

- Take a newspaper.
- Take a pair of scissors.
- Choose an article as long as you are planning to make your poem.
- Cut out the article.
- Then cut out each of the words that make up this article and put them in a bag.
- Shake it gently.
- Then take out the scraps one after the other in the order in which they left the bag.
- Copy conscientiously.
- The poem will be like you.
- And here you are a writer, infinitely original and endowed with a sensibility that is charming though beyond the understanding of the vulgar.

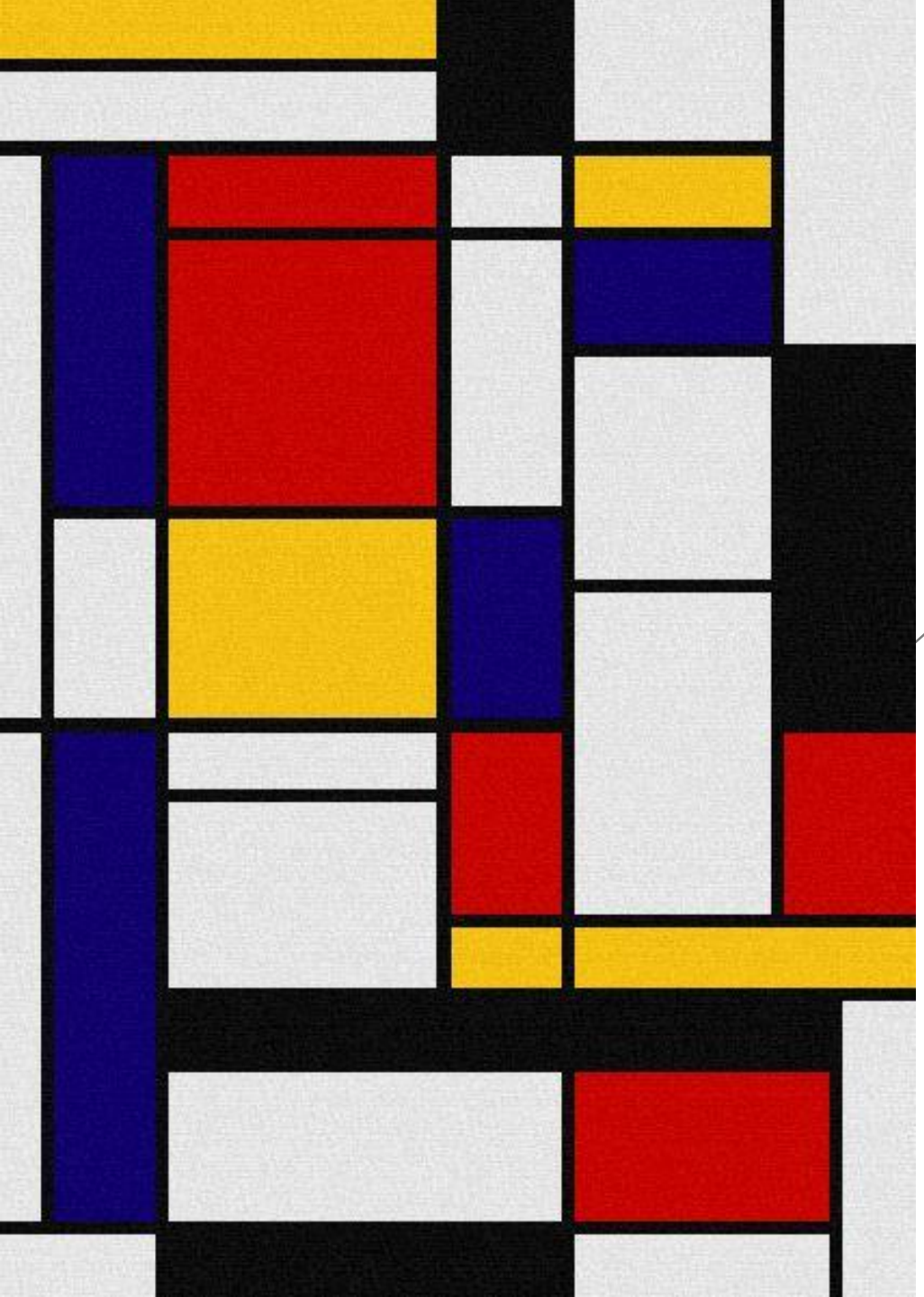
-Tristan Tzara

This surrealist method established itself as the creative vehicle for some of the most brilliant creative figures of the 20th century.

William Burroughs
David Bowie
Bob Dylan
Iggy Pop
Joy Division
Kurt Cobain
Radio Head

Cut up techinque- David Bowie
https://www.youtube.com/watch?v=m1InCrzGIPU

Cut-Ups William S. Burroughs
https://www.youtube.com/watch?v=Rc2yU7OUMcI



Holandská skupina DeStijl
neoplasticismus
1917

vertikální a horizontální linie
primární barvy černá a bílá

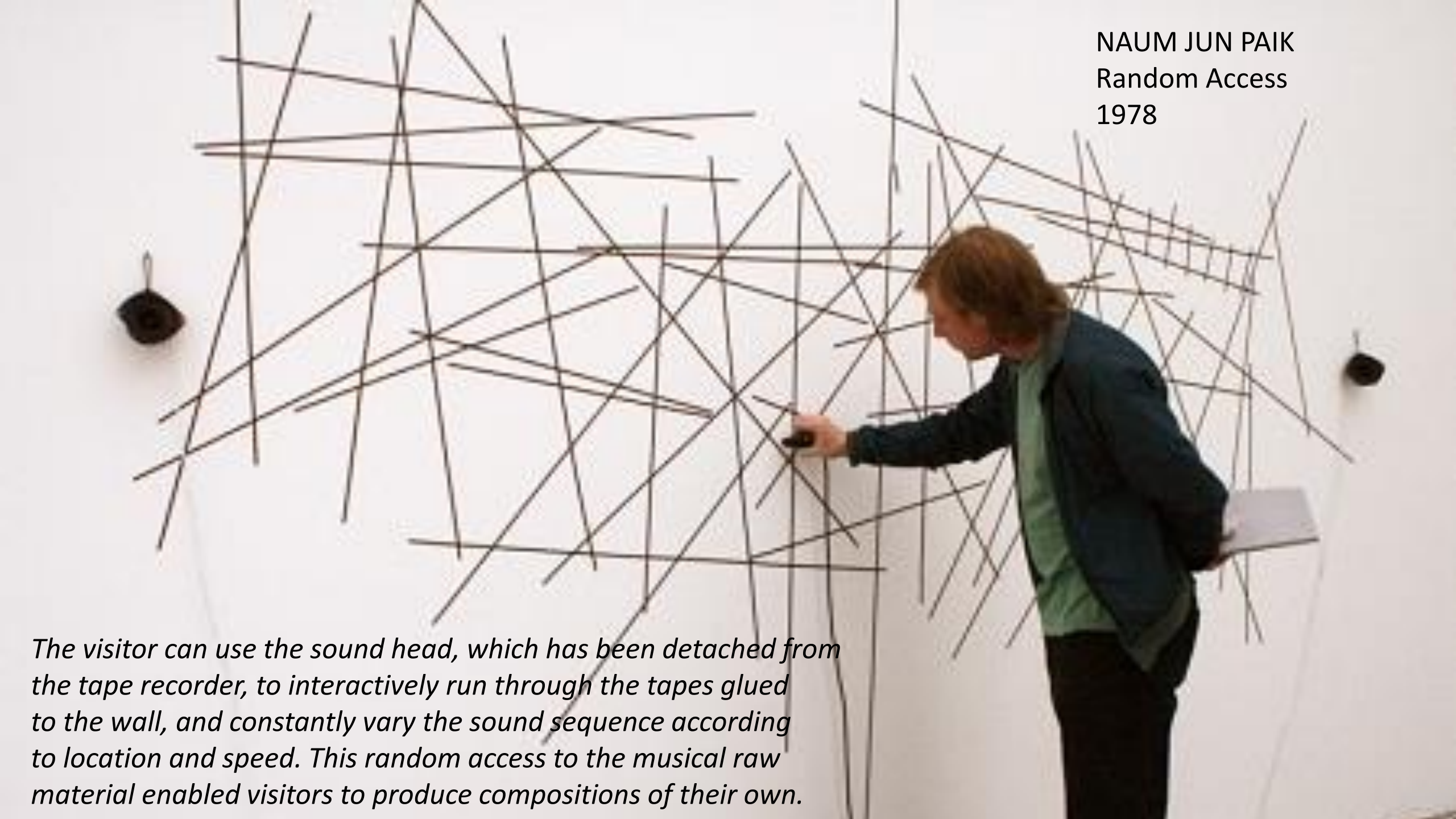
The idea becomes a machine that makes the art.

Sol LeWitt, 1967

Myšlenka je základem díla. Často se jedná o plán, který eventuálně autor naplňuje.

Vzniká tak nový přístup ve výtvarné tvorbě, výrazný na přelomu 60 a 70tých let, které souhrnně označujeme jako

Konceptuální umění

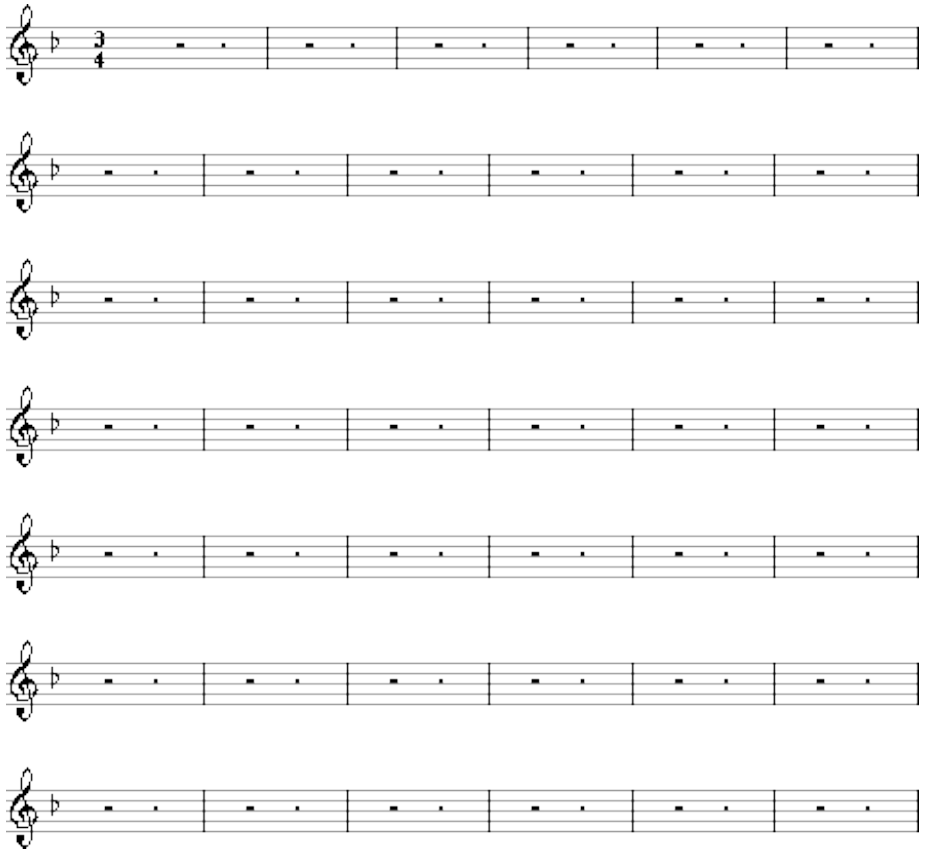


NAUM JUN PAIK
Random Access
1978

The visitor can use the sound head, which has been detached from the tape recorder, to interactively run through the tapes glued to the wall, and constantly vary the sound sequence according to location and speed. This random access to the musical raw material enabled visitors to produce compositions of their own.

DJing

VJing

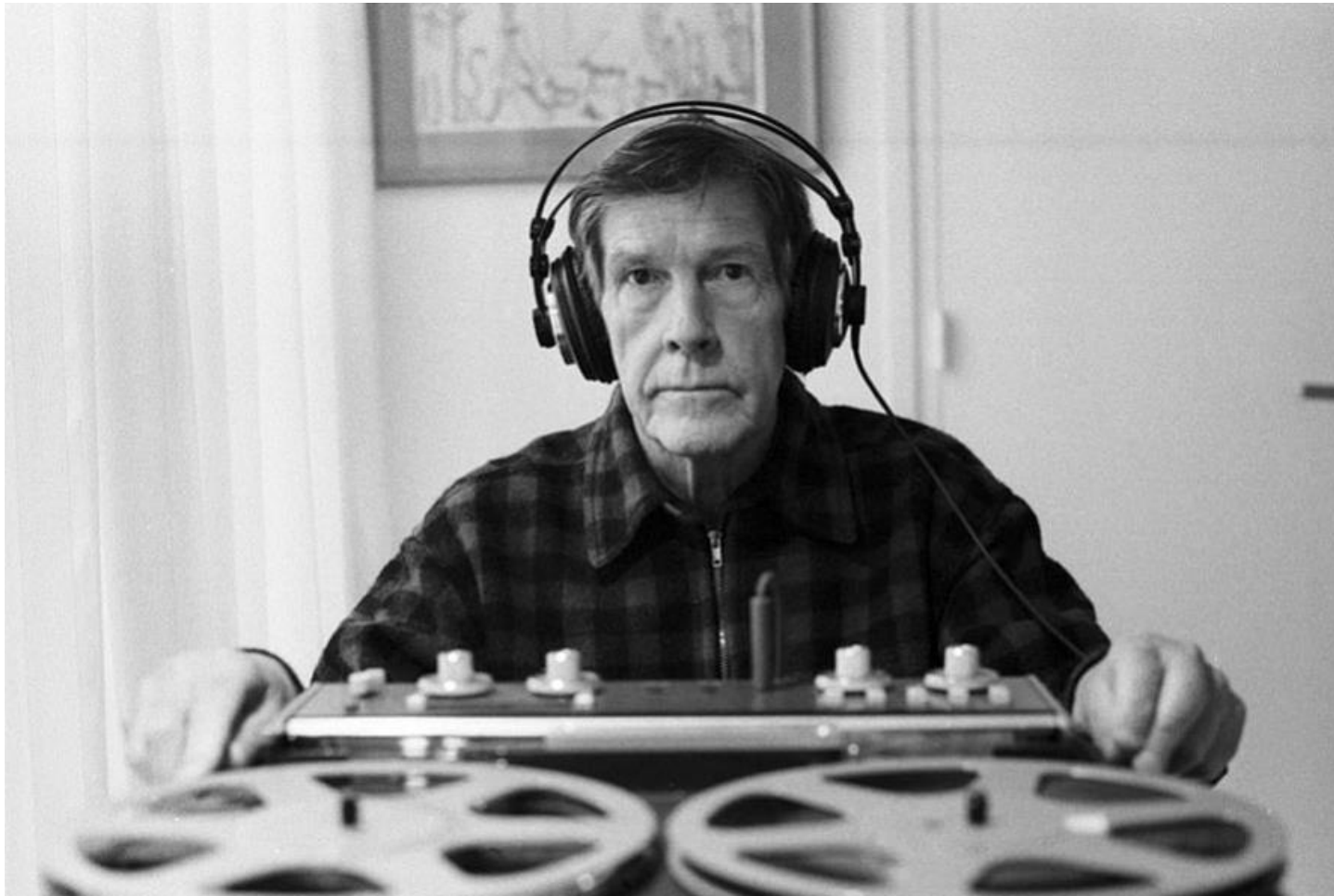


JOHN CAGE
4'33"
1952
https://www.youtube.com/watch?v=JTEFKFiXSx4

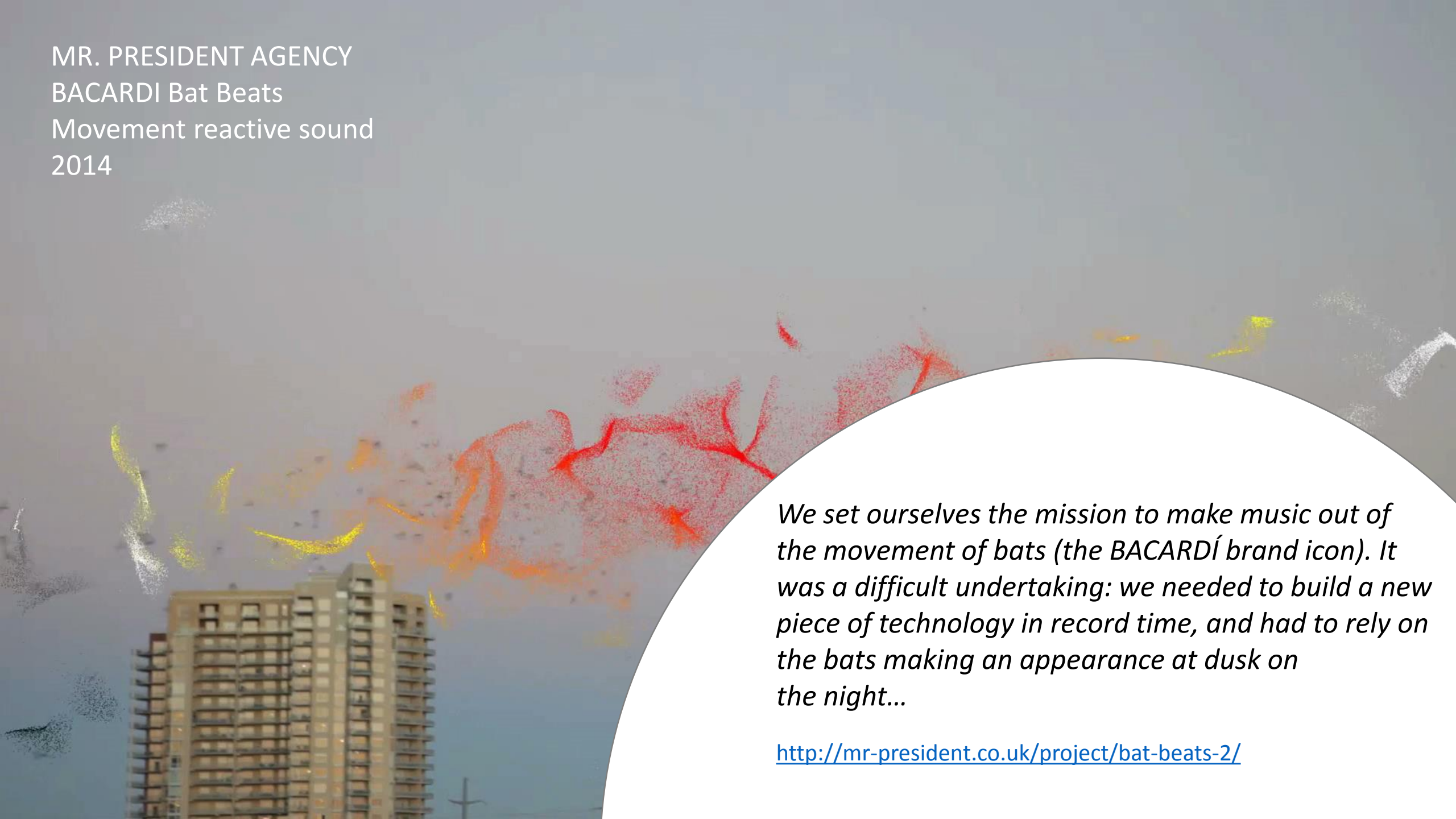
Water Walk
1960
https://www.youtube.com/watch?v=Yybn6iKmYdQ

"Until I die there will be sounds," concluded Cage. „

Odmítal jakýkoli hierarchický pořádek a prosazoval rovnoprávnost úmyslně, ale také neúmyslně vyluzovaných a vydávaných zvuků a hluků.

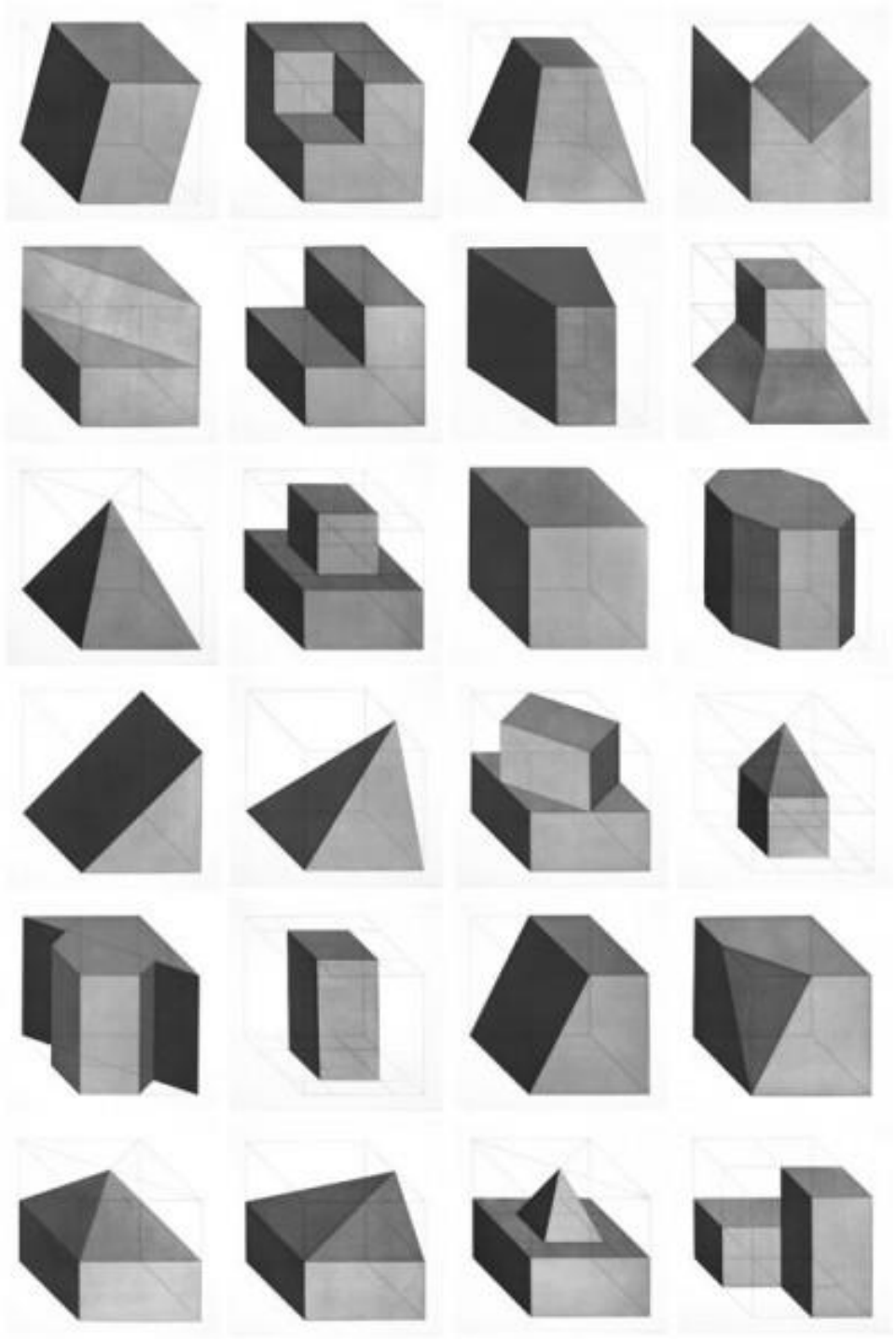


MR. PRESIDENT AGENCY
BACARDI Bat Beats
Movement reactive sound
2014



We set ourselves the mission to make music out of the movement of bats (the BACARDÍ brand icon). It was a difficult undertaking: we needed to build a new piece of technology in record time, and had to rely on the bats making an appearance at dusk on the night…

http://mr-president.co.uk/project/bat-beats-2/



SOL LEWITT
Forms Derived form the Cube
1982

ZDENEK SÝKORA
Topological Structures
1969

We explore unseen levels of resolution and topological complexity in architecture by developing compositional strategies based on purely geometric processes.

MICHAEL HANSMEYER
Digital Grotesque
2014

http://www.digital-grotesque.com

HANS HAACKE
Condensation Cube
begun 1965

Surface controlled by wires and servo-motors that replicates sea wave patterns measured in real time in a remote location.

DAVID BOWEN
Telepresent Water
Telekinematic instalation
2011

https://www.youtube.com/watch?v=0p3je4WGcM0

RANDOM INTERNATIONAL
Rain Room
2012

https://www.youtube.com/watch?v=EkvazIZx-F0

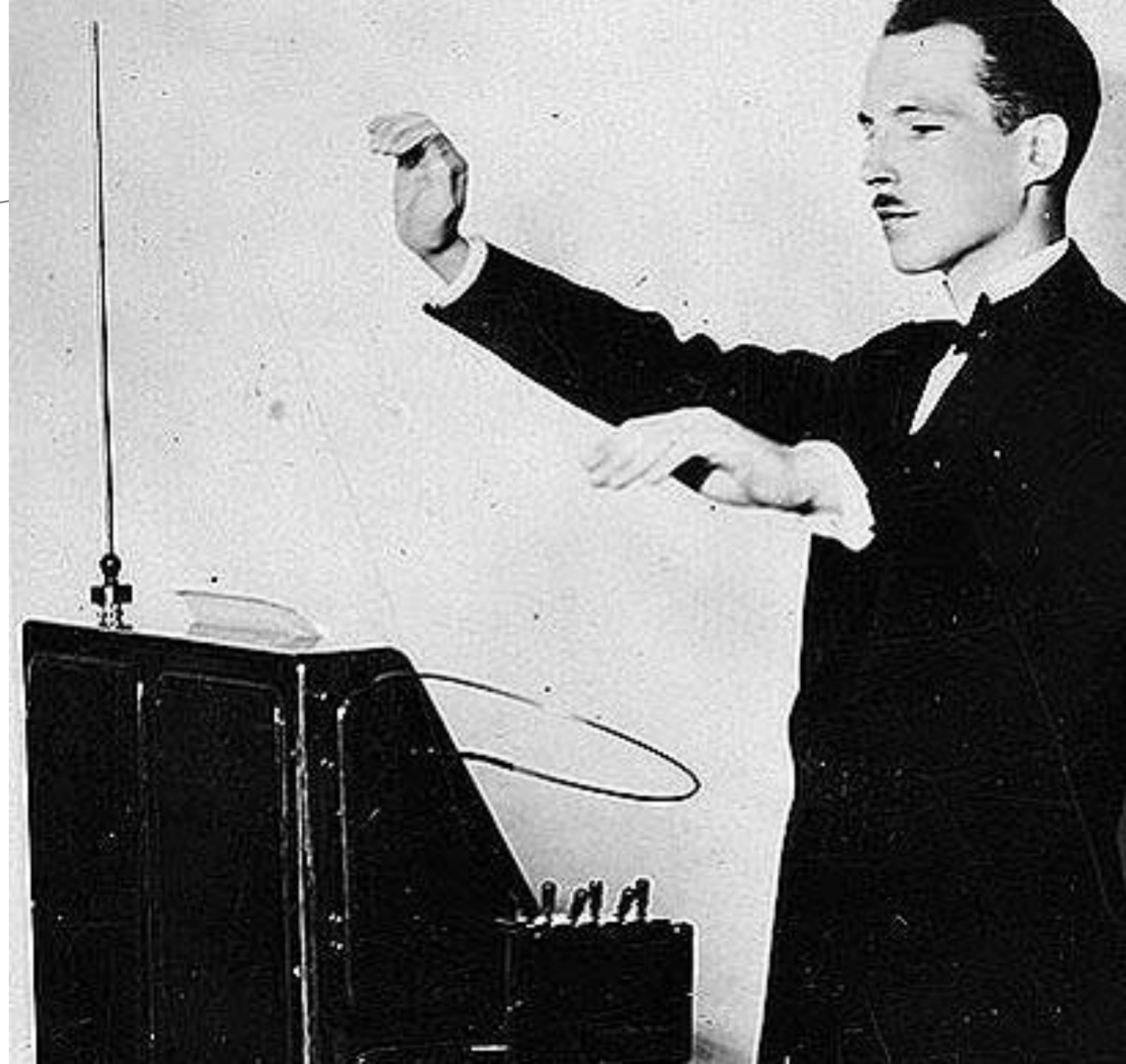
NICHOLAS NEGROPONTE
Seek
with the Architecture Machine Group , MIT
1969-1970

FEDERICO DIAZ
Outside Itself
Venice Bienalle
2011

https://www.youtube.com/watch?v=eBcjIK8GvsI

LEON THEREMIN
Theremin instrument
1920

https://www.youtube.com/watch?v=w5qf9O6c20o



ONYX ASHANTI
Beatjazz sound system
ongoing

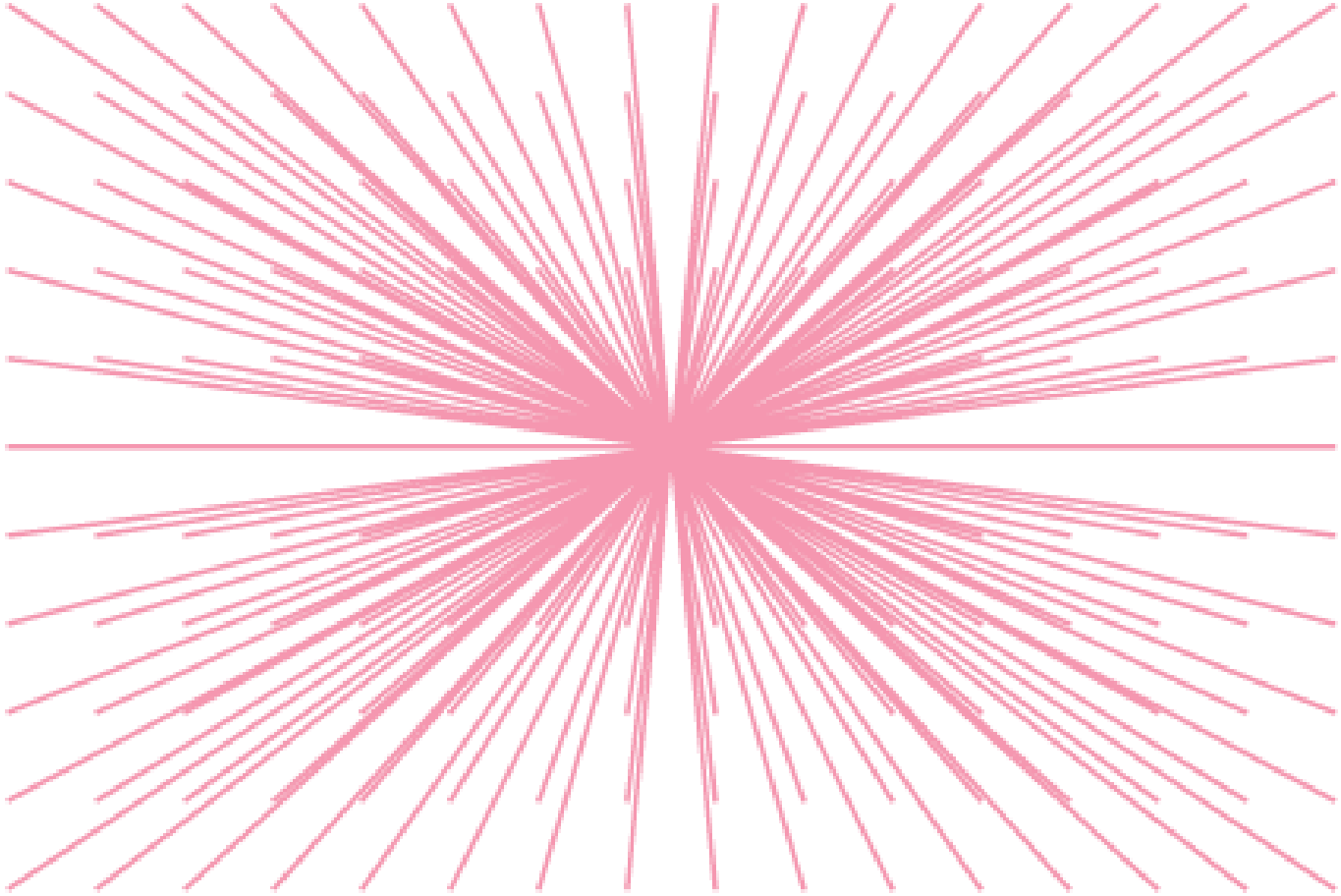
https://www.youtube.com/watch?v=cqgX8H72LPs

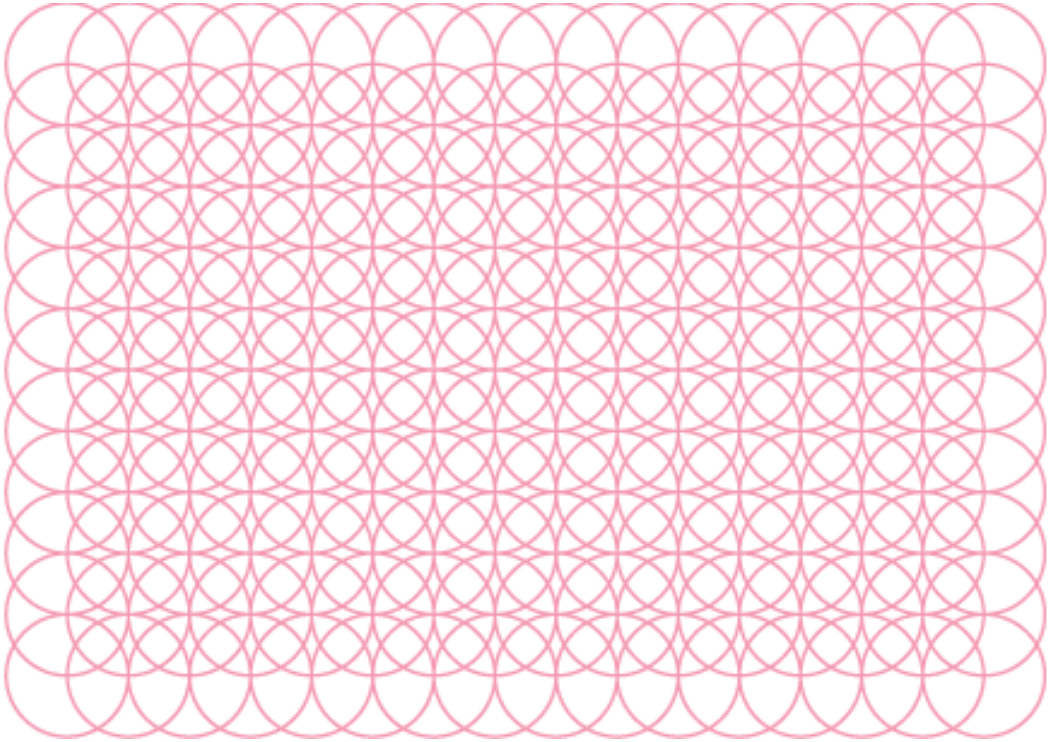
ALLAN KAPROW
Women licking jam off a car
from the happening series Household
1964

UNIVERSAL EVERYTHING
Together
2015

https://vimeo.com/106589895

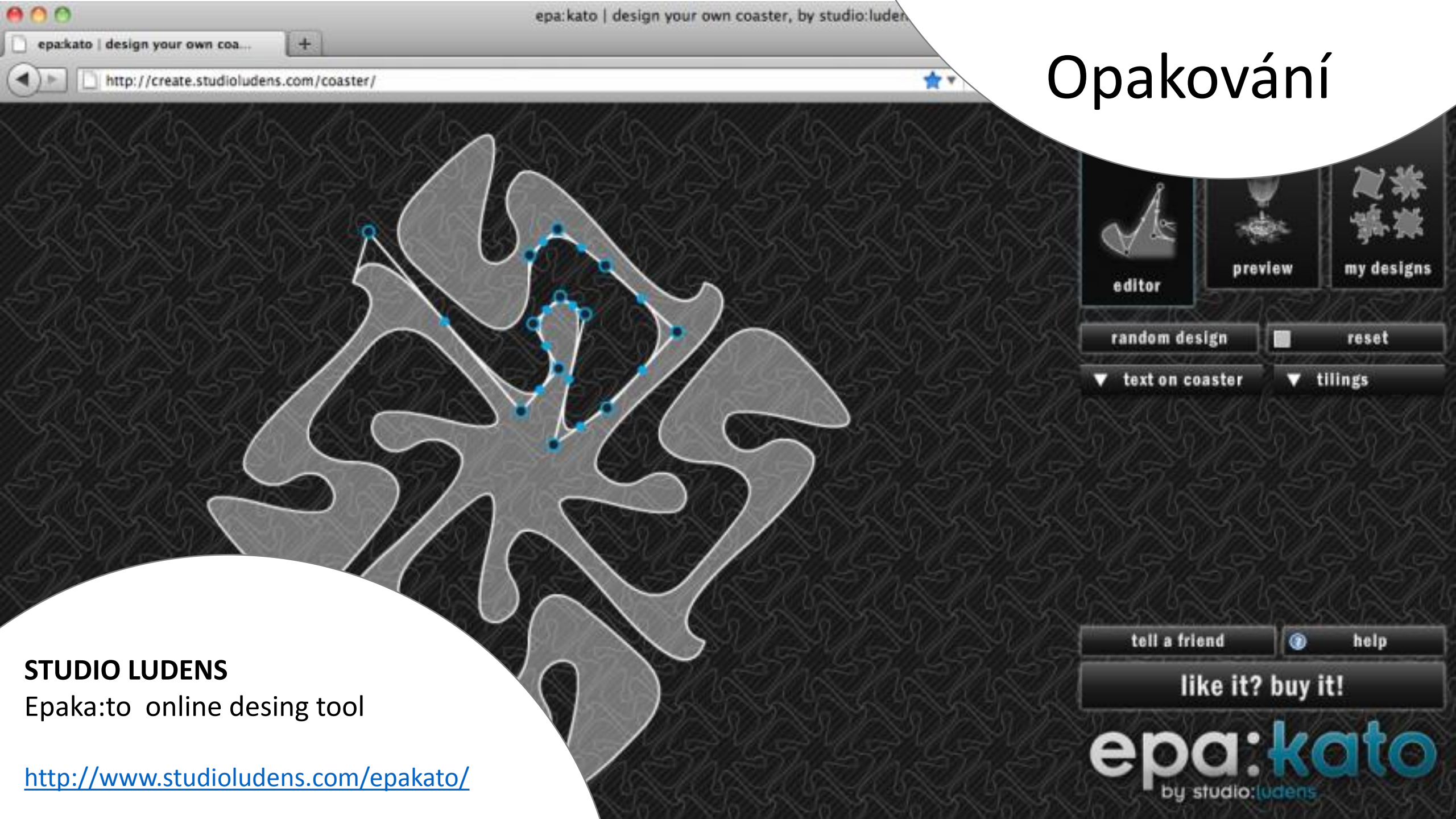
Opakování





All programming languages can repeat an action, such as drawing the same shape over and over. When one repetition sequence is embedded within another, the effect multiplies. This simple technique can be used to explore many kinds of patterns.

Opakování

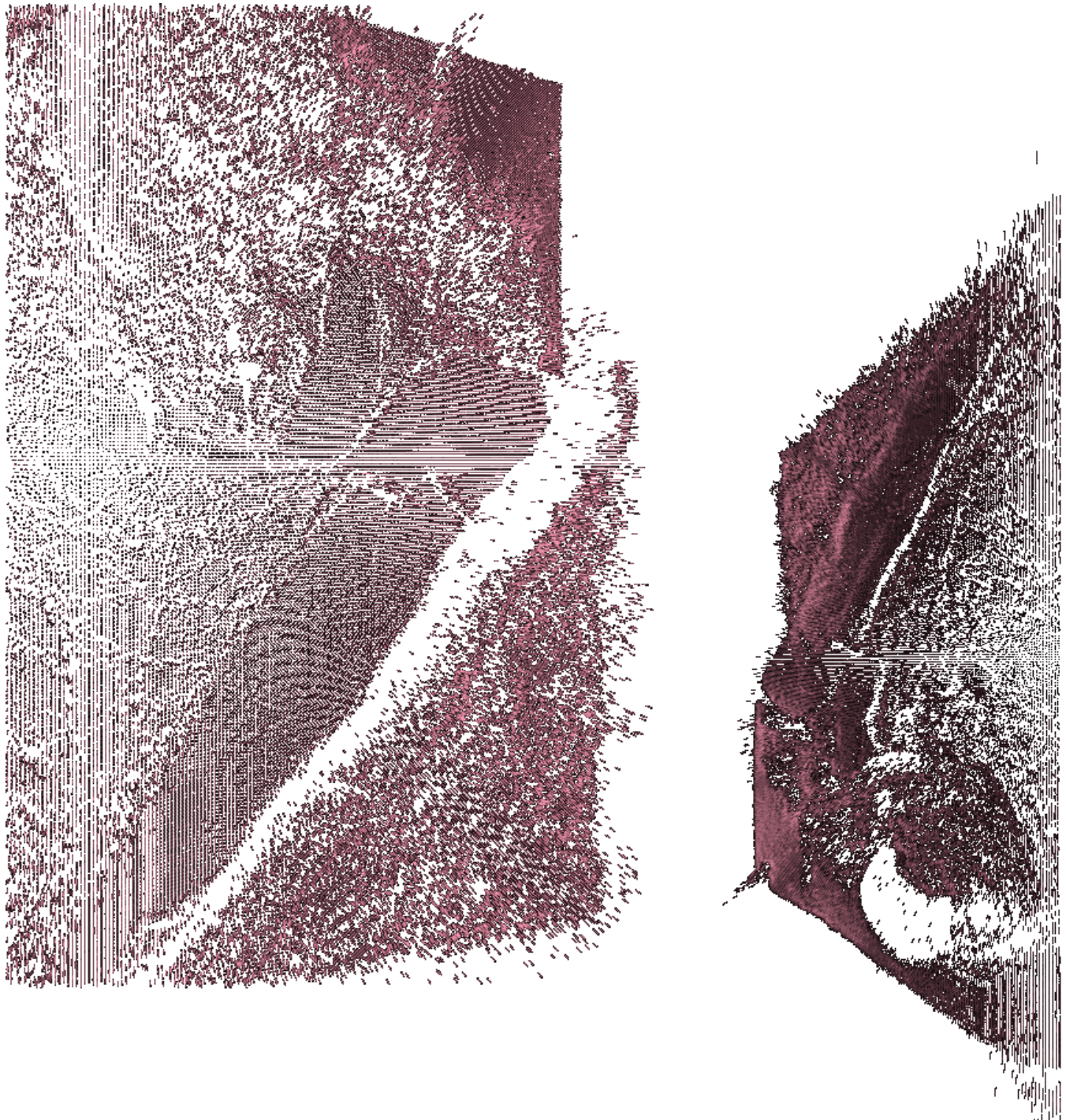


STUDIO LUDENS

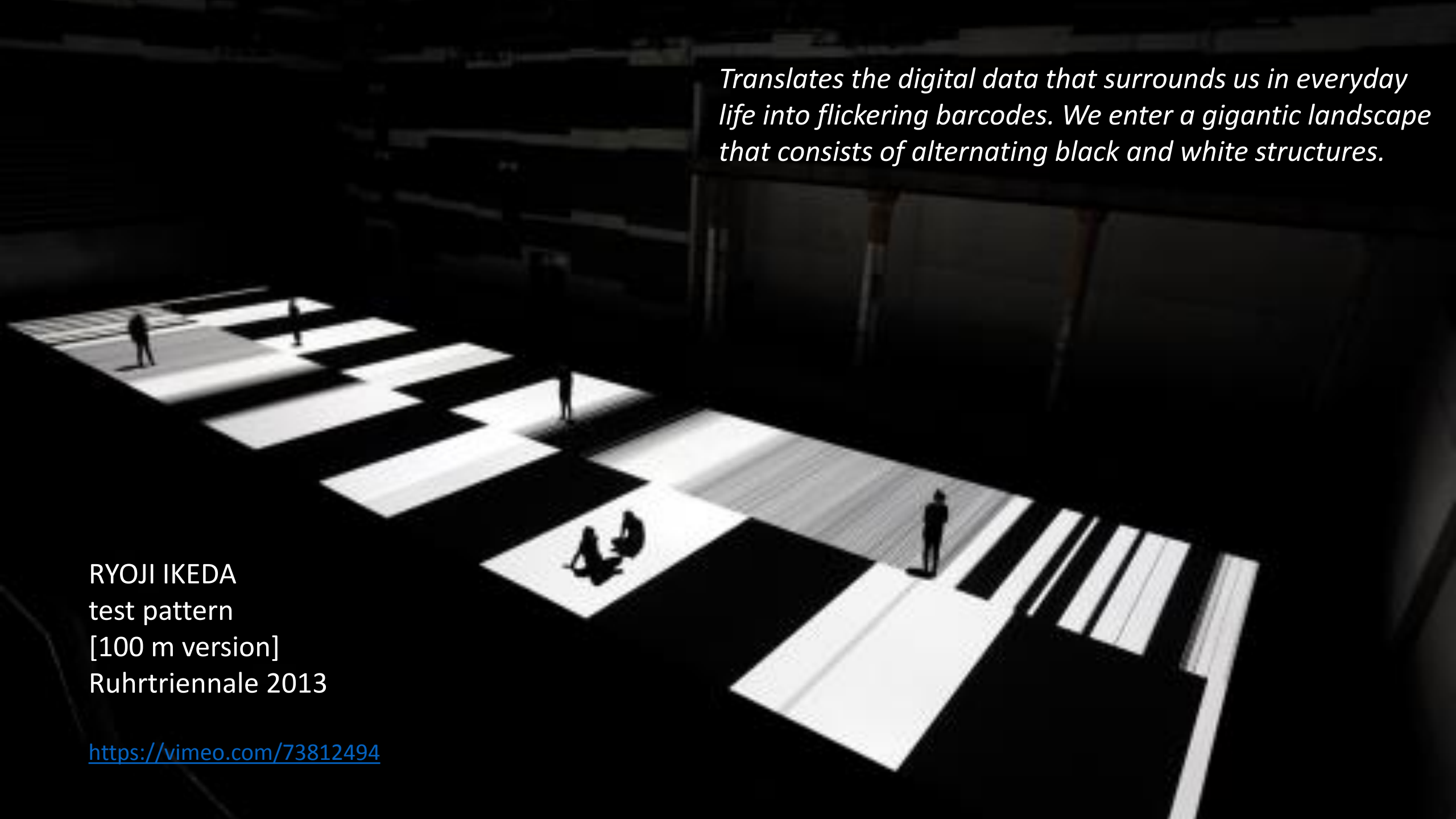
Epaka:to online desing tool

http://www.studioludens.com/epakato/

Transkódování



A rich source of data, and transcoding can be used to interpret this data from a different perspective.

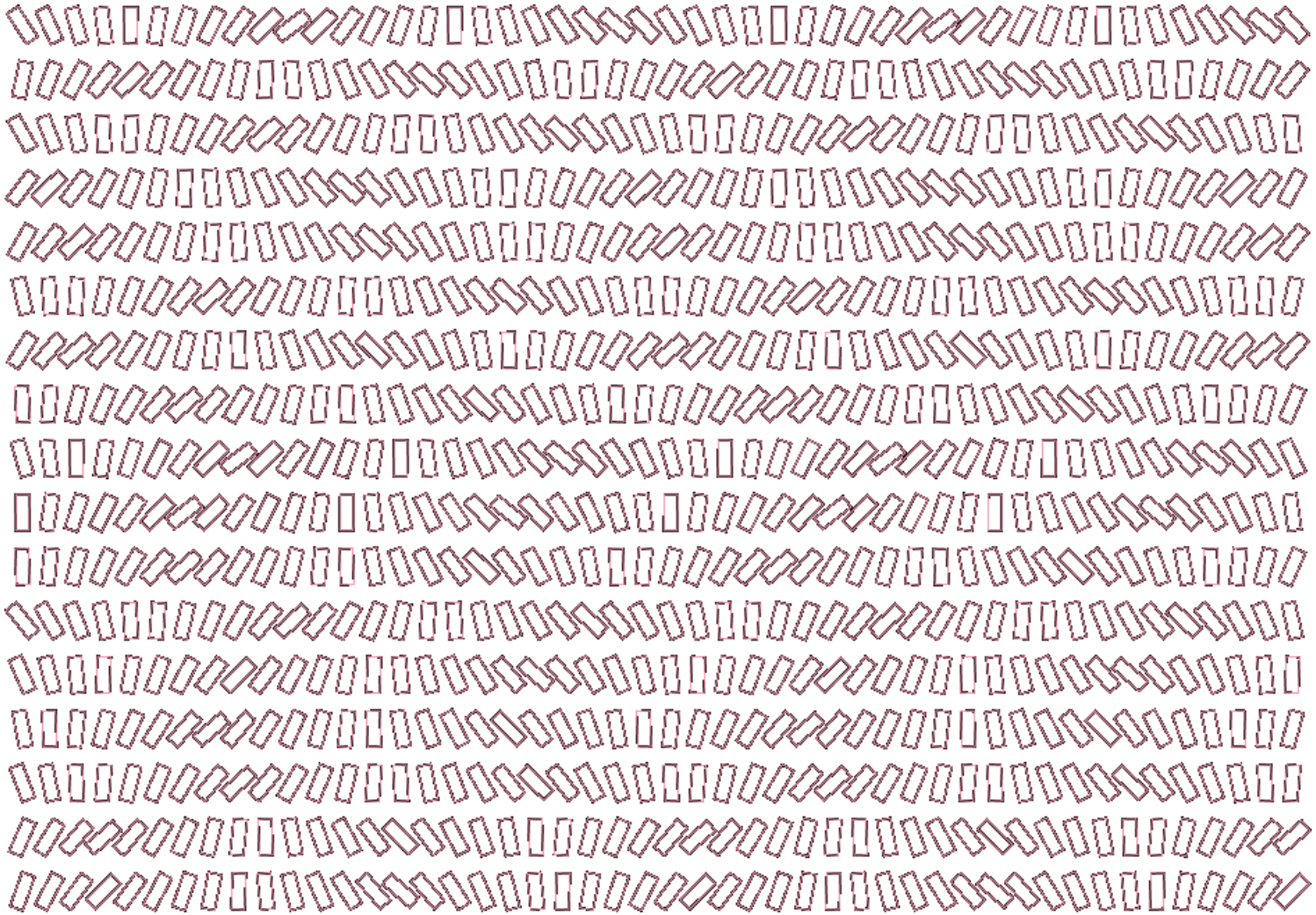


Translates the digital data that surrounds us in everyday life into flickering barcodes. We enter a gigantic landscape that consists of alternating black and white structures.

RYOJI IKEDA
test pattern
[100 m version]
Ruhrtriennale 2013

https://vimeo.com/73812494

Parametrizace

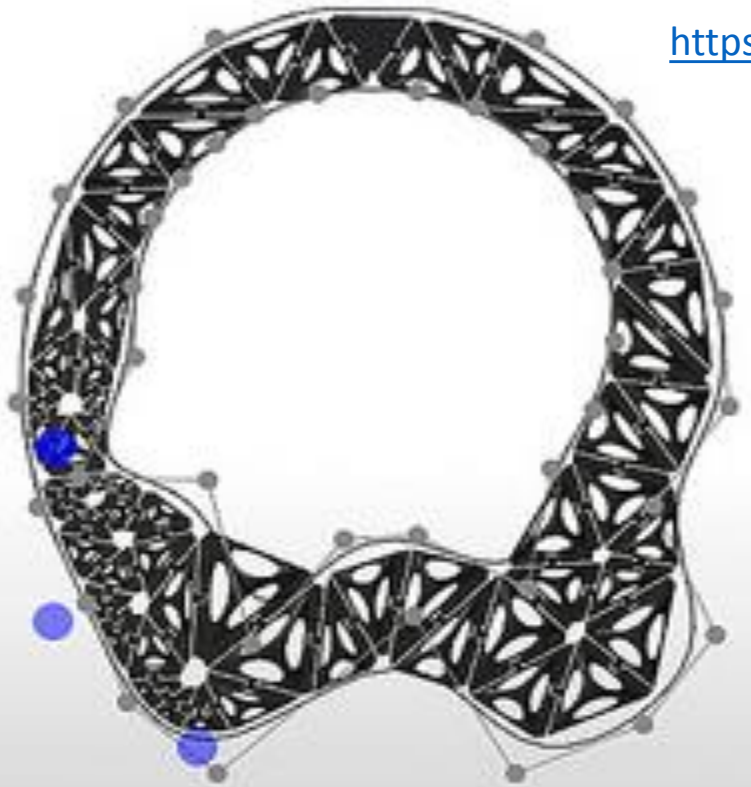


Parameters are powerful tools for controlling a series of objects. The behavior or form of each object can be connected to the value of one or more variables. The designer can think about more than just the individual objects.

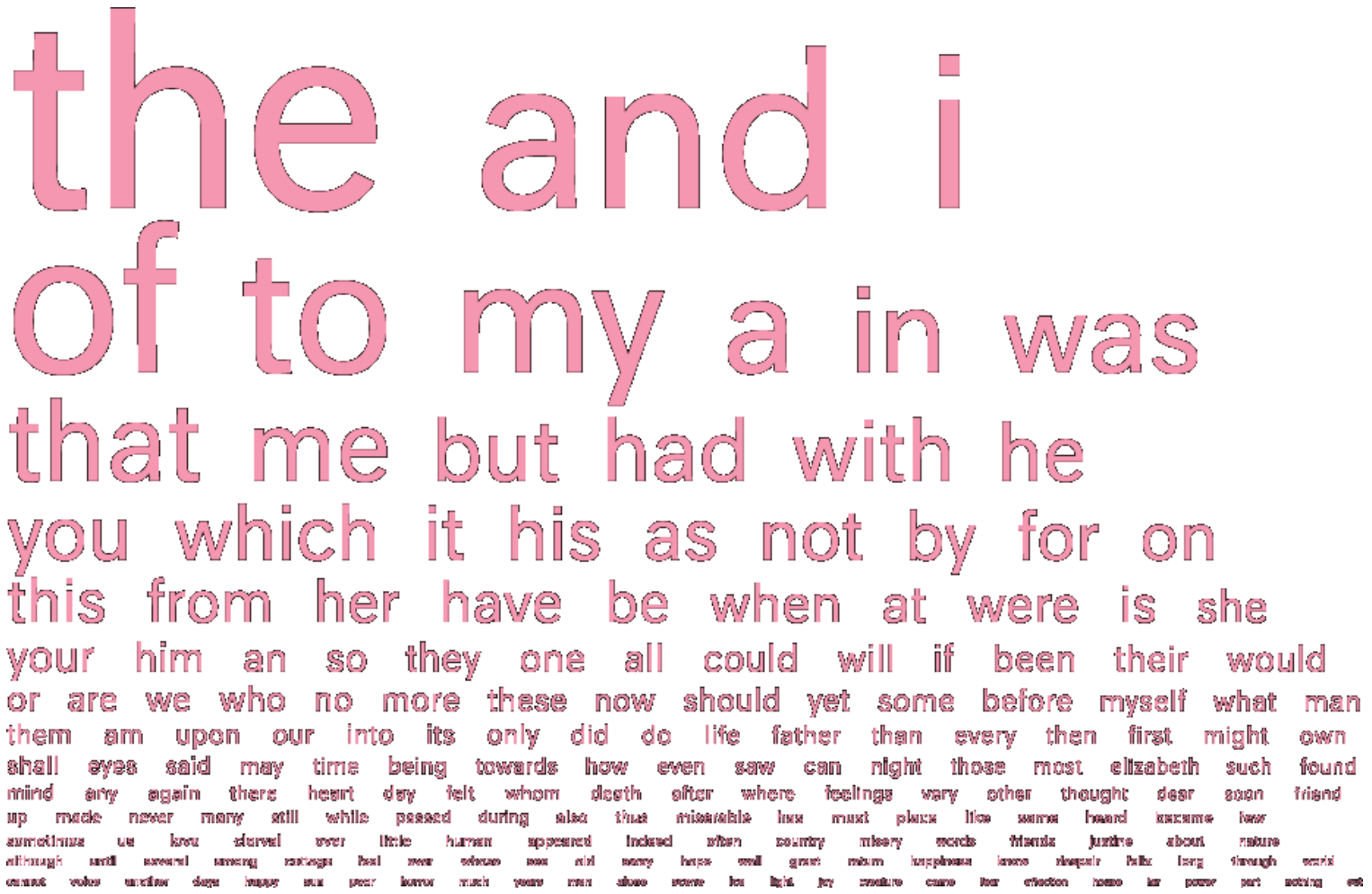
Parametrizace

NERVOUS SYSTEM
Kinematics
2014

https://vimeo.com/80287226



Vizualizace



This example loads, parses, and visualizes text files from Project Gutenberg, a massive online collection of electronic books. The images on this page show the program's analysis of two books side by side: Mary Shelley's Frankenstein and Bram Stoker's Dracula .The size of each word correlates to the number of times it is used in the book.

http://newsmap.jp/

This is an ongoing attempt at an algorithmically-generated, readability-adjusted scatter-plot of the musical genre-space, based on data tracked and analyzed for 1385 genres by The Echo Nest.

ECHO NEST
Every Noise at Once
ongoing

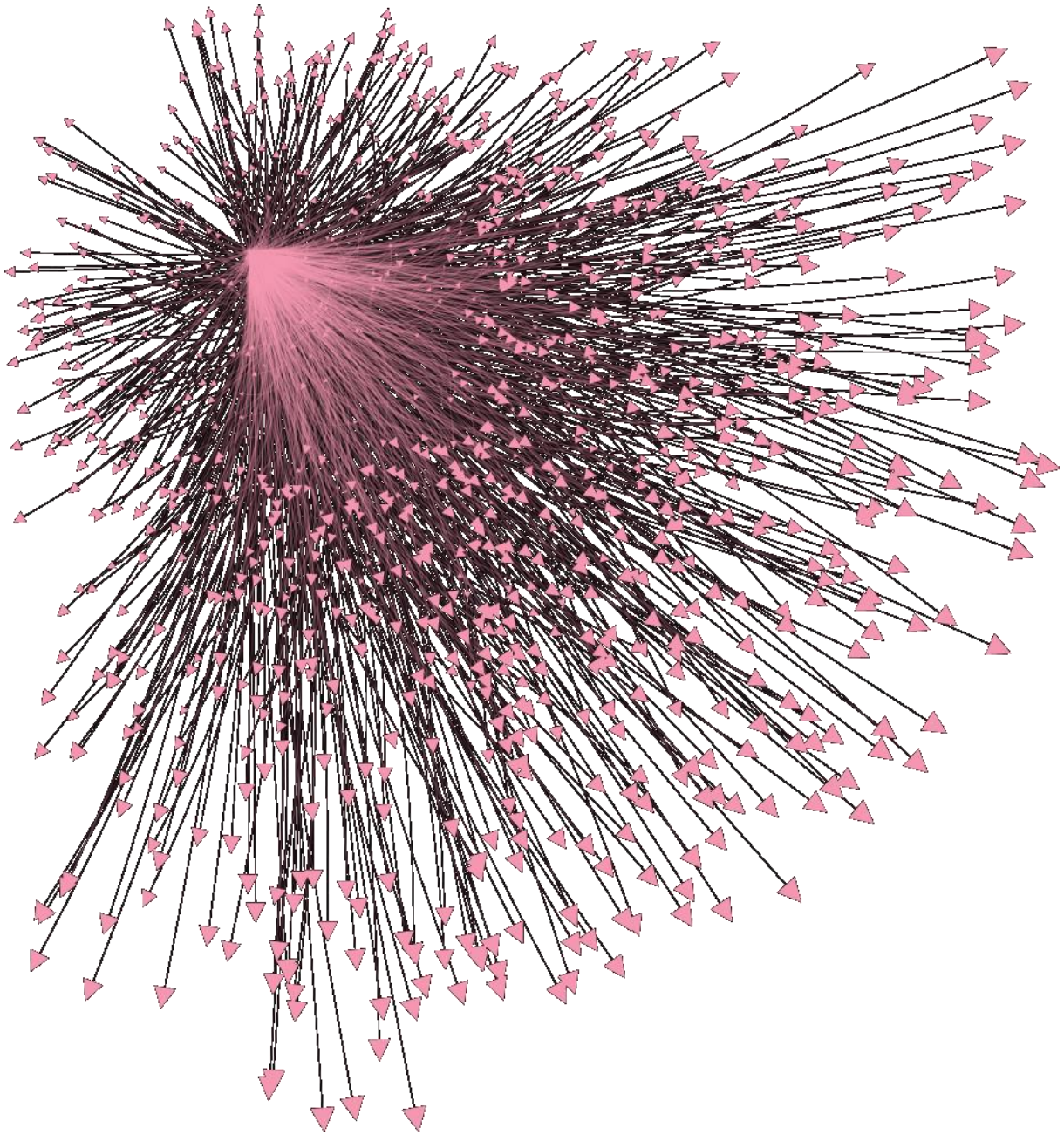
http://everynoise.com/engenremap.html

Vizualizace

ONFORMATIVE STUDIO
Facebook Tree
data visualization for Telekom flagship store
2014

http://www.onformative.com/work/4010-facebook-tree/

Simulace



Particle systems are an essential technique for simulating nature. These systems can replicate the look and behavior of water, fire, smoke, explosions, clouds, fog, hair, fur, stars, and more.

Simulace

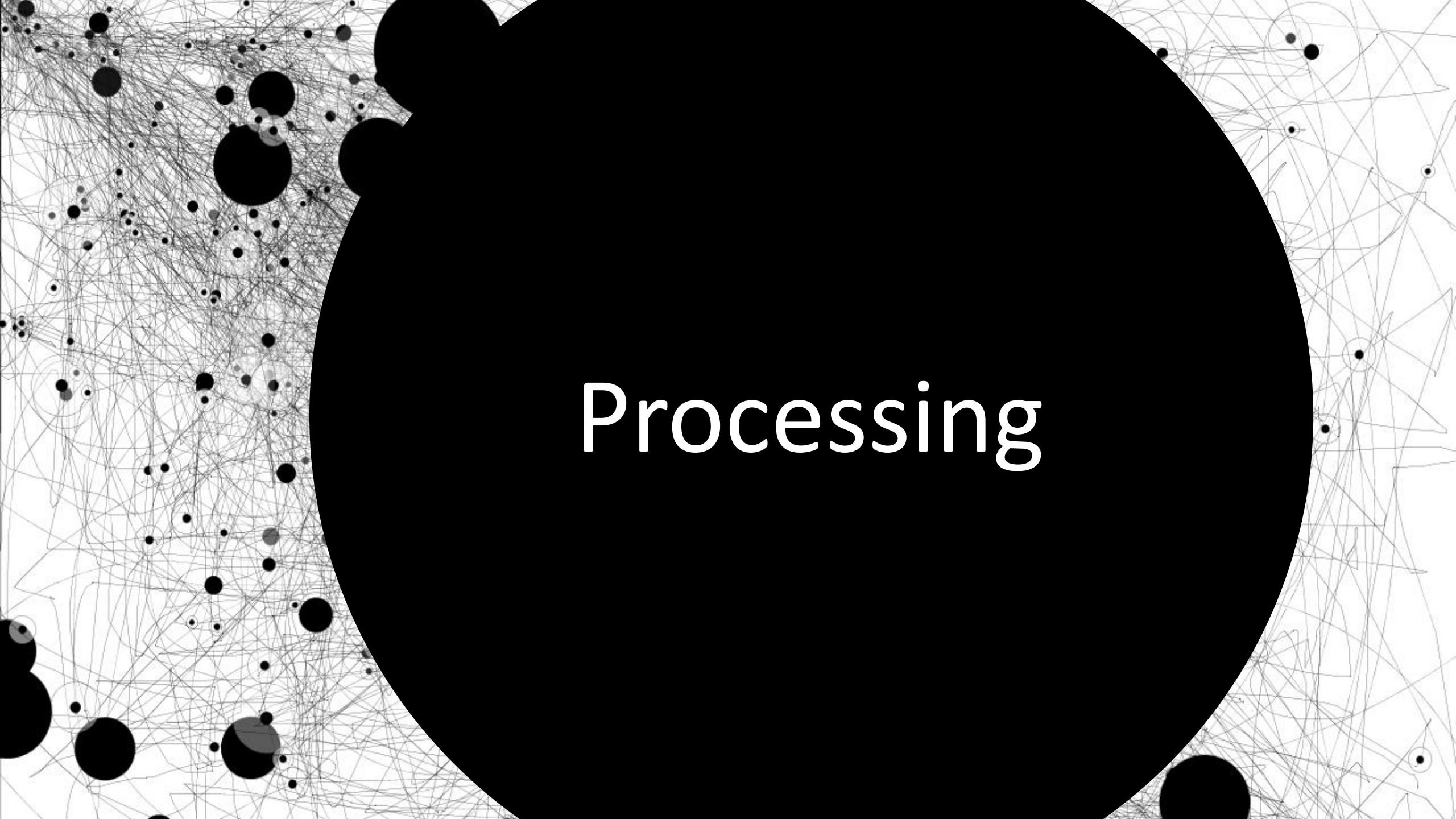
UNIVERSAL EVERYTHING
Znělka pro MTV

http://www.universaleverything.com/projects/mtv/

Simulace

OKDELUXE STUDIO
COP15 Generative Identity
Generative identity Software - Evolutions Light

https://vimeo.com/8193600


Processing

Vytvořený pro elektronické umění a vizuální tvorbu

Podporuje výuku programování ve vizuálním kontextu

Elektronický „skicák“

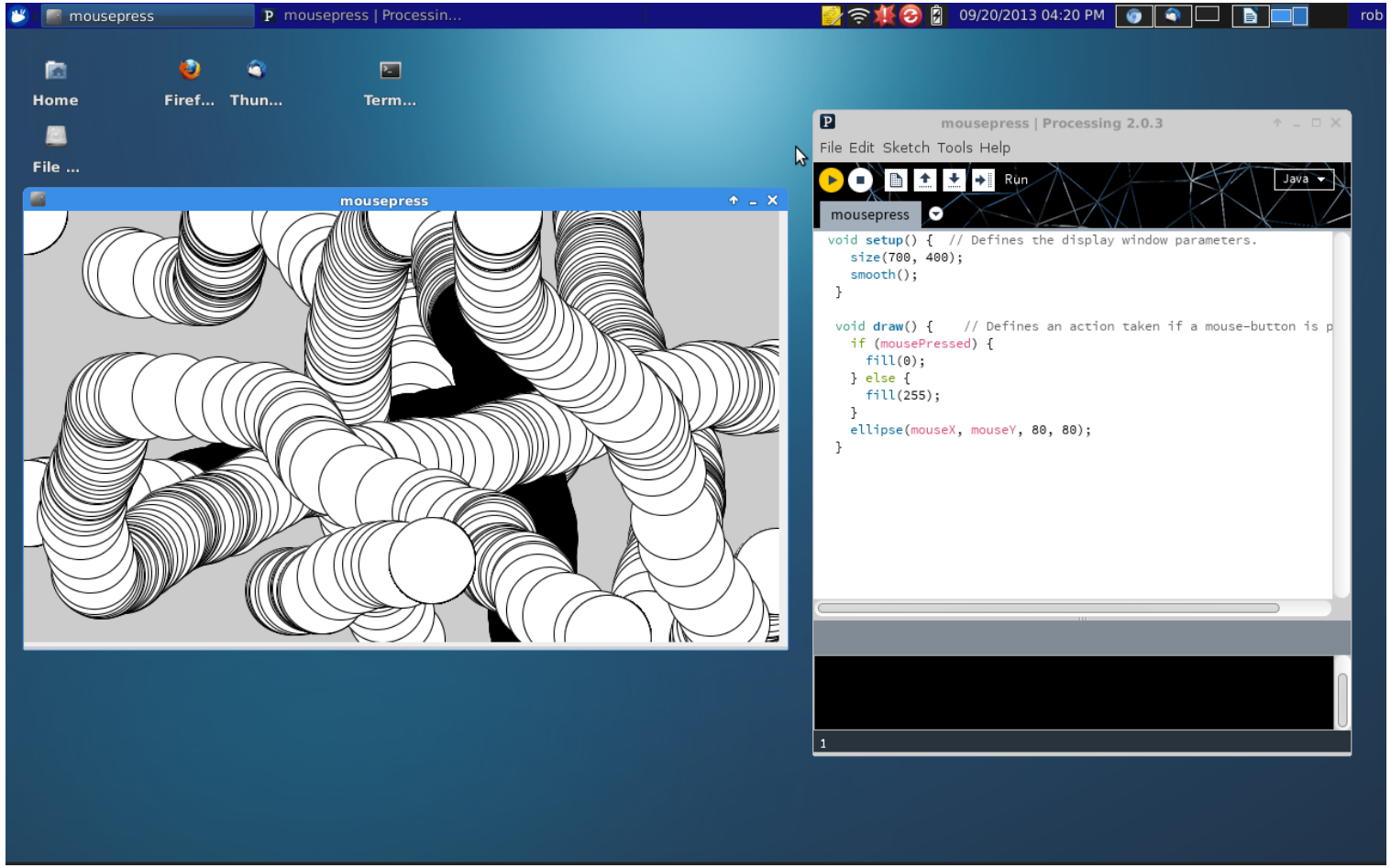
Open source program = velká komunita

Processing stojí na programovacím Jazyku Java.

"We made it to be a flexible software sketchbook and a language for learning how to code within the context of the visual arts. "

MIT 2001 – Casey Reas a Ben Fry, oba grafičtí designeři a programátoři

IDE - integrated development environment



Computer is stupid
but f[redacted]king fast!

Thank you !

zdroje

Podkladový obraz - **Julien Gachadoat**

Další odkazy:

O processingu
http://motherboard.vice.com/read/meet-processing-the

O generativním počítačovém umění
http://jonmccormack.info/~jonmc/sa/wp-content/uploads/2012/10/TenQuestionsV3.pdf

O konceptuálním umění
http://www.theartstory.org/movement-conceptual-art-artworks.htm#pnt_5

Tech Talk: Douglas Welton on Generative Art
https://www.youtube.com/watch?v=0qhiCgTUixU

CPEU2 - Generative design Cédric Kiefer
https://www.youtube.com/watch?v=7vITr__QOc4

What is Generative Art?
Complexity Theory as a Context for Art Theory
http://www.philipgalanter.com/downloads/ga2003_paper.pdf