



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, zpracování 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

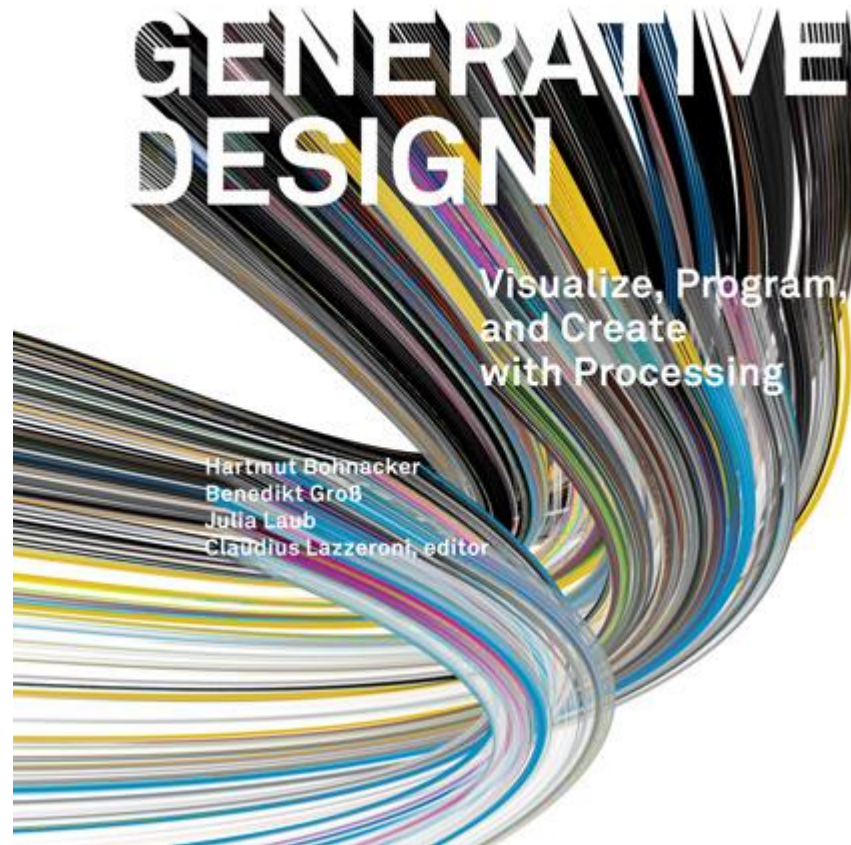
Rozvíjení interdisciplinárního uvažování

Zkušenost s uplatněním kreativního kódování ve vizuálním díle

Rozšíření možností především v tvorbě grafických návrhů

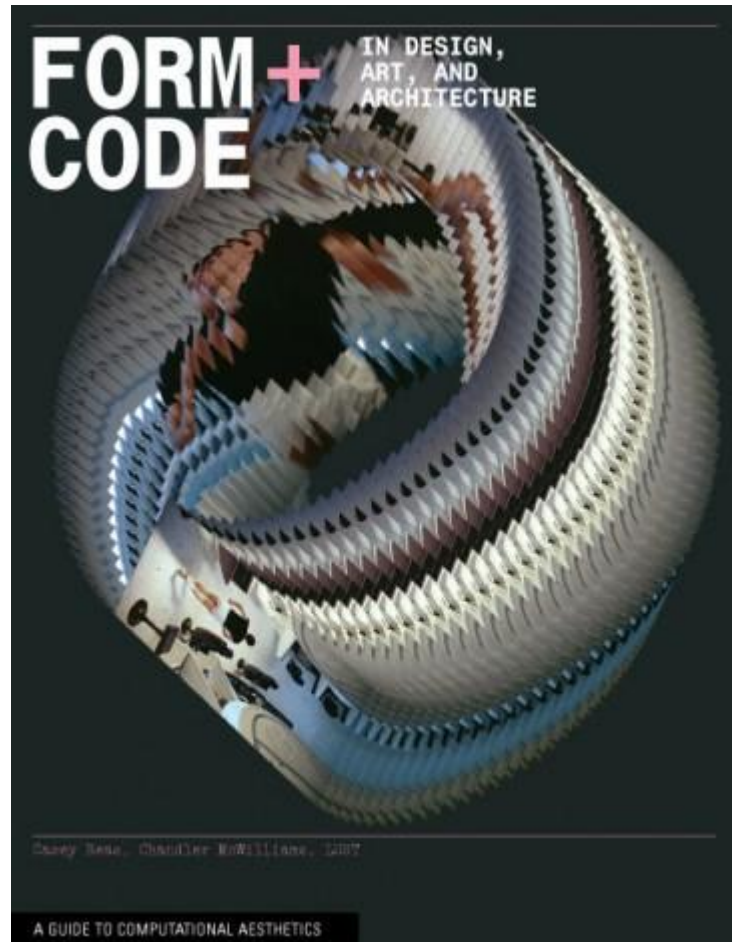
Radost

Studijní
materiály



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

Studijní materiály

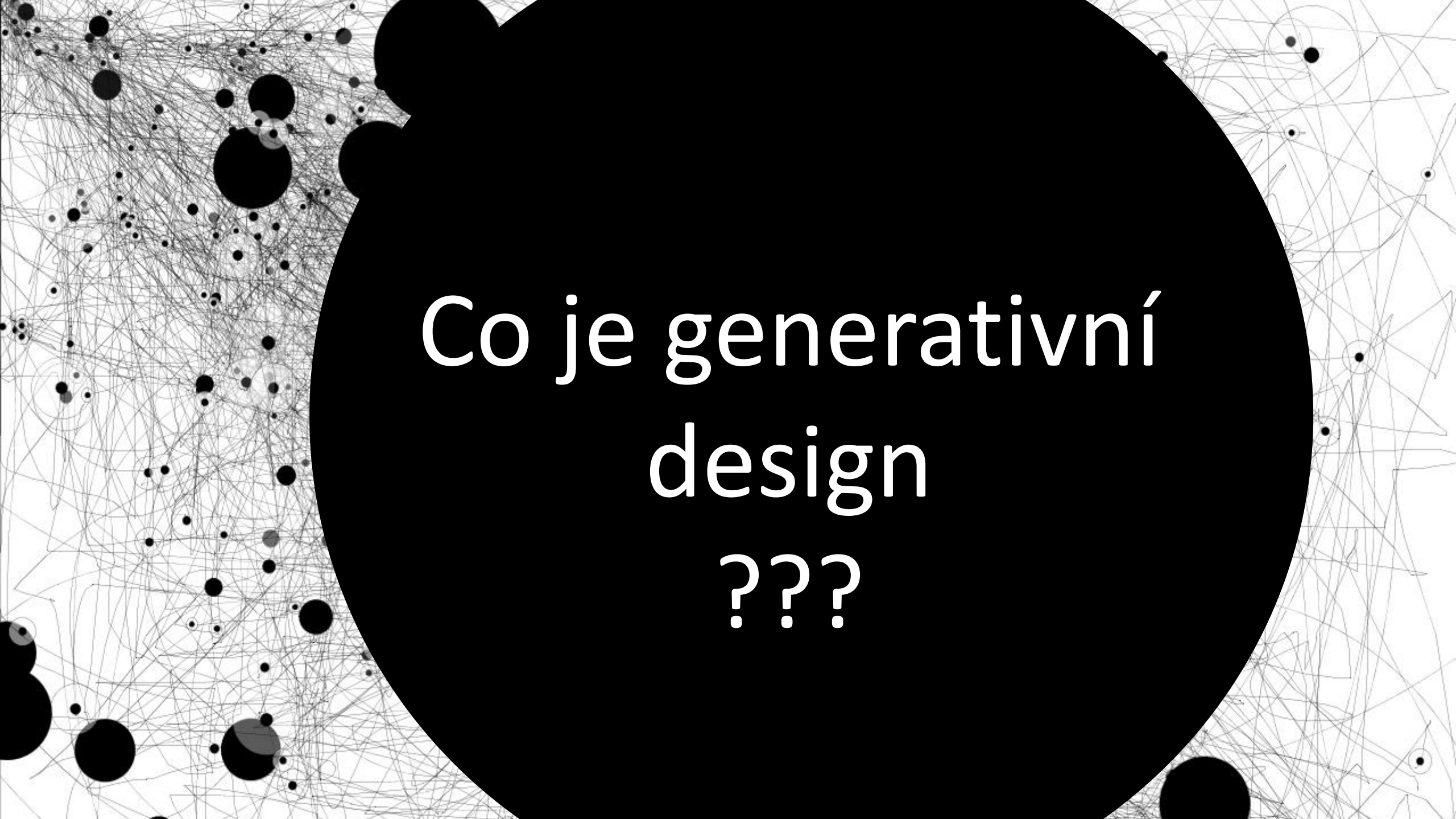


<http://formandcode.com/>

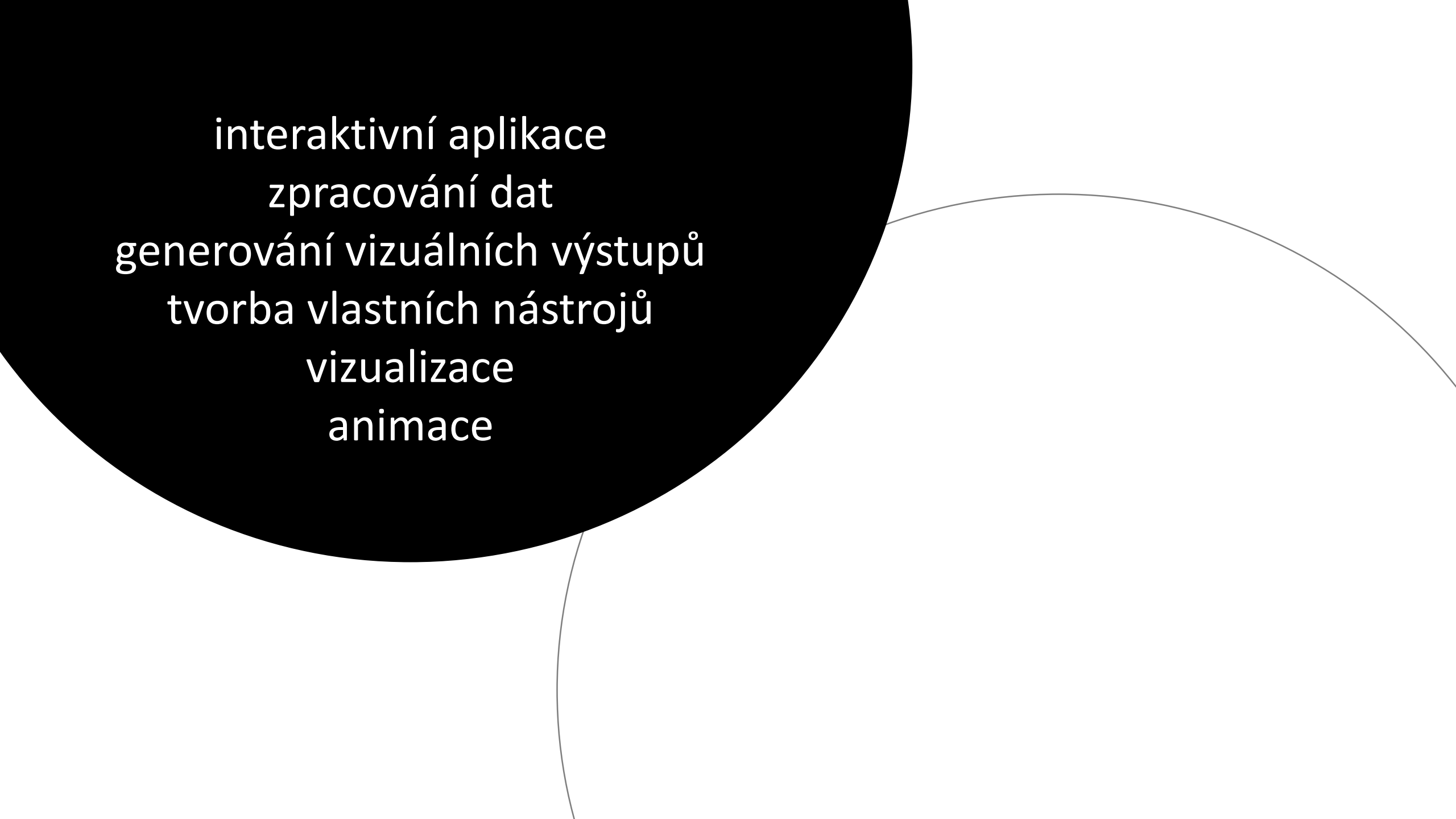
Inspirace



<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

System 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 imagery tool
2011



MEDICAL MAGIC.



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



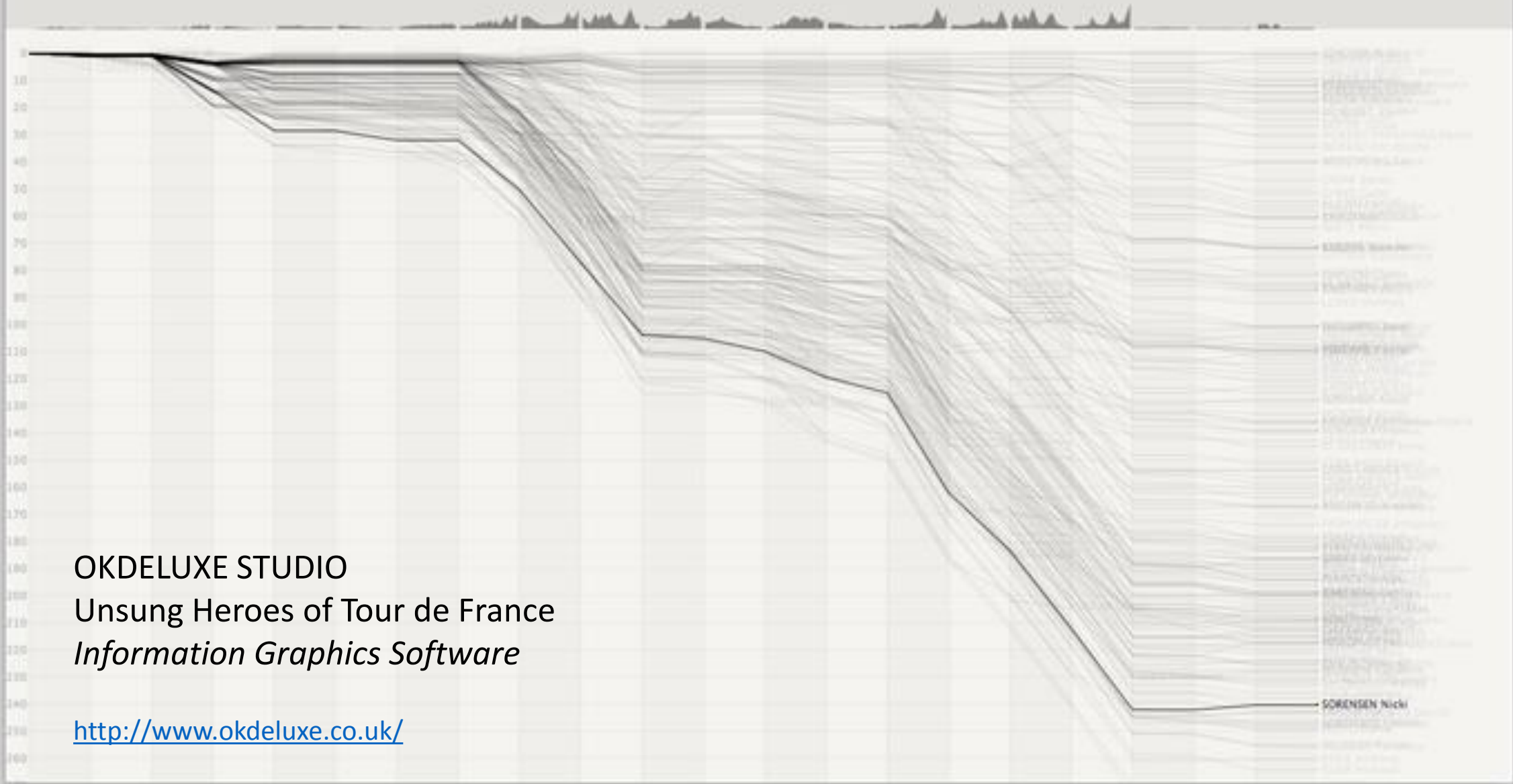
UNIVERSAL EVERYTHING

Forever in VA

20 000 generovaných pohlednic

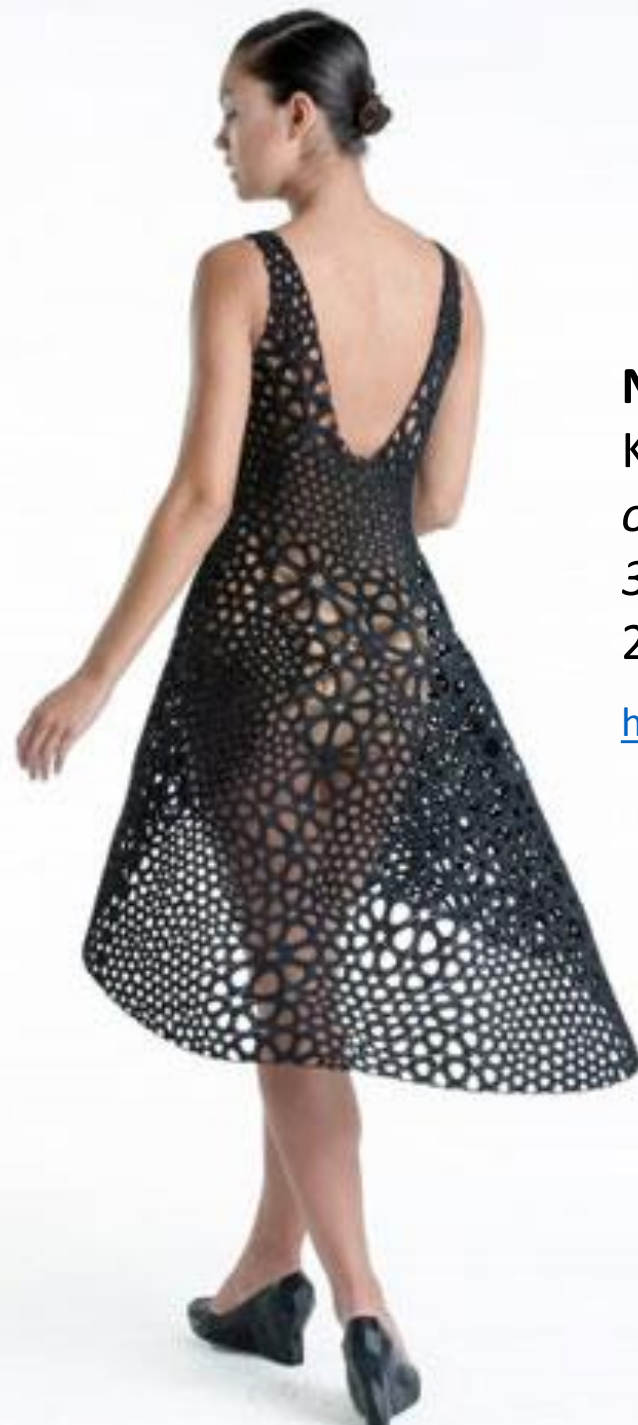
2008

[/www.universaleverything.com/projects/forever-at-the-va-2/](http://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/>

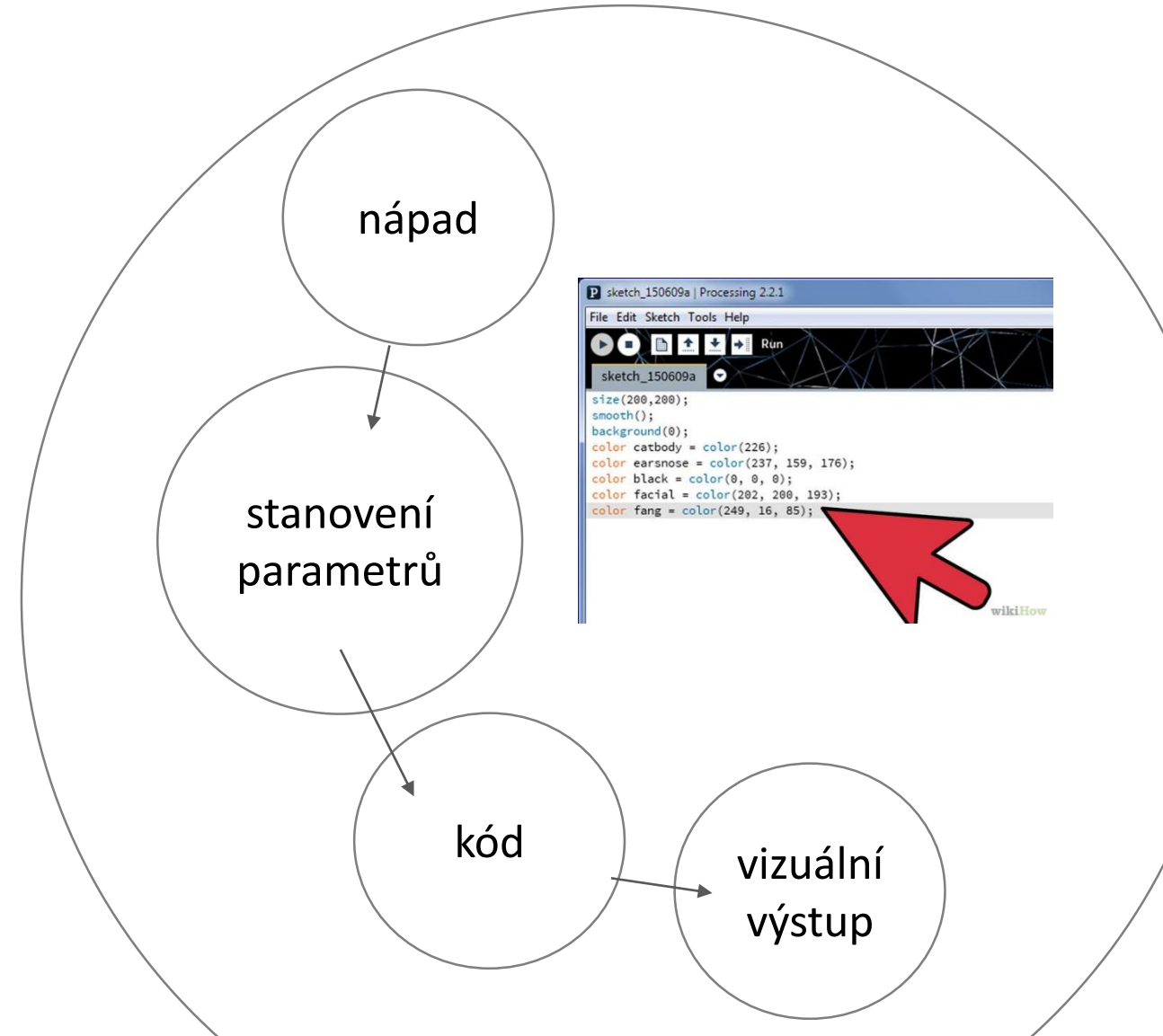
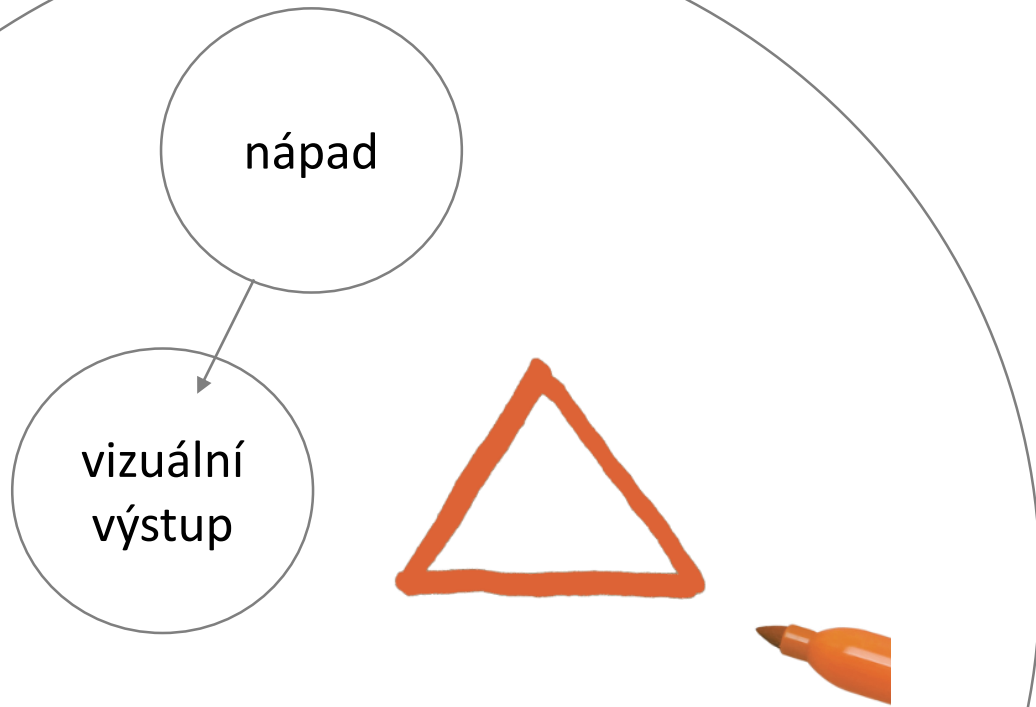
<http://www.universaleverything.com/>

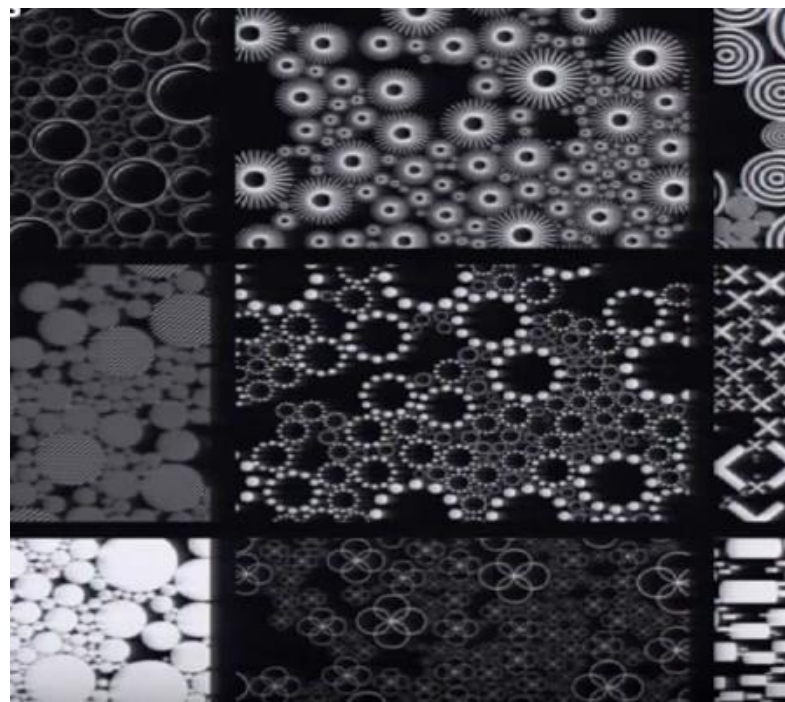
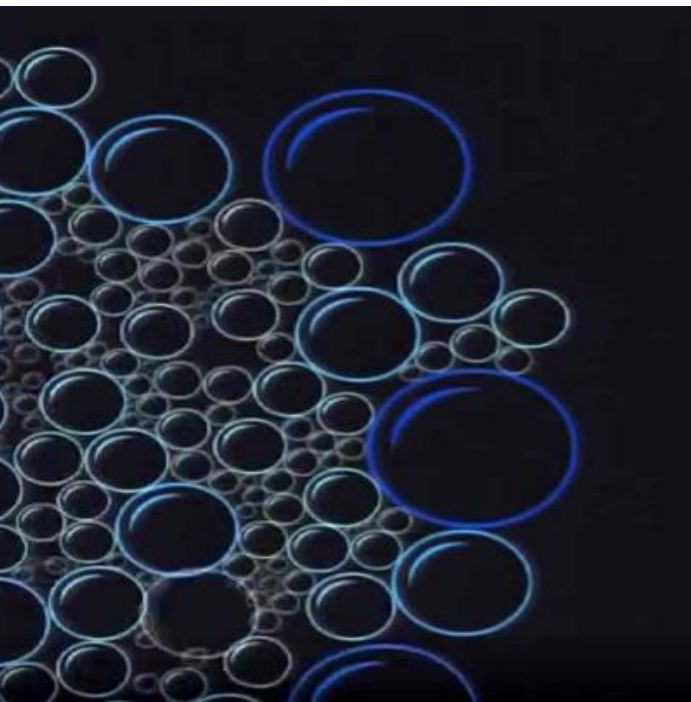
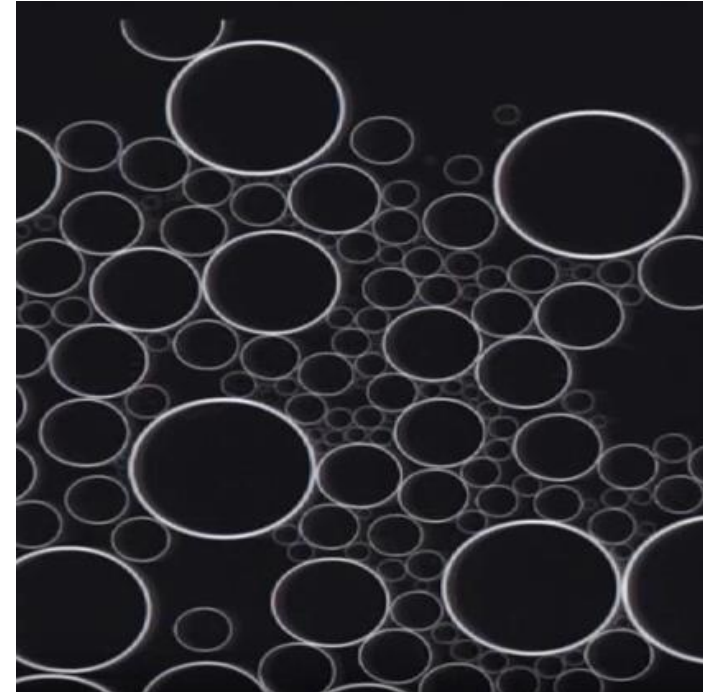
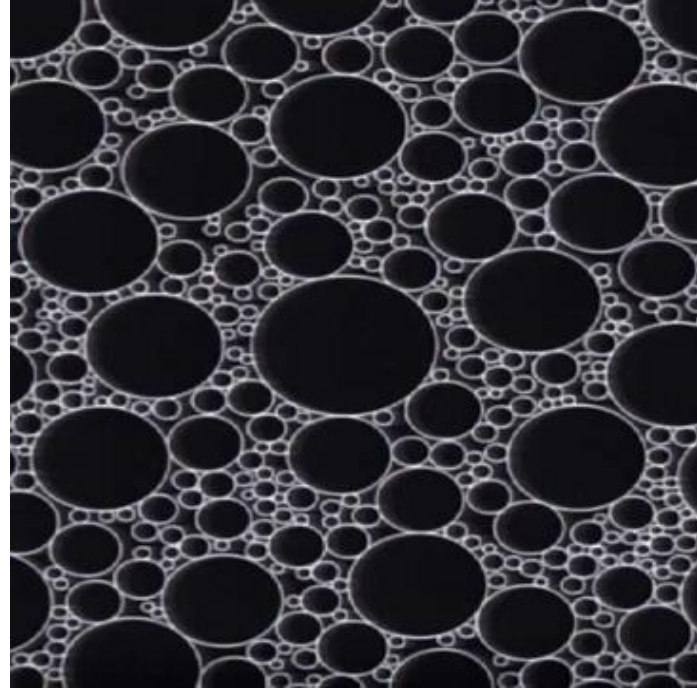
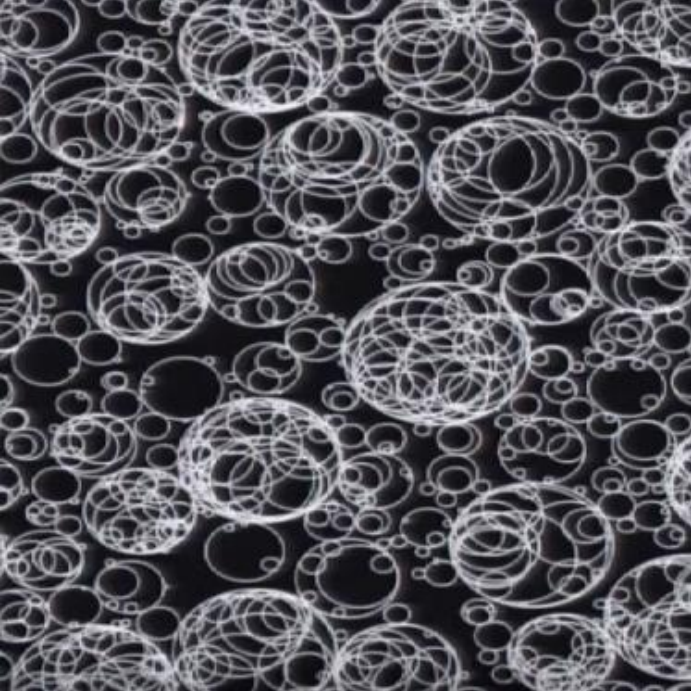
<http://n-e-r-v-o-u-s.com/>



Principy

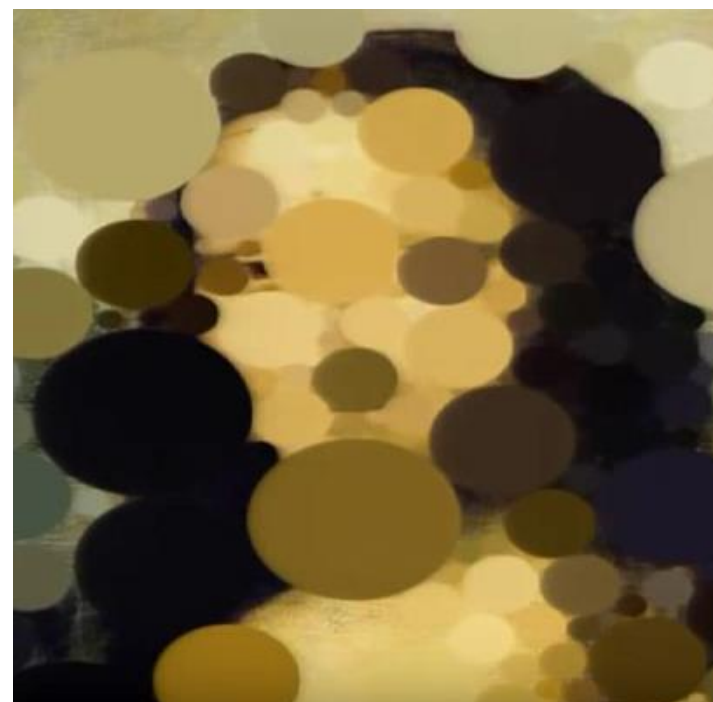
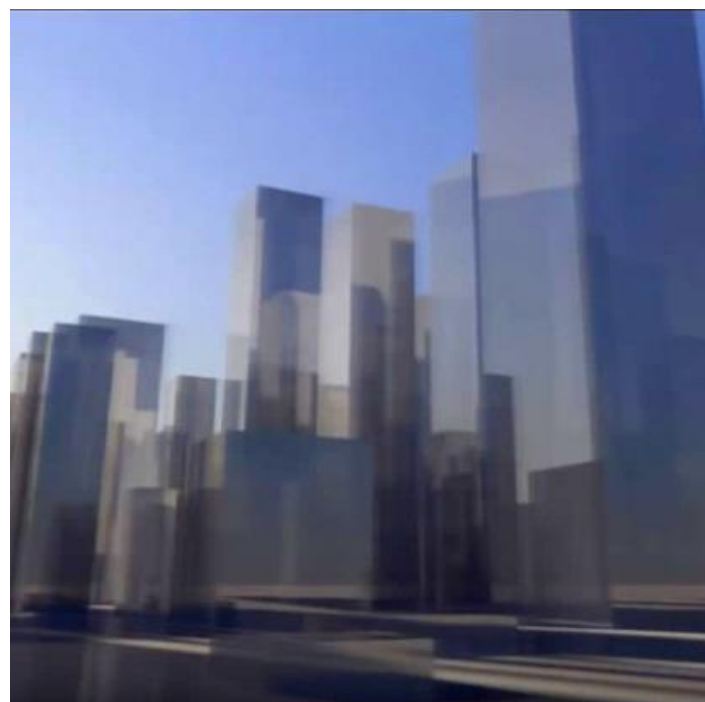
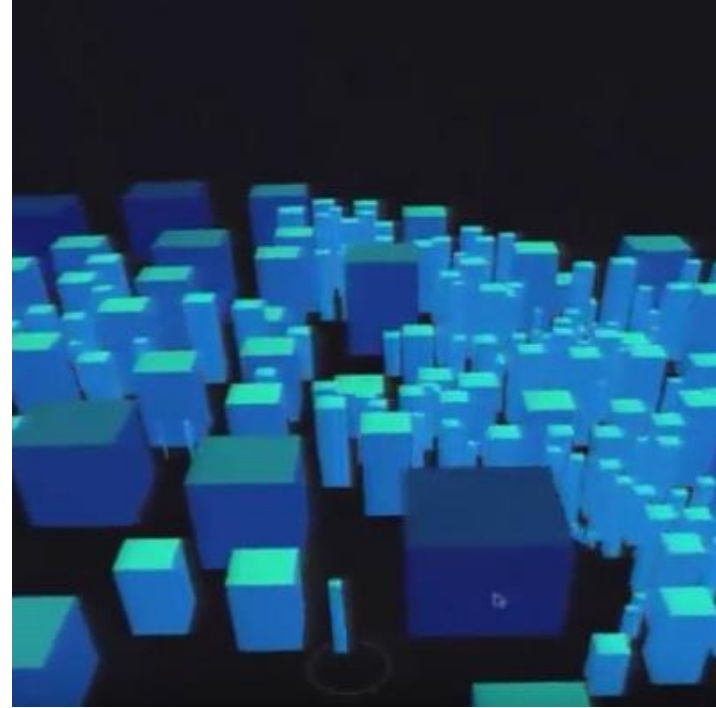
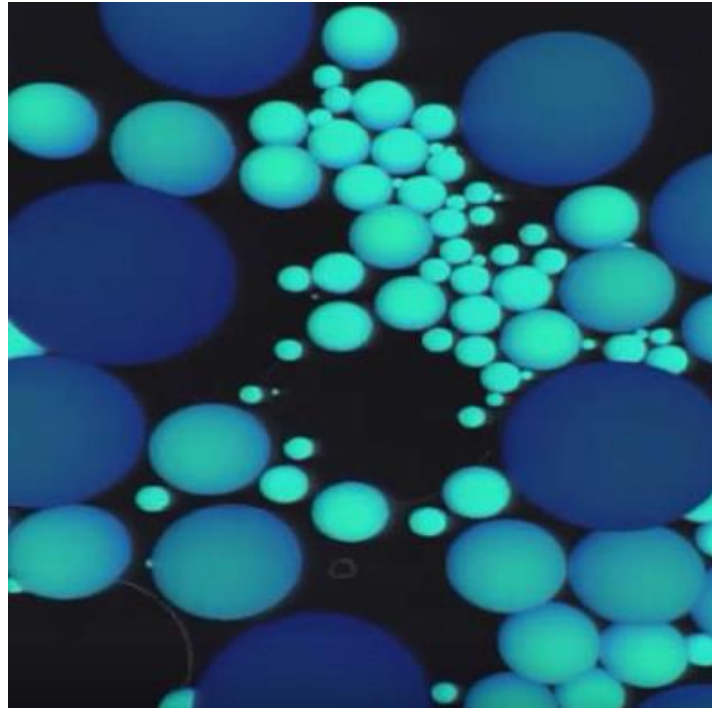
Generativní design není nový styl, je to nová pracovní metoda.






CÉDRIC KIEFER
z předášky CPEU2 - Generative design
2012

https://www.youtube.com/watch?v=7vITr_QOc4





Stručná historie

take an object.

Do Something to it.

Do **Something else** to it.

-Jasper Johns

Rules-based Art

Generative Art

WOLFGANG AMADEUS MOZART

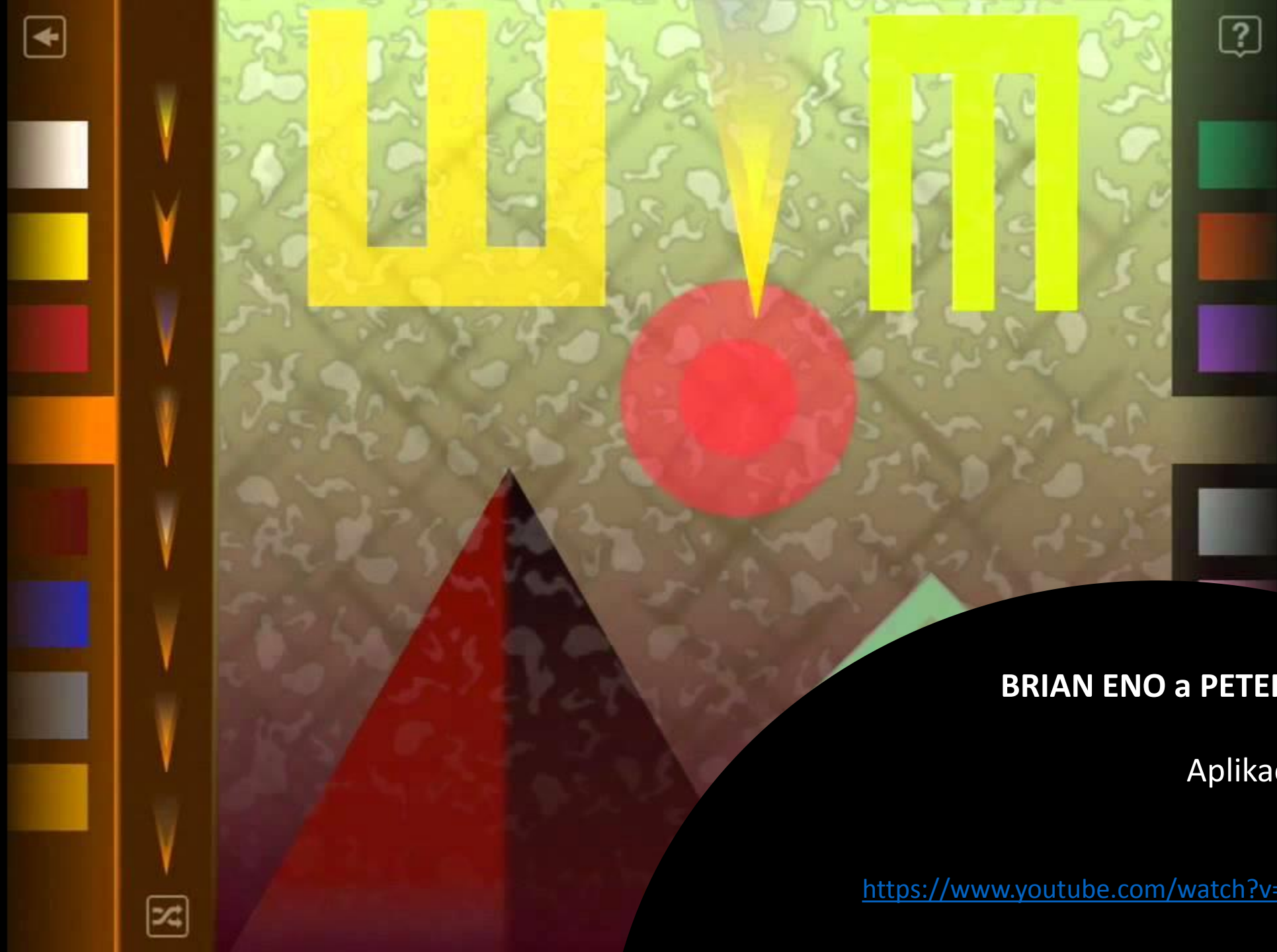
Hudební hra s kostkou

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=8zNLIKRRUVk>

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

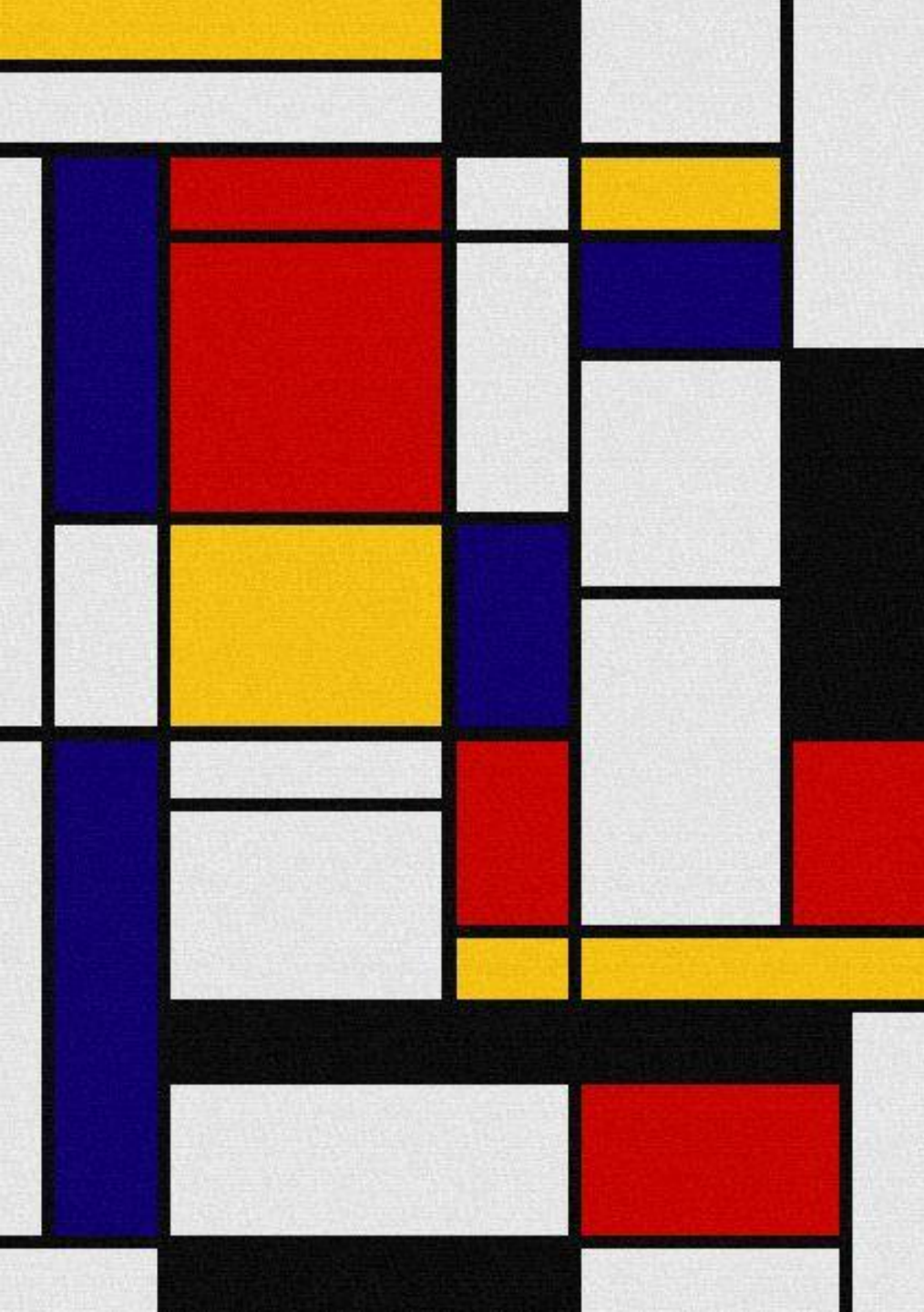
Radio Head

Cut up technique- David Bowie

<https://www.youtube.com/watch?v=m1InCrzGIPU>

Cut-Ups William S. Burroughs

<https://www.youtube.com/watch?v=Rc2yU7OUMcl>



Holandská skupina DeStijl
neoplasticismus
1917

vertikální a horizontální linie
primární barvy černá a bílá

The idea becomes a machine that makes the art.

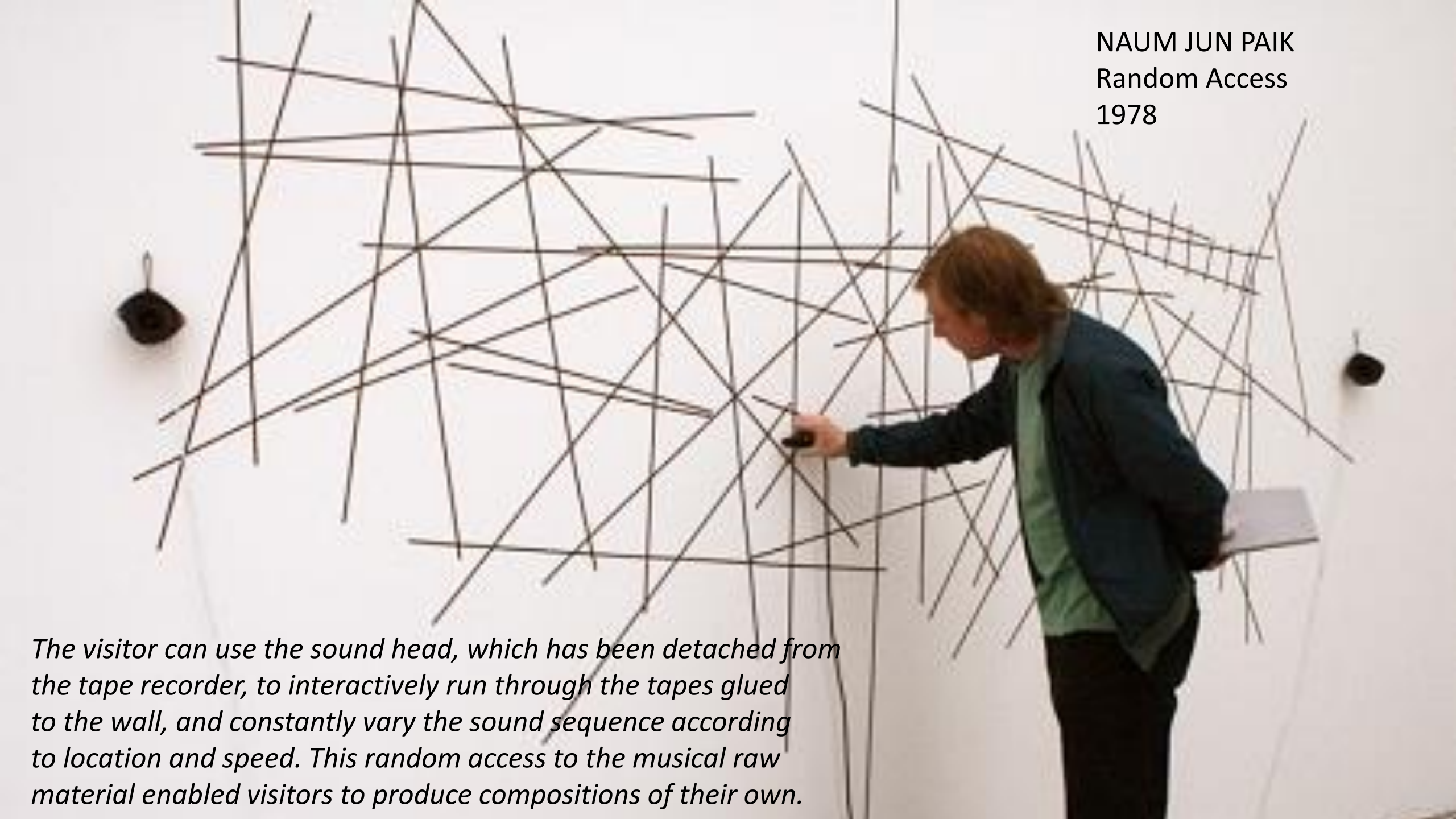
Sol LeWitt, 1967

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



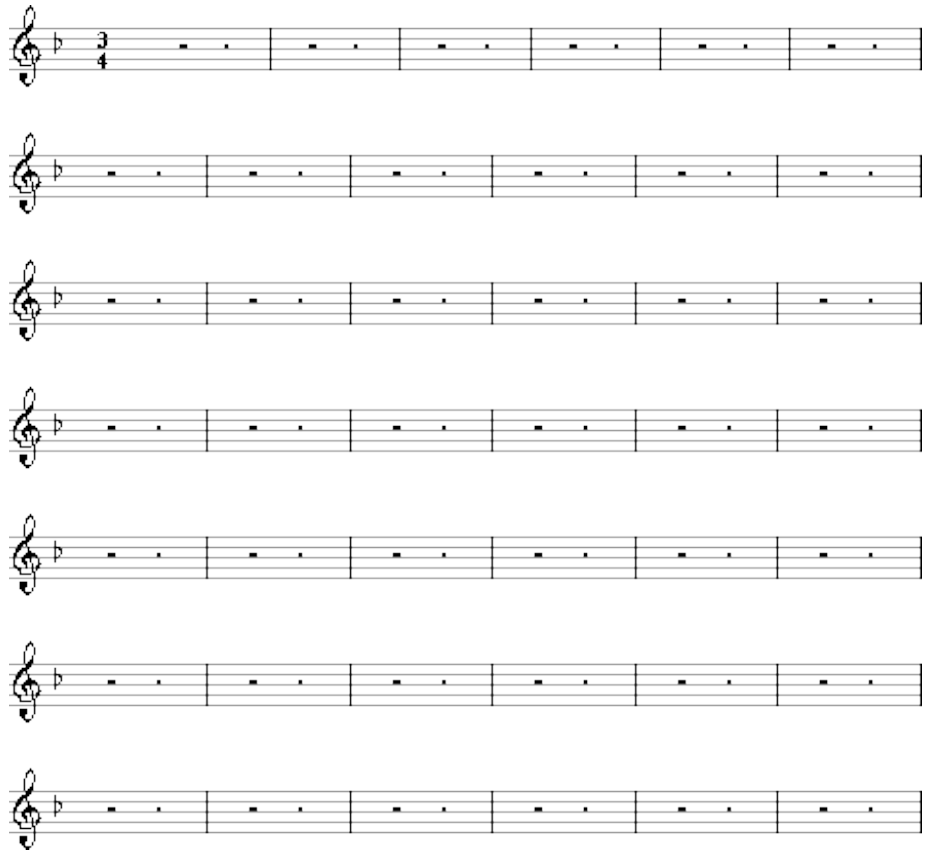
The visitor can use the sound head, which has been detached from the tape recorder, to interactively run through the tapes glued to the wall, and constantly vary the sound sequence according to location and speed. This random access to the musical raw material enabled visitors to produce compositions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

DJing



VJing





JOHN CAGE

4'33"

1952

<https://www.youtube.com/watch?v=JTEFKFiXSx4>

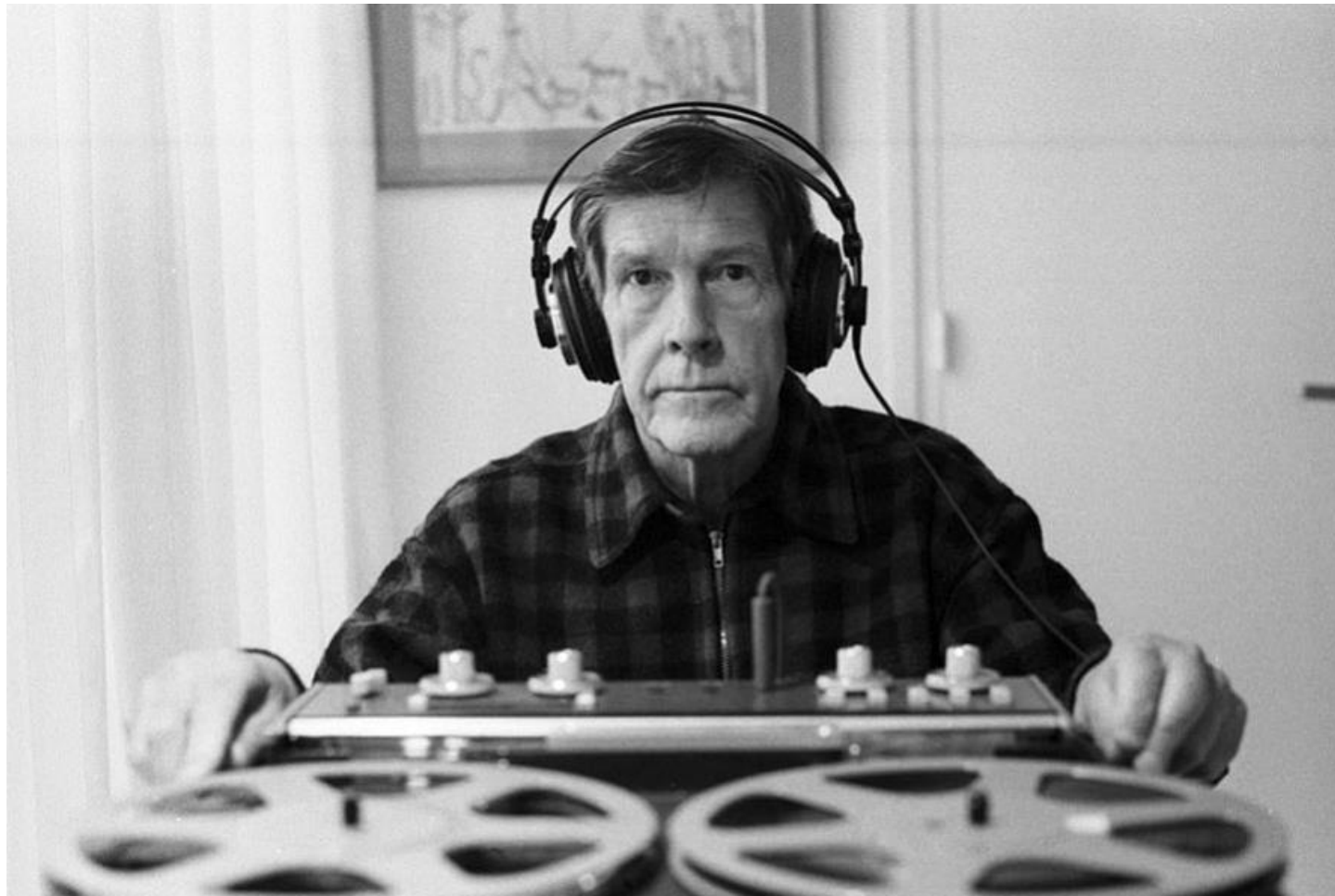
Water Walk

1960

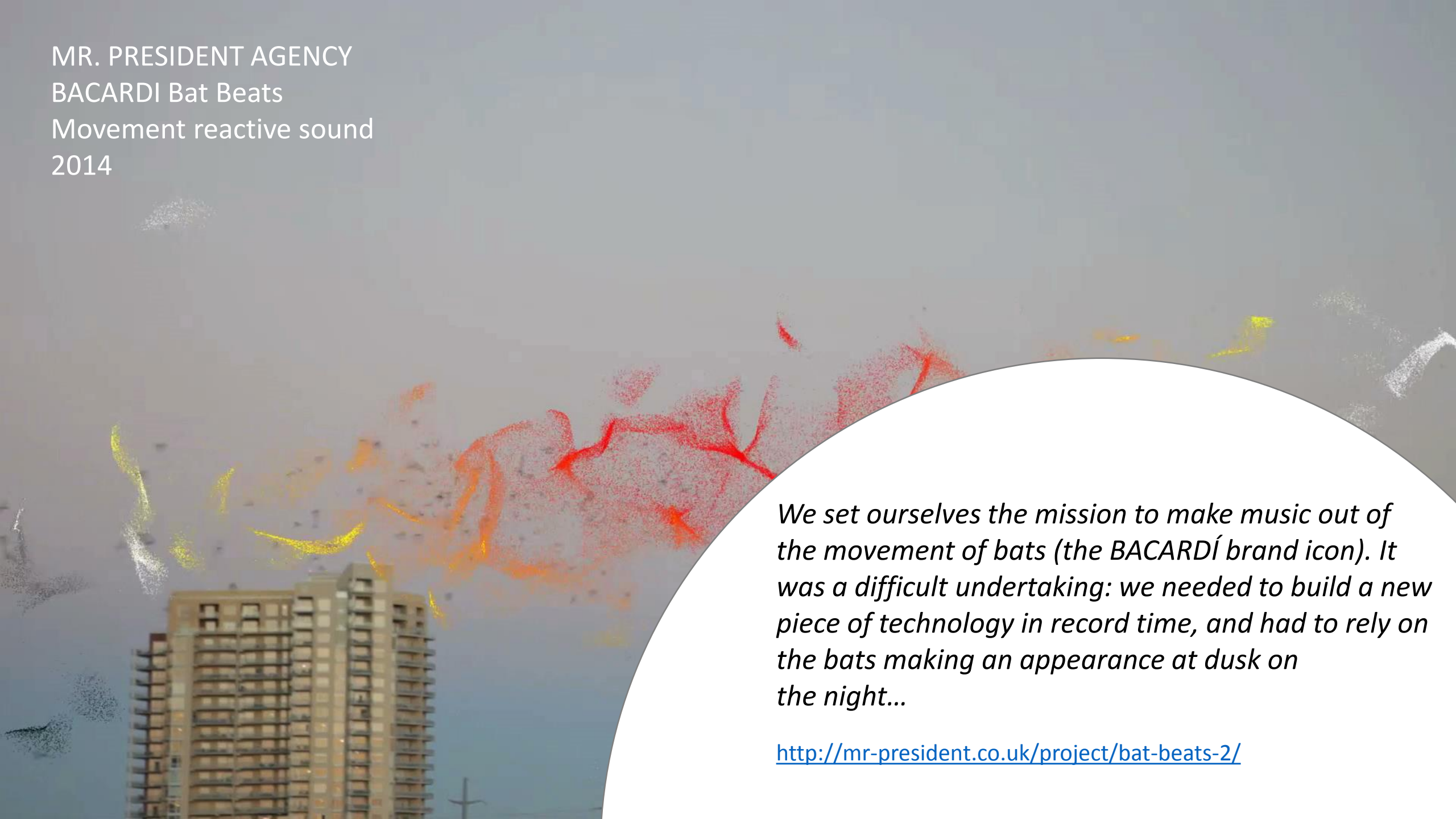
<https://www.youtube.com/watch?v=Yybn6iKmYdQ>

"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.

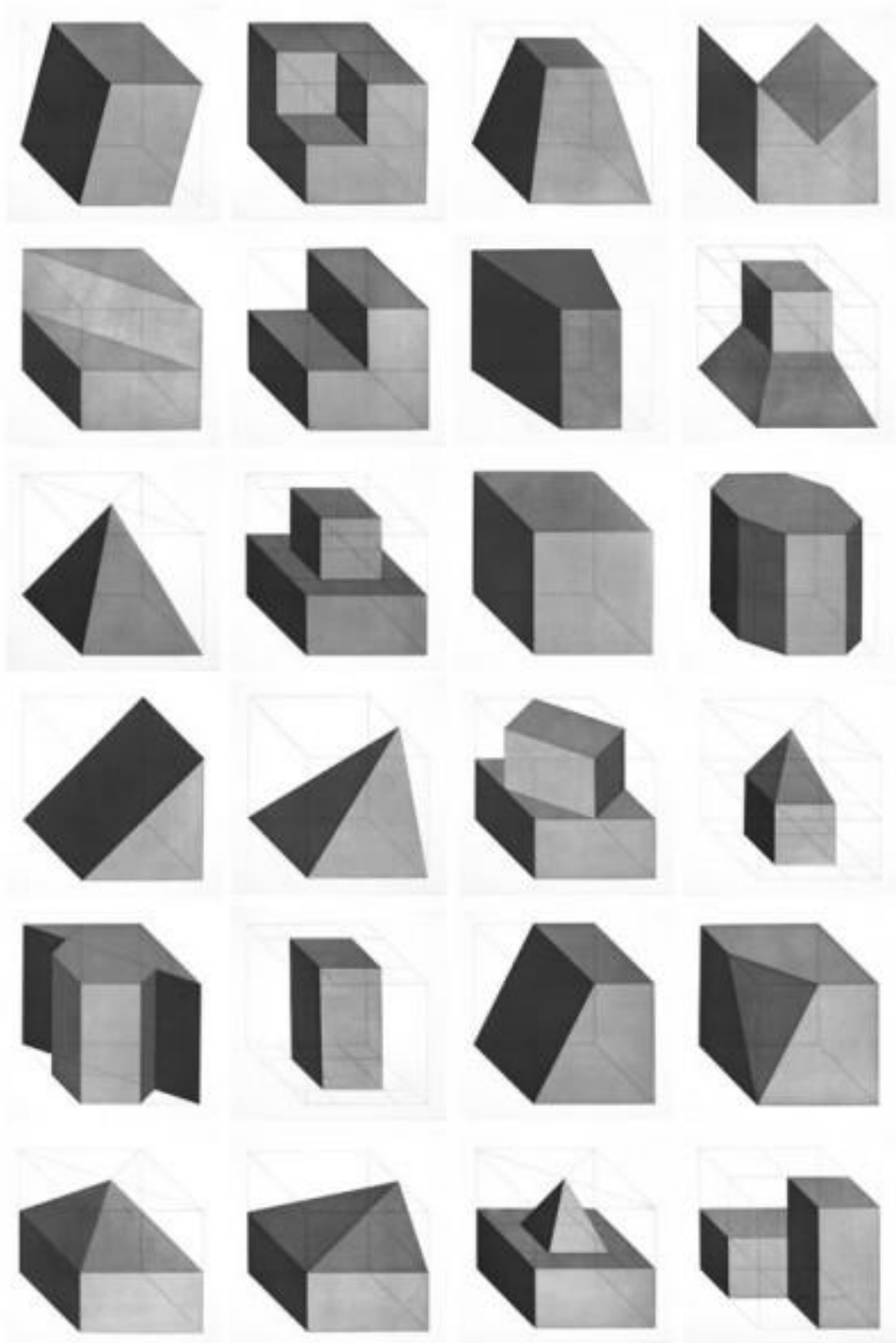


MR. PRESIDENT AGENCY
BACARDI Bat Beats
Movement reactive sound
2014



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 from 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 Grottesque
2014

<http://www.digital-grottesque.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



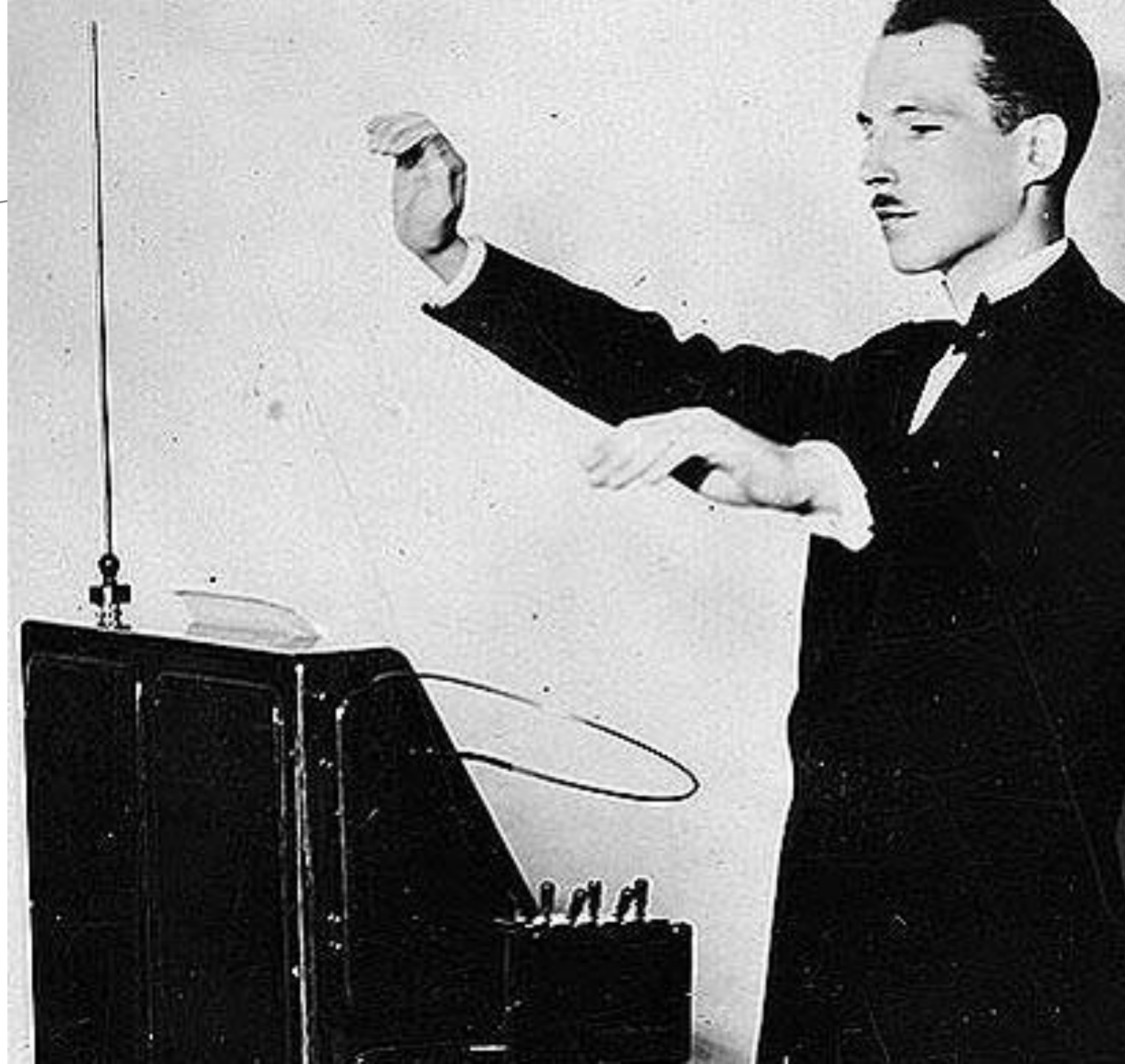
FEDERICO DIAZ
Outside Itself
Venice Biennale
2011



<https://www.youtube.com/watch?v=eBcjlK8Gvsl>

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

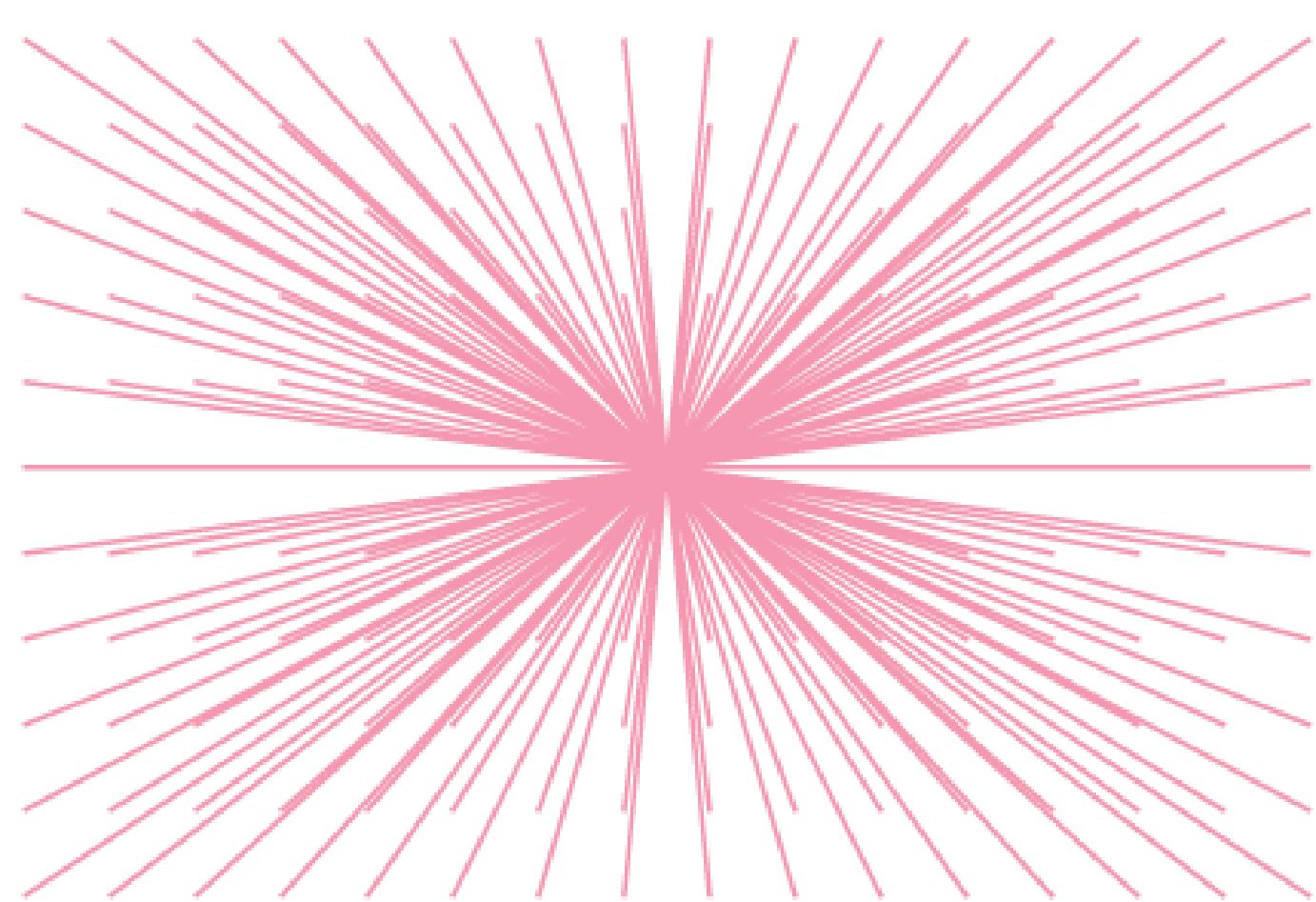
Women licking jam off a car
from the happening series Household
1964

UNIVERSAL EVERYTHING
Together
2015

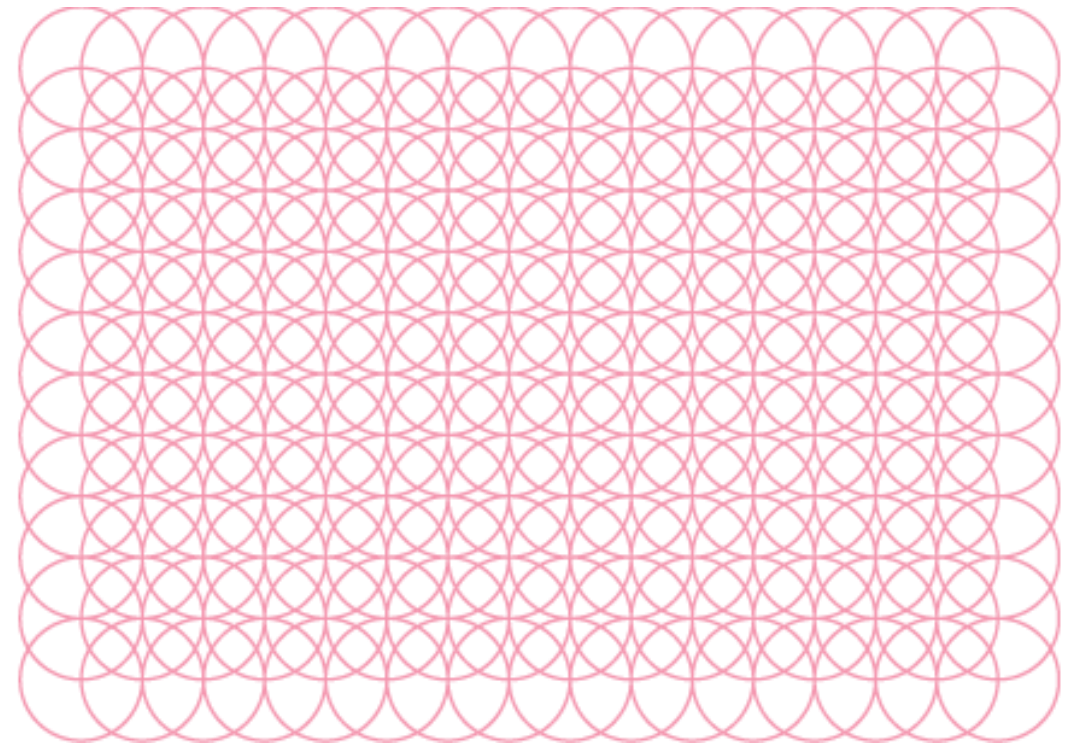
<https://vimeo.com/106589895>

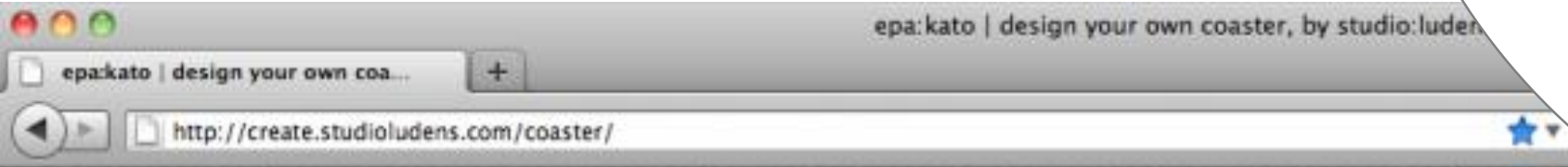


Opakování

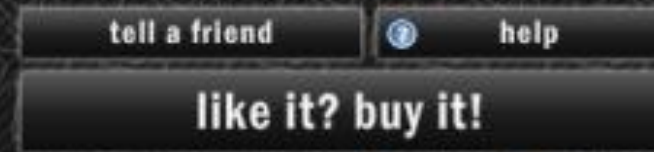
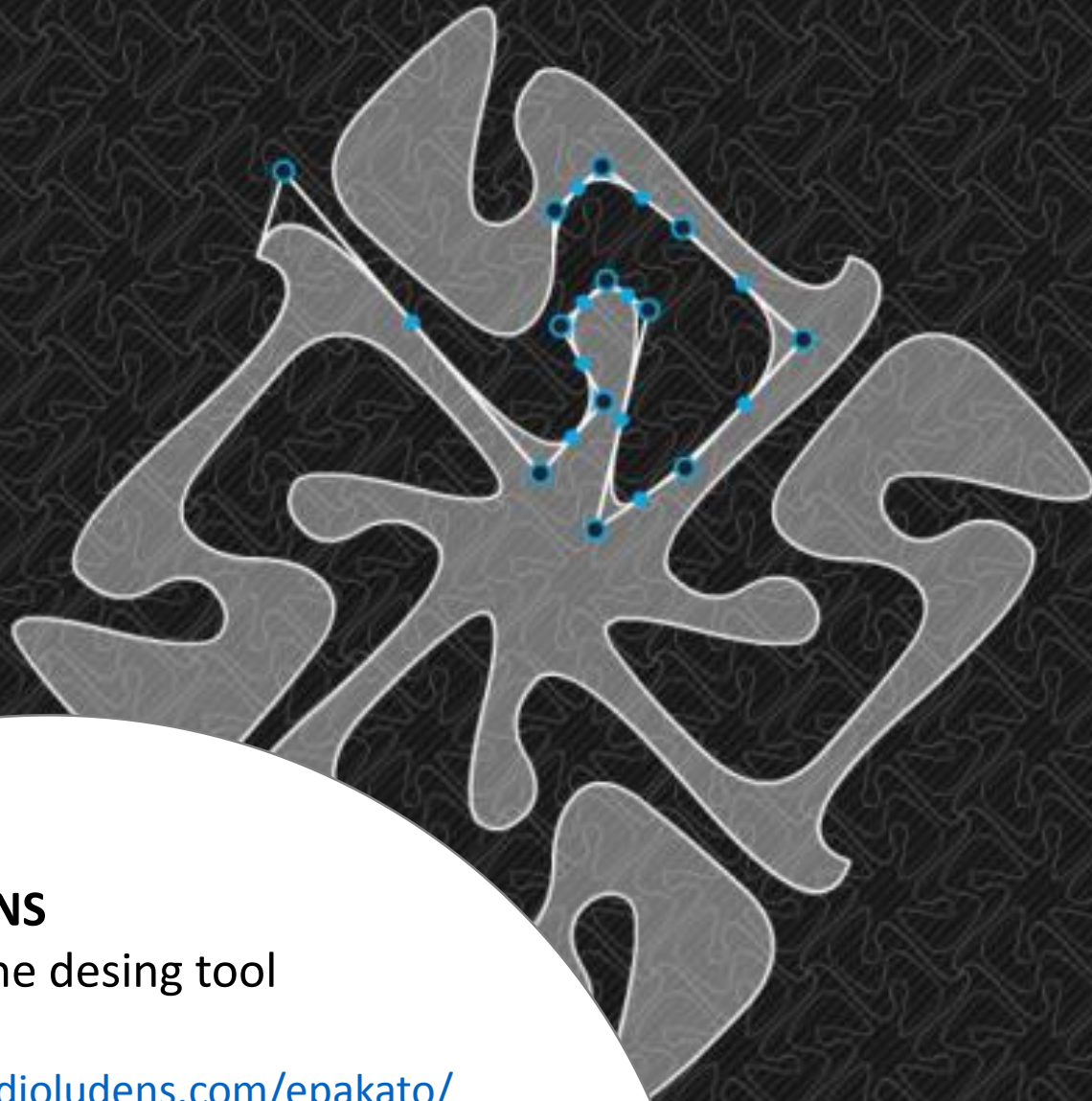


All programming languages can repeat an action, such as drawing the same shape over and over. When one repetition sequence is embedded within another, the effect multiplies. This simple technique can be used to explore many kinds of patterns.





Opakování

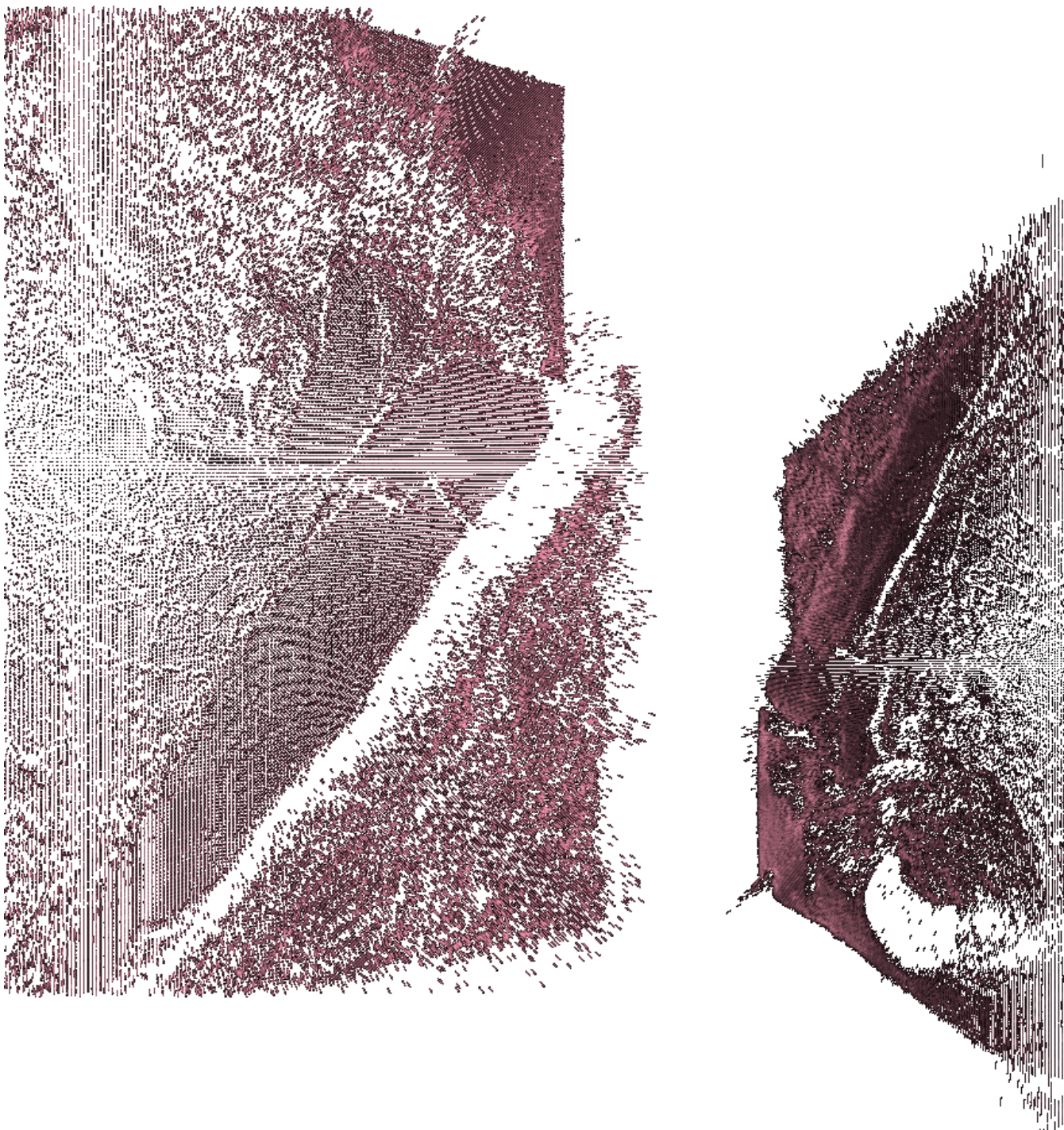


STUDIO LUDENS

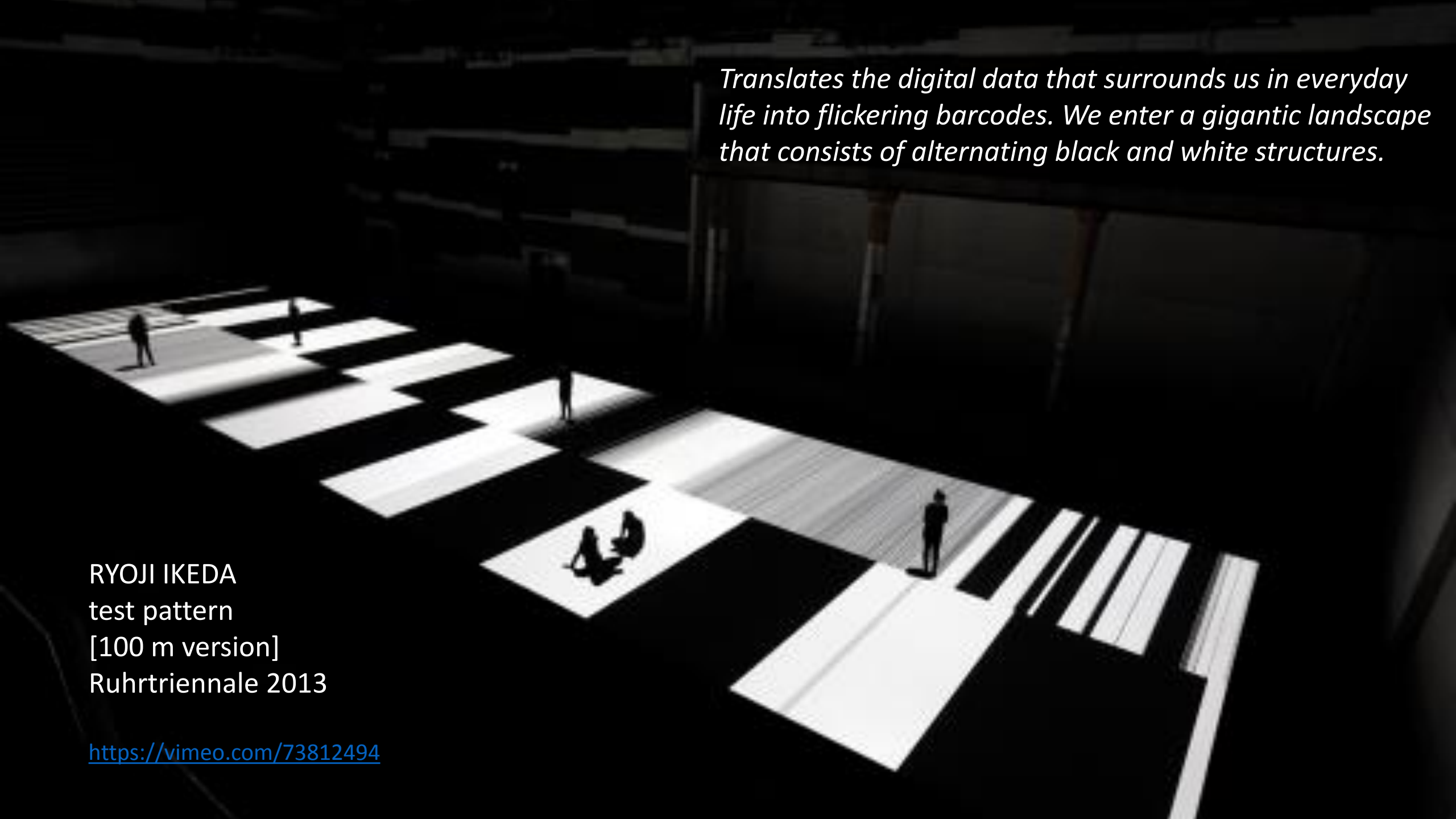
Epaka:to online desing tool

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

Transkódování



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

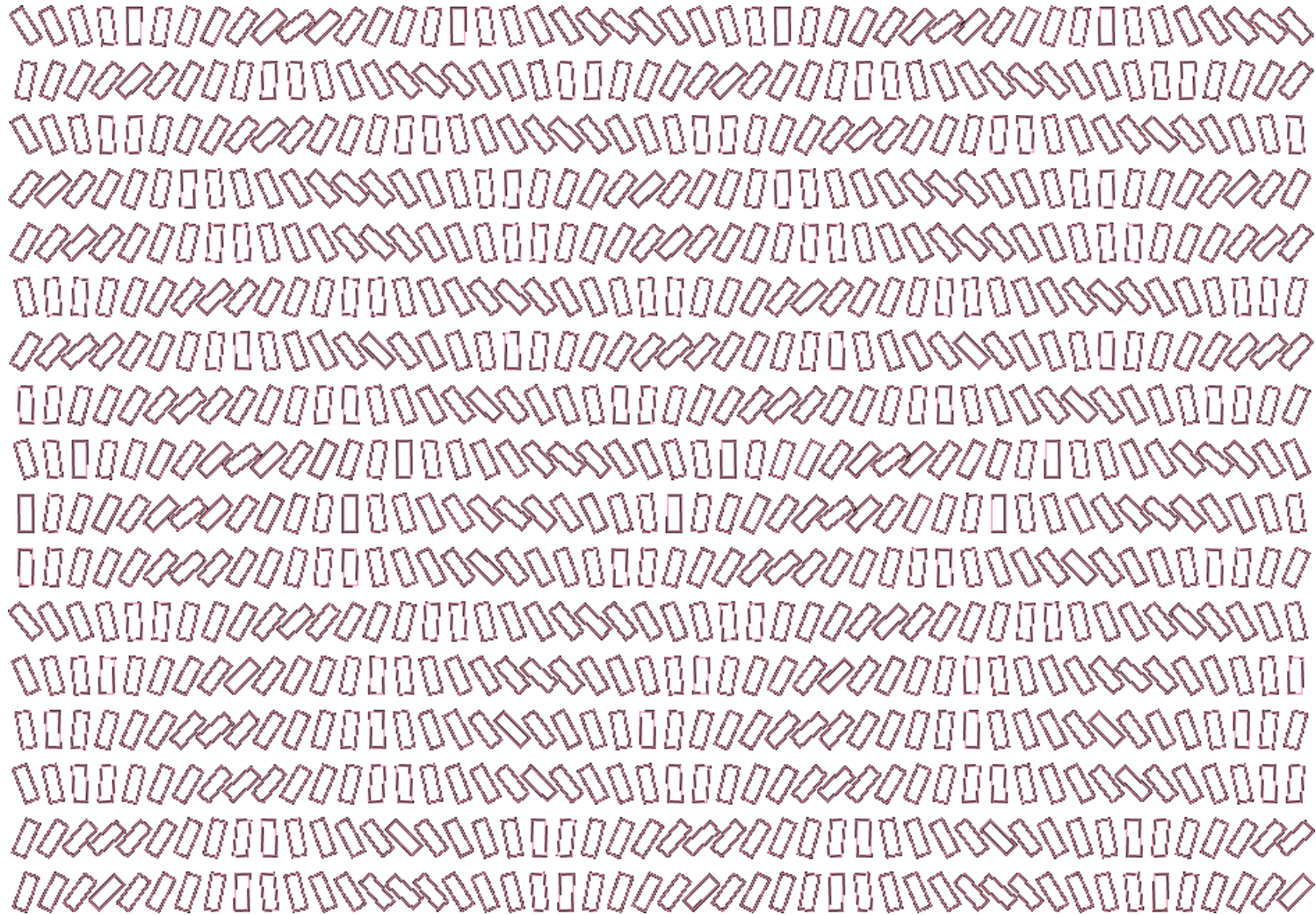


Translates the digital data that surrounds us in everyday life into flickering barcodes. We enter a gigantic landscape that consists of alternating black and white structures.

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.

Kinematics

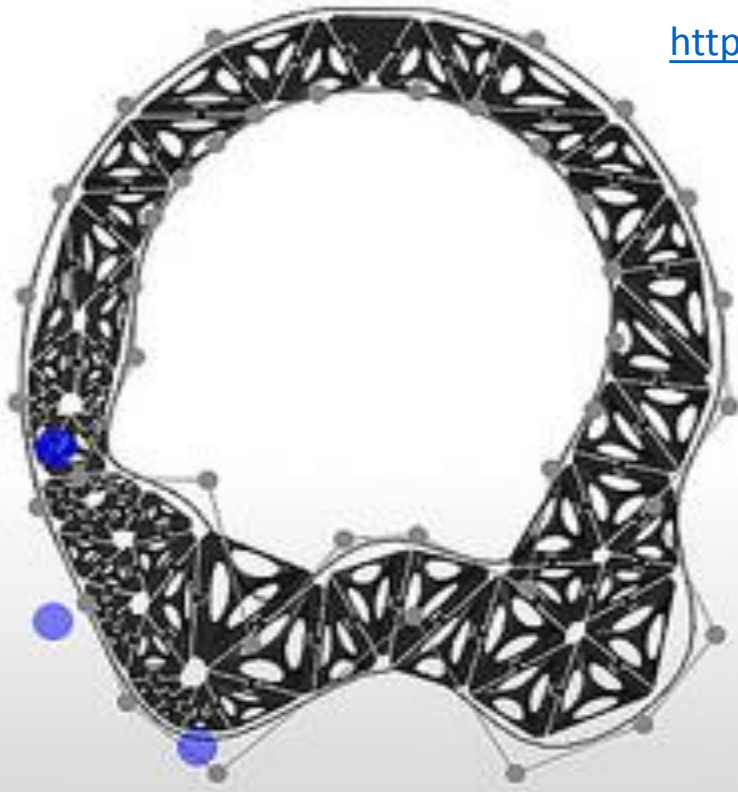
designed by nervous system + you

template
necklace
oval

NERVOUS SYSTEM
Kinematics
2014

Parametrizace

<https://vimeo.com/80287226>



SELECT A STYLE



DENSITY TOOLS



SIZE (edit)

15.0in
circumference
DIMENSIONS
6.83in x 7.69in

COLOR



MATERIAL

black 3d-printed nylon

PRICE

\$88 ships in 2 weeks

TITLE

give your design a name

BUY

SAVE



a generator by
nervous system

Vizualizace

the and i
of to my a in was
that me but had with he
you which it his as not by for on
this from her have be when at were is she
your him an so they one all could will if been their would
or are we who no more these now should yet some before myself what man
them am upon our into its only did do life father than every then first might own
shall eyes said may time being towards how even saw can night those most elizabeth such found
mind any again there heart day felt whom death after where feelings vary other thought dear soon friend
up made never more still while passed during also that miserable loss must place like same heard excuse law
sometimes we know started over little human appeared indeed when country misery words friends justice about nature
although until several among ratings had near whose was and every here will great return happiness leaves repairs talk long through world
cannot value under days image six year lower much your men above some let light by creature came her creation home in power part nothing eat

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.

Obama's First Day Not "Business As Usual"

Don't count on Egypt to stop weapons smuggling

NY Divers to Resume Search for US Airways Engine

A night of euphoric celebration in Washington

Ceremonial Duties Completed, the Bushes Depart

Michelle Obama's style: Change you can wear

Obama's Draft Order Calls for Closing Gitmo in One Year ...

US STOCKS-Wall St up on financial rebound; Geithner grilled

White House Staff Moves In; Obama Plans Econ, Iraq Mtgs

Sen. Kennedy released from hospital after seizure

Online inauguration videos set records

Biden Takes Shot at Roberts for Flubbing Presidential Oath

America Loves Its Labrador Retrievers

Frankan meets with Reid, Coleman also in town

Republicans seek Obama meeting on stimulus

Will First Daughters Sasha and Malia Give J. Crew a Lift?

European countries vow to prevent repeat of gas crisis

11 Taliban, two Afghan soldiers killed

Gaza Crisis Sows Discord at Arab Conference

NKorea, Iran open to US efforts to defuse tension

Israel enables transfer of humanitarian aid into Gaza Strip

Anti-Chavez students return with protests

Argentina's president meets Fidel Castro in Cuba

Kenya: Kogelo Tribesmen Celebrate With Pomp

'Safe zone' in Sri Lanka conflict

Obama calls Middle Eastern leaders and engages on Gaza

Chinese media censor Obama's inaugural speech

UNHCR Calls For Access To Rohingya Boat People

Will Rwandan troops help in Congo?

Second Wave of government support for banks pushes pace in Europe

Dutch politician faces charges over anti-Islam film

India plays down Miliband dispute

Polanski wins a stay on hearing in child-sex case

Marc Anthony sings with wife at inaugural ball

What will be tomorrow's biggest surprise?

Herb Ritsch's New Orleans coverage in Gayle Anthony Case

America Loves Its Labrador Retrievers

IBM Lotus Extends Product Line For Redbooks

Will Green Post of High-Food Processor?

Jets Begin Ryan Era With High Hopes

Werth, Durbin agree to pacts with Phils

Liberalism: Obama's choice as defensive coordinator

Japanese bank accepts Palmer's Big Hill invitation

Are the Steelers the greatest franchise?

FDA Confirms Peanut Corp As Source Of Salmonella

Bird Flu Risk Rises Ahead of Lunar New Year Next Week

Why Saying No to Foods May Be Harder for Women

Chrysler cash still an issue after Fiat deal: CSM

Toyota Speeds Past GM

IBM Switches Up Vice Presidents' Jobs

US charges missing Florida fund manager with fraud

US STOCKS-Wall St up on financial rebound; Geithner grilled

Oil futures surge to end above \$43 a barrel

American Airlines Sees Drop in 1Q Ticket Bookings

Suspicious envelopes sent to Wall Street Journal

SEC reviewing Apple health disclosures on Steve Jobs: report

US Banking 4Q profit falls on higher credit costs

Online pornograp by law appeal denied

ARCHIVED	THU	FRI	SAT	SUN	MON	YEST	TODAY	LIVE NOW
00:00								<input checked="" type="checkbox"/>
06:00								
12:00								
18:00								

LESS THAN 10 MINUTES AGO
 MORE THAN 10 MINUTES AGO
 MORE THAN 1 HOUR AGO

WORLD
 NATION
 BUSINESS
 TECHNOLOGY
 SPORTS
 ENTERTAINMENT
 HEALTH

Vizualizace

ONFORMATIVE STUDIO

Facebook Tree

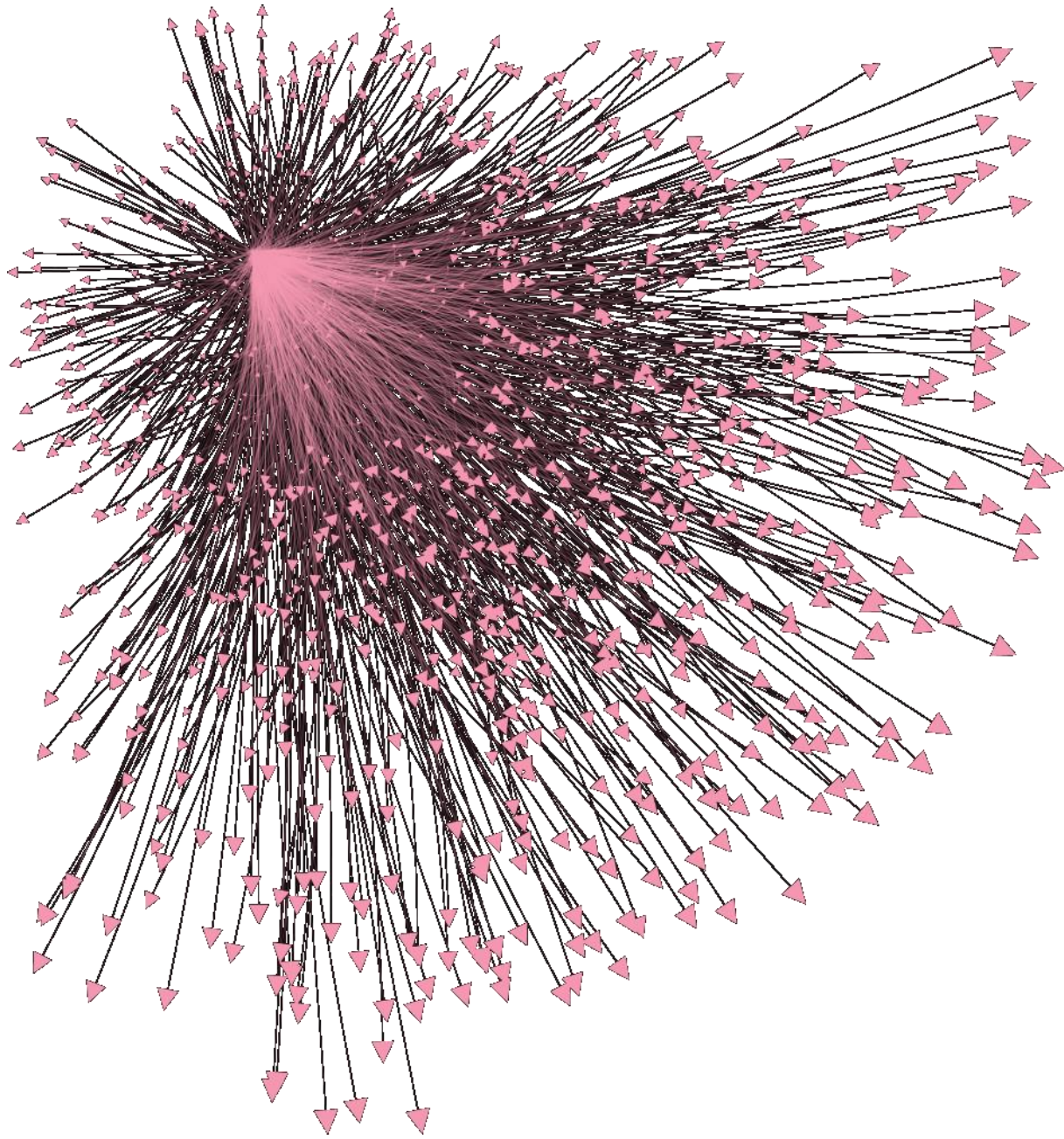
data visualization for Telekom flagship store

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

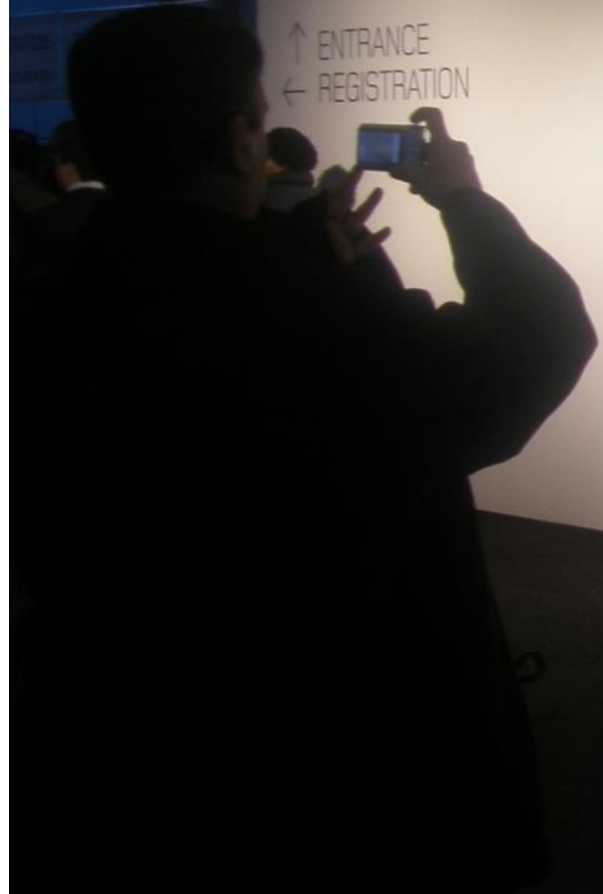
<https://vimeo.com/8193600>

UNITED
NATIONS
CLIMATE
CHANGE
CONFERENCE
2009



↑ ENTRANCE
← REGISTRATION

COP15
COPENHAGEN



The image features a large, solid black circle on the right side, which serves as a backdrop for the word "Processing". The rest of the image is filled with a complex, abstract pattern of thin, grey lines and black dots of various sizes, creating a dense, network-like or cellular structure. The overall aesthetic is technical and digital.

Processing

Vytvořený pro elektronické umění a
vizuální tvorbu

Podporuje výuku programování
ve vizuálním kontextu

Elektronický „skicák“

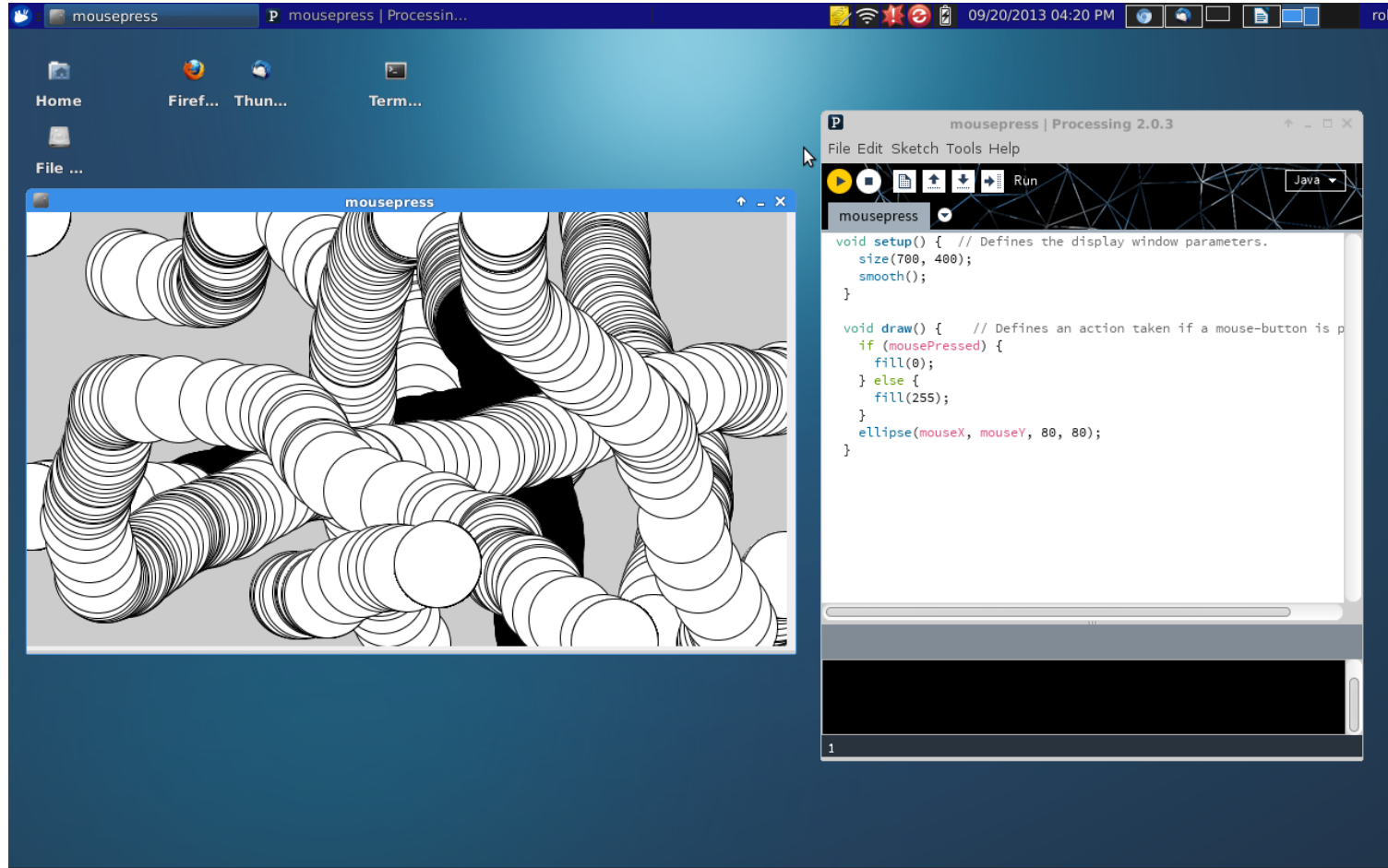
Open source program = velká komunita

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 fking fast!**



Thank you !

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