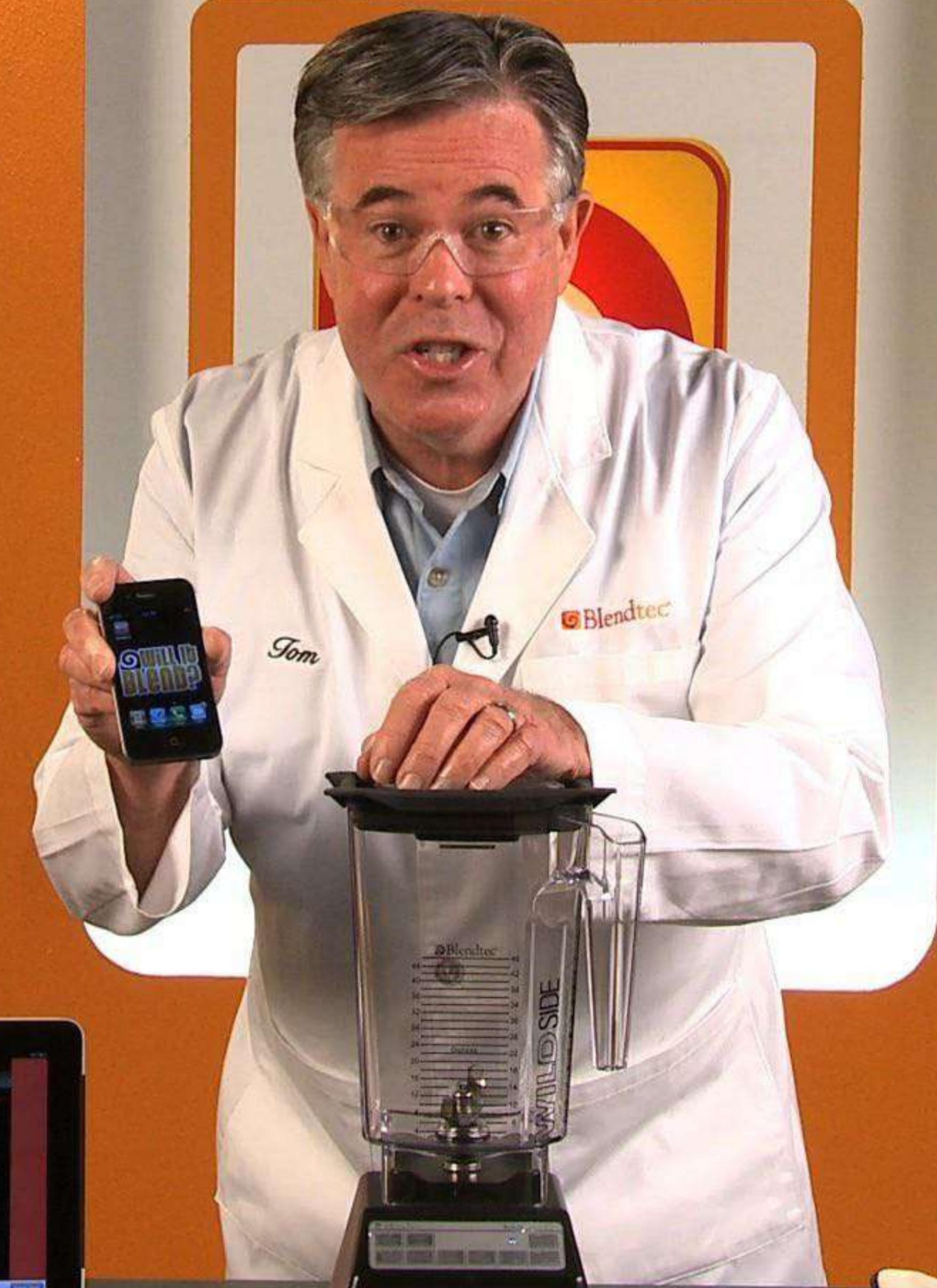


Adding Code to Design: Will it blend?

Karsten Vestergaard
Programme Director
Interactive Design Programme
The Danish School of Media and Journalism
kv@dmjx.dk
[@ockley](https://twitter.com/ockley)

&
Stig Møller Hansen
Senior Associate Professor, PhD
Research and Development
The Danish School of Media and Journalism
smh@dmjx.dk
[@Stixan](https://twitter.com/Stixan)

Will it
blend?









DMJX

Danish School of
Media and Journalism



DEMAT
SIGN
TERS
'21



**This presentation contains flashing lights
which may potentially trigger seizures
for people with photosensitive epilepsy.**

Quick show of hands

How many of you
have never done any
coding before?

How many of you would like
to learn how to code?

Have you ever given up on
learning how to code because
you found it too hard?

Does the thought of having to
do math makes you cringe?

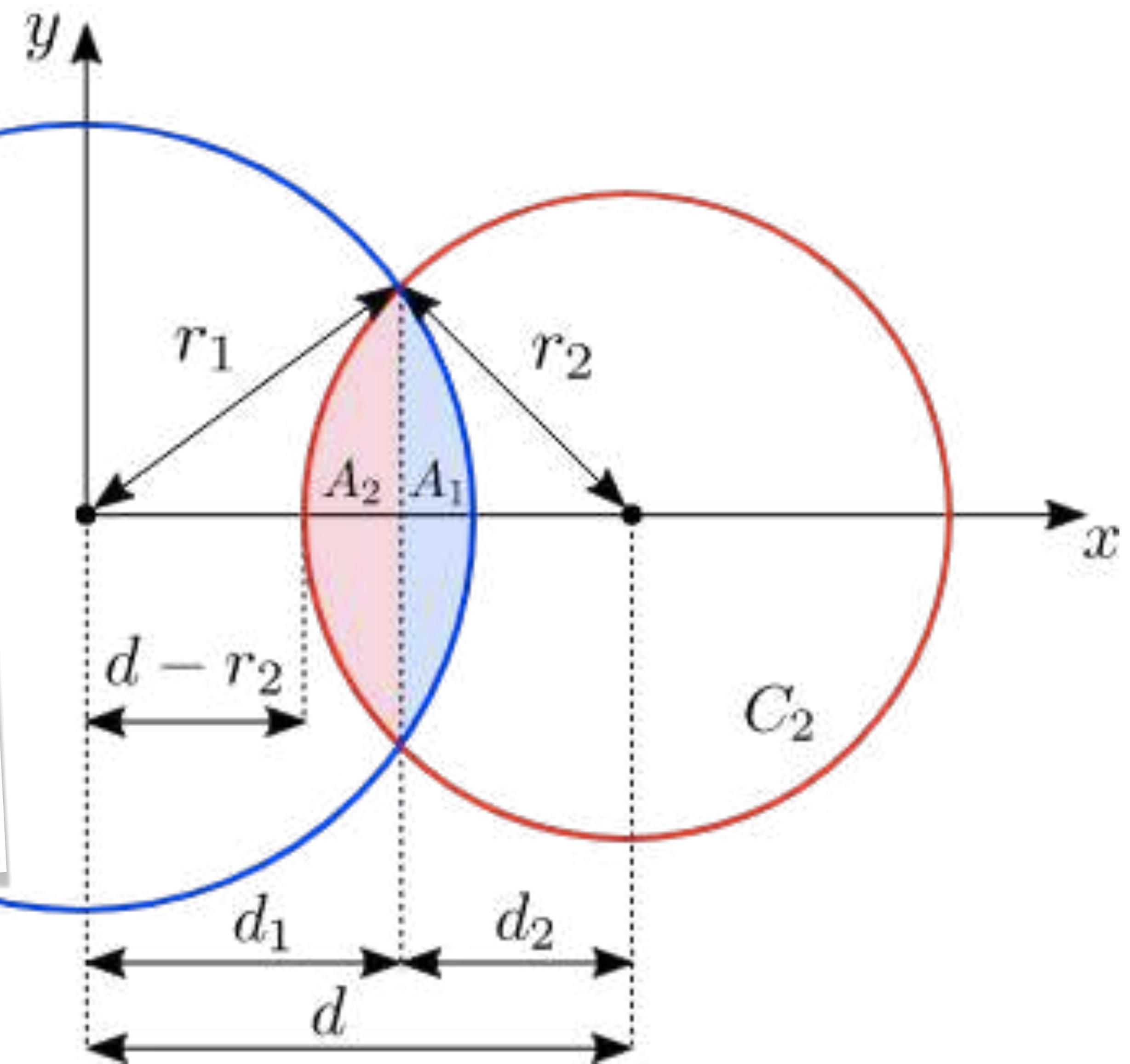
```

void draw() {
    loadPixels();
    float n = (mouseX * 10.0) / width;
    float w = 16.0; // 2D space width
    float h = 16.0; // 2D space height
    float dx = w / width; // Increment x theta
    float dy = h / height; // Increment y theta
    float x = -w/2; // Start x at -1
    for (int i = 0; i < width; i++) {
        float y = -h/2; // Start y at -1
        for (int j = 0; j < height; j++) {
            float r = sqrt((x*x) + (y*y)); // Compute distance
            float theta = atan2(y,x); // Compute angle
            // Compute 2D polar coordinate functions
            float val = sin(n*cos(r) + 5 * theta);
            //float val = cos(r);
            //float val = sin(theta);
            // Map resulting value to grayscale value
            pixels[i+j*width] = color((val + 1.0) * 128);
            y += dy; // Increment y
        }
        x += dx; // Increment x
    }
    updatePixels();
}

```



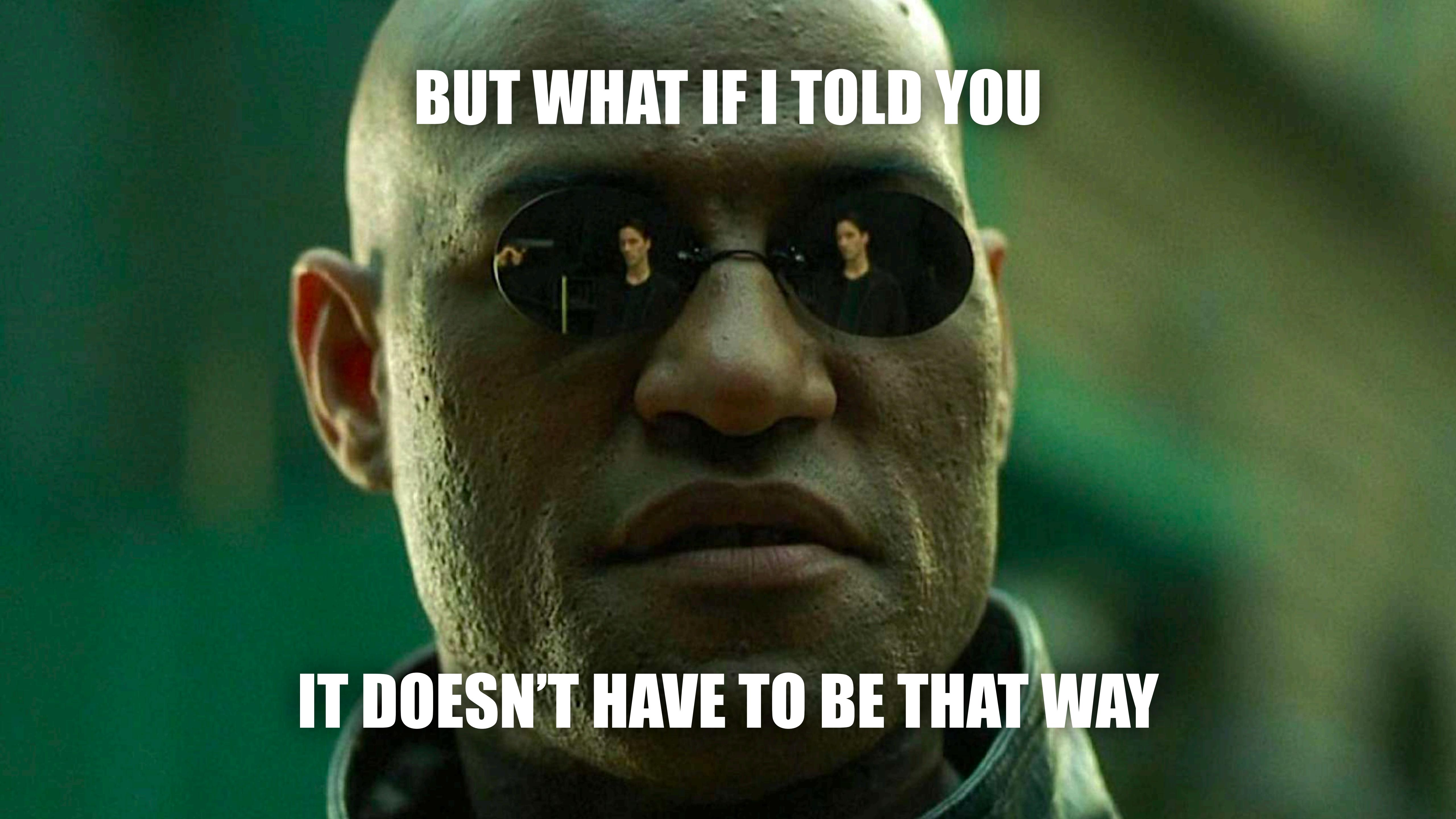
en -1 and
n 0 and 25





Shutting down





BUT WHAT IF I TOLD YOU

IT DOESN'T HAVE TO BE THAT WAY



**What is this yummy
creamy blended
goodness called?**

»A loosely defined term used to describe a wide range of artistic practices that use computer code as a medium. It typically distinguishes itself from regular coding by the fact that it doesn't follow pre-defined specifications to solve problems for a user, but rather aims at expressing ideas and concepts.«

(Naoto Hieda & Raphaël de Courville, 2021)

The screenshot shows the p5.js Web Editor interface. At the top, the title bar reads "p5.js Web Editor | Design Matt" and the address bar shows "editor.p5js.org/Stixan/sketches/FYKSTzkbS". The editor window has a red header bar with the "p5" logo and navigation buttons. Below it, the main area displays a sketch titled "Design Matters 2021 Time Lapse Sketch" by Stixan. The sketch file is named "sketch.js" and was saved 35 seconds ago. The code in the editor is:

```
1 function setup() {  
2   createCanvas(600, 600);  
3 }  
4  
5 function draw() {  
6   background(220);  
7 }
```

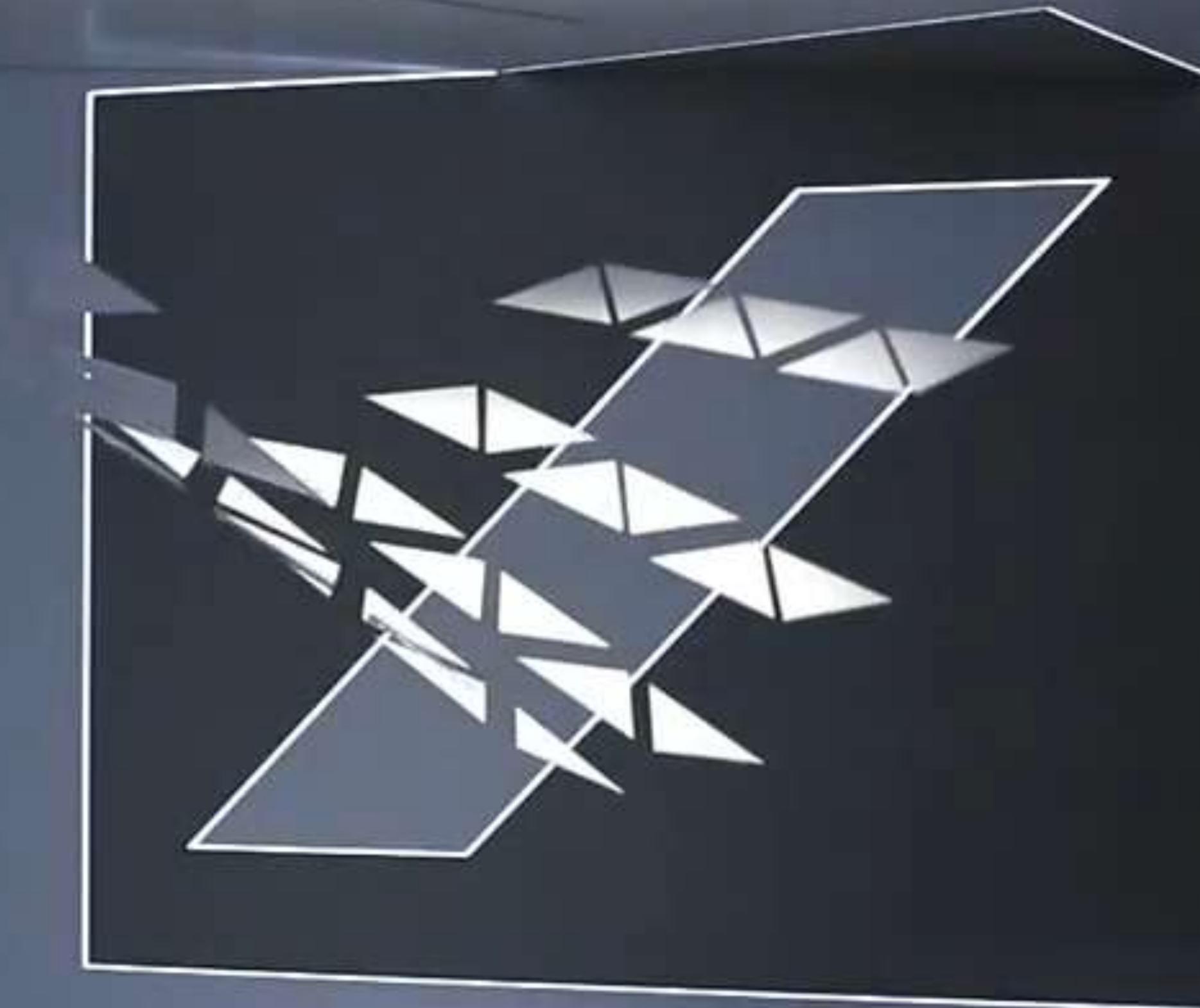
The right side of the editor features a large preview canvas where the sketch would run. At the bottom, there is a "Console" tab and a "Clear" button.



Creative Algorithms - Generative Design & Creative Coding Art
Patrik Hübner (2019)
<https://www.youtube.com/watch?v=Z9NLxrkMWM4>



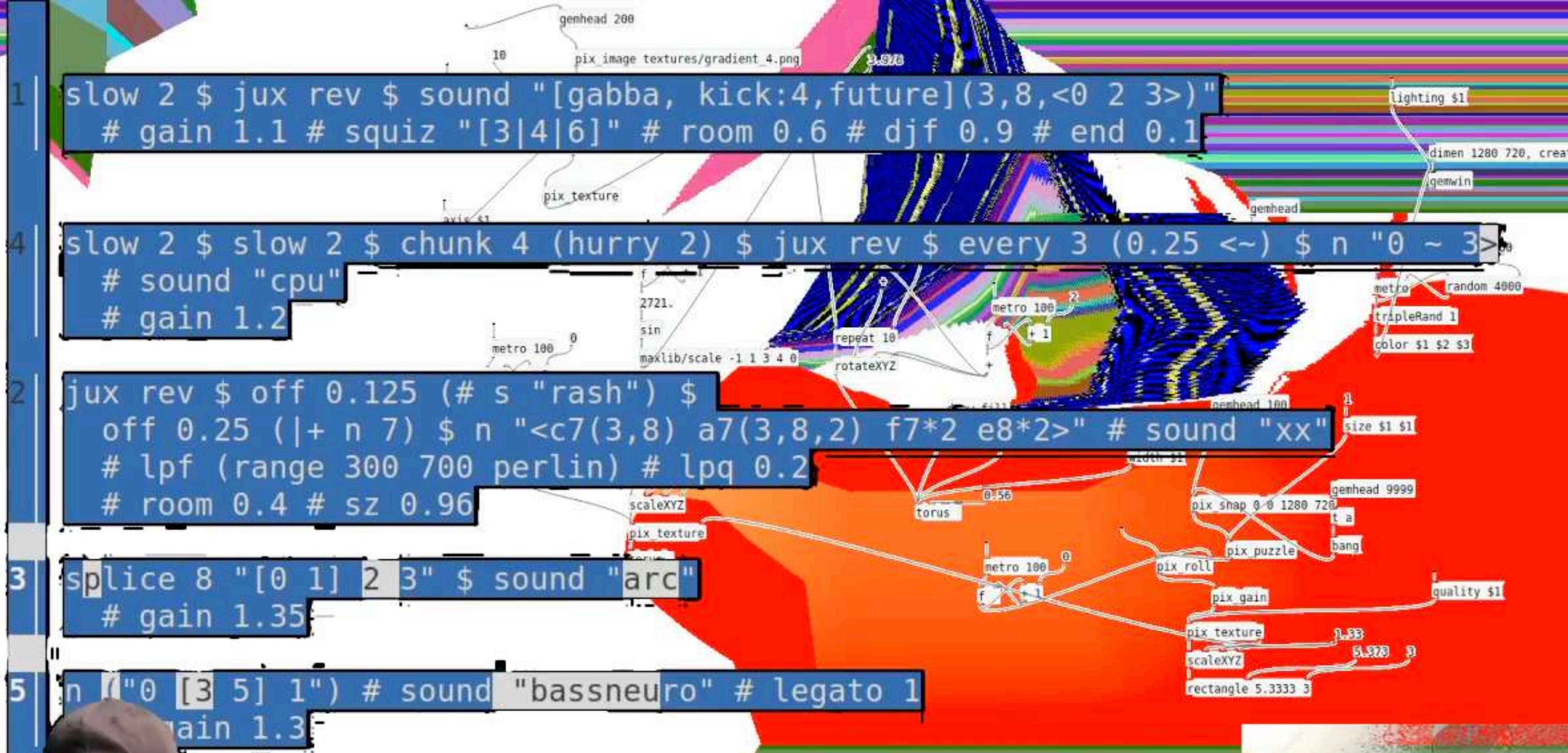
Deutsche Bank



Anamorphic Logos

ART+COM Studios (2011)

<https://www.youtube.com/watch?v=Z9NLxrkMWM4>



hellocatfood x yaxu

Alex McLean & Antonio Roberts (2020)

<https://www.youtube.com/watch?v=rgajEN29T4I>

yaxu+hellocat

Point 1 of 4:

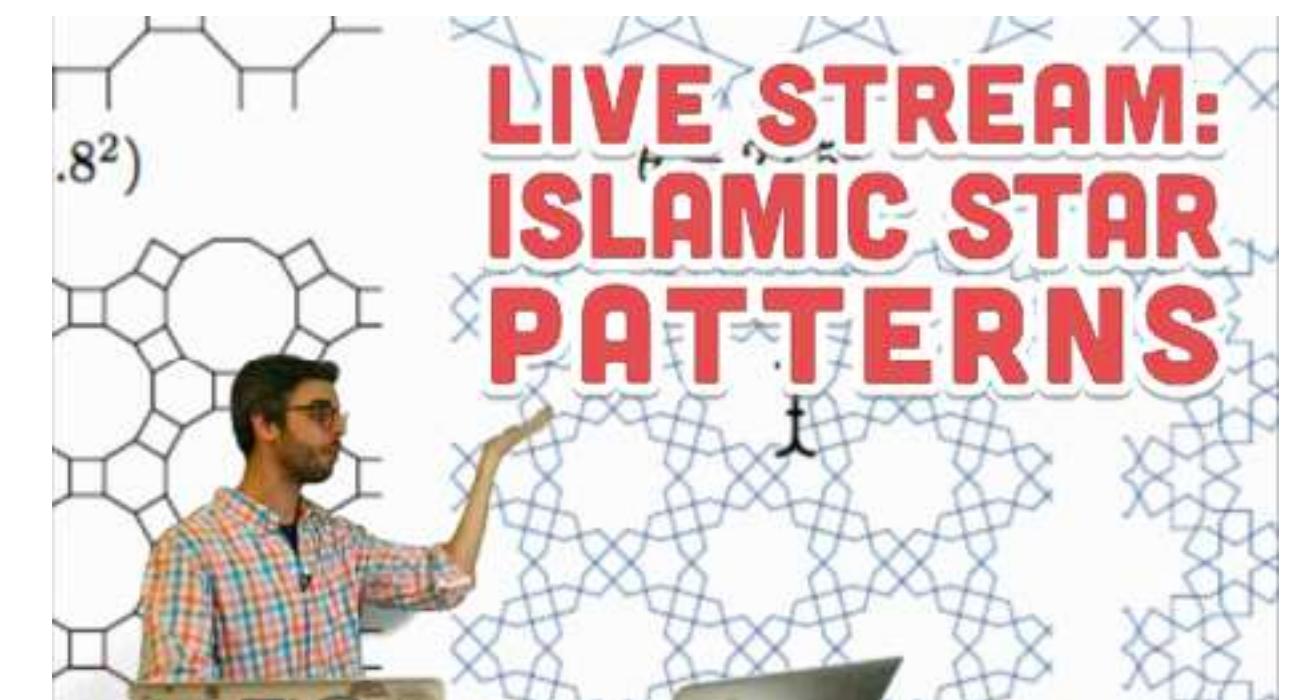
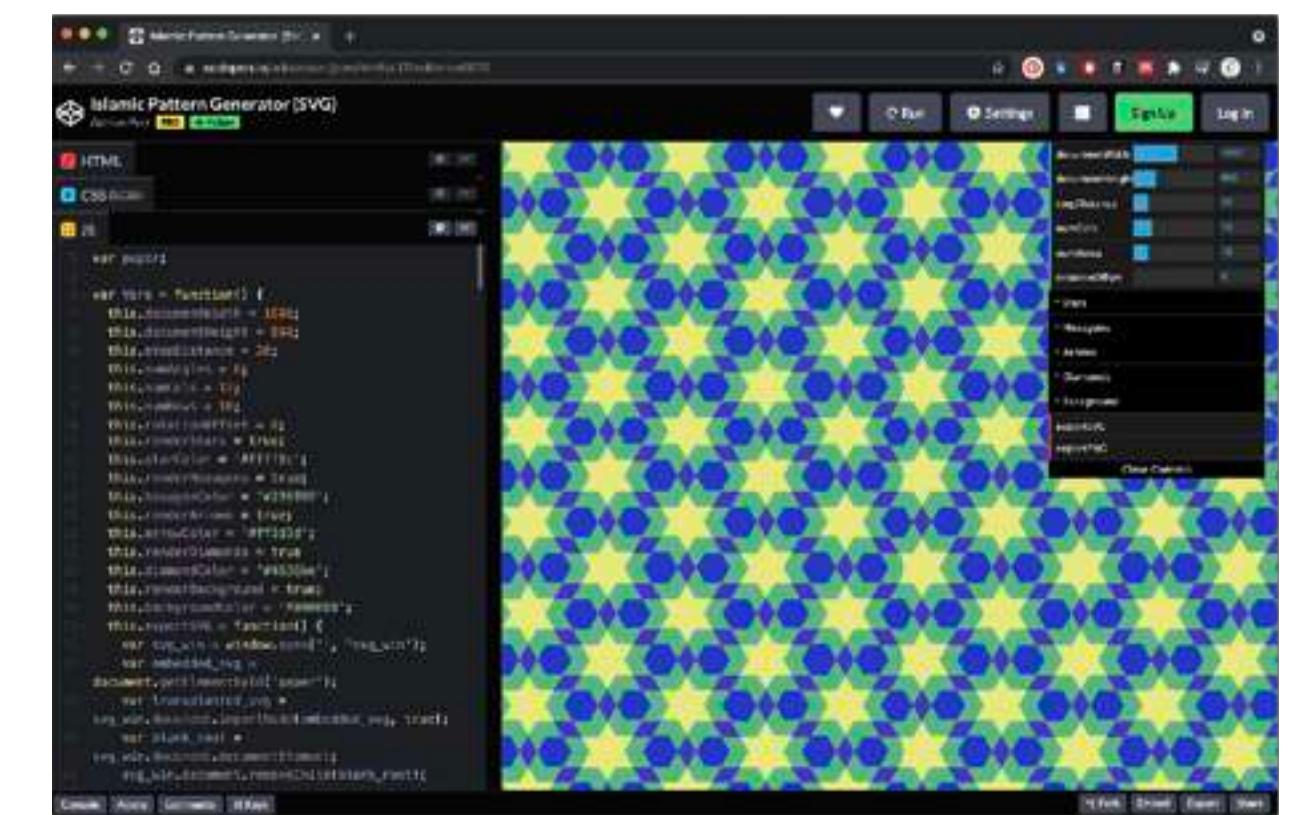
Math, algorithms and
systemic thinking have always
been a part of visual design



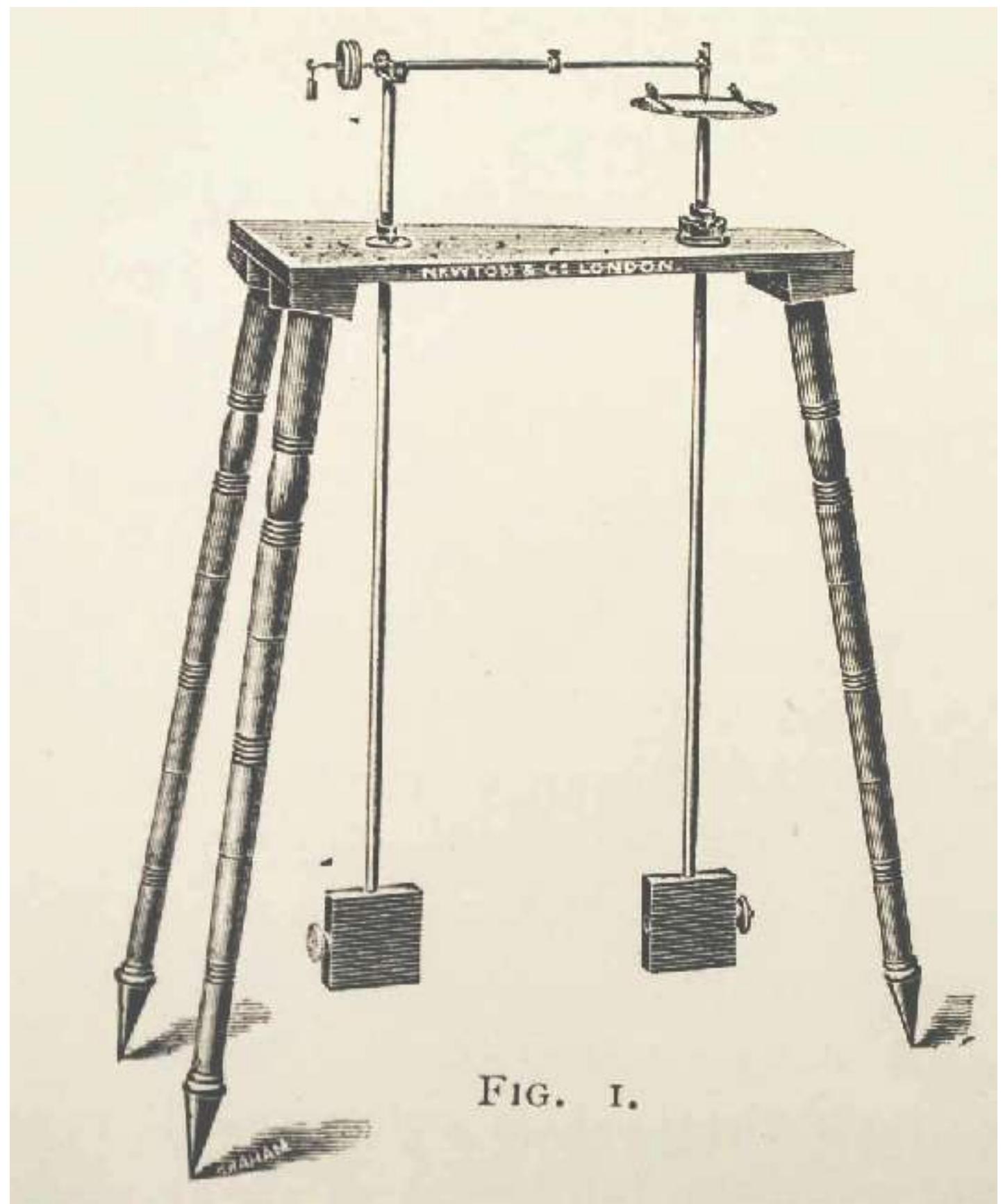
Zellij fragment (Algeria, 14th c.)
Iznik tile (Turkey, 1560)



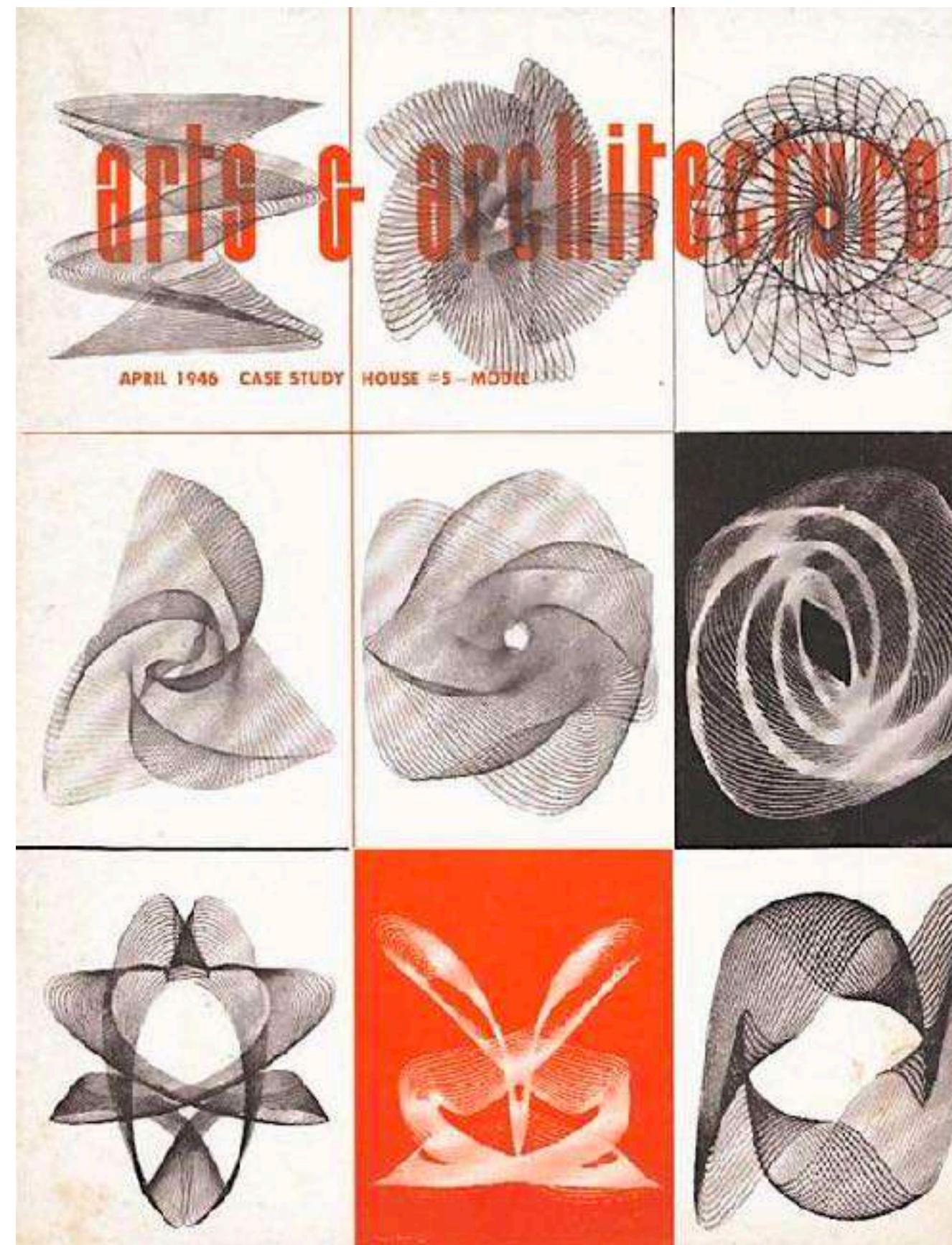
Postage stamps
(Pakistan, 1980 & Marocco, 1917)
50 Ouguiya banknote
(Mauritania, 2017)



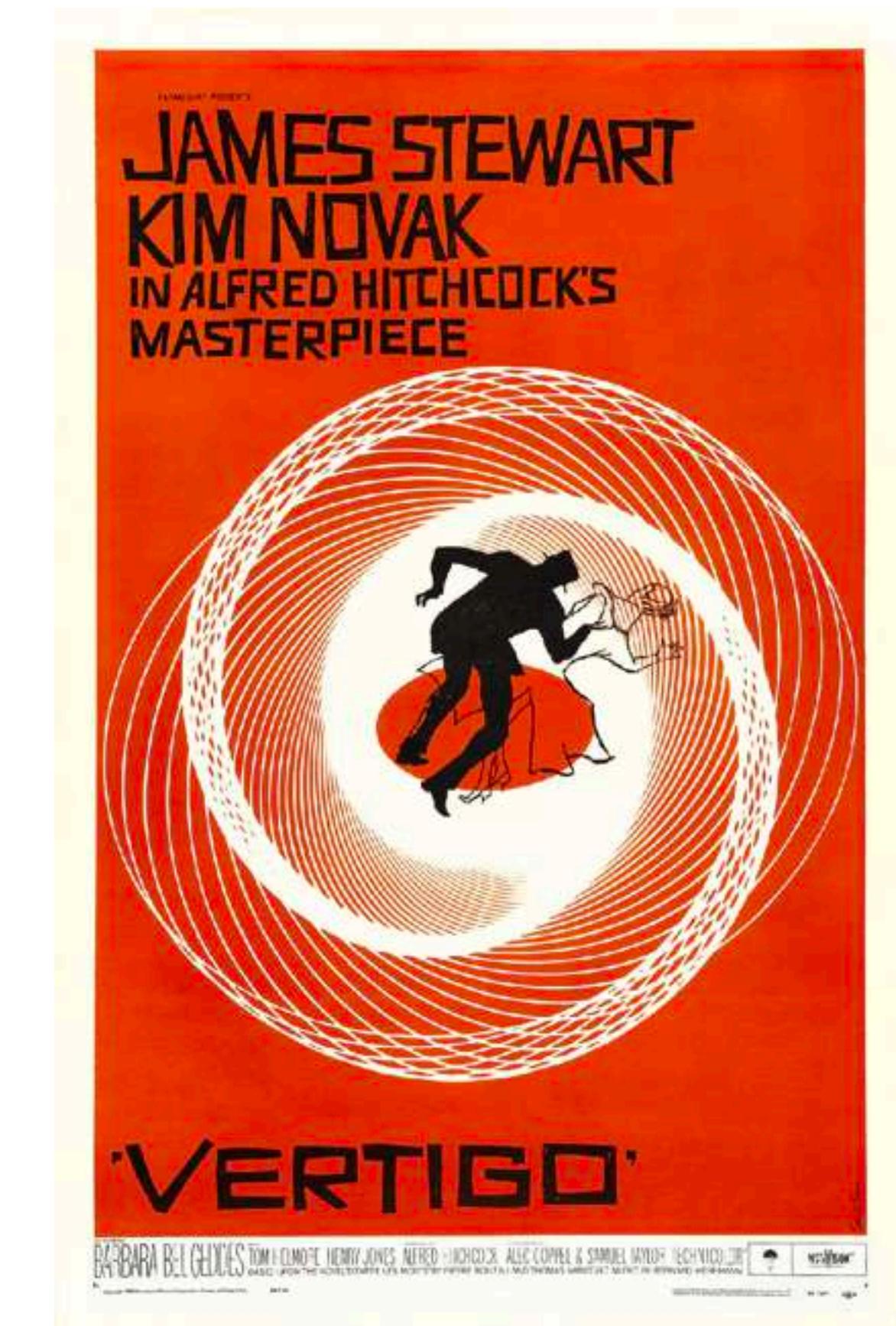
Pattern Generator SVG (Parr, 2021)
Live Stream: Islamic Star Patterns
(Coding Train, 2017)



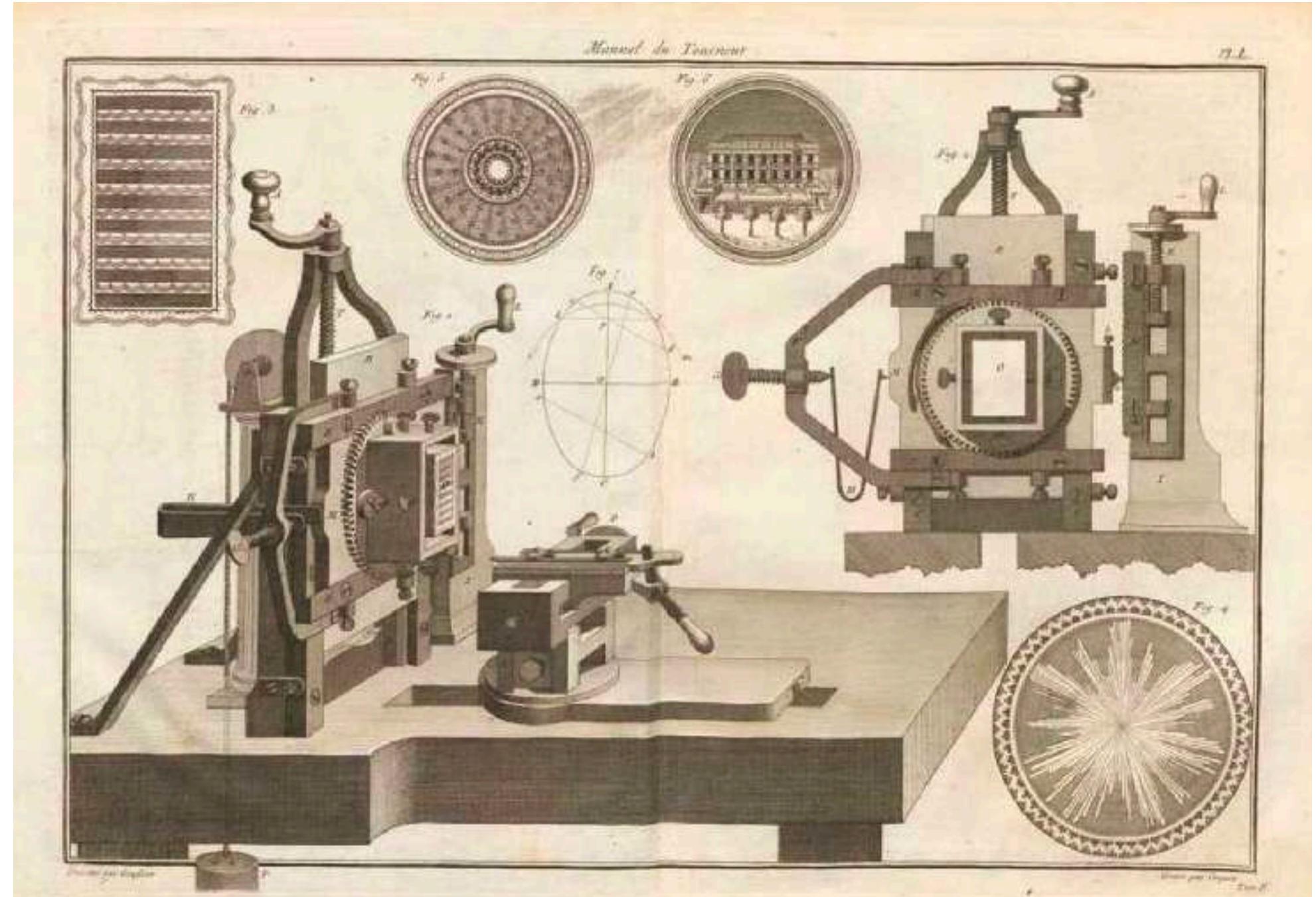
Mechanical Harmonograph
(Newton & Co., 1909)



Magazine Cover
(arts & architecture, 1946)



Vertigo Movie Poster
(Bass, 1958)



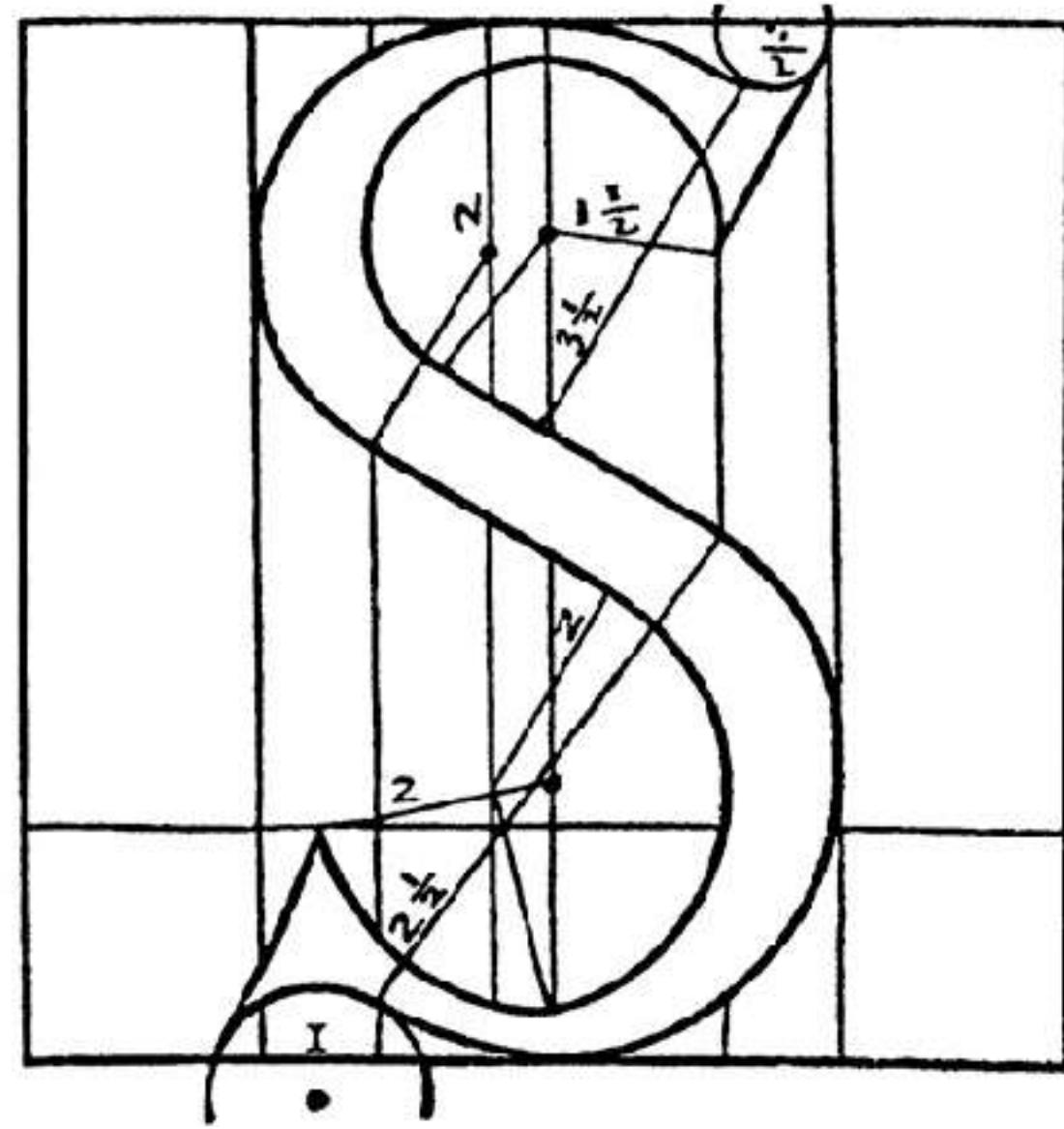
Blueprints for manual guilloche machines
(Salivet, 2nd ed., 1816)



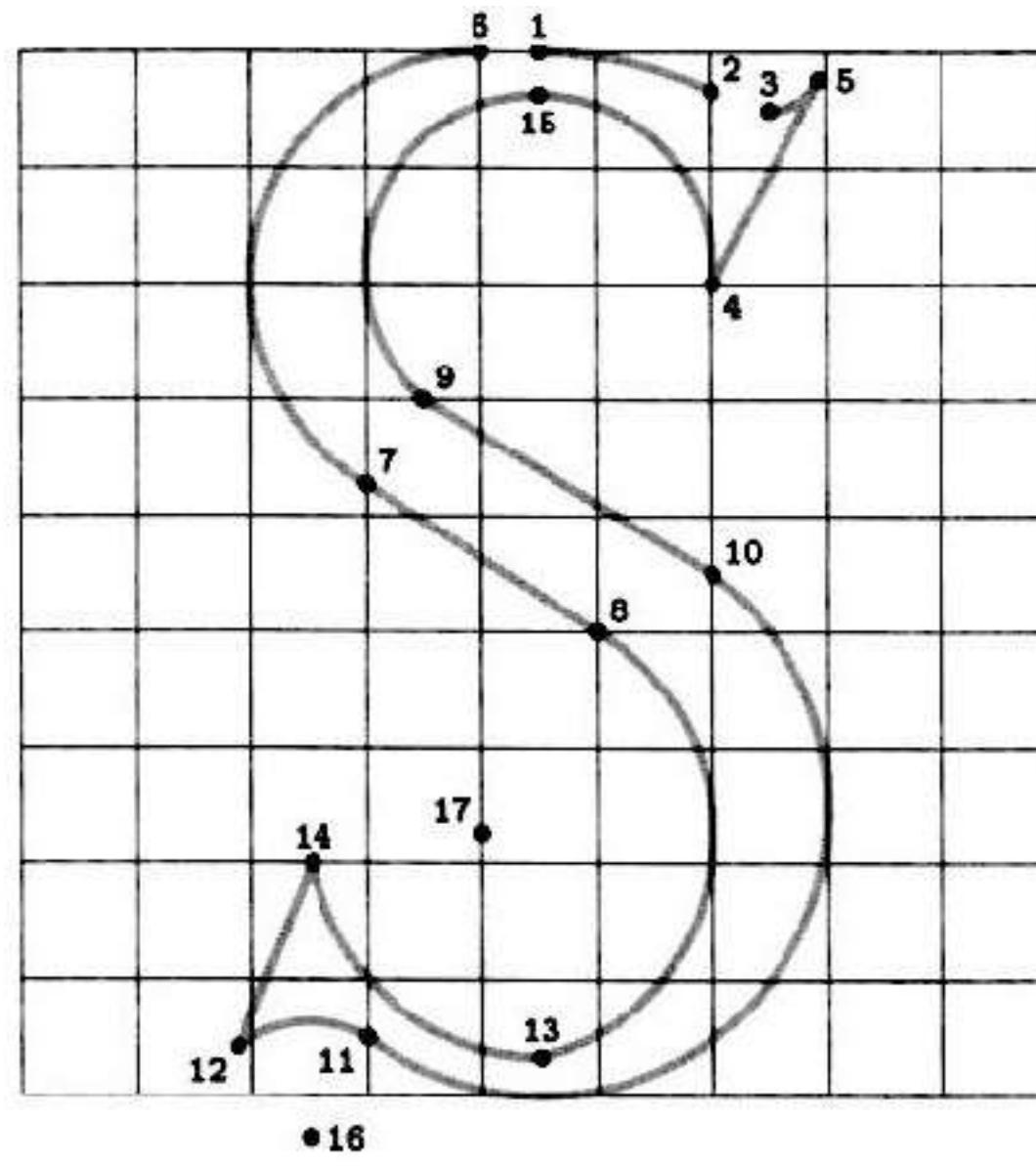
5 Pounds Banknote
(Central Bank of Egypt, 1961-1964)



Automic Visual Identity
(SomeOne, 2013)



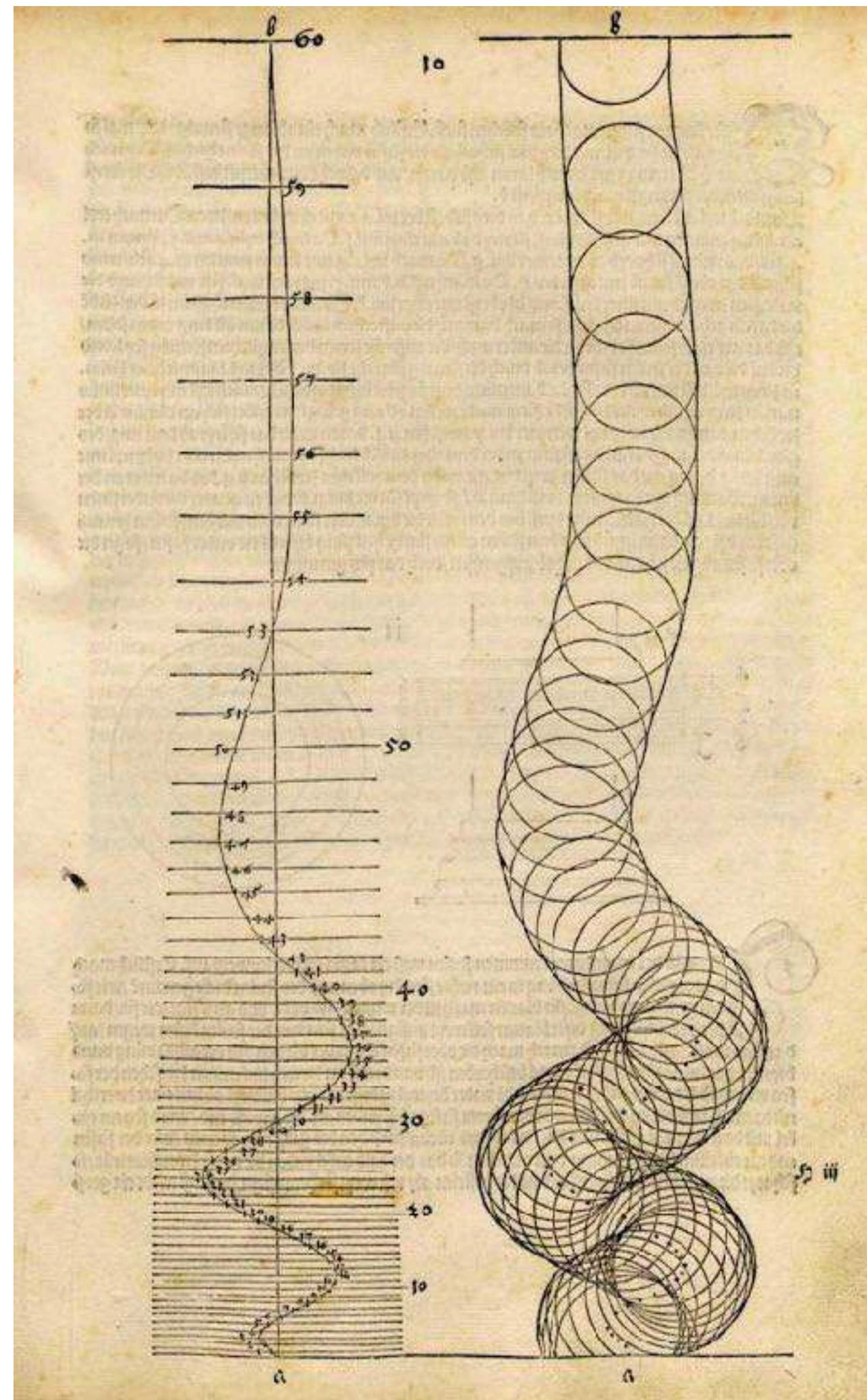
Opera del modo de fare le
littere maiuscole antique
(Torniello, 1517)



Metafont (Knuth, 1979)



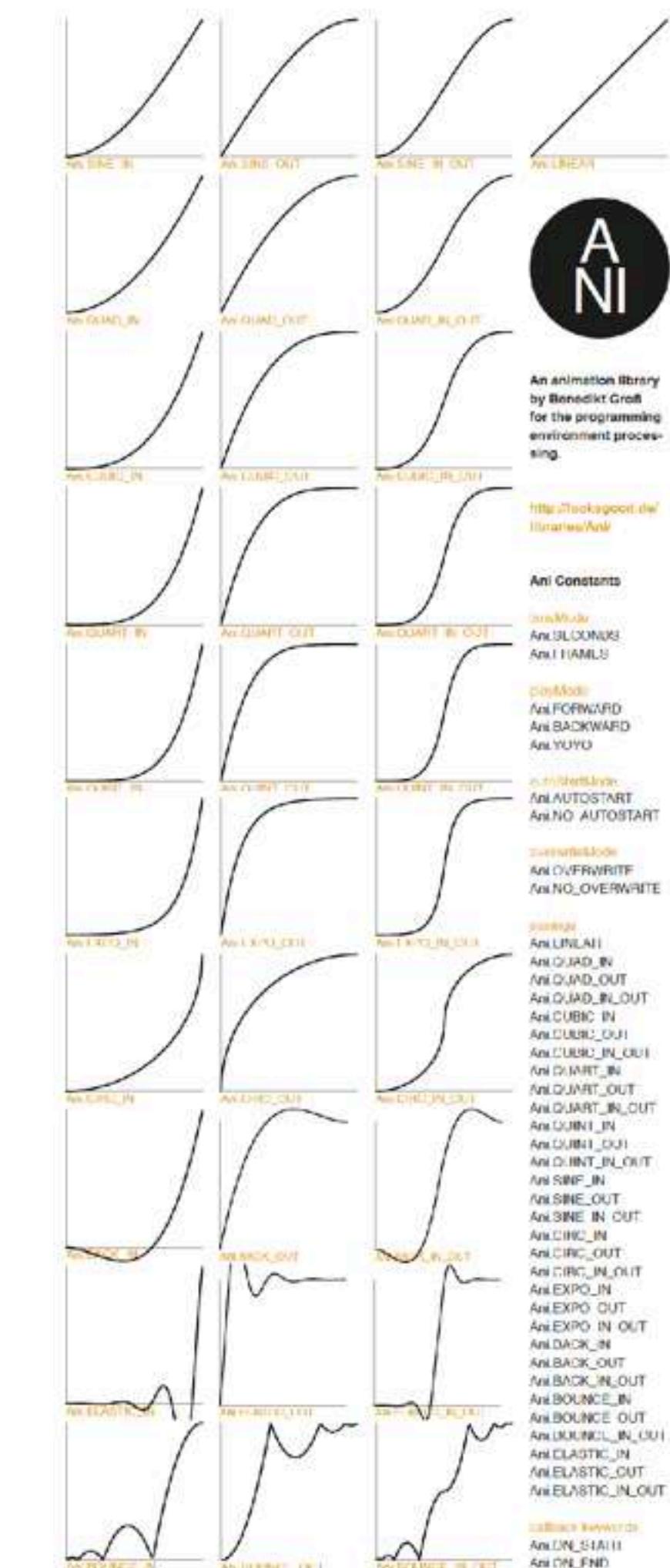
FF Beowolf (Blokland & Rossum, 1990)



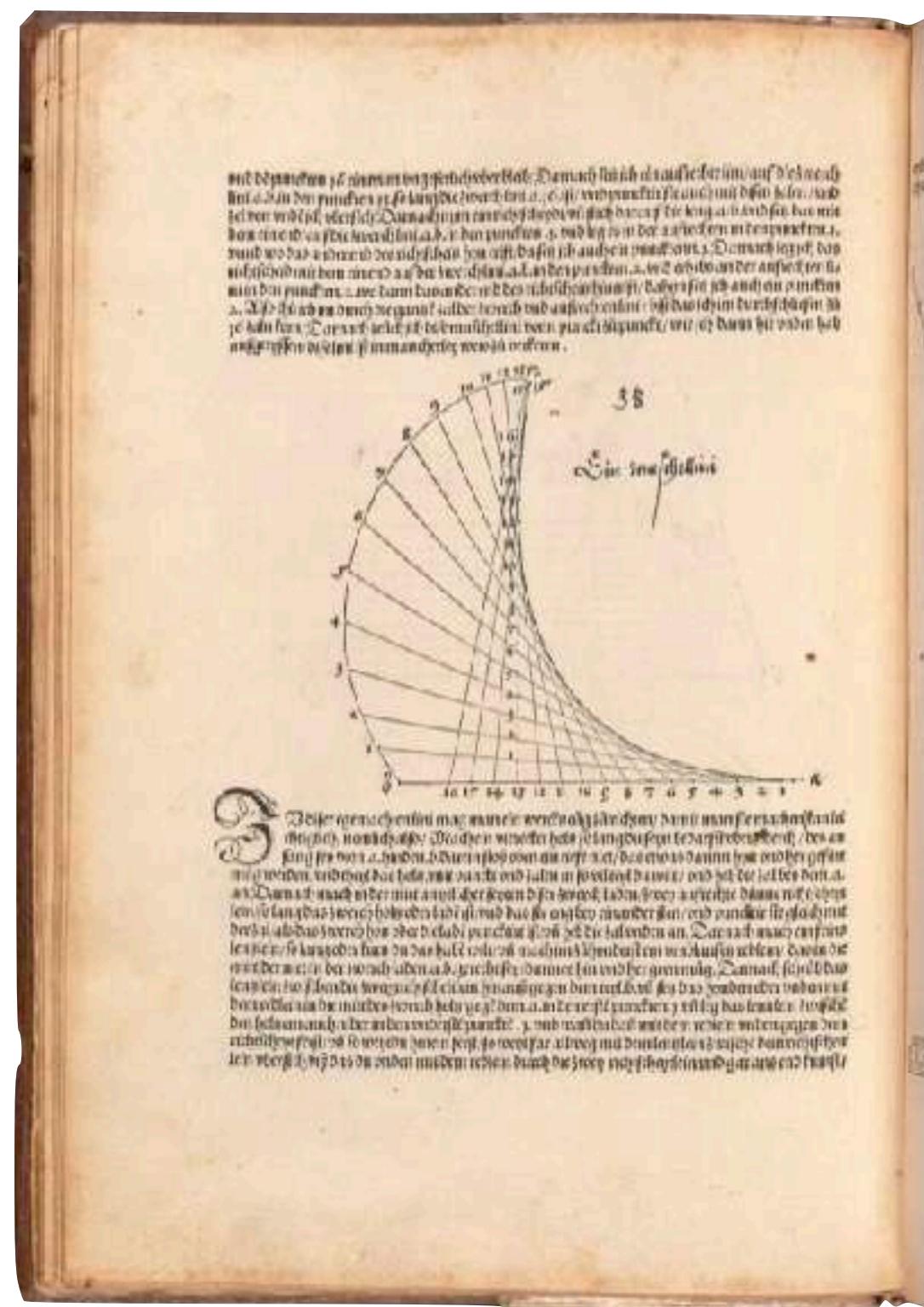
Albrecht Dürer (1532)



Franco Grignani (1968)



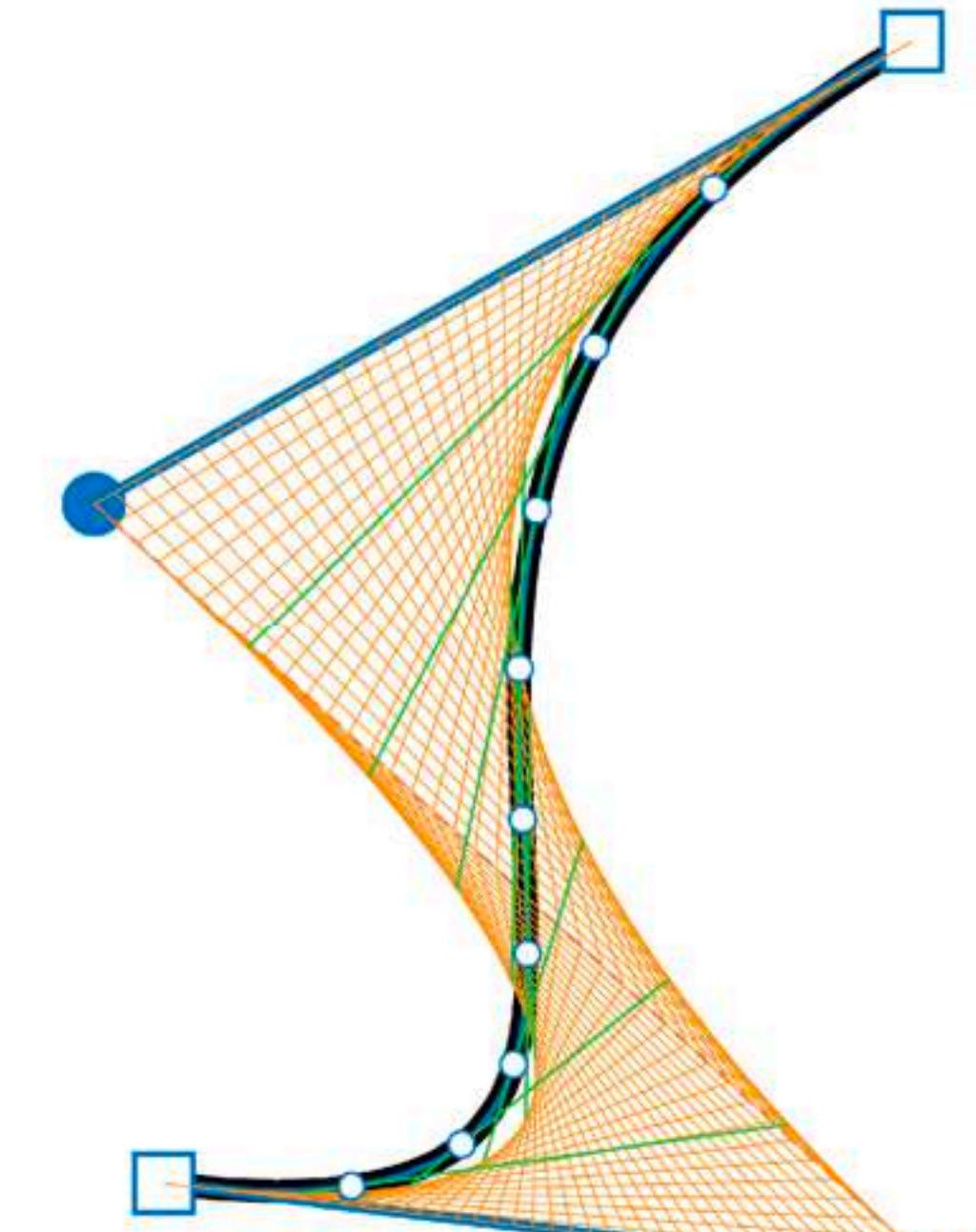
Implementation of Penner's Easing Equations (Groß, 2015)



Albrecht Dürer (1532)



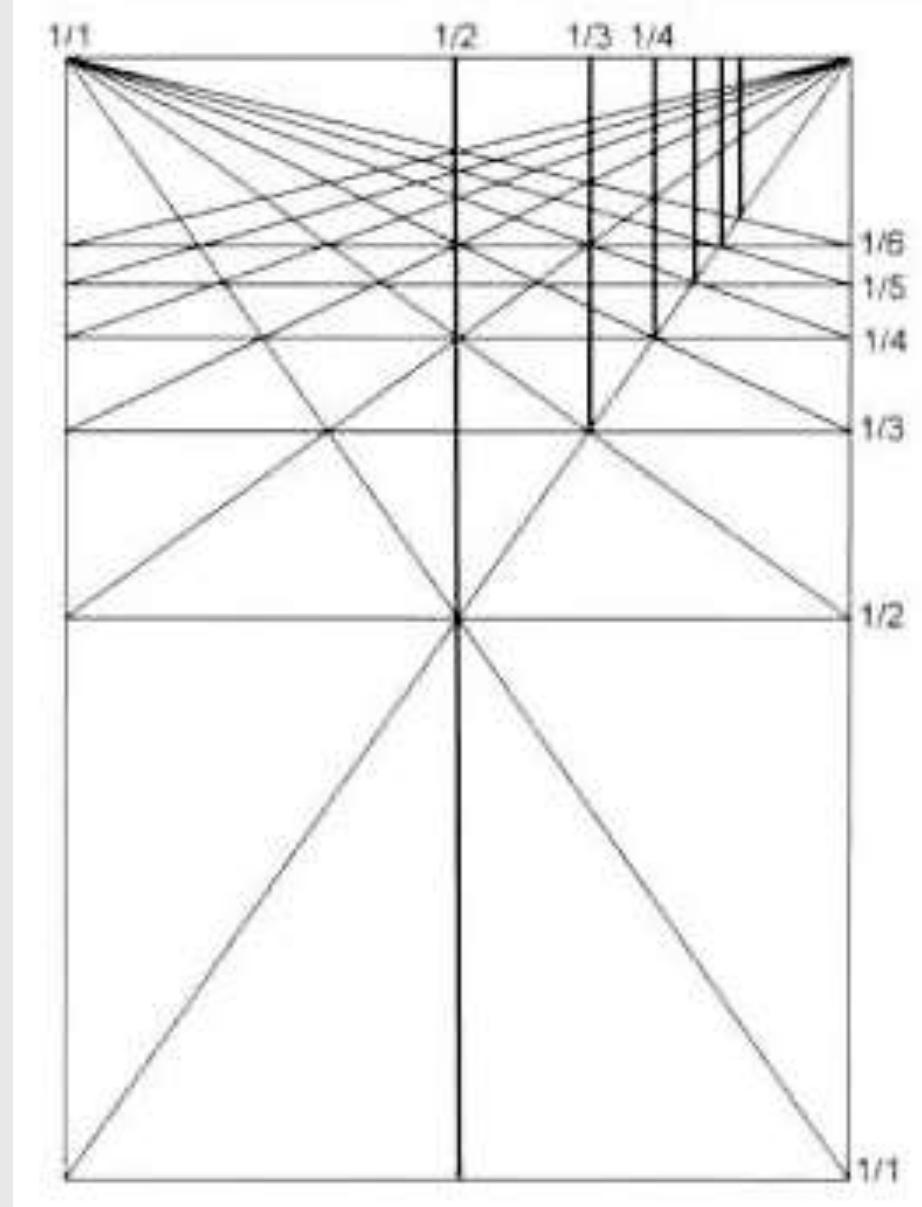
Burmeister Curve Set (c. 1880)
aka »French Curves«



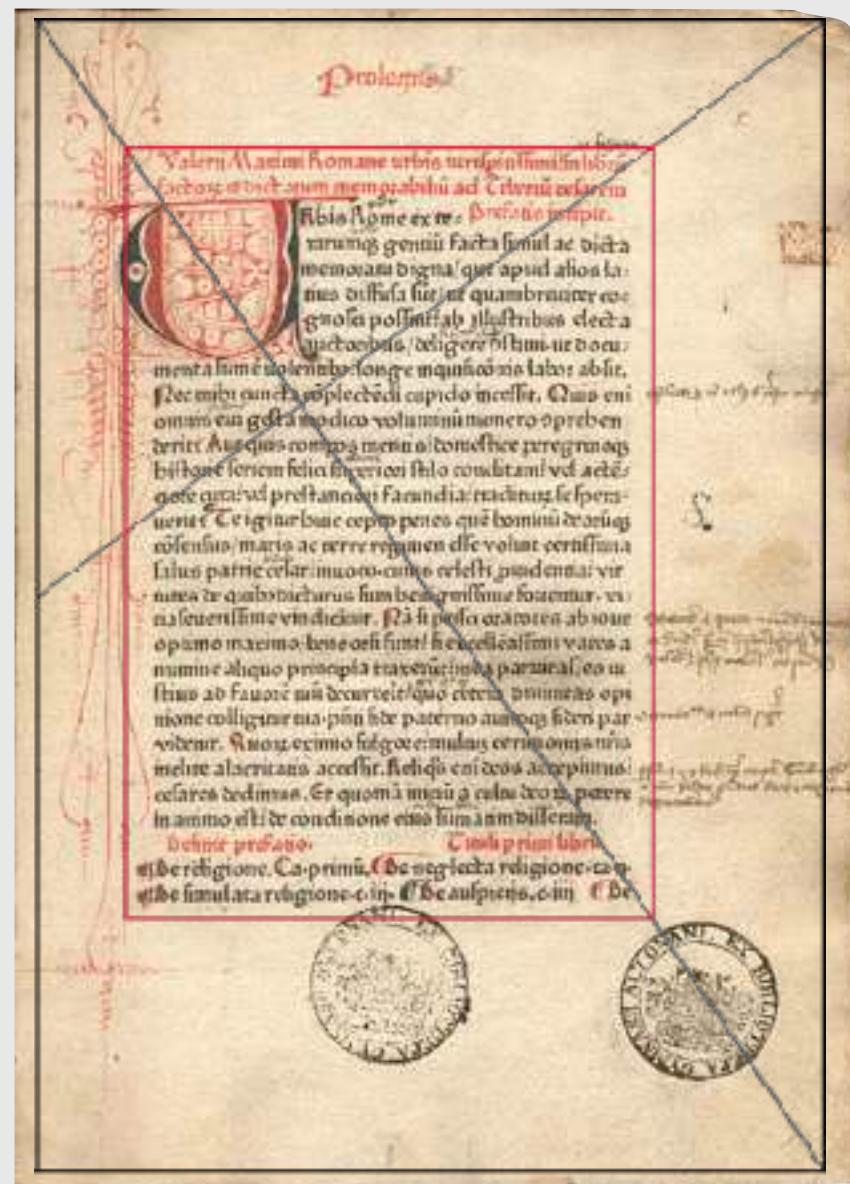
Bezier Curves
(Casteljau & Bézier, 1960s)



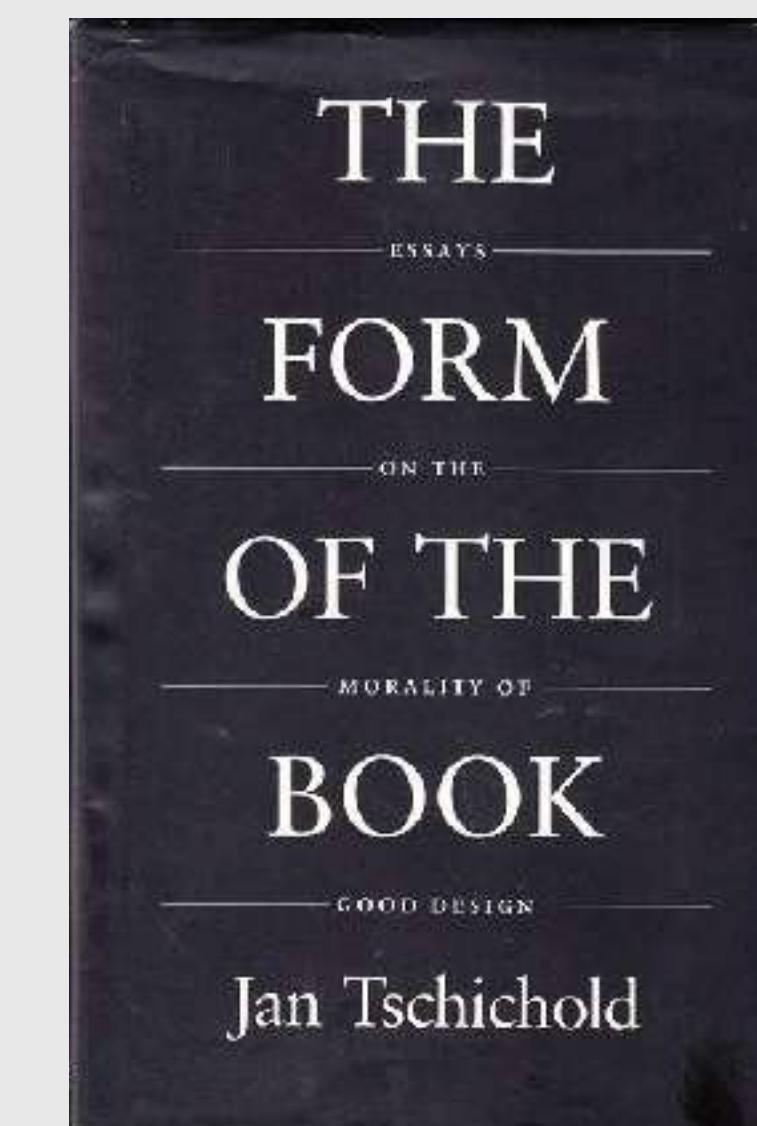
Pen tool
Adobe Illustrator 1.0
(1987)



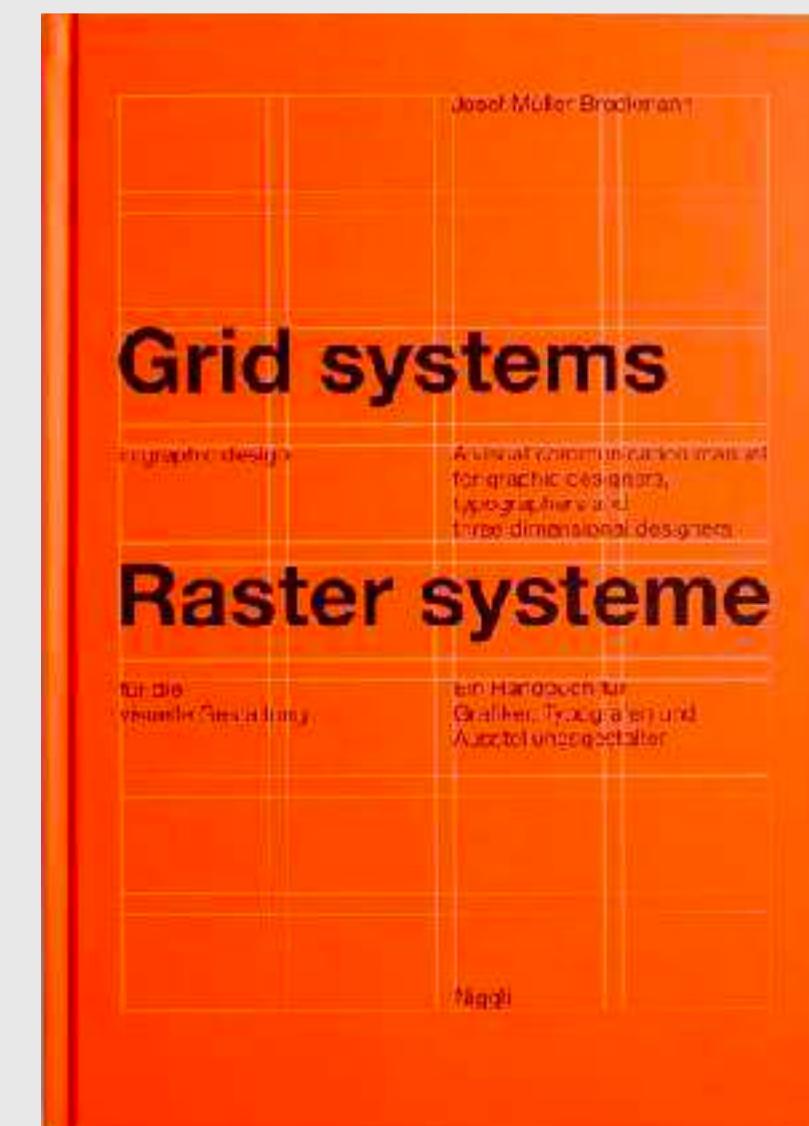
Villard Diagram
(Honnecourt, 13th c.)



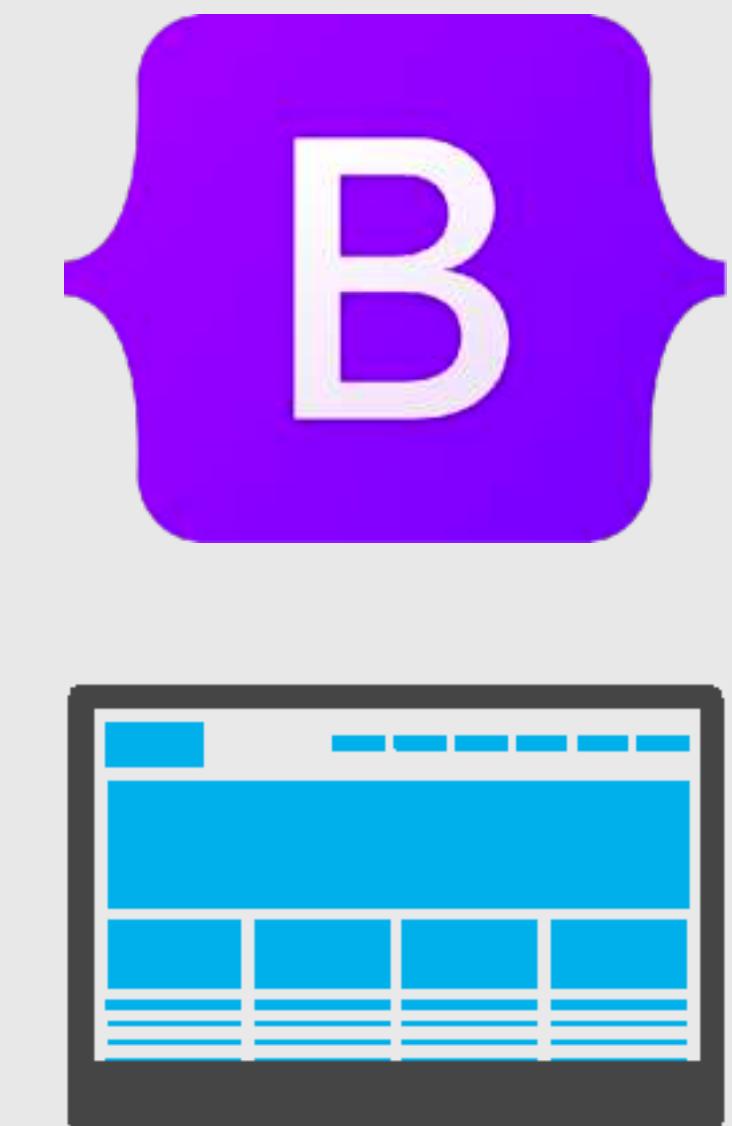
Valerius Maximus:
Facta et dicta memorabilia
(Mainz, 1471)



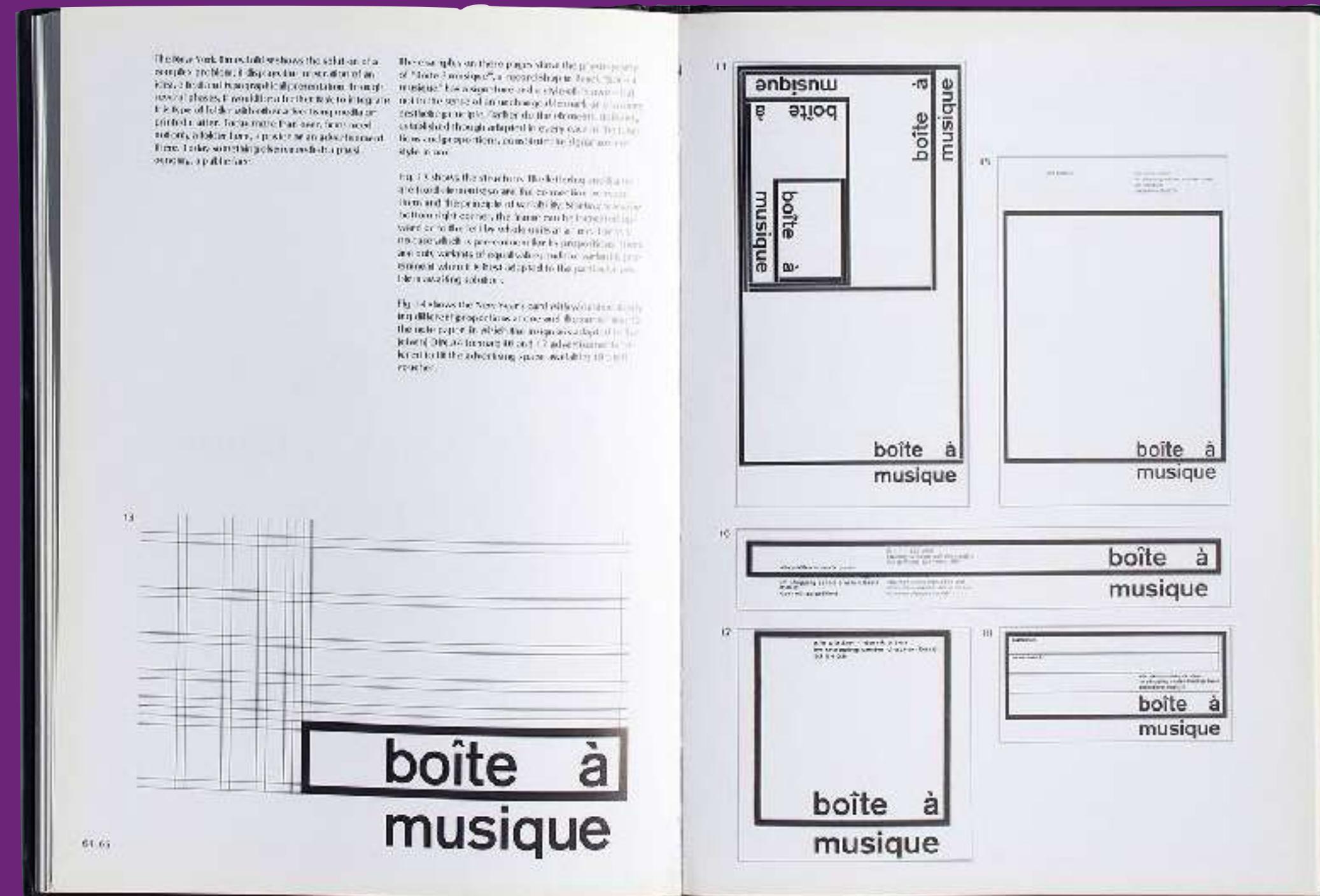
Die Proportionen
des Buches
(Tschichold, 1955)



Raster Systeme Fur Die
Visuelle Gestaltung
(Müller-Brockmann, 1981)



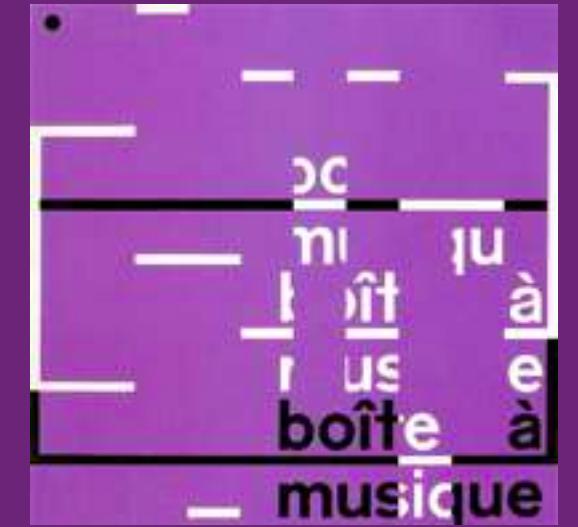
Bootstrap (2011—)

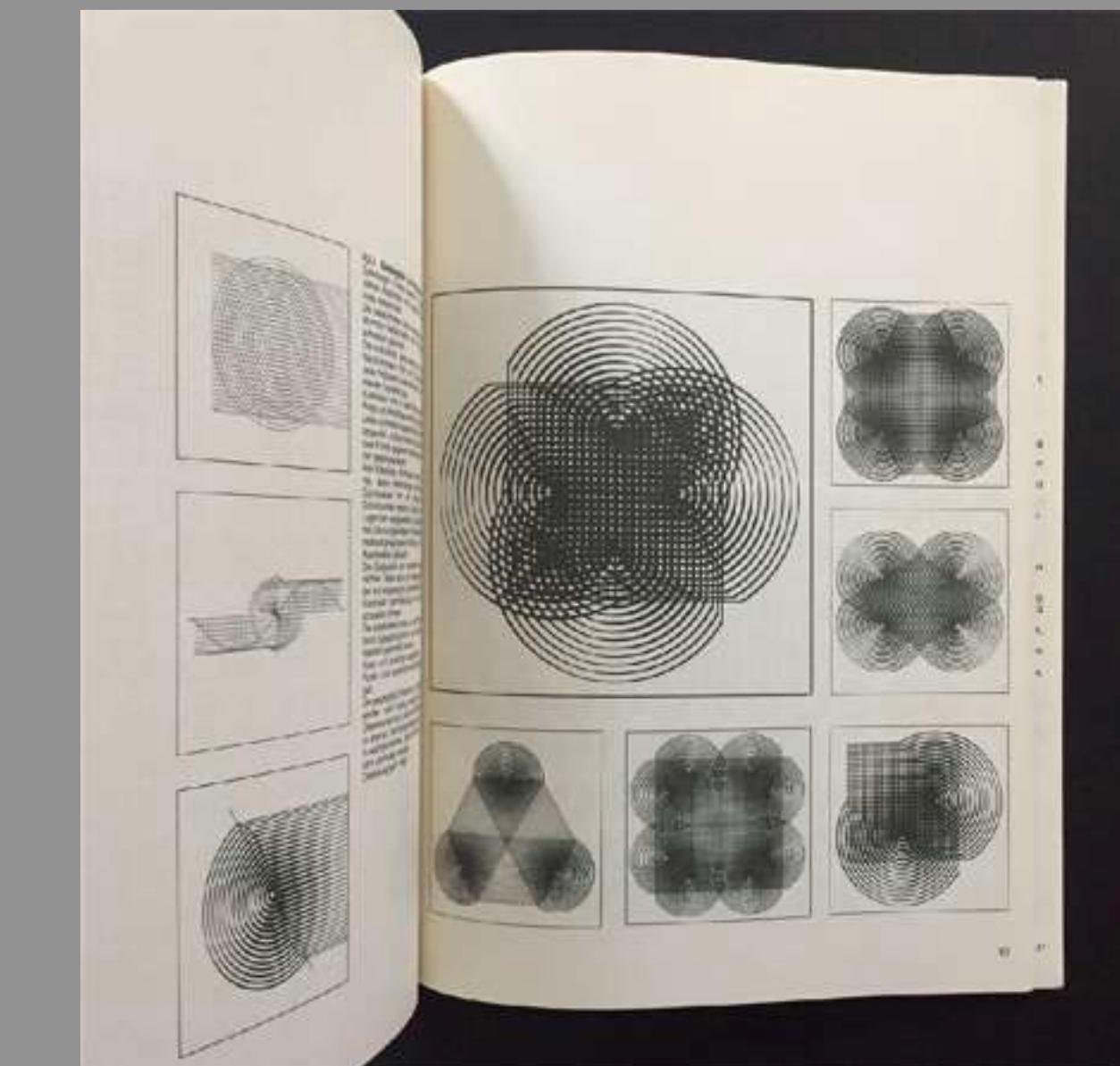
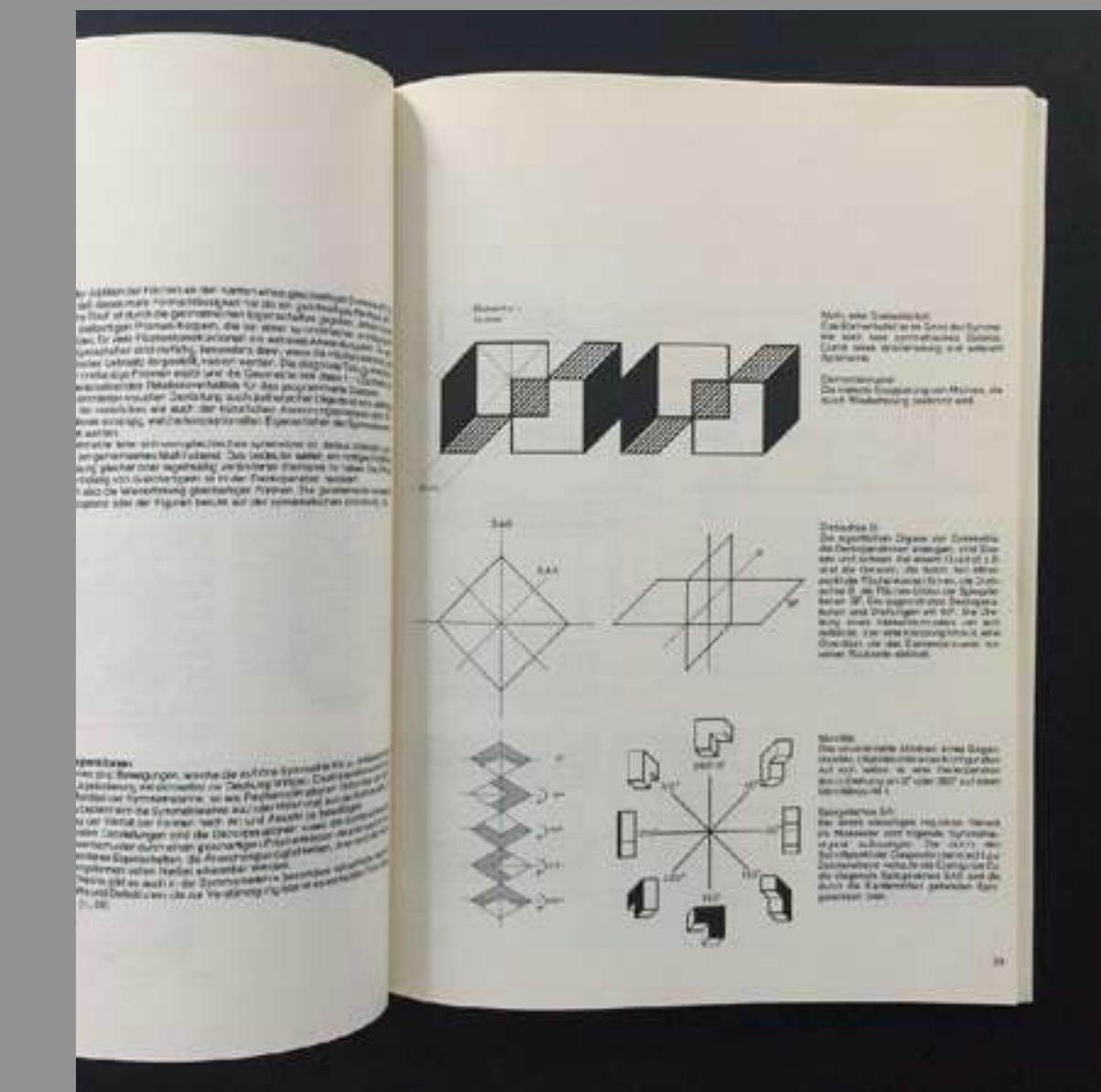
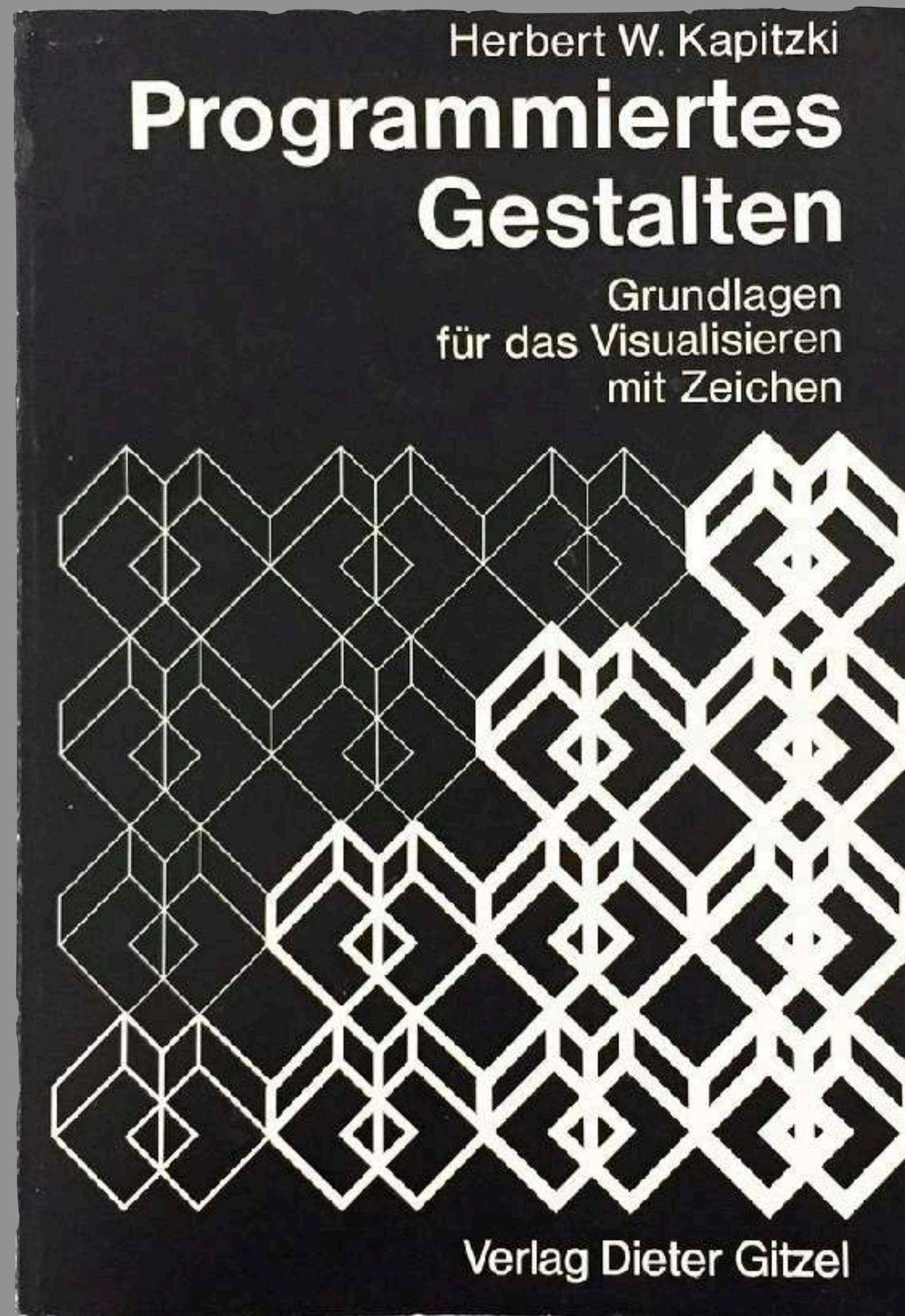


Designing Programmes

Karl Gerstner (1968, 1st ed.), Alec Tiranti Ltd.

<https://www.lars-mueller-publishers.com/designing-programmes>





»The knowledge required for systematic design work is initially imparted as it applies to manual working, and is intended to make it easier to understand programmed design when using electronic means.«

Programmiertes Gestalten
Herbert W. Kapitzki (1980), Verlag Dieter Gitzel



CONTAINER

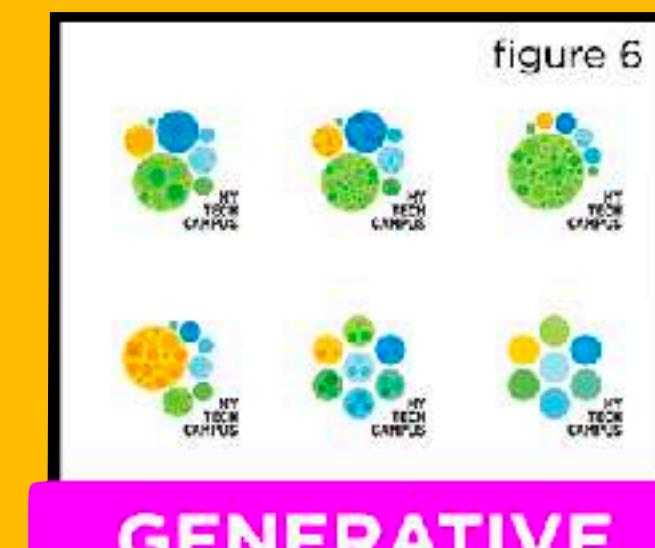
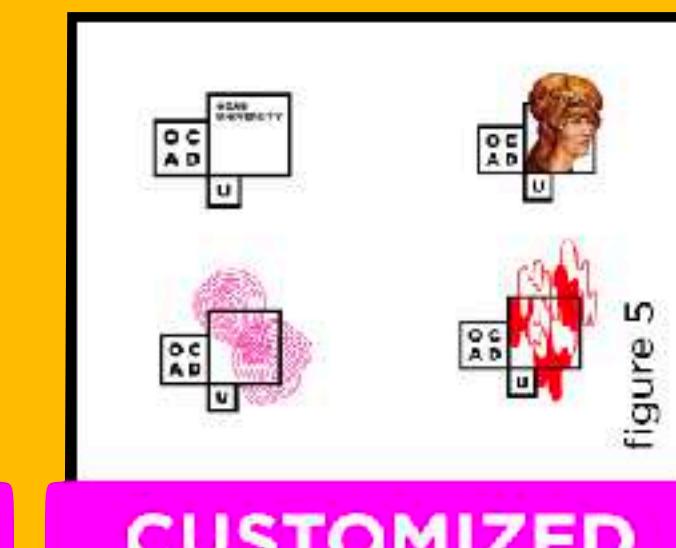
A holder that contains constantly changing content

WALLPAPER

A static logo with variable designs behind it

DNA

A selection of ingredients that can be used in various ways



FORMULA

A system is created to be the constant.

CUSTOMIZED

An element of the design is customized by the client or customer

GENERATIVE

Introduce external data to vary the appearance

Dynamic Identities – How to create a living brand

Irene van Nes (2012, 1st ed.), BIS Publishers

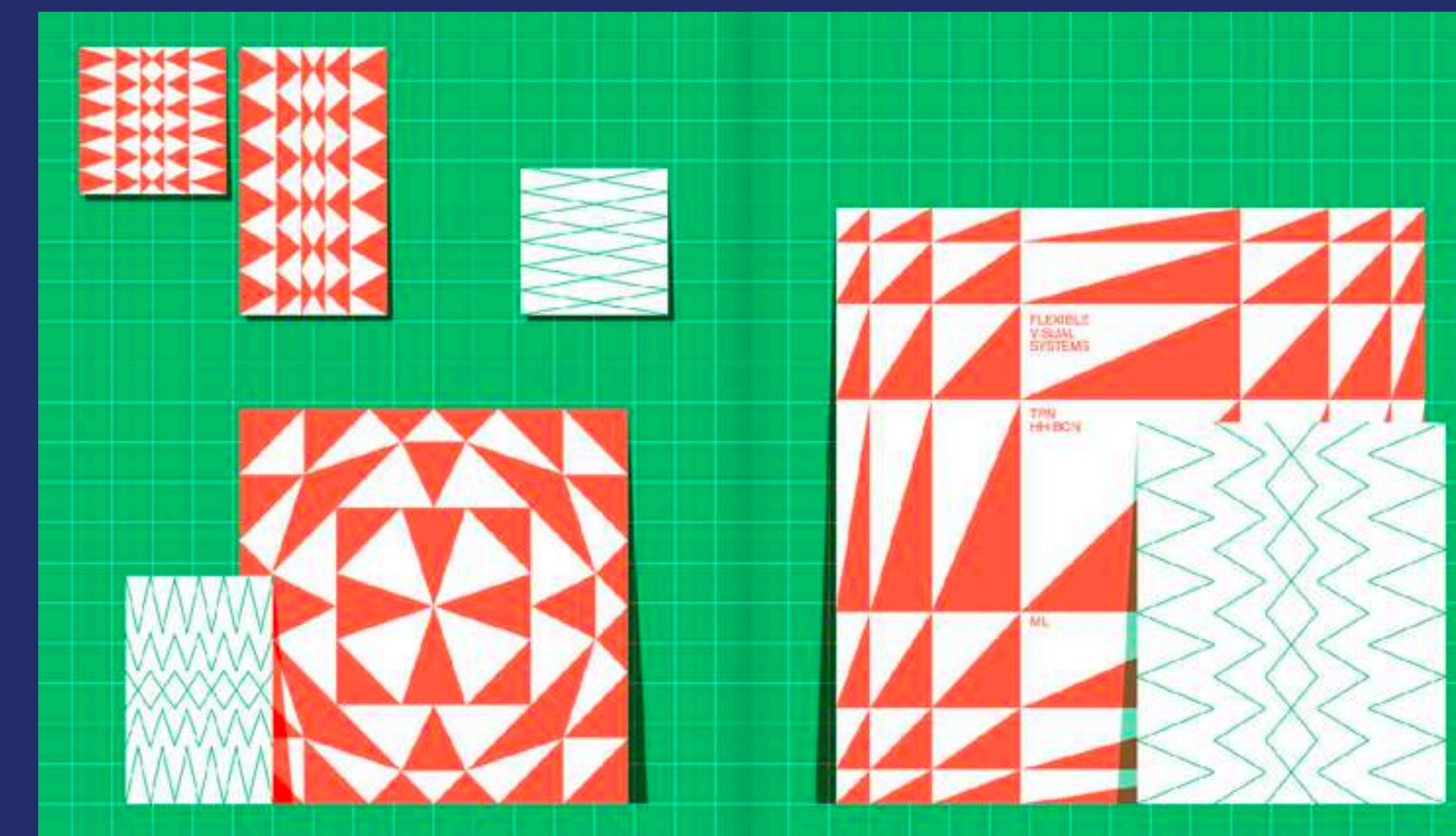
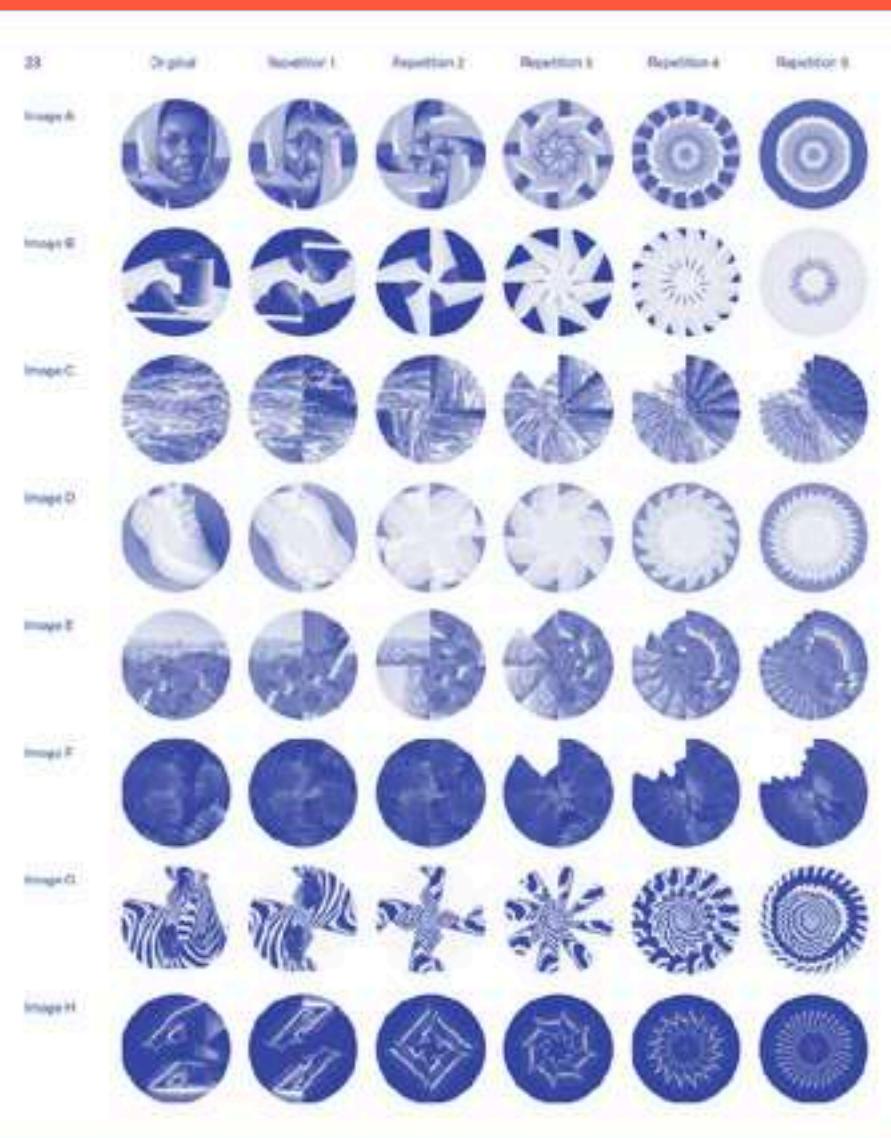
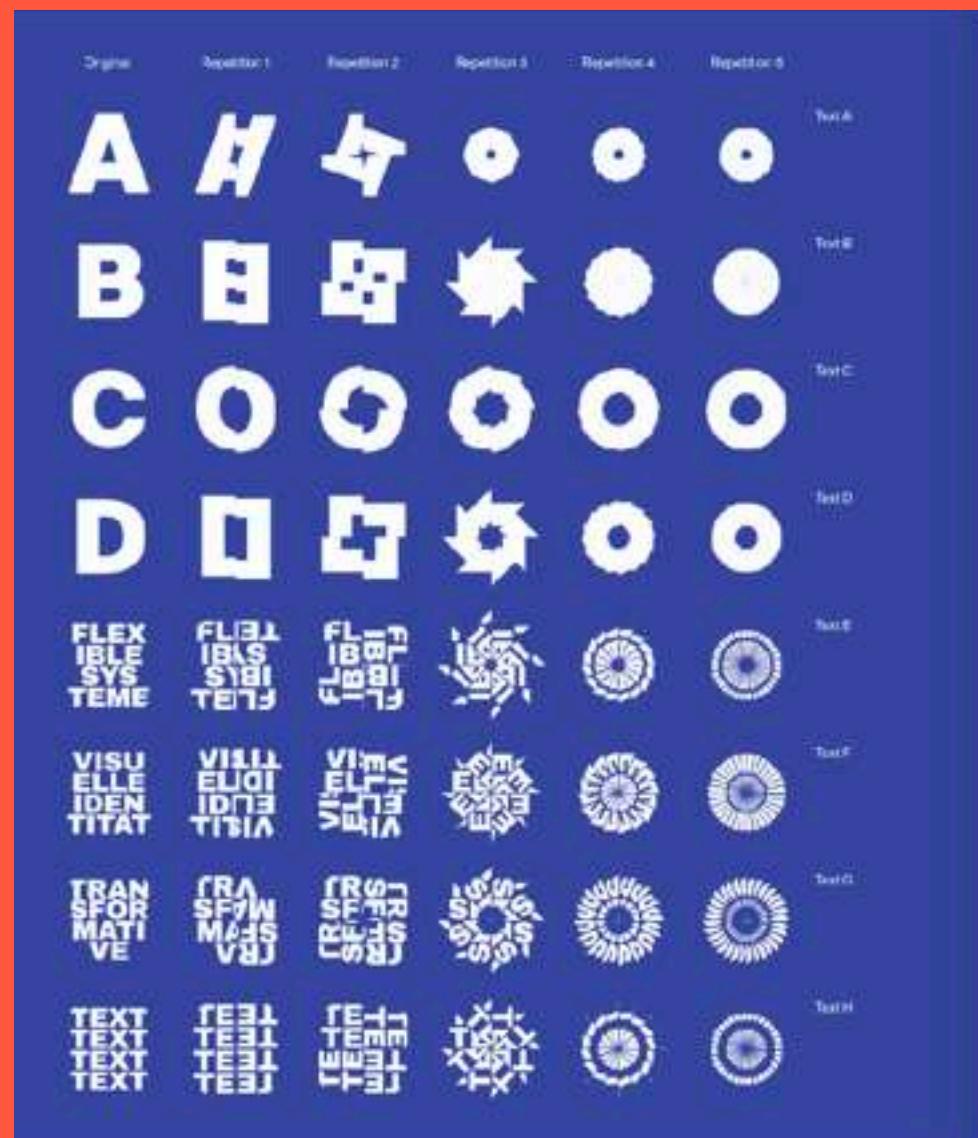
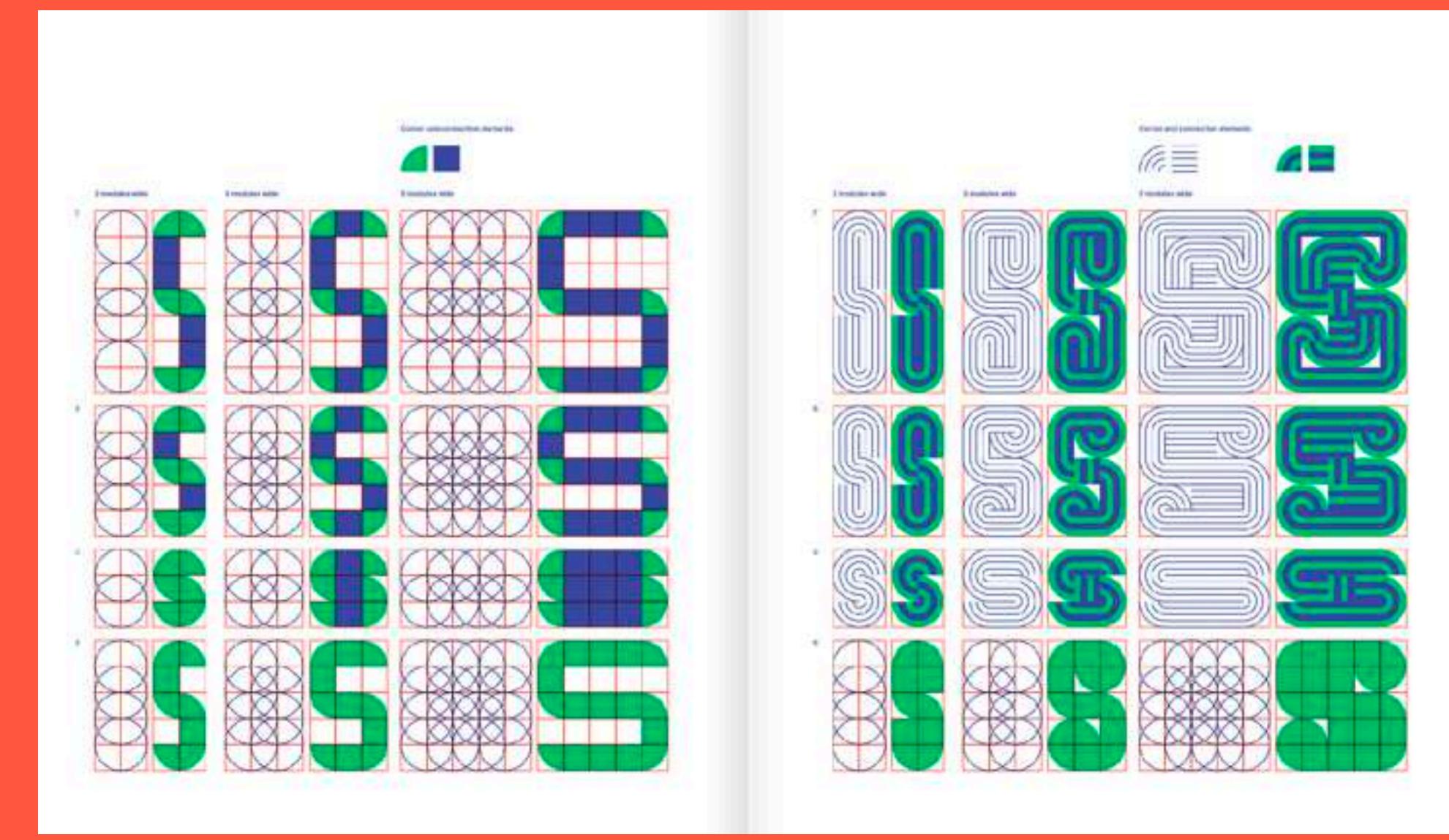
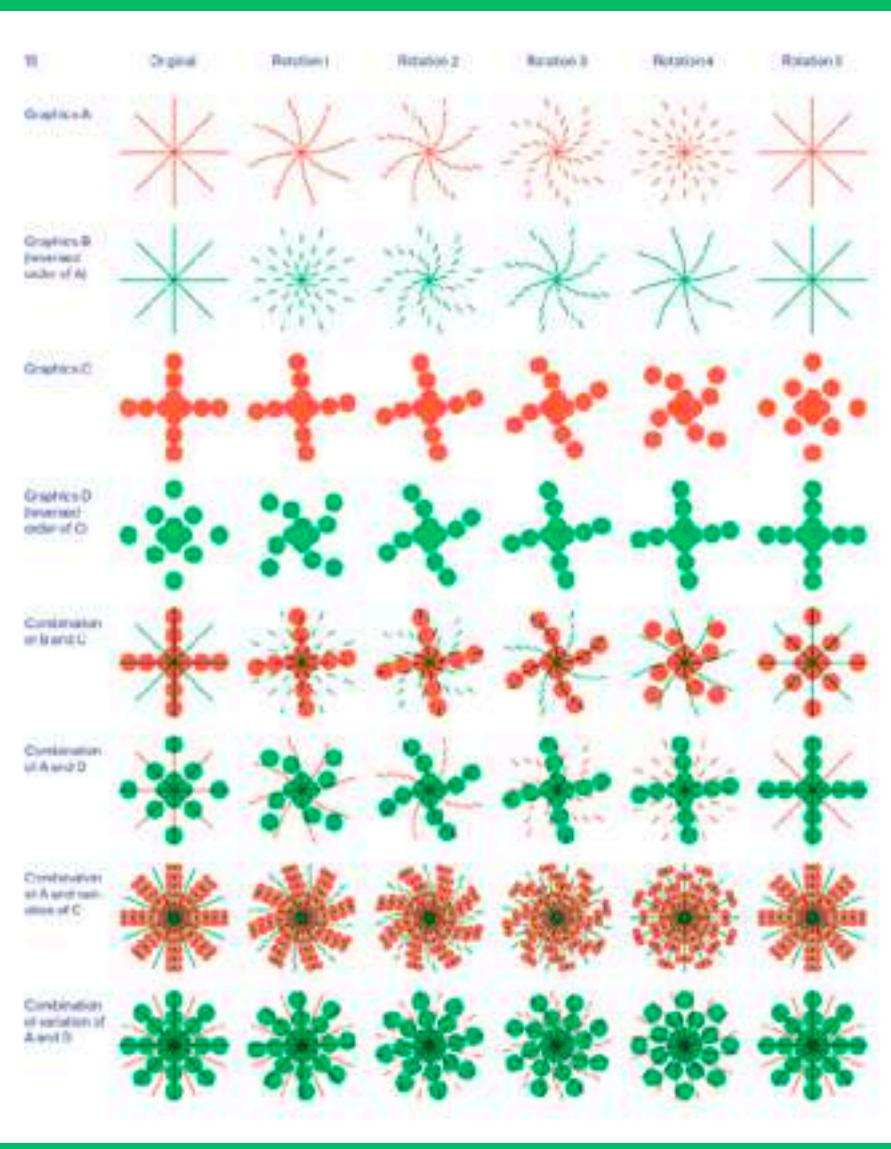
<https://www.bispublishers.com/dynamic-identities.html>



Flexible Visual Systems

Martin Lorenz (2021), Slanted Publishers

<https://www.slanted.de/product/flexible-visual-systems/>





P Startfeed • Søg i dine pins Dine pins 46

Computational Graphic Design Inspiration ...



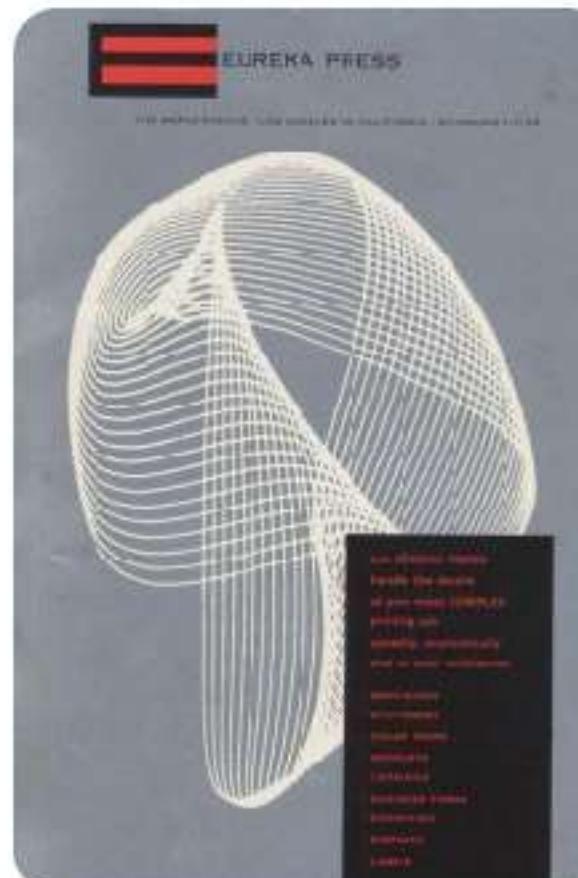
+

A large collection of commercial graphic design products useful for teaching programming to graphic design students using the deconstruction/reconstruction method (see <http://bit.ly/deconrecon>)



Flere idéer Organiser Noter

4217 pins



Chris G



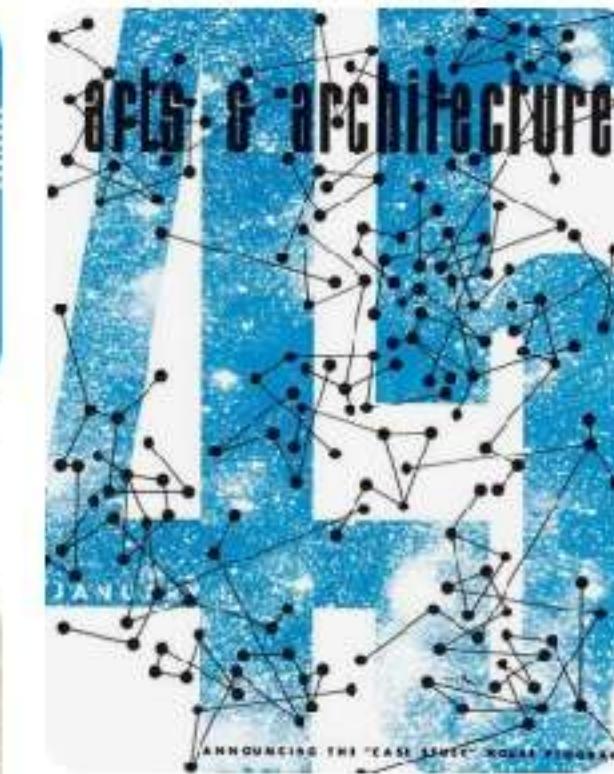
Type Journal • Five Books about a Restless...



Film Commission Chile



Creative Fffound, Design, Orange, Graphic, and...



A Visit to the Eames Case Study House—(Perfect)...



60 Powerful New York Times Magazine Covers...



Computational Graphic Design Inspiration
Stig Møller Hansen (2010-), Pinterest
<https://www.pinterest.dk/stixan/computational-graphic-design-inspiration/>



SARA

Architecture

Point 2 of 4:

Code will increasingly
blend into designers'
future practice

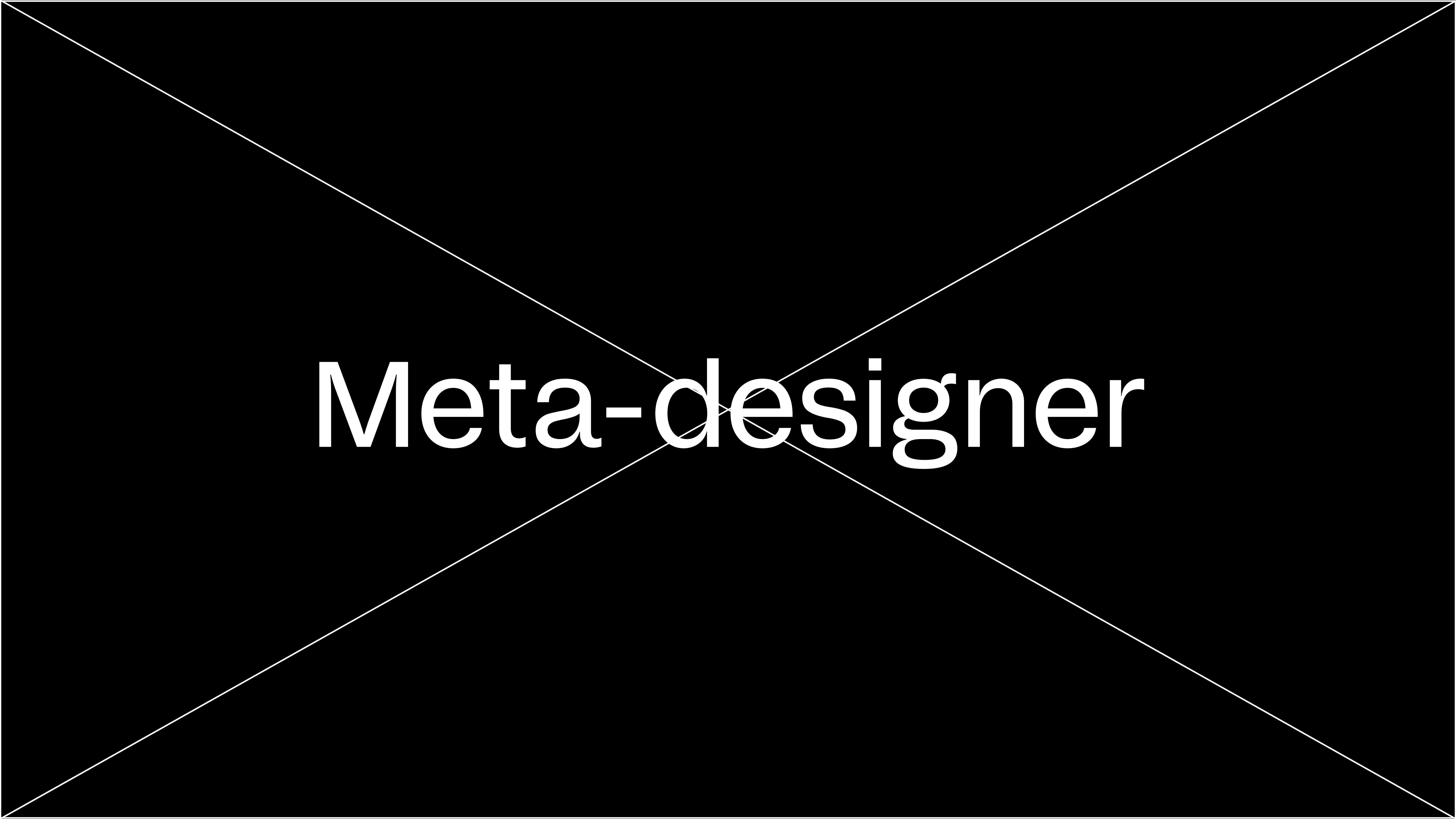


designer + coder

People ▾



192,000



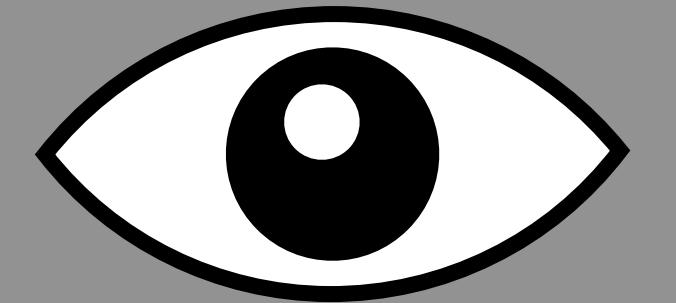
Meta-designer

»[Metadesigners] are as visually talented as they are technically proficient and they see the technical process as an accelerator for creativity.«

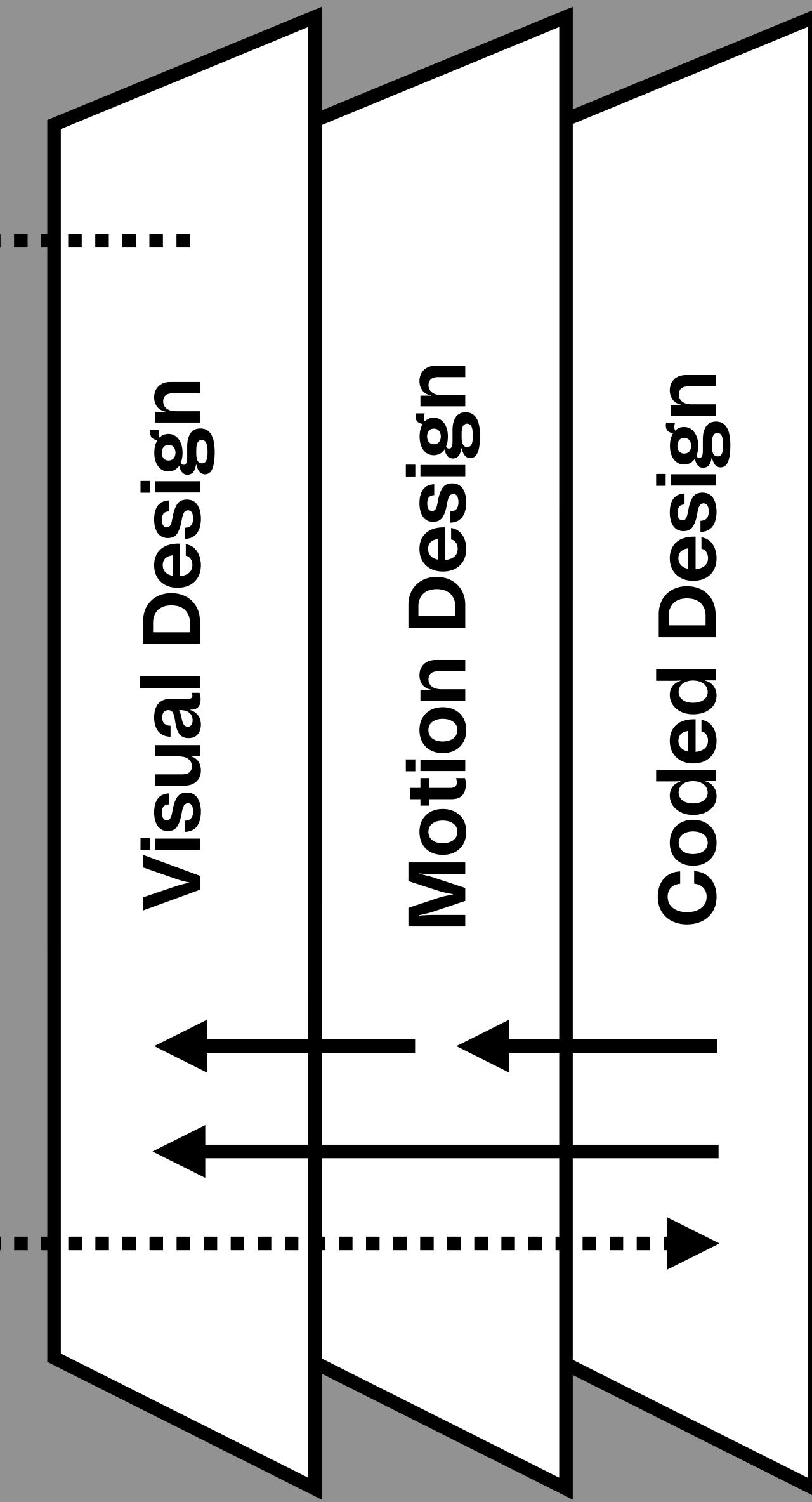
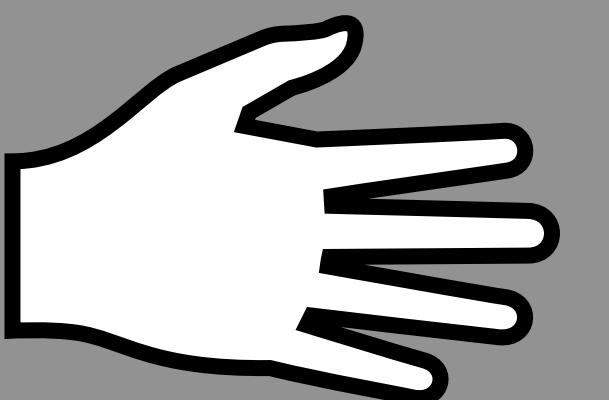
— Rune Madsen (2015)

»Meta-design involves the transformation of the role of the designer from one in which she is primarily concerned with the design of individual artifacts to one where she also creates or develops new tools, systems, and methods for design.«

— Brad Tober (2017)



Experience
Design

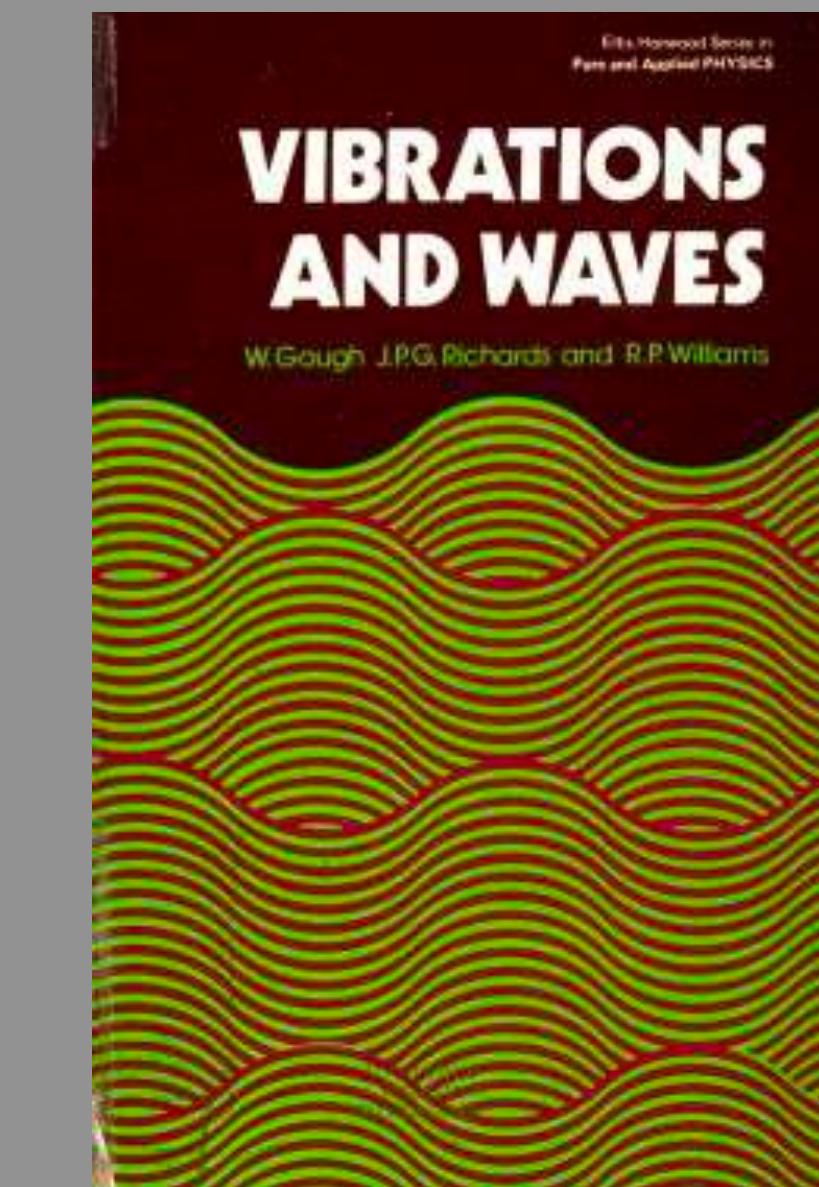
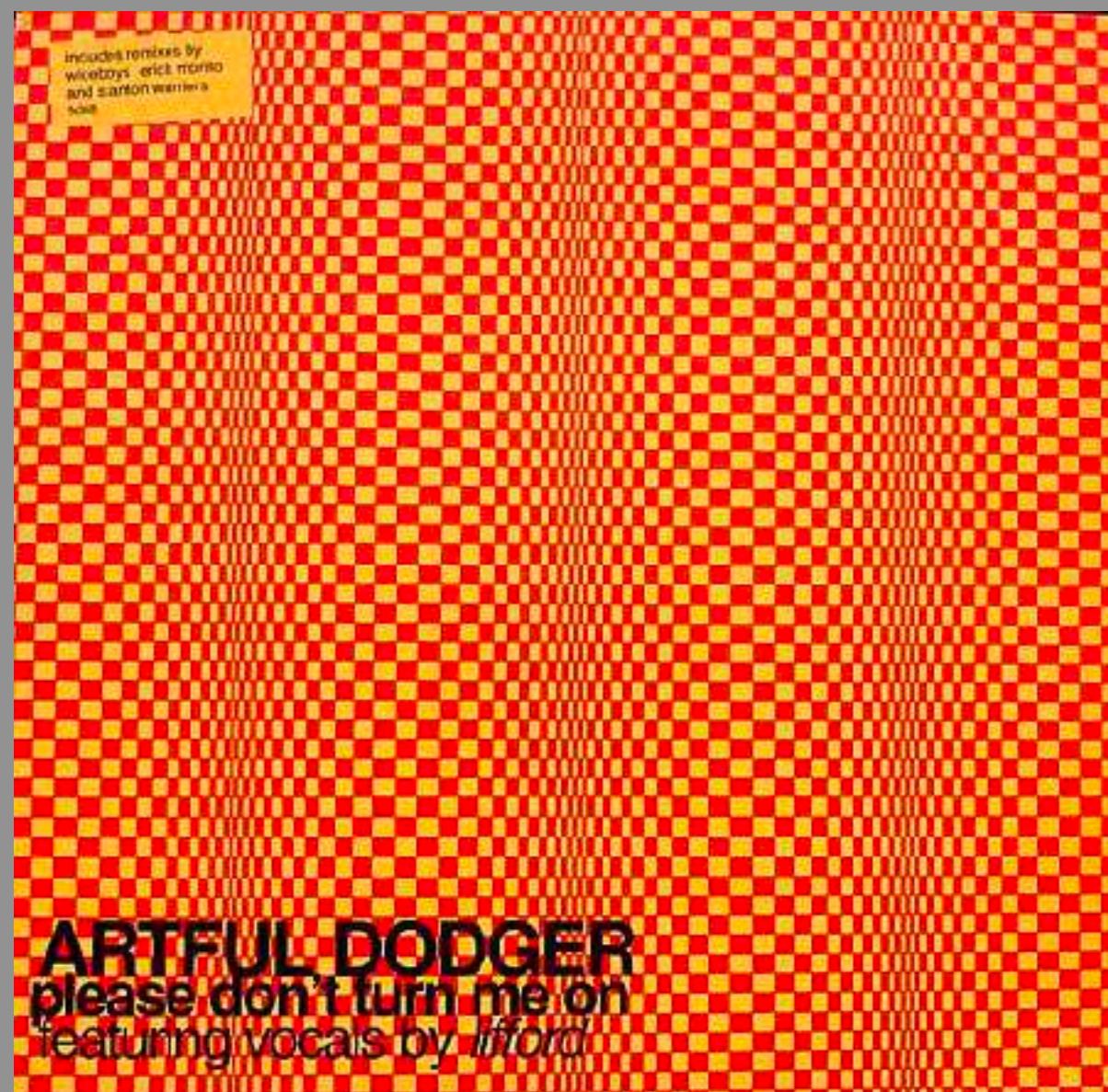
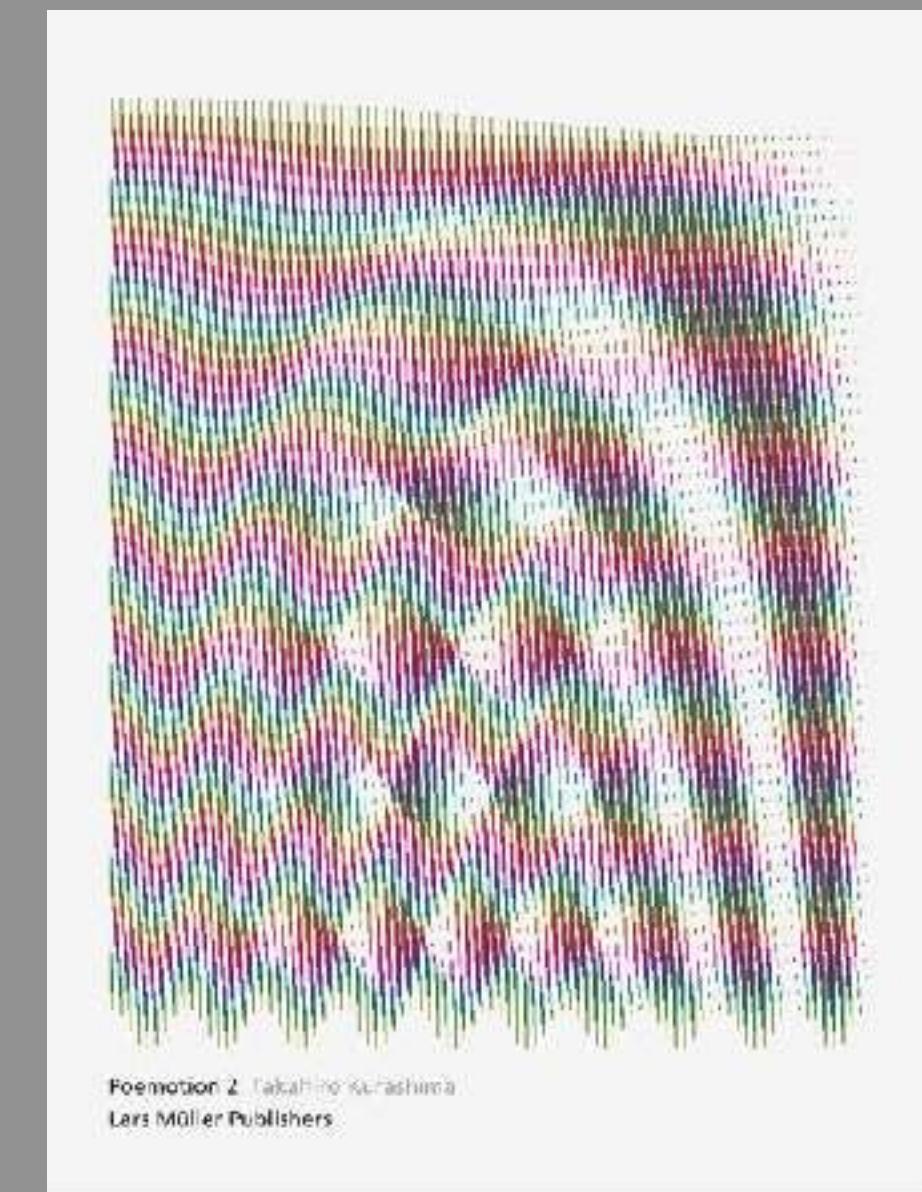
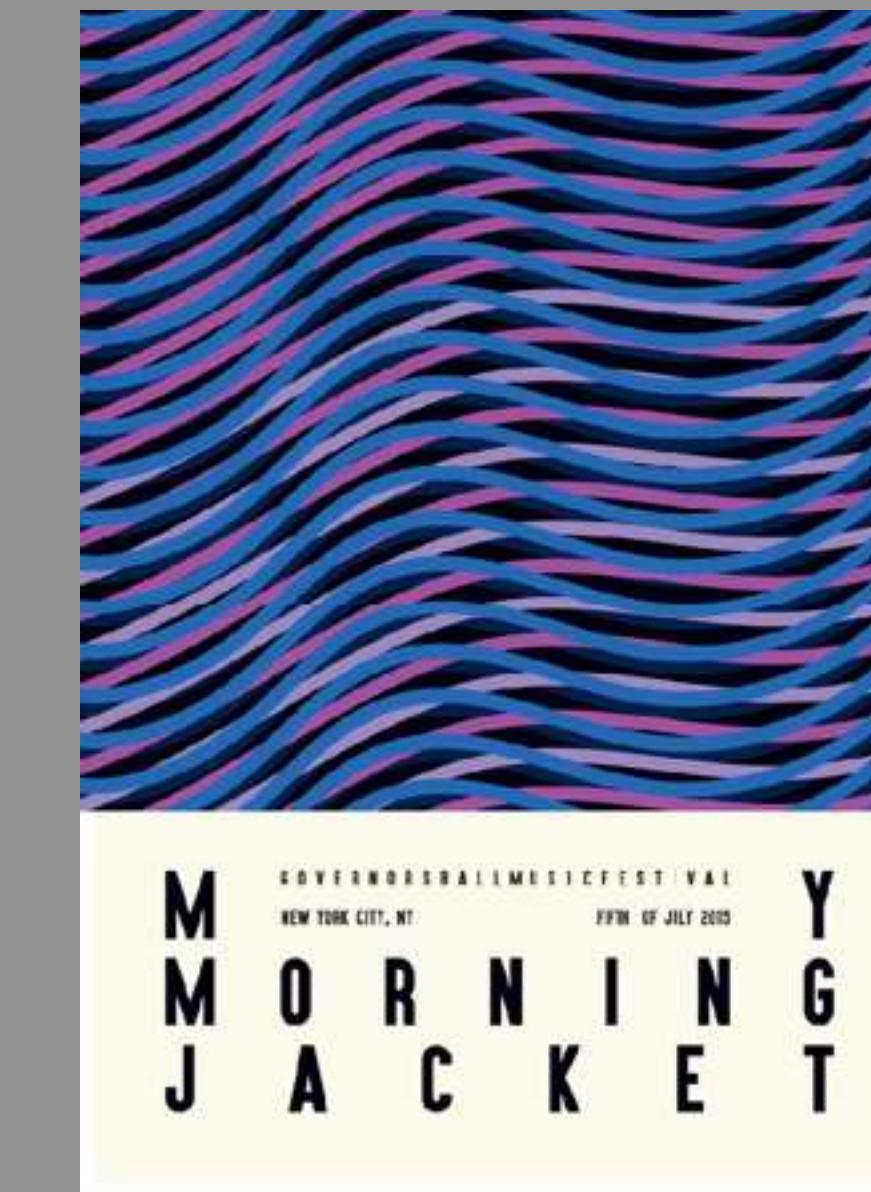


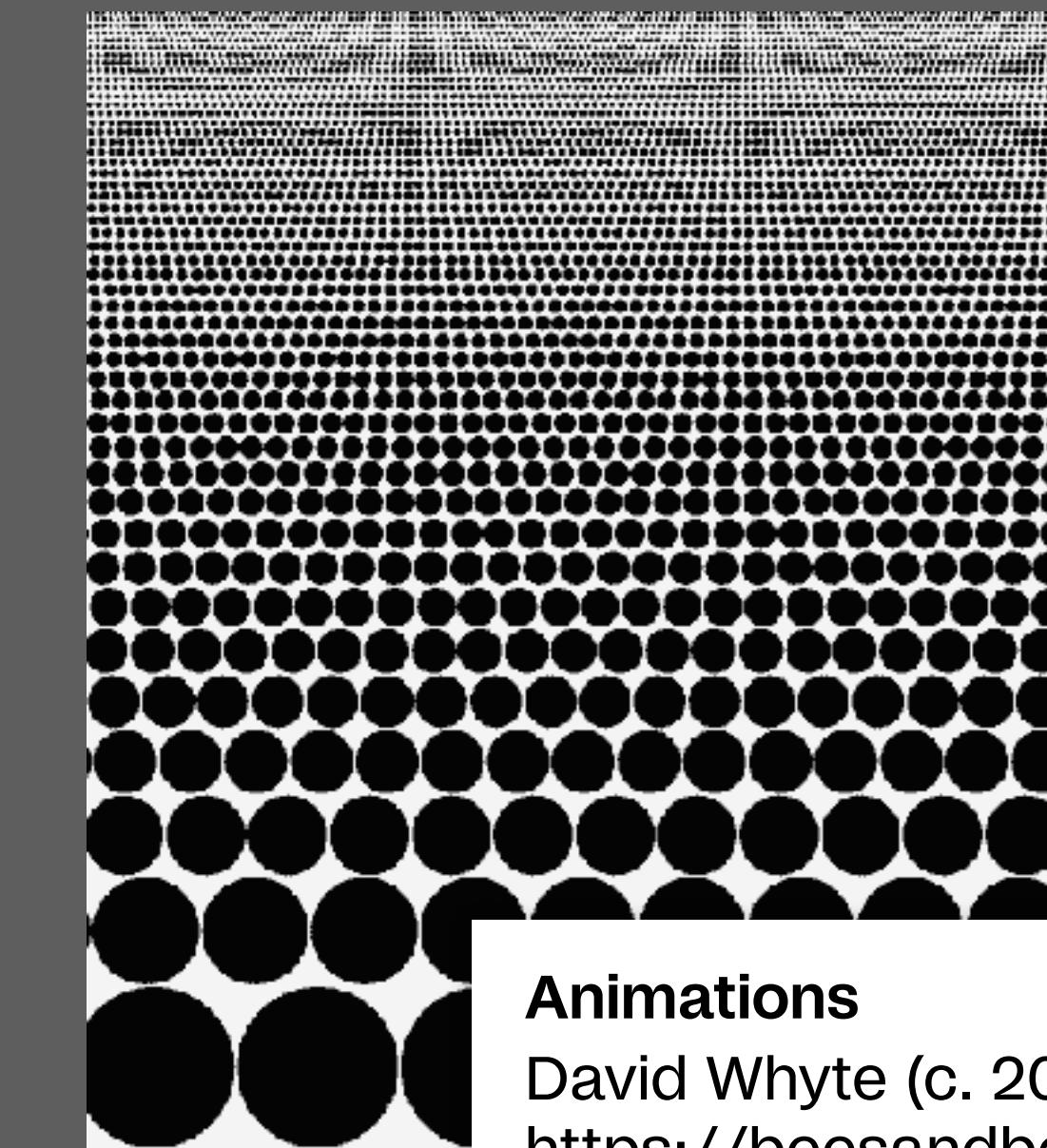
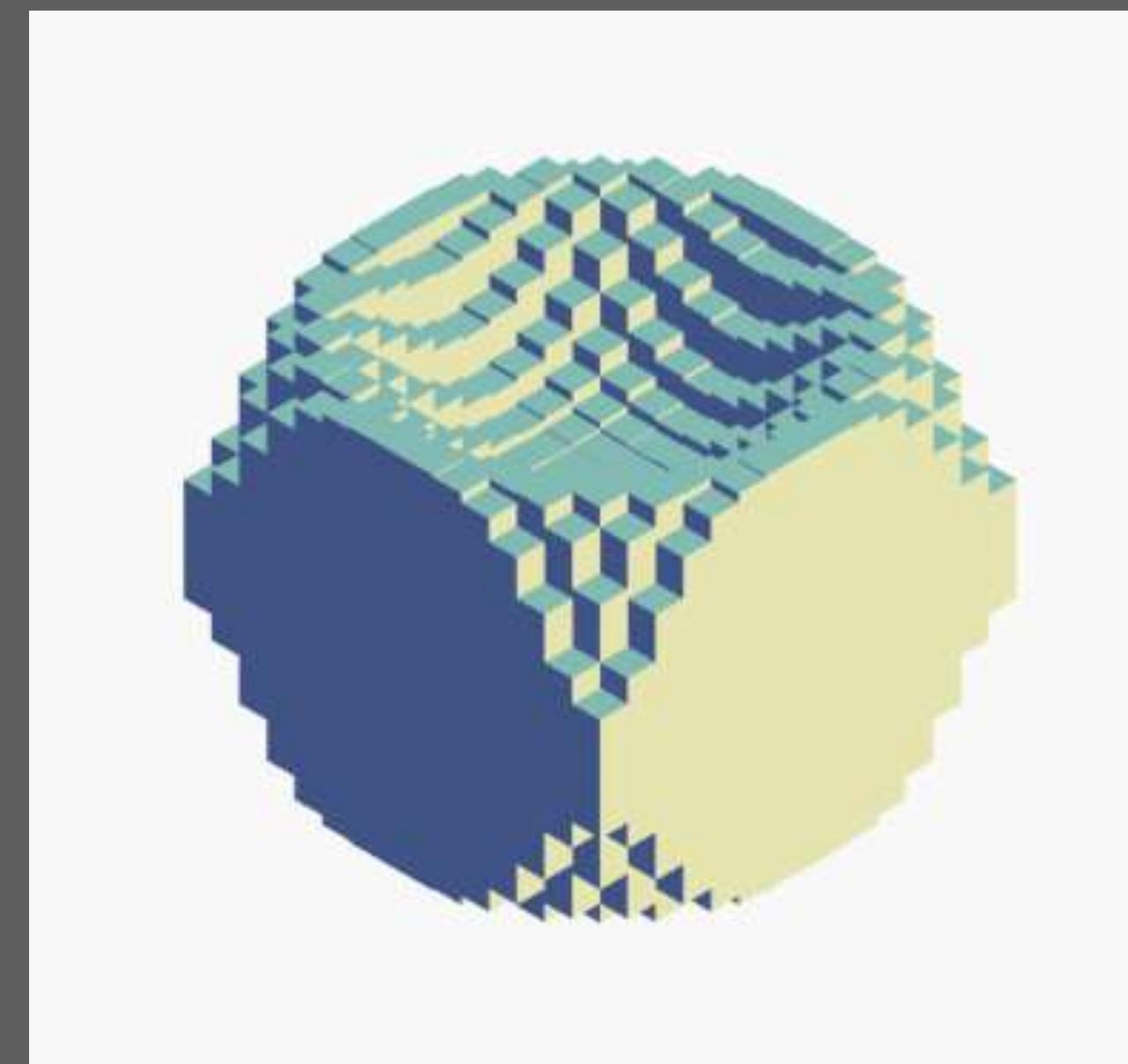
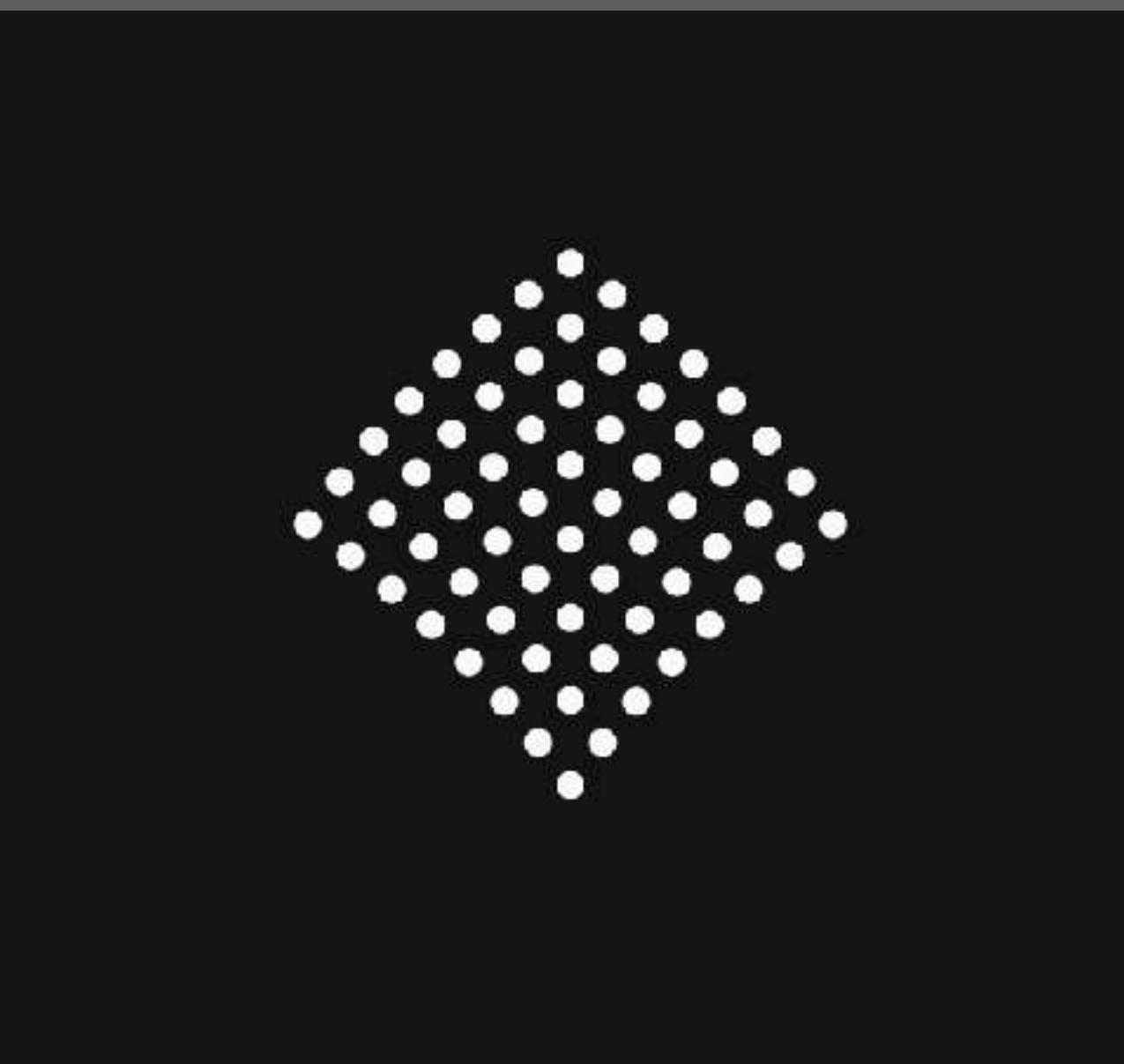
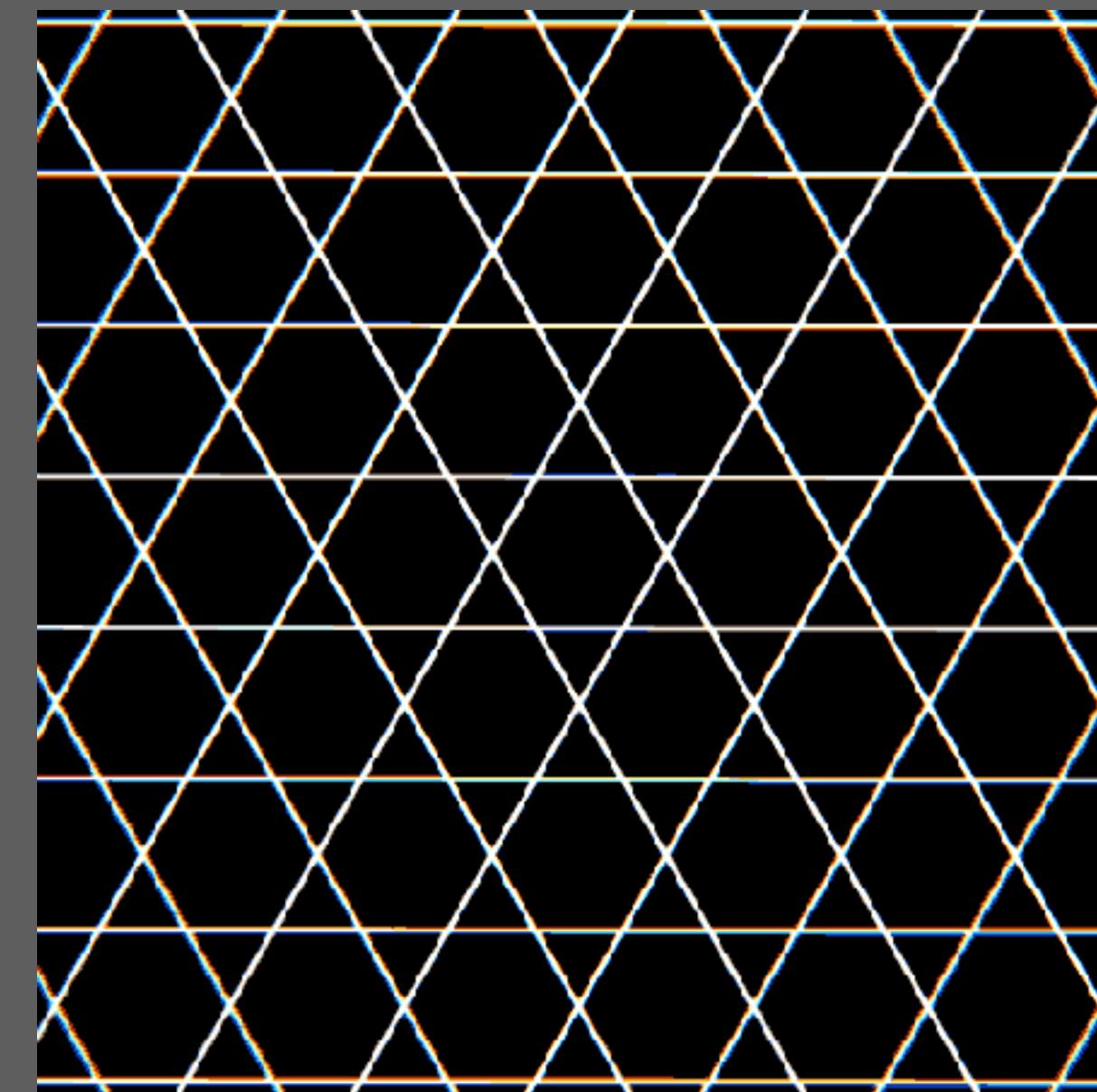
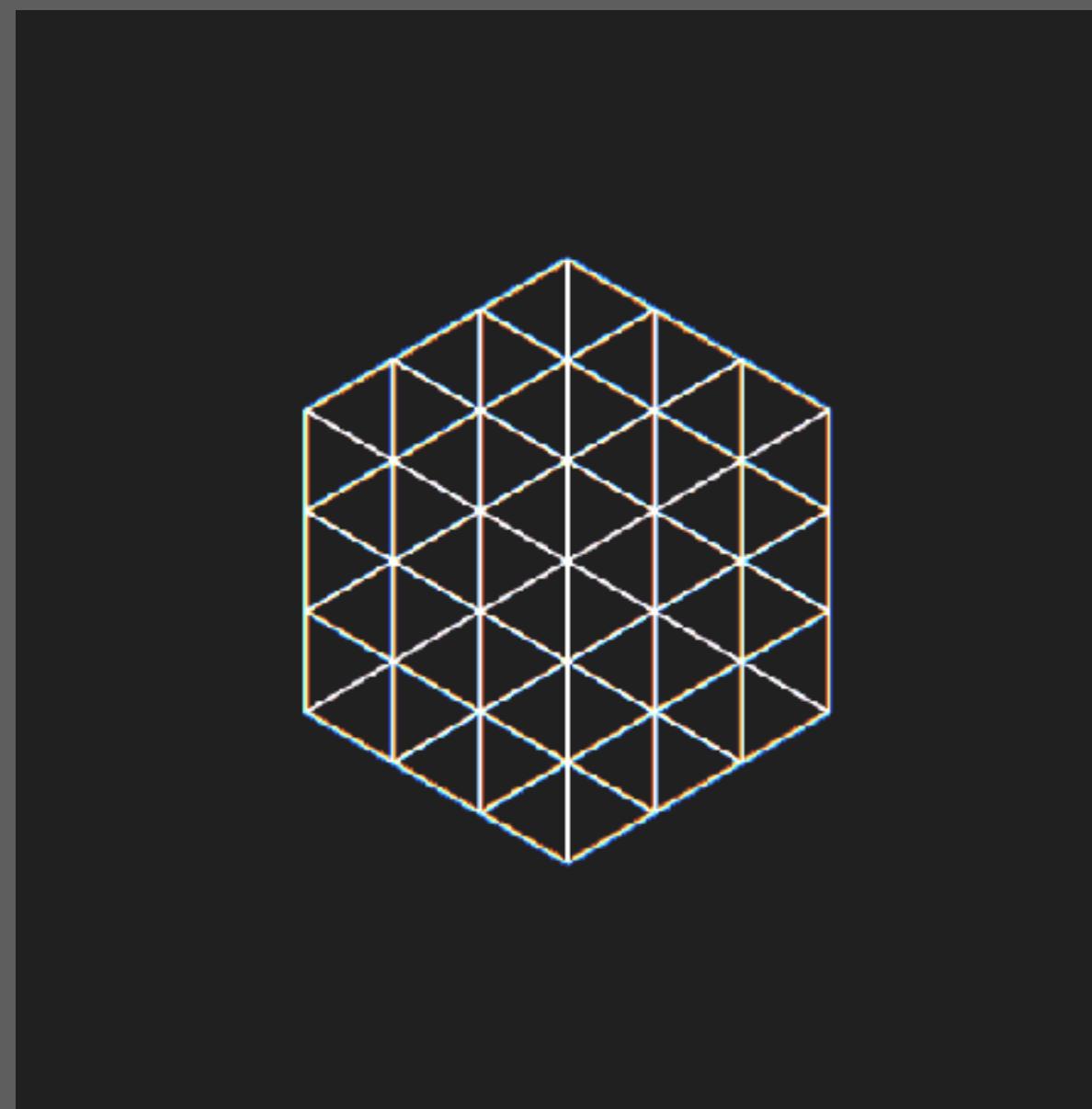
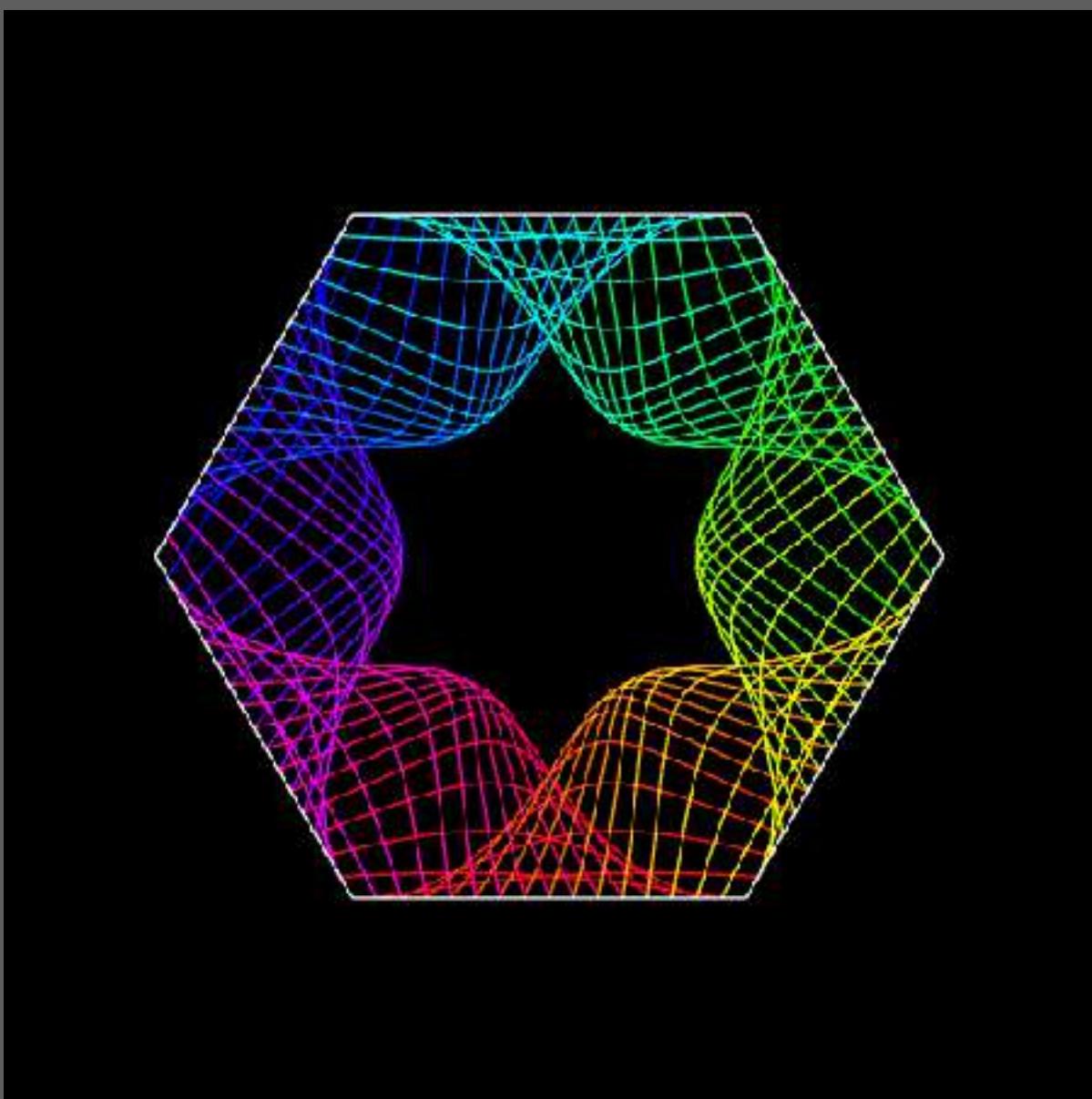
Blending code with your pre-existing design skills becomes a transformative experience

Point 3 of 4:

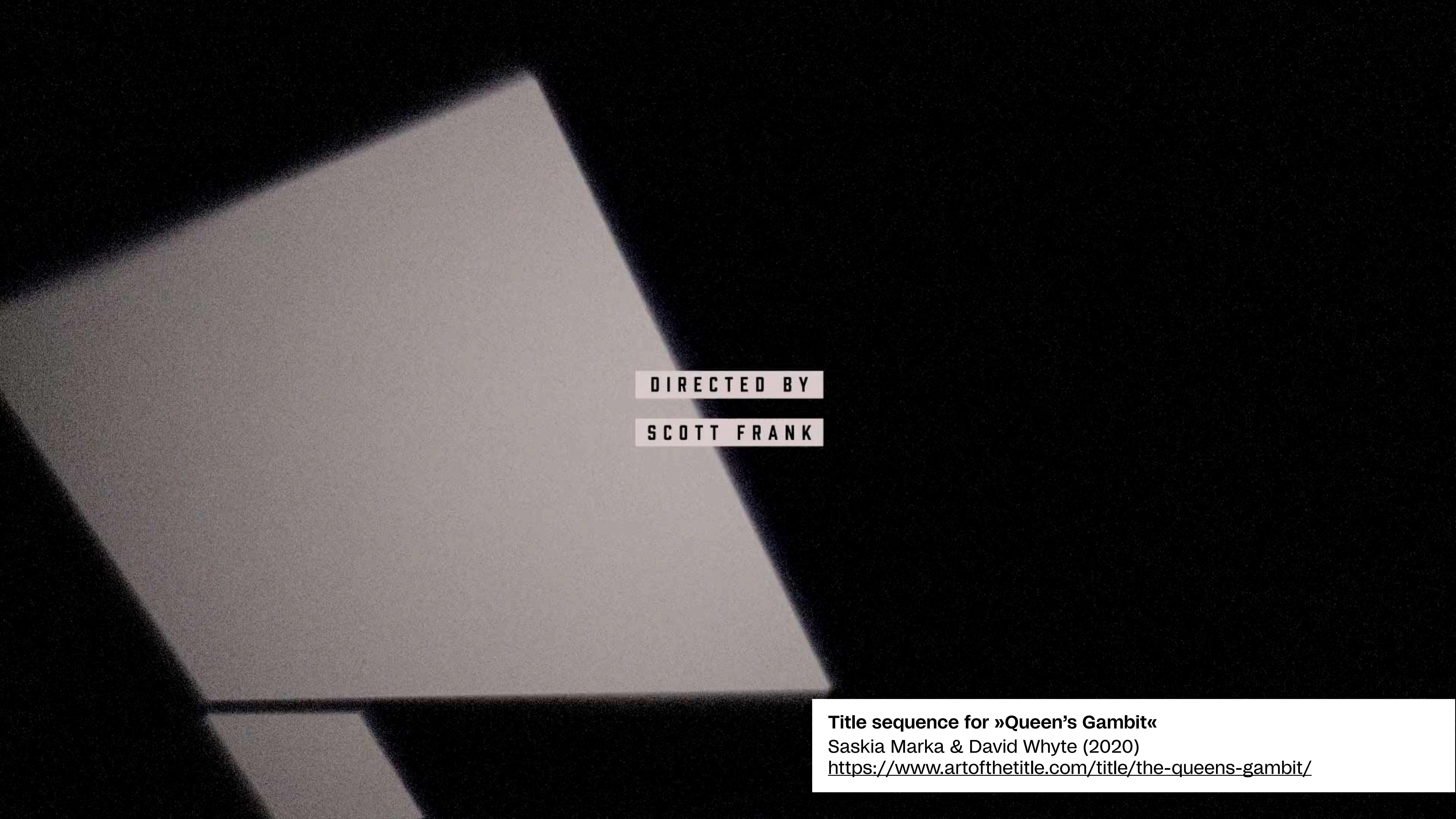
Blending design and code
yields lots of benefits

Rekindle your
love for math





Animations
David Whyte (c. 2020)
<https://beesandbombs.com/>

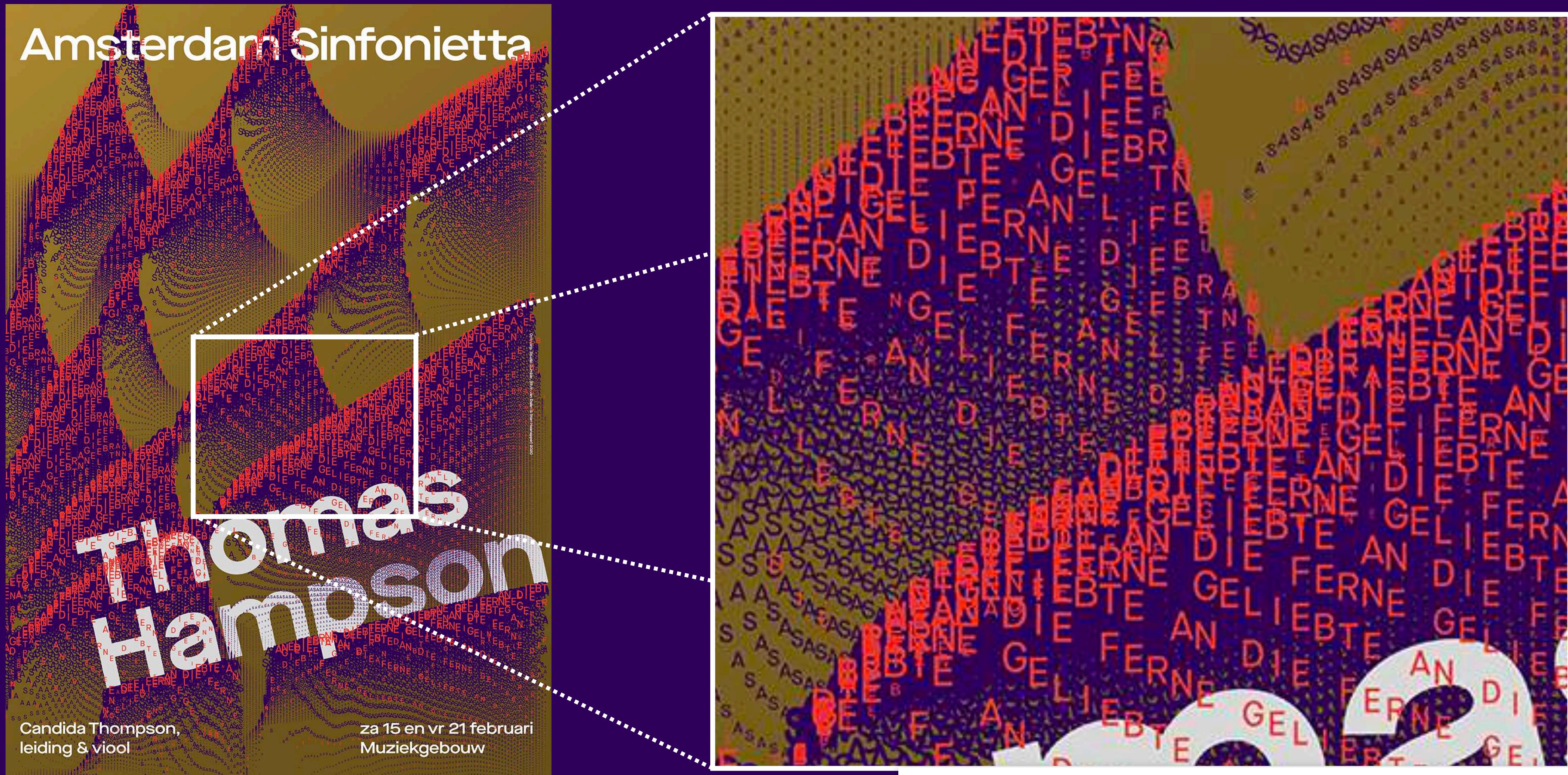


DIRECTED BY

SCOTT FRANK

Title sequence for »Queen's Gambit«
Saskia Marka & David Whyte (2020)
<https://www.artofthetitle.com/title/the-queens-gambit/>

Explore new levels of
visual intricacy not
achievable by hand

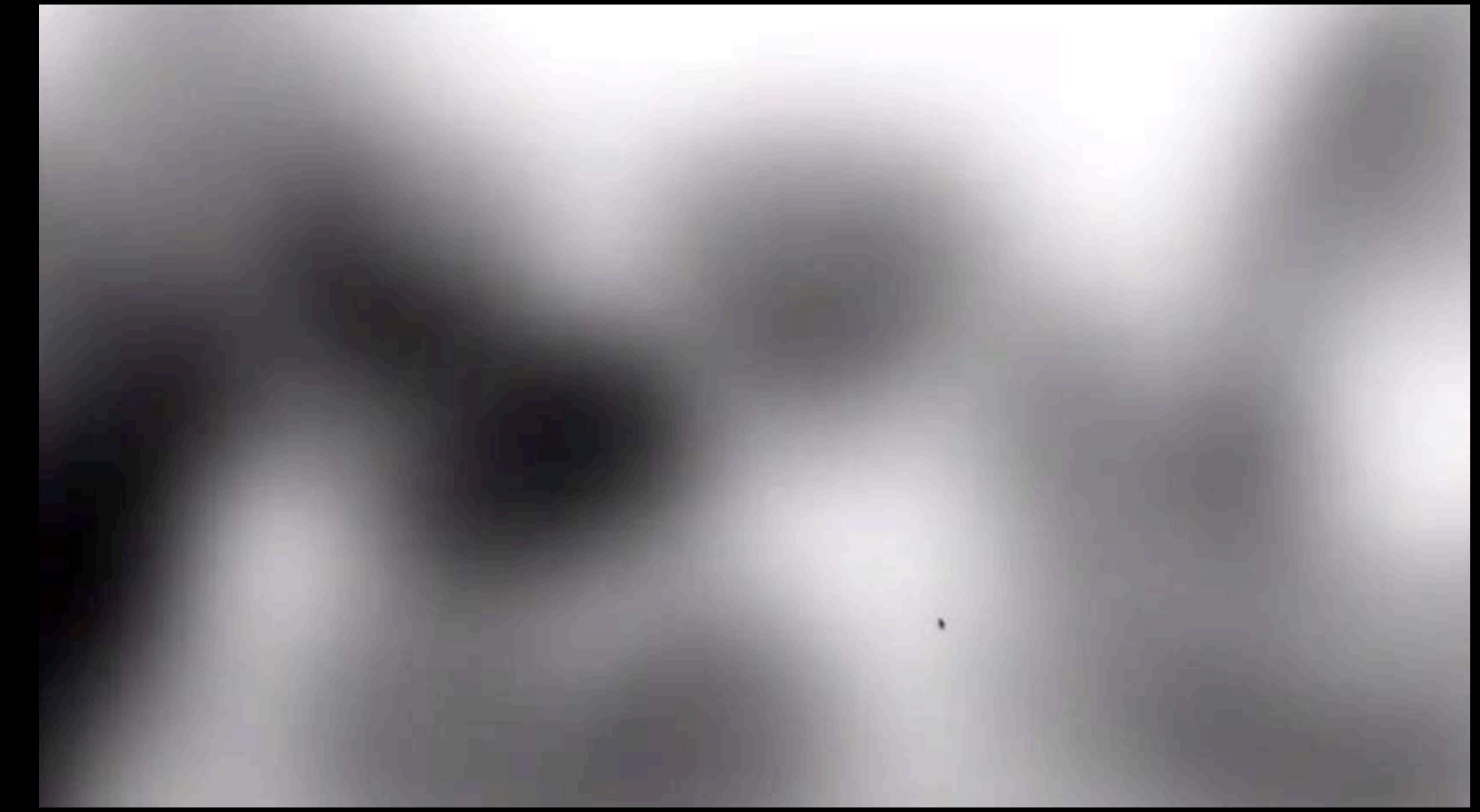


Amsterdam Sinfonietta feat. Thomas Hampson
Studio Dumbar (2020)
<https://studiodumbar.com/work/amsterdam-sinfonietta>



Coded Design:

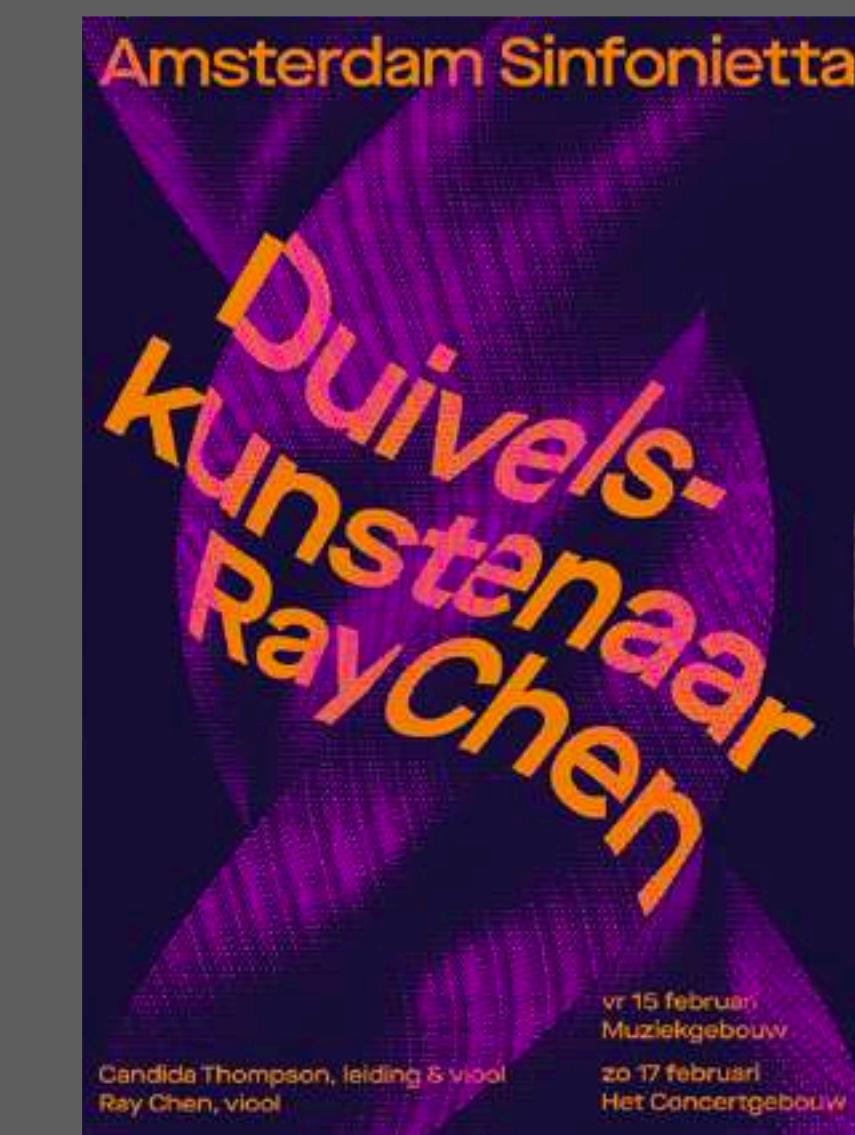
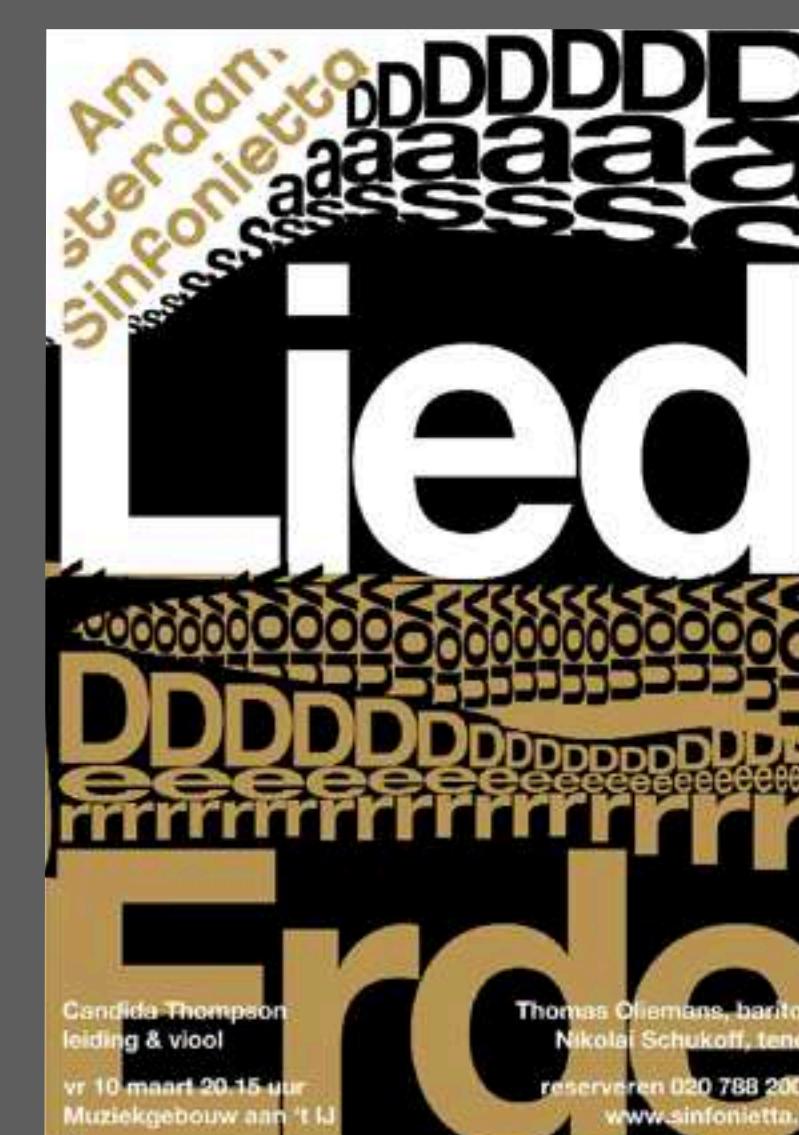
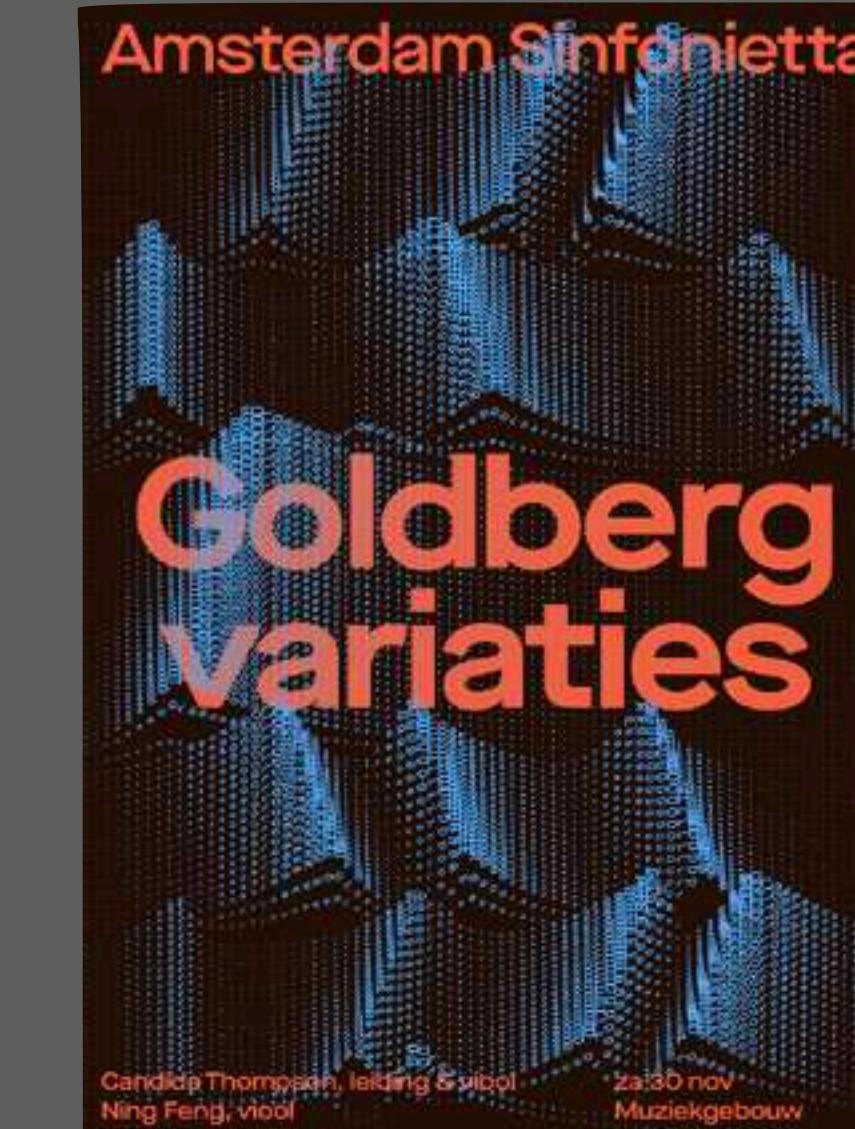
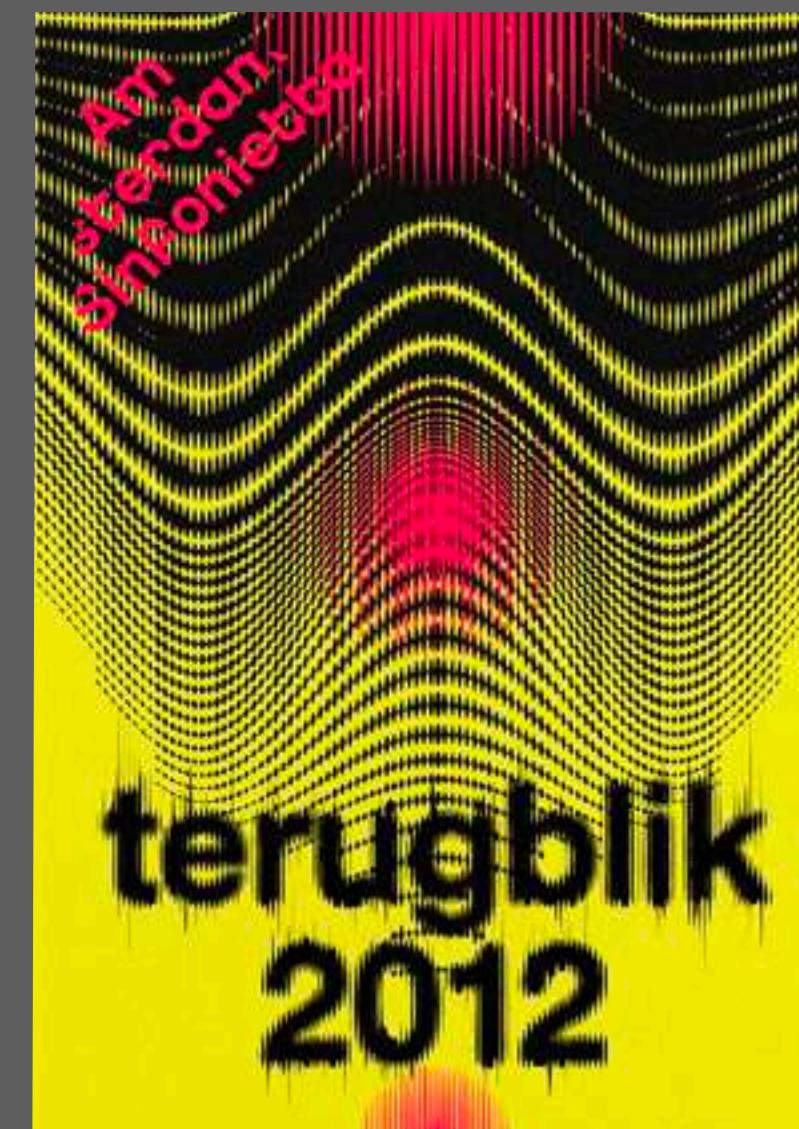
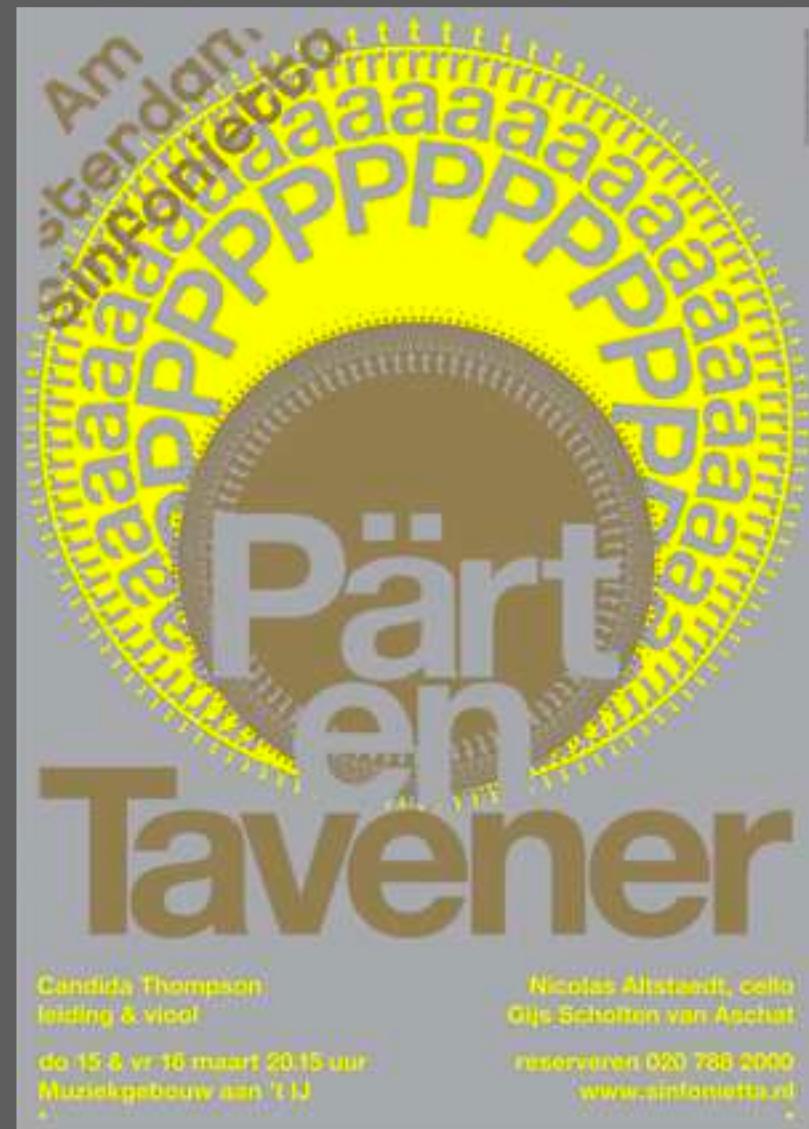
Typographic grid where individual size of the letters is calculated from a grayscale value



Motion Design:

Grayscale animation with »blobs« animated by a designer to match the vibe in the music

Amsterdam Sinfonietta Visual Identity in motion
Studio Dumbar (2018)
<https://vimeo.com/289255843>



Access a new world of
computational aesthetics

Wet_No_Wind ▾

Save New Reset

Scene

Light Position

Weather Override

wind	17
rain	0
temp	8

Simulation

dispersion	0.9
turbulence	0.37
speed	0.19
fadeAway	0.45
animate	✓
randomize	

Particles

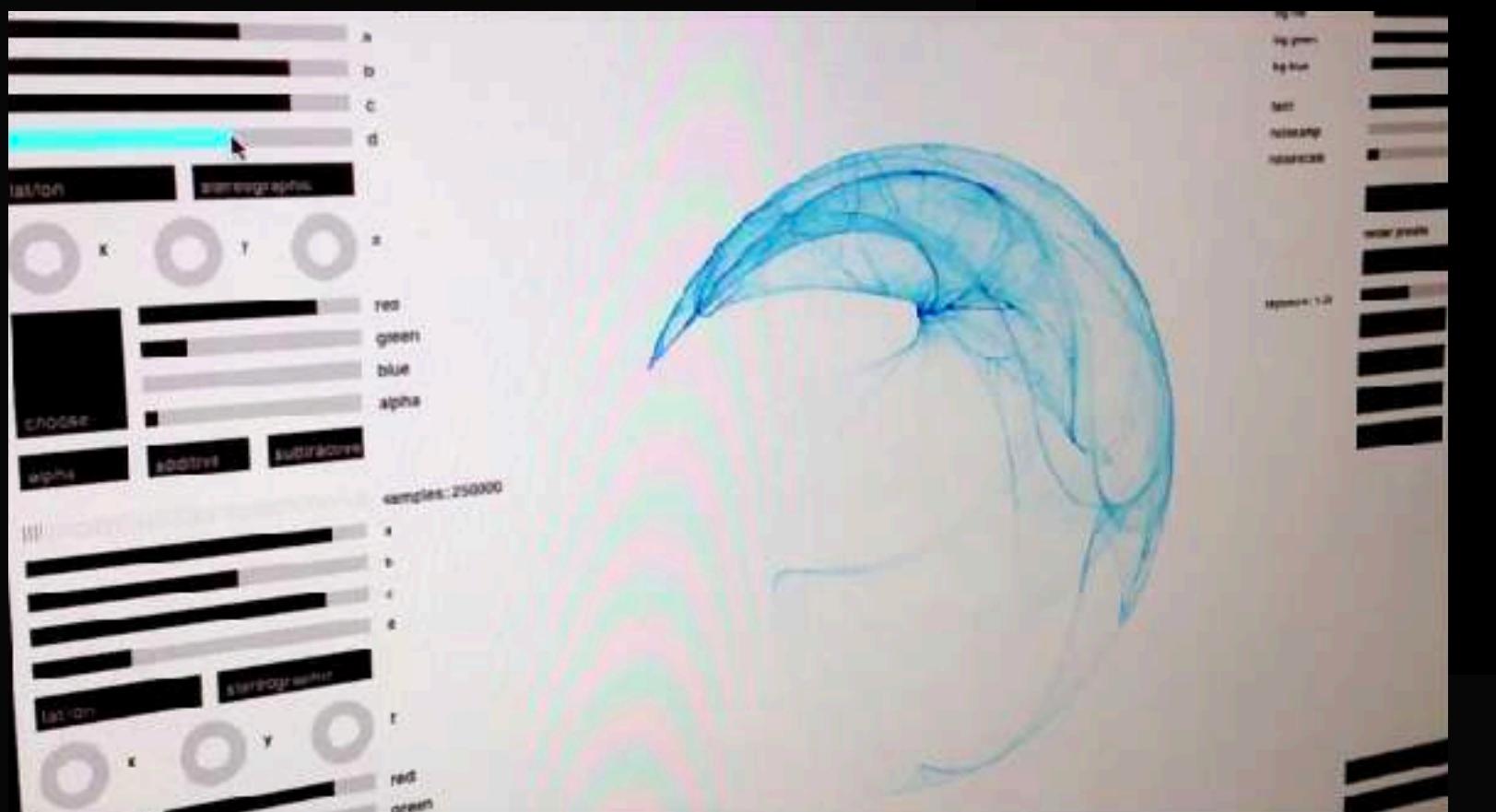
mesh	Sharp_Triangle ▾
scale	1
scale_X	1
scale_Y	1
scale_Z	1
color_Hue	5
color_Saturation	0.56
color_Value	1.5
line_Formation	0.76
line_Length	8
particleCount	18000
randomize	

Export / Save

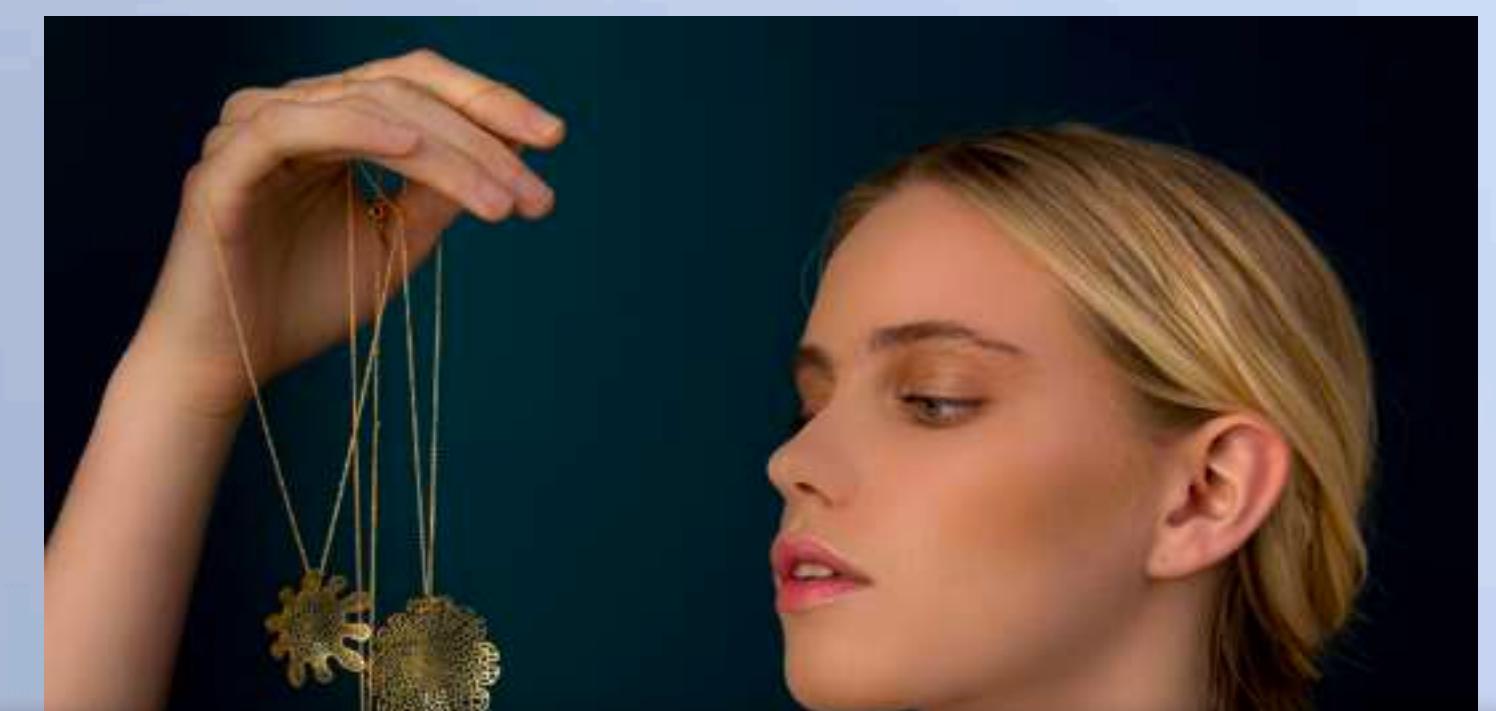
Close Controls

Brute – A brand crafted by the elements
Patrik Hübner (2018)
<https://www.patrik-huebner.com/work/brute-data-driven-wine-brand/>

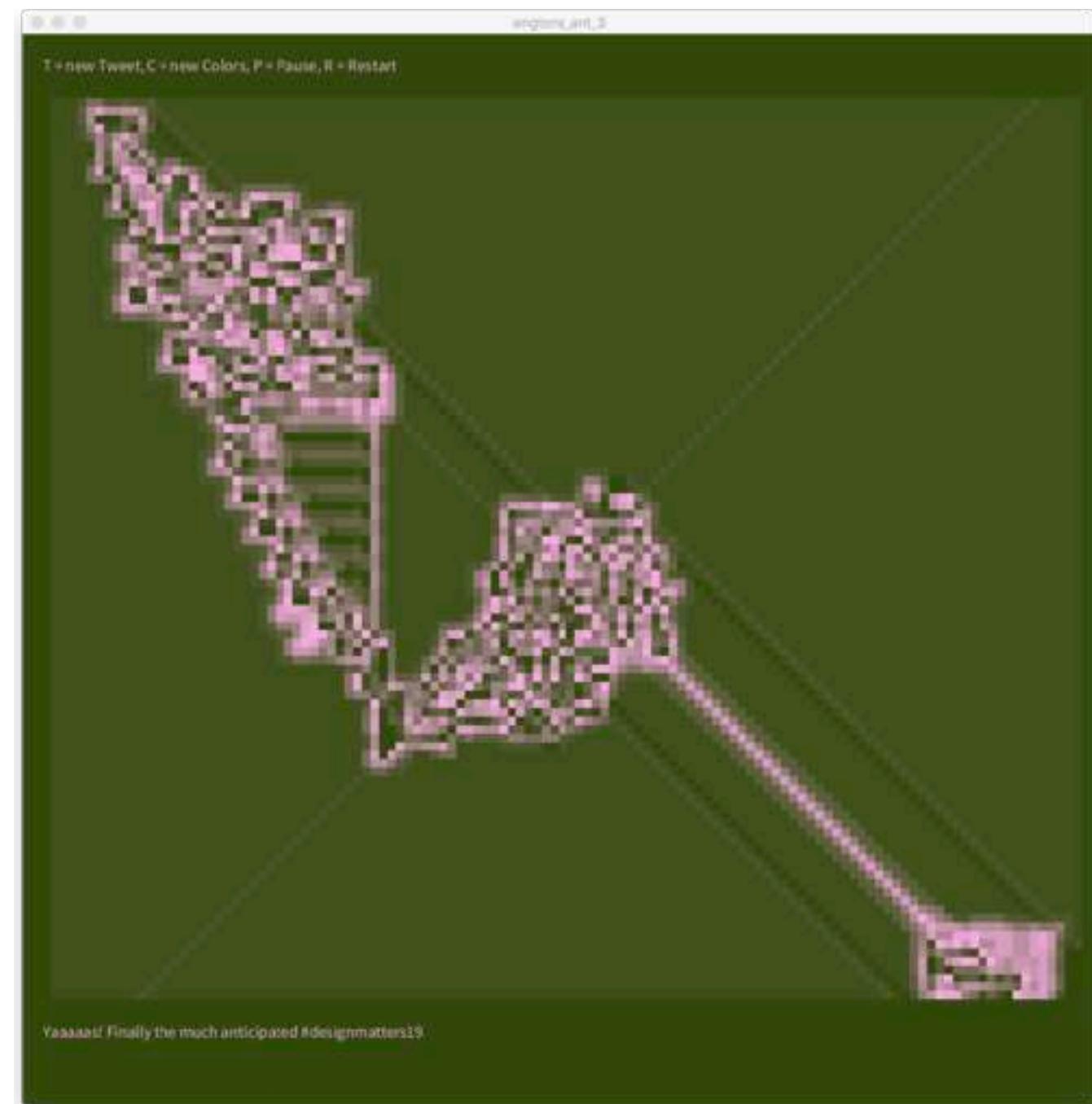




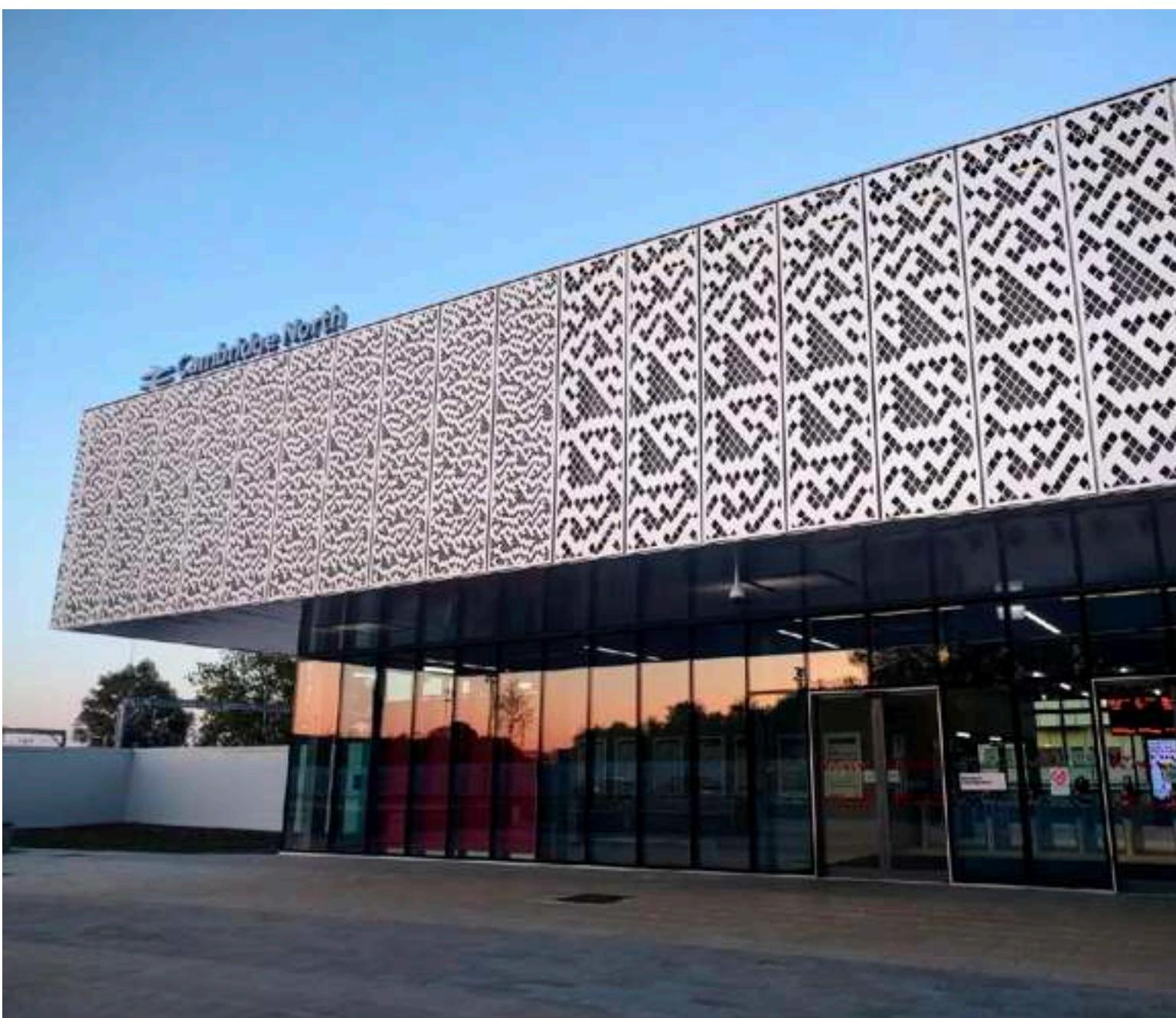
Leeds College of Music
Precedent & Karsten Schmidt (2013)
<https://vimeo.com/67382947>



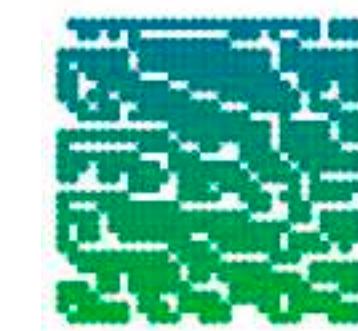
Corollaria Algorithmic Jewelry
Nervous Systems (2016)
<https://n-e-r-v-o-u-s.com/blog/?p=7465>



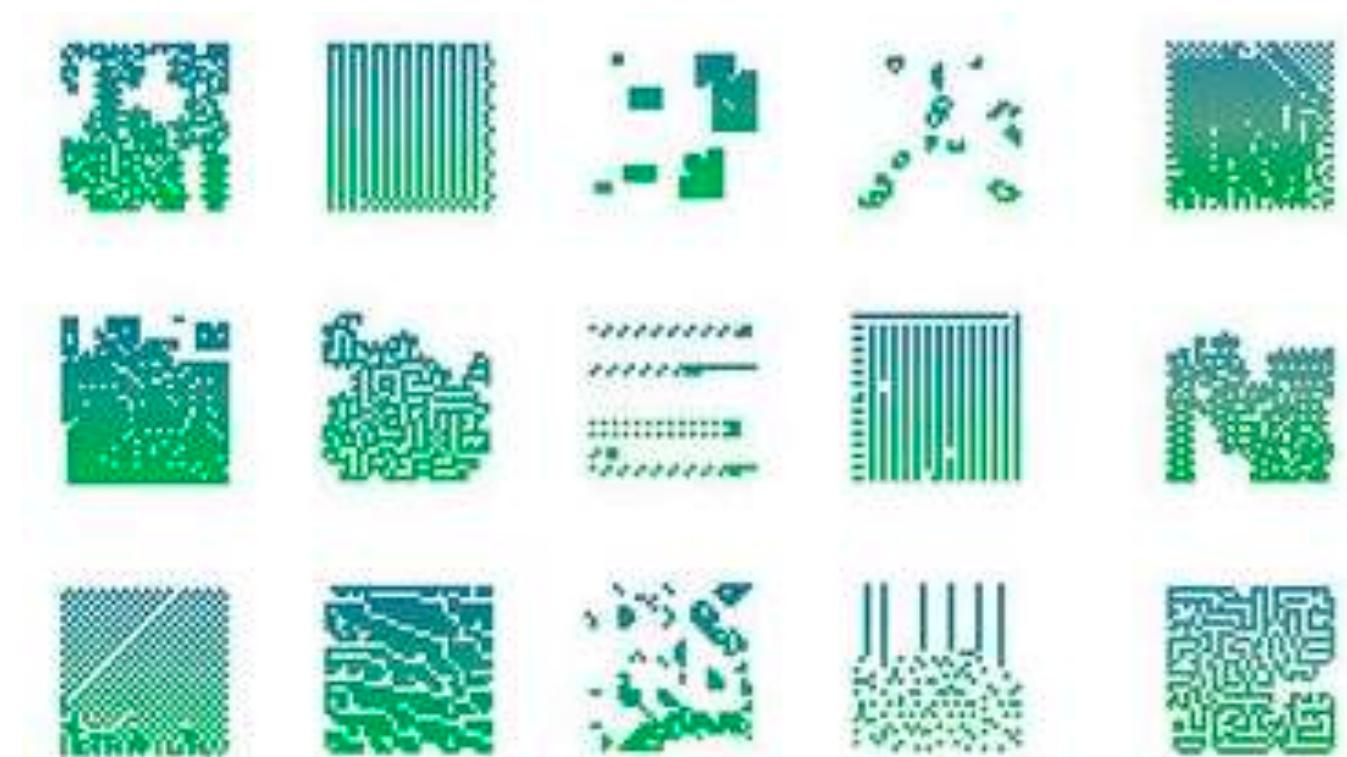
Tweet Visualization using Langton's Ant
(Eigil Mandrup Nicolajsen, 2021)



Facade cladding on Cambridge North
Station using Wolfram Rule 30
(Atkins Architects, 2017)



Max Planck Institute
of Molecular Cell Biology and Genetics



Speculative visual identity for Max
Planck Institute mimicing natural
selection, mutations and breeding
(Michael Schmitz, 2006)



Experimental book covers
(Michael Kosmicki, 2009)

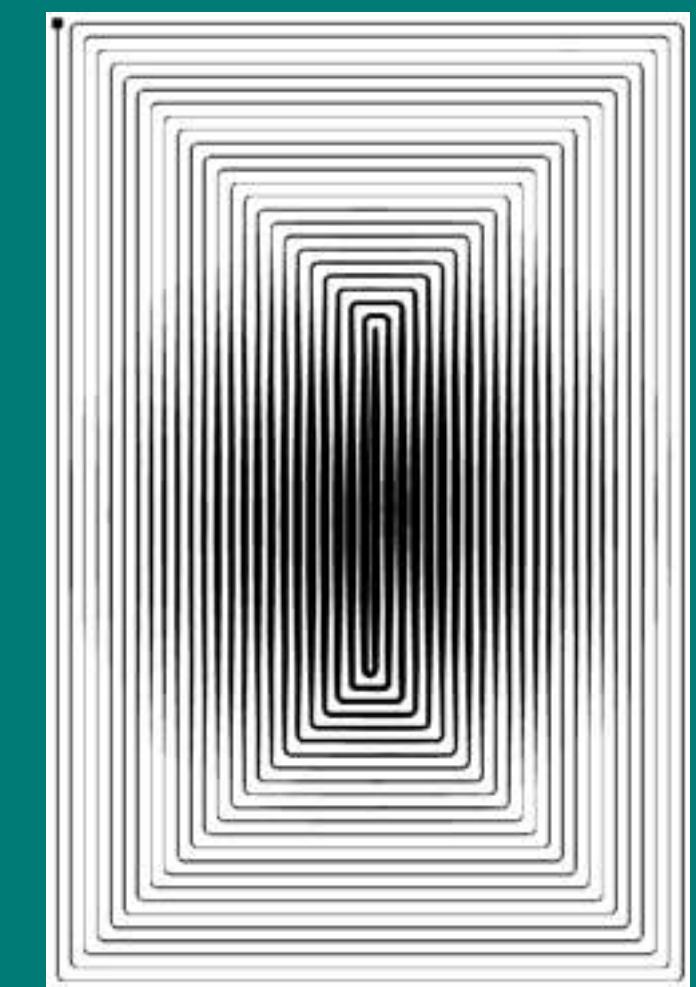
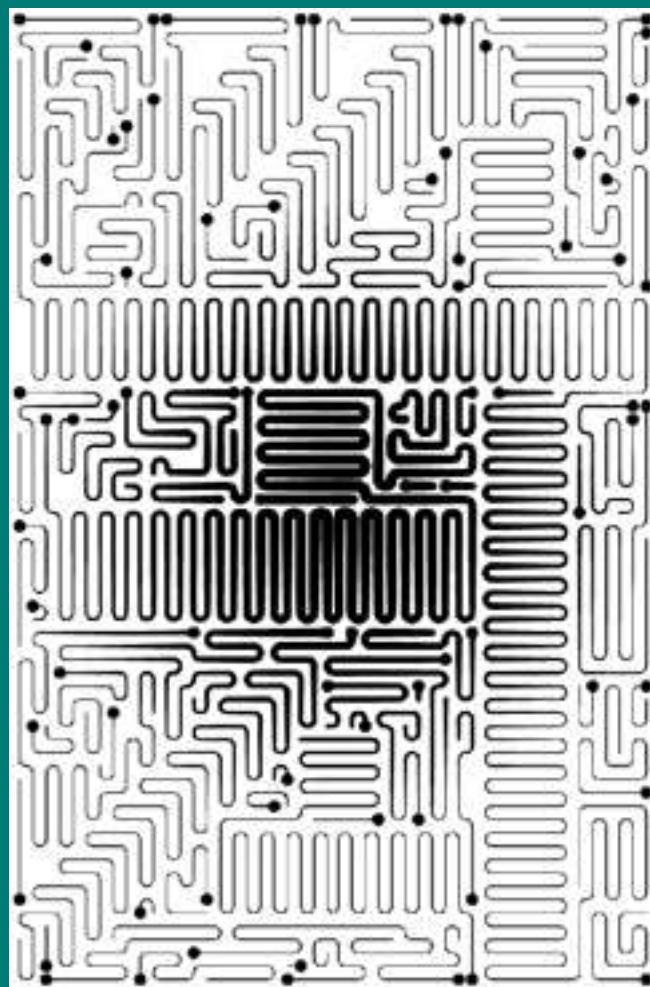
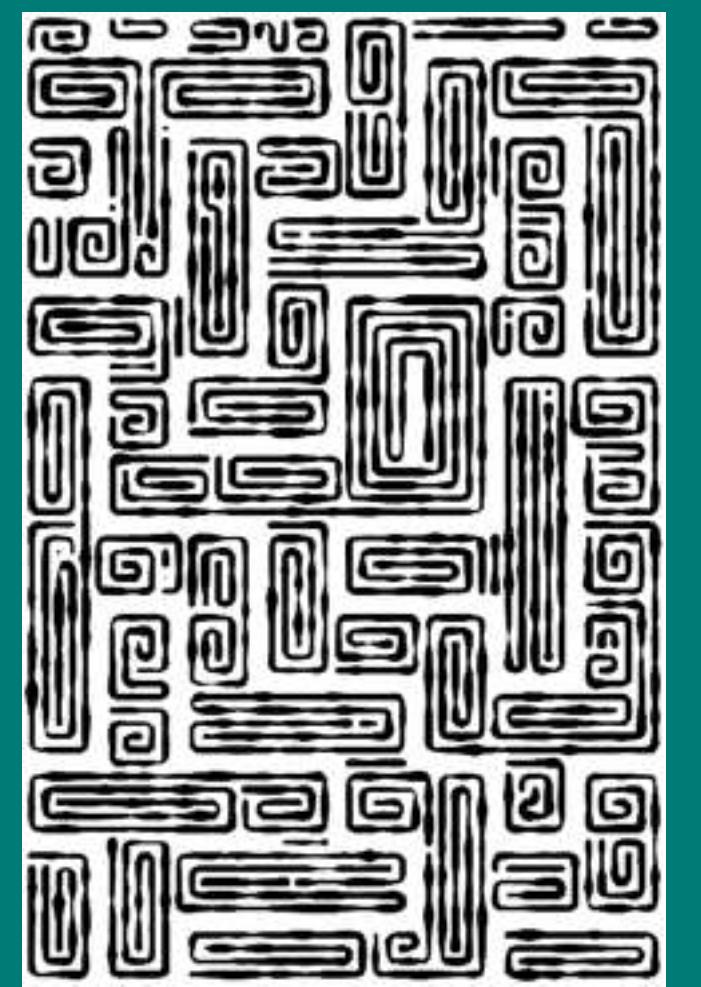
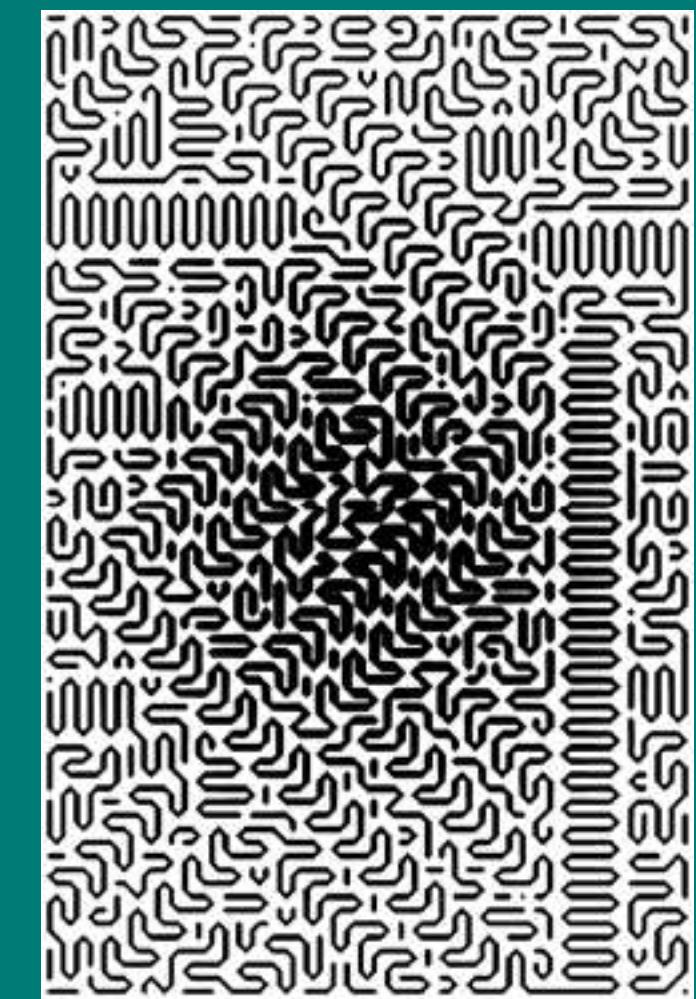
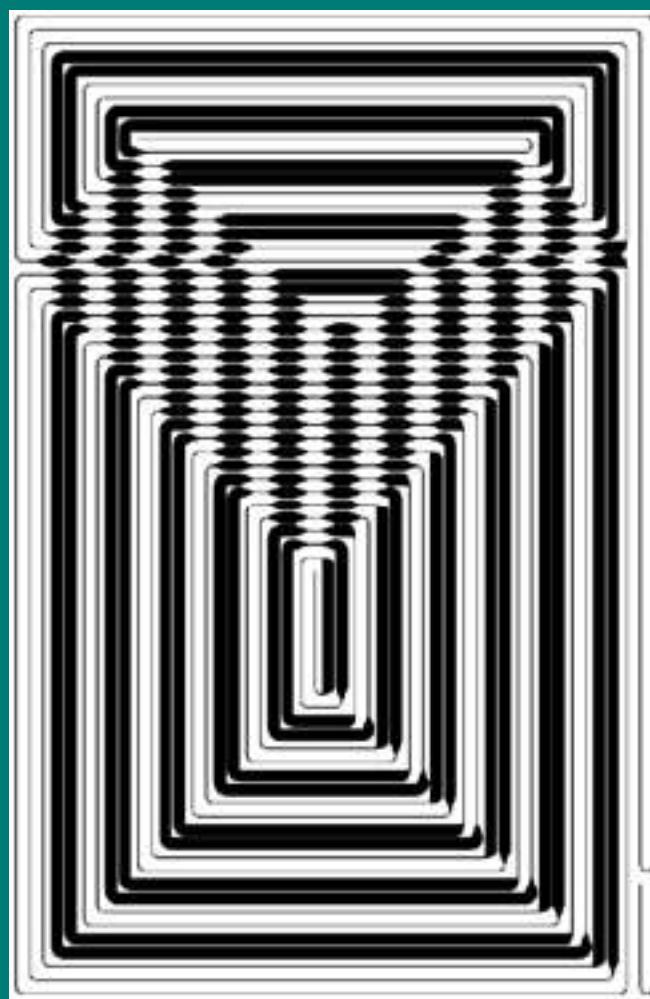
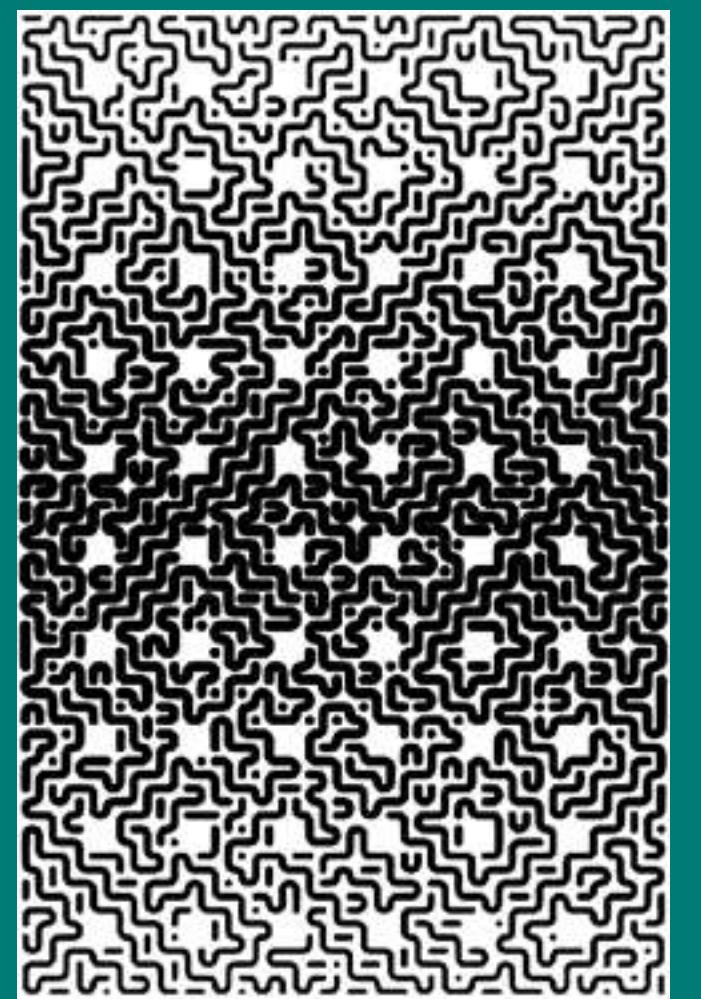
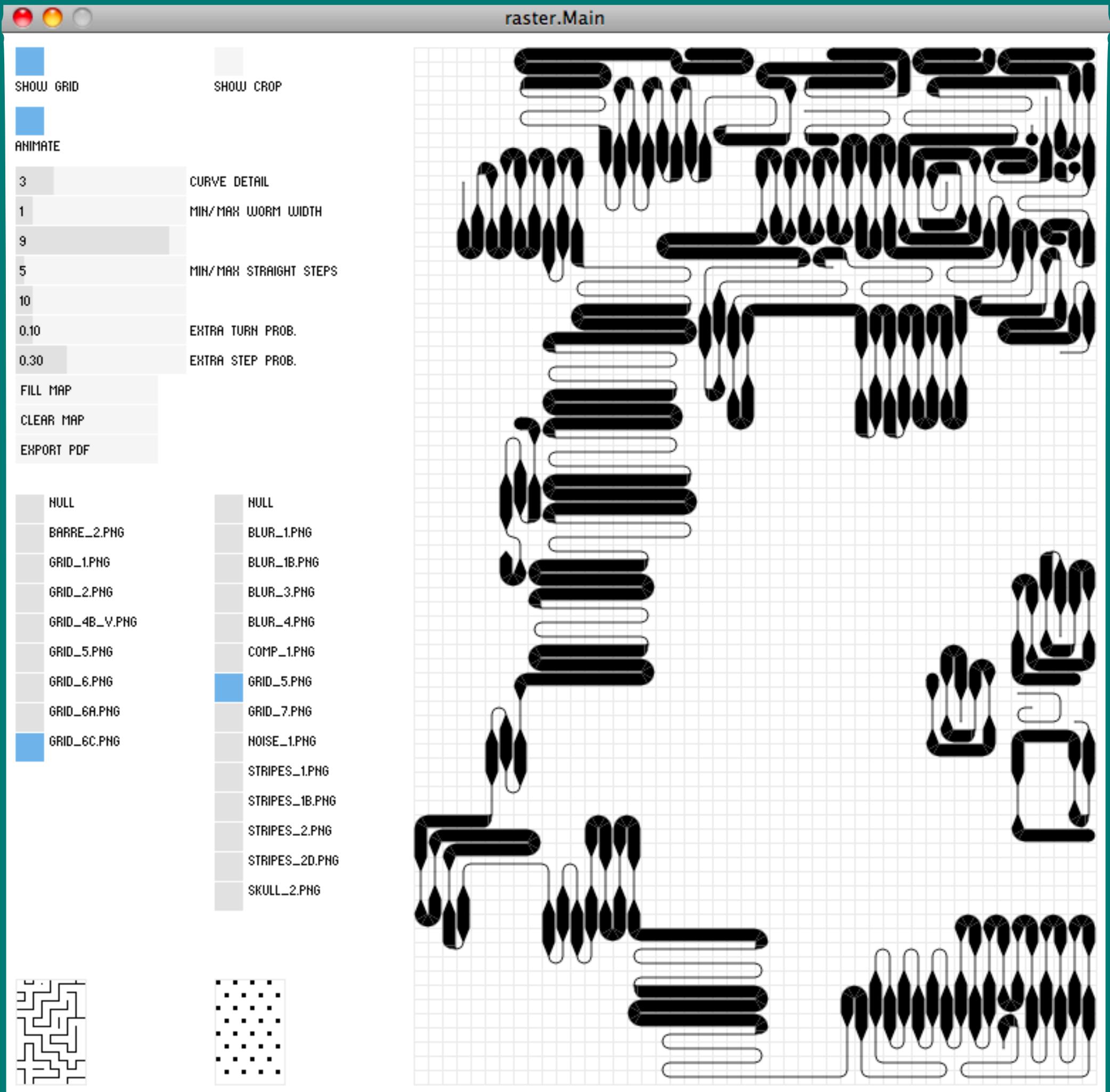


Glitch Throw Pillow (Berg, 2010-)
XOR DDoS scarf (glitchtextiles.com, 2012)

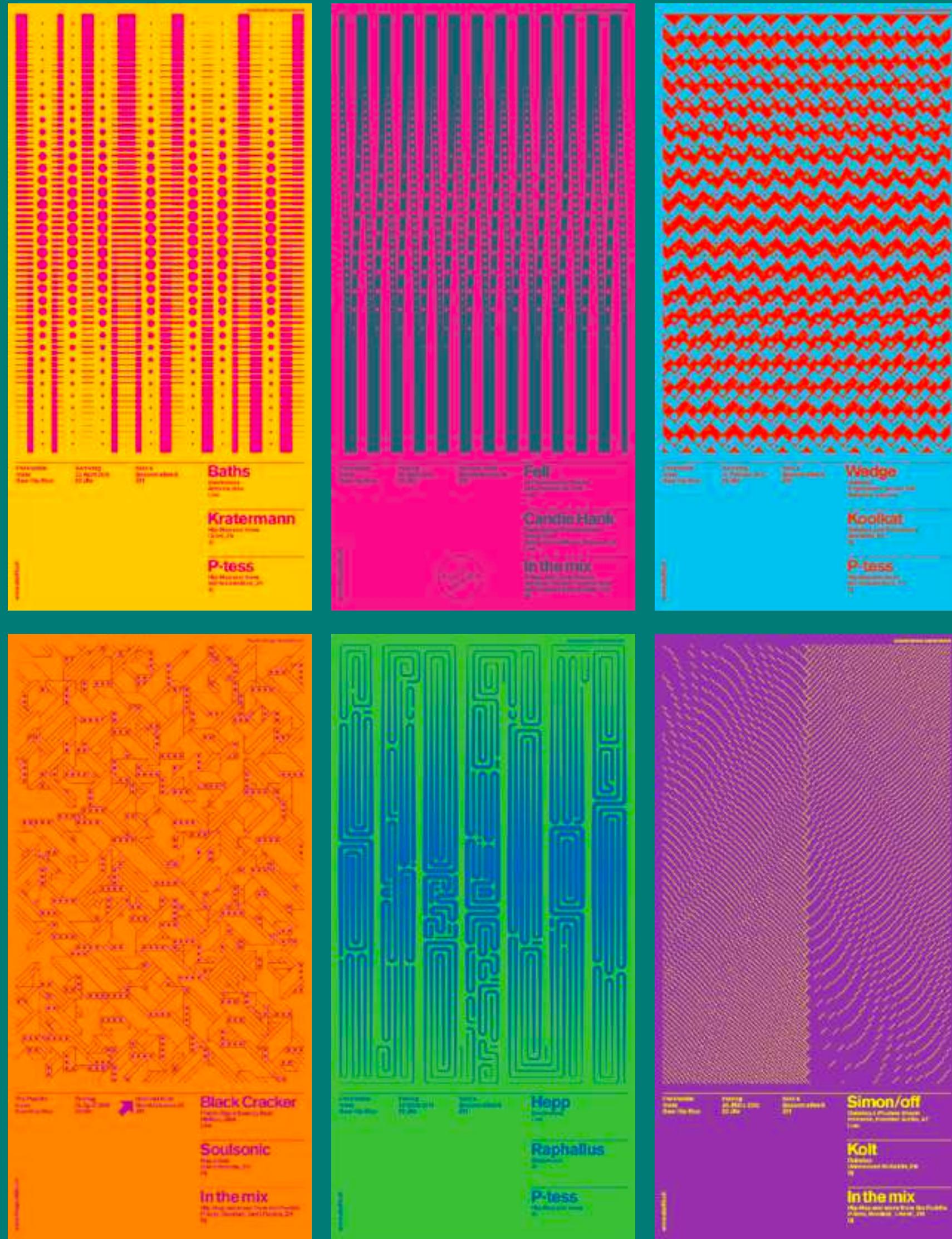
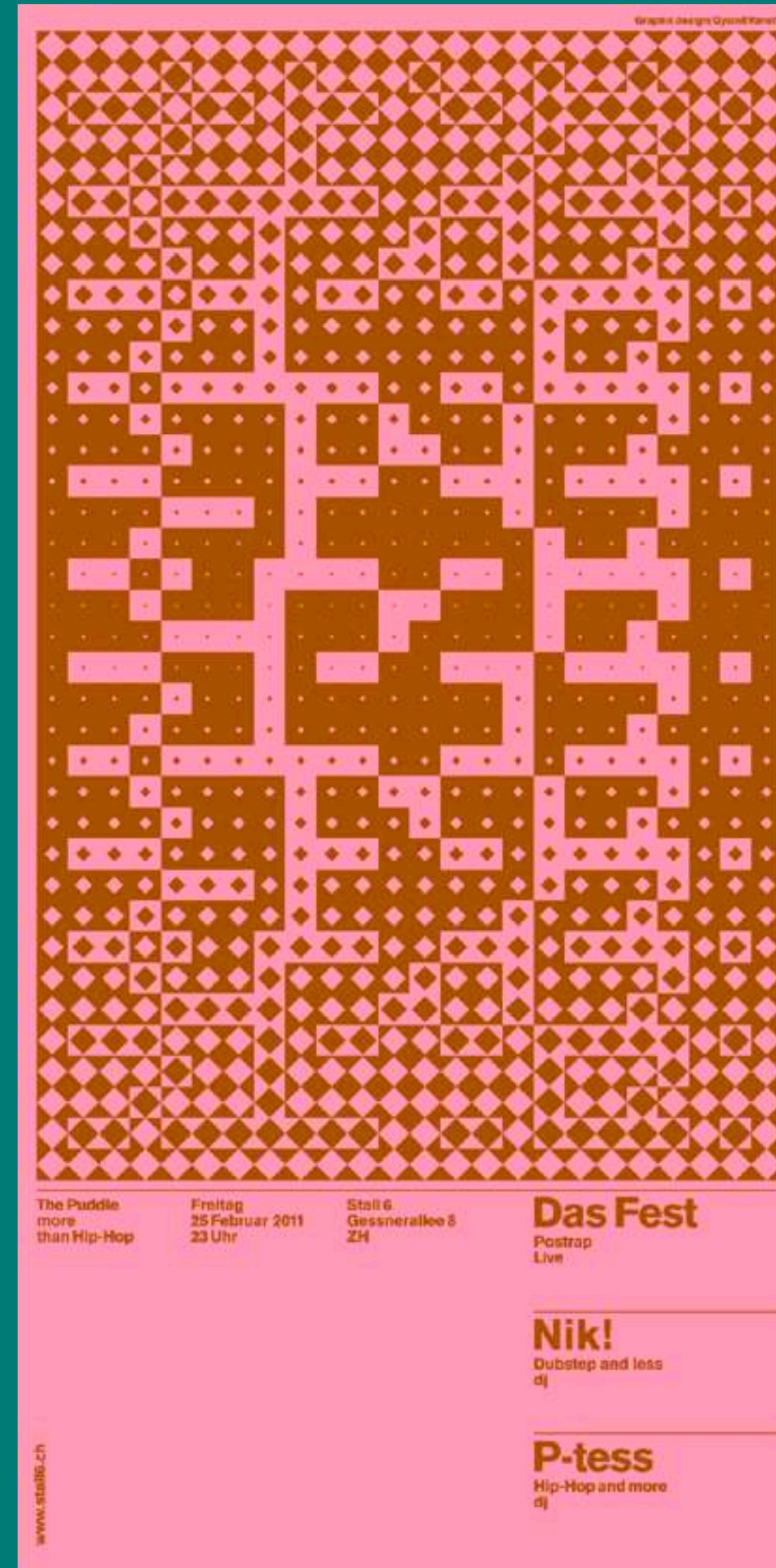
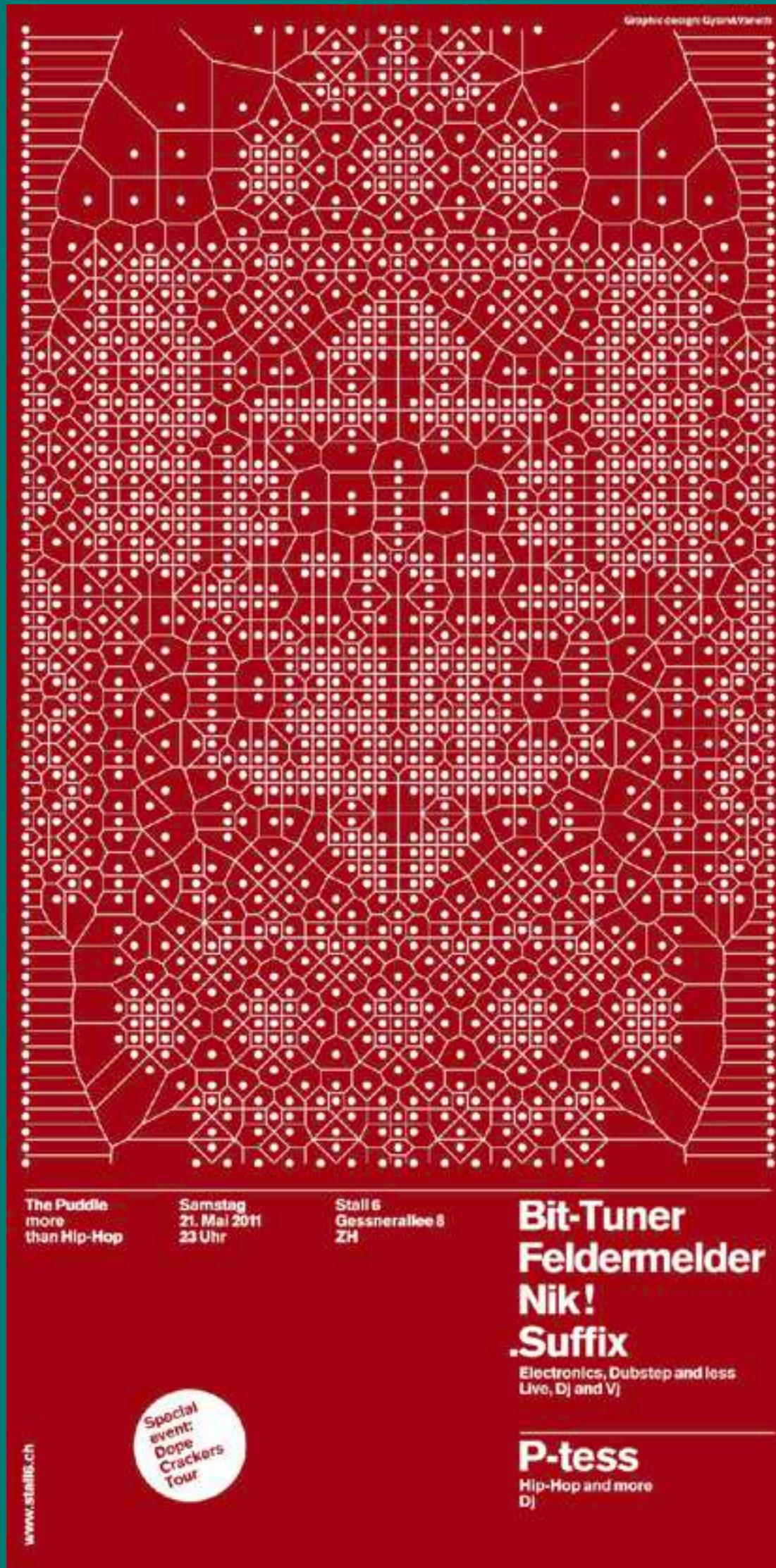


Poster for Pixelache Helsinki Festival
(Château Fort Fort, c. 2012)

Continue the century-old
tradition of designers being
toolmakers in the digital realm



The Puddle Builder (#3 in series of 13)
Andreas Gysin & Sidi Vanetti (2009-2014)
<https://ertdfgcvb.xyz/p2/the-puddle/index.html>



A screenshot of a web browser window showing the Mechanic website. The page has a blue header bar with a red circular icon on the left. The main content area has a blue background with white text that reads "TURN YOUR DESIGN RULES INTO DESIGN TOOLS". Below this is a large orange section featuring the Mechanic logo, which consists of the word "MECHANIC" in white on a red and blue background with a wavy shape. At the bottom of the orange section, there is descriptive text about the framework and a call-to-action button.

Mechanic

mechanic.design

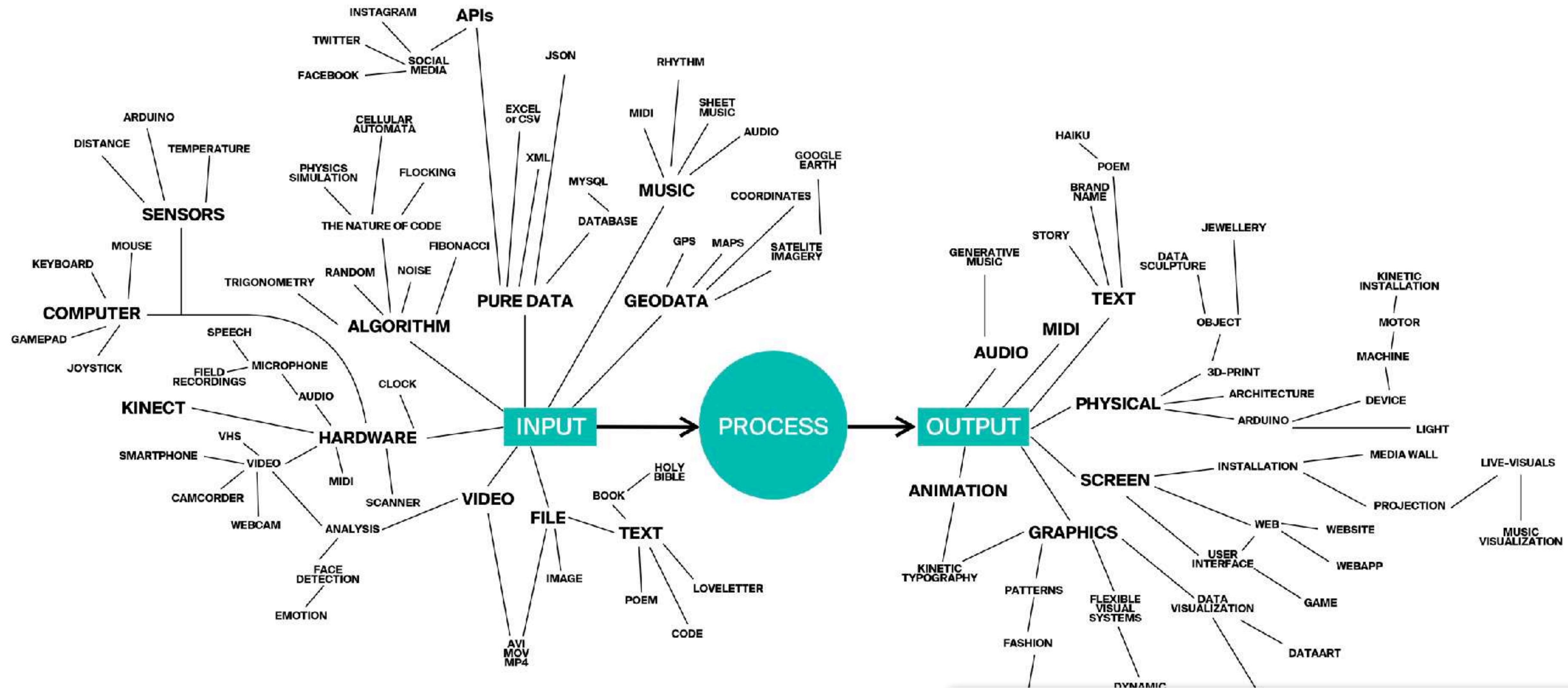
Get Started / Documentation / About

TURN YOUR DESIGN RULES INTO DESIGN TOOLS

Mechanic is an open source framework that makes it easy to create custom, web-based design tools that export design assets right in your browser.

SOUNDS GOOD? GET STARTED!

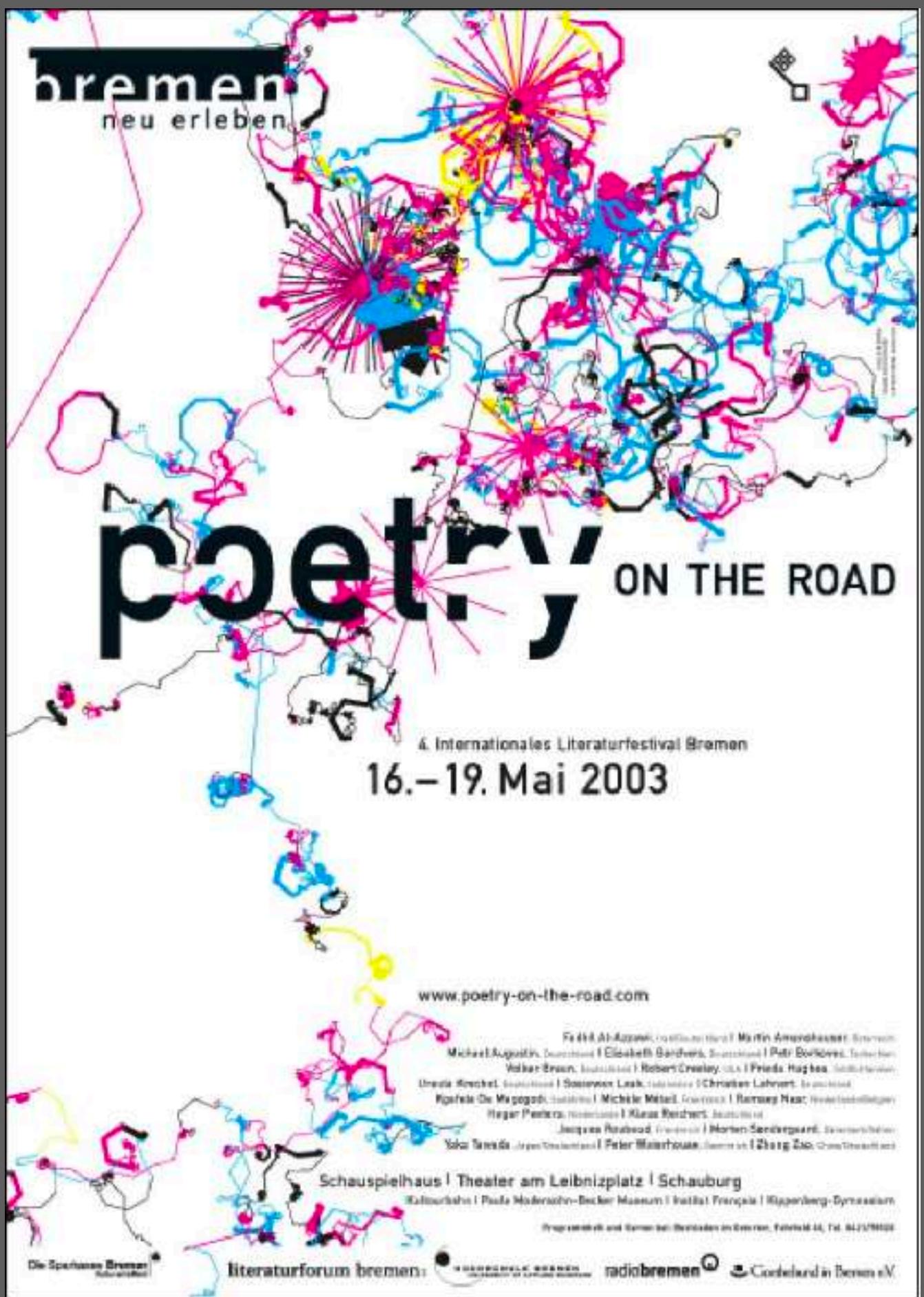
When you look at the world
with a computational mindset,
everything can be an input



Method

Patrik Hübner (2018)

<https://www.patrik-huebner.com/method/>



(Boris Müller, 2003)



(Boris Müller, 2010)



(Friederike Lambers, Boris Müller, Florian

Poetry On The Road (various years)
 Boris Müller et al. (2002-2013)
<https://esono.com/boris/projects/>

Designing with code begs
for cross-disciplinary
collaborations



Hansje van Halem
Graphic Designer
<http://www.hansje.net/>



Just van Rossum
Designer, Programmer
[@justvanrossum](https://justvanrossum.com)



Jurriaan Hos
Motion Designer
<https://jurriaanhos.com/>



The Lowlands Project 2018

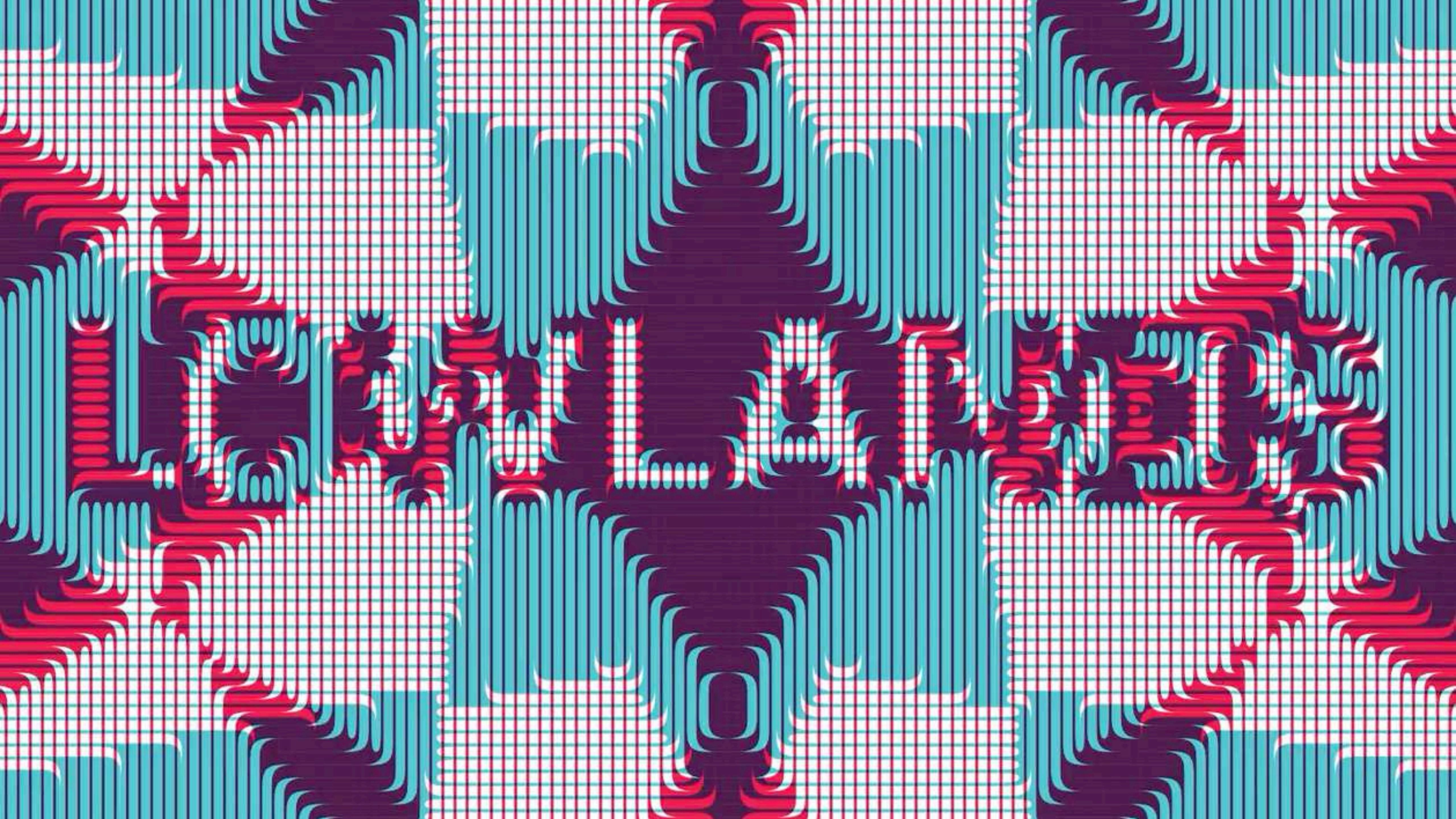
Hansje van Harlem, Just van Rossum & Jurriaan Hos (2018)
<http://www.hansje.net/Lowlands-2018>



The Lowlands Project

Just van Rossum (2018), talk @ Typographische Gesellschaft München e.v.
<https://www.youtube.com/watch?v=0KqtgxhOIVs>





Point 4 of 4:

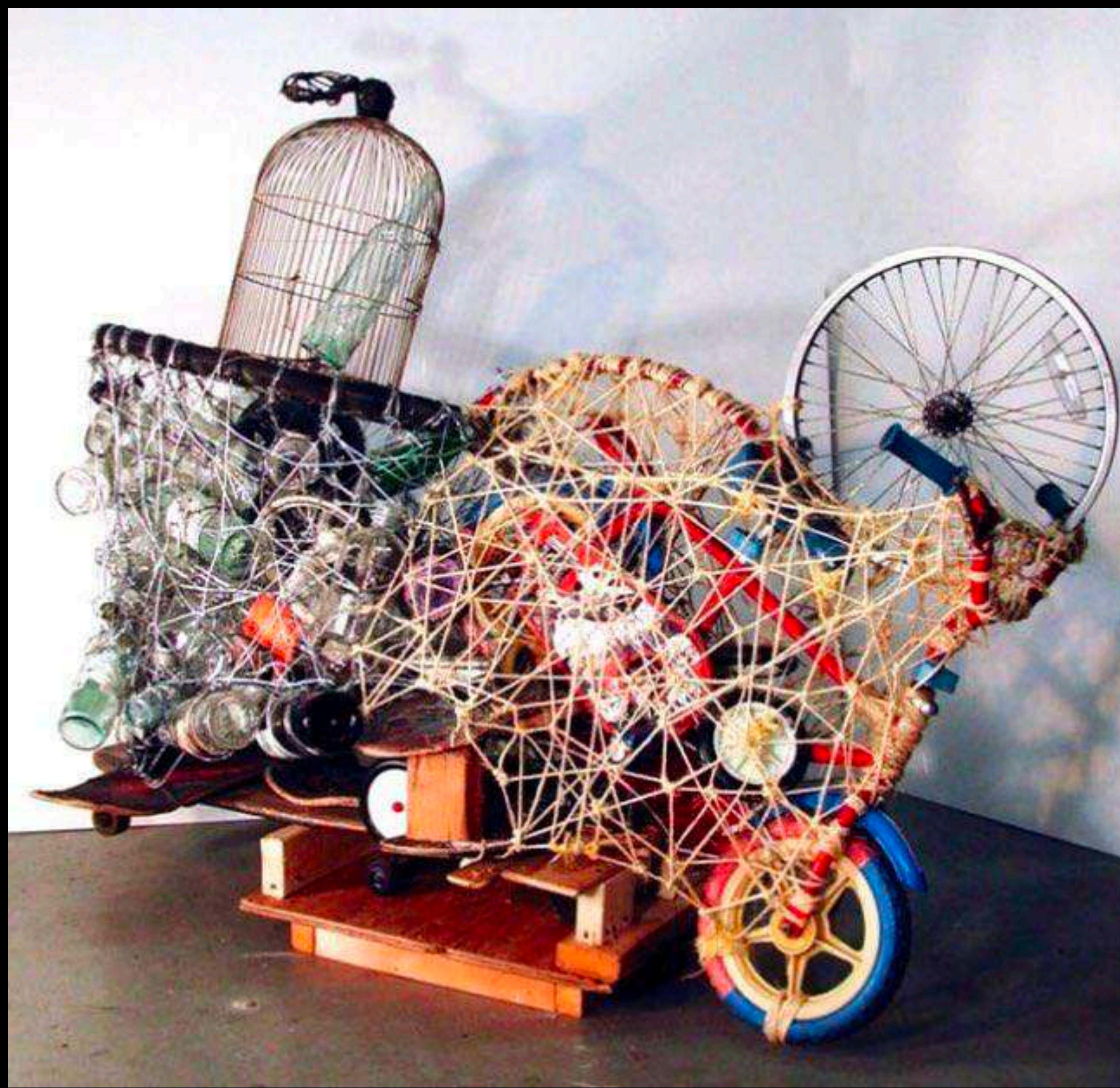
Learning to code
can be easy and fun

»Programming Tourist«

— Faramarz Amiri (2011)





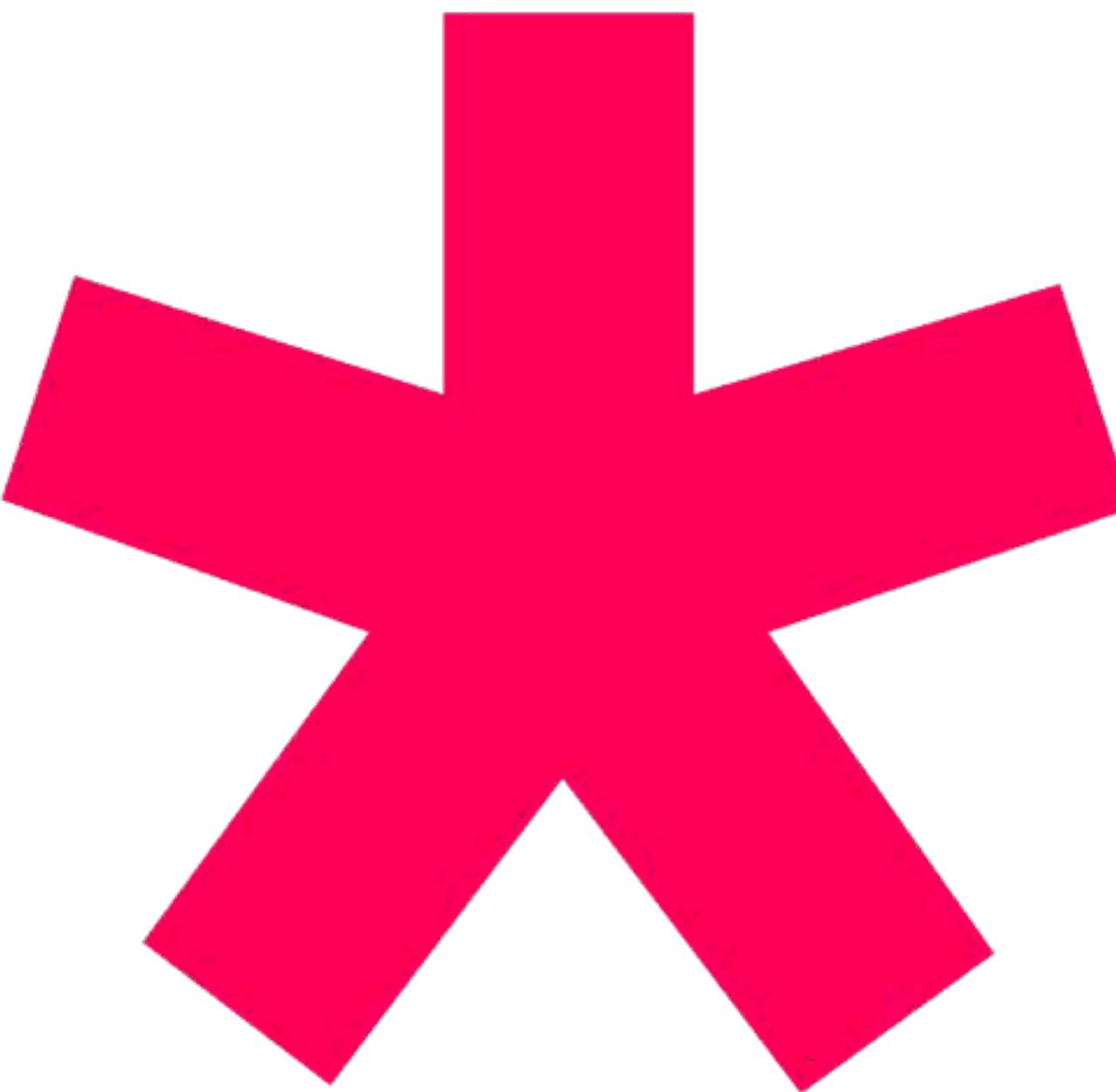




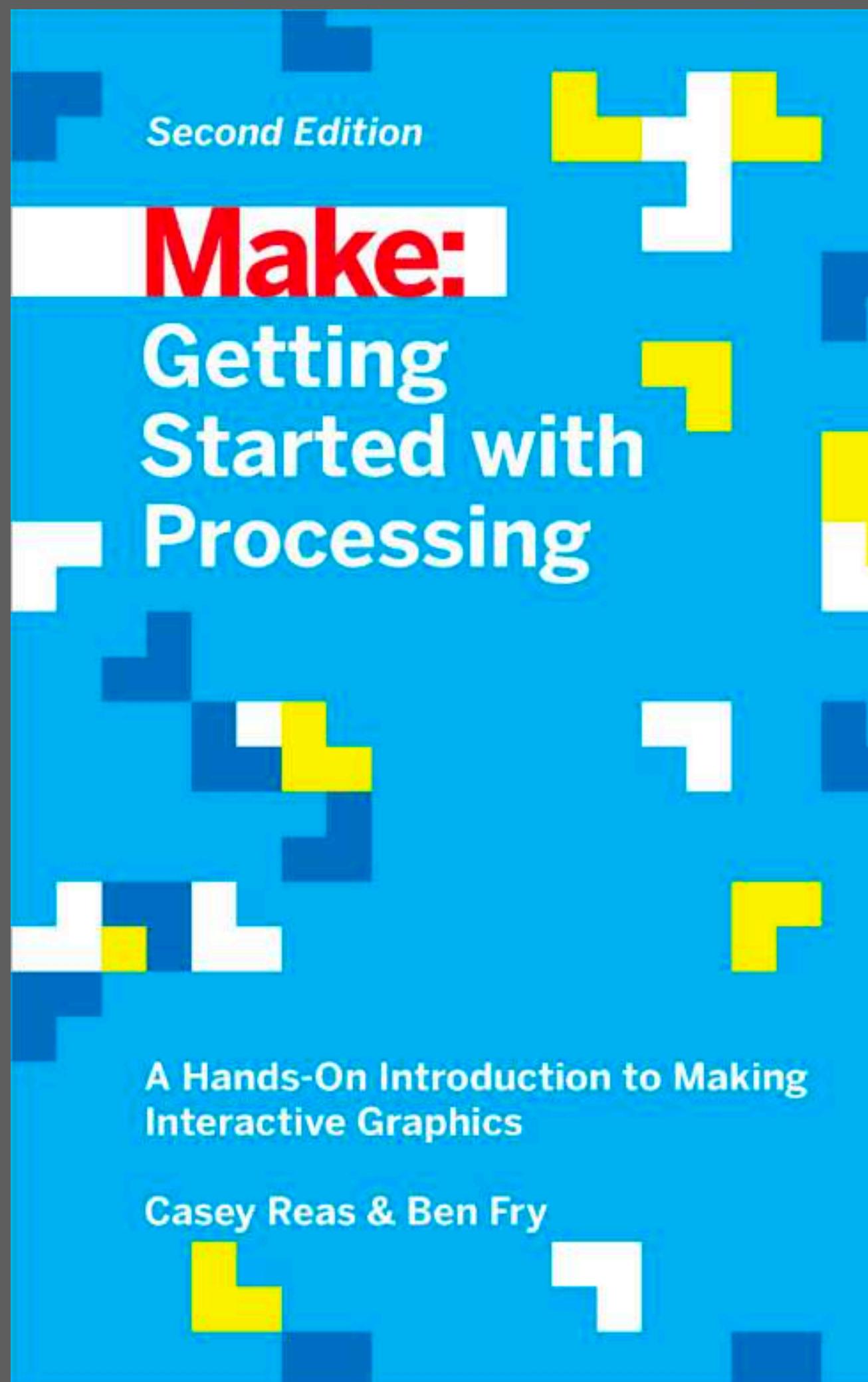




Processing



p5.js

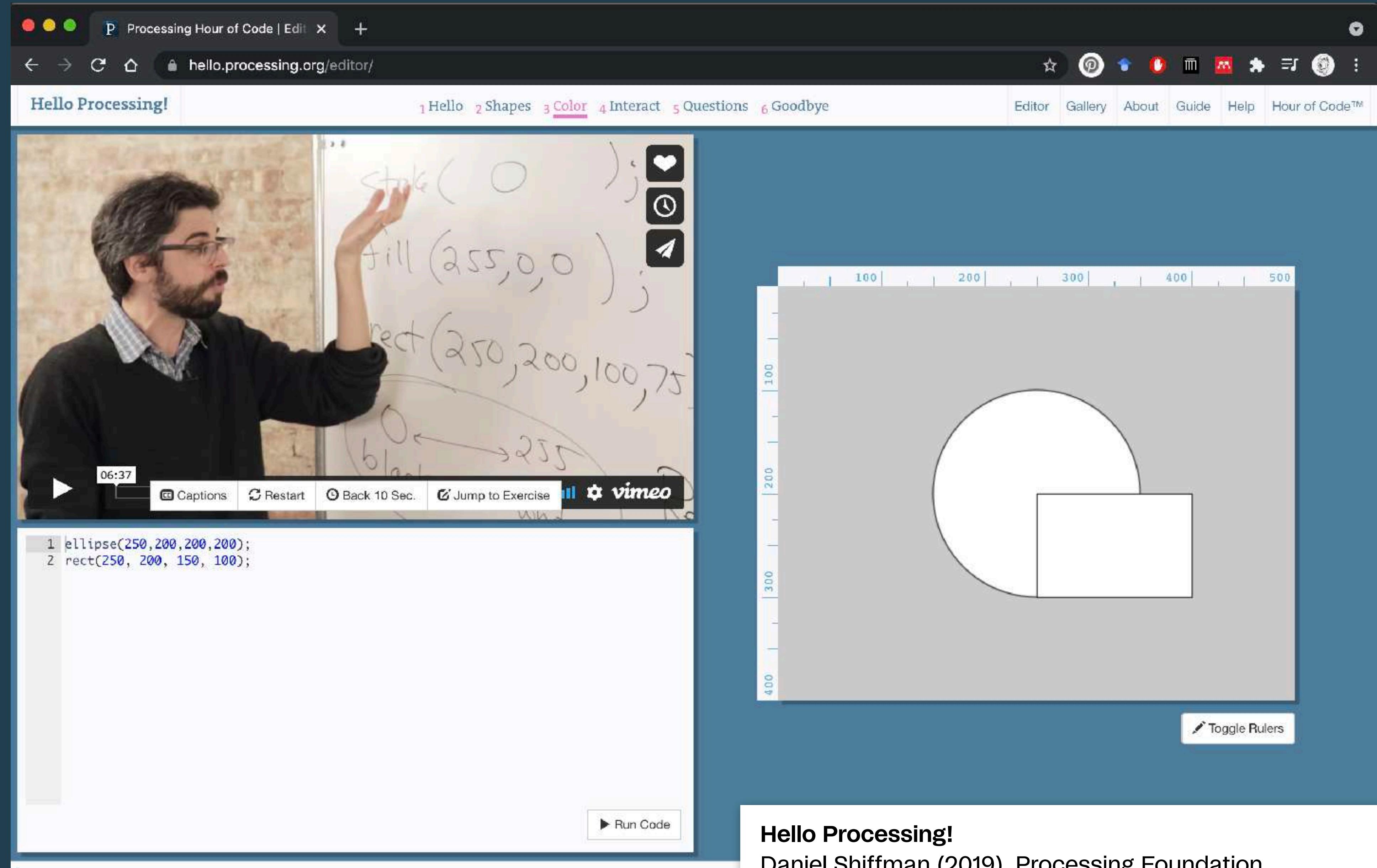


Make: Getting Started with Processing

Casey Reas & Ben Fry (2015, 2nd ed.), O'Reilly Media
<https://www.oreilly.com/library/view/make-getting-started/9781457187070/>

Make: Getting Started with p5.js

Lauren McCarthy, Casey Reas & Ben Fry (2015-), O'Reilly Media
<https://www.oreilly.com/library/view/make-getting-started/9781457186769/>



Hello Processing!

Daniel Shiffman (2019), Processing Foundation
<https://hello.processing.org/>



Auto-refresh

Chapter 3 - oscillating motion OOP by codingtrain

Saved: 1 minute ago

Preview

```
> sketch.js •
23     waves[i] = new Wave(random(20, 80), random(100, 200));
24   }
25 }
26
27 function draw() {
28   background(0);
29
30   for (let x = 0; x < width; x += 10) {
31     let y = 0;
32     for (let wave of waves) {
33       y += wave.evaluate(x);
34     }
35     noStroke();
36     ellipse(x, y + height / 2, 16);
37   }
38 }
```

```
for (let wave of waves)
  wave.update();
```

Coding Train

Daniel Shiffman (2015-), Youtube
<https://thecodingtrain.com/>



Clear ▾



im Gegensatz zu diesem Buch, dessen Farben wir durch das reflektierte und gefilterte Licht wahrnehmen, sind Computer wahre Quantenschleudern. Mit dem Blick auf den Monitor wird das Licht in unterschiedlichen Wellenlängen direkt in unser Auge geschickt und ist in Echtzeit manipulierbar. Die folgenden Beispiele zeigen Ihnen die wichtigsten technischen Aspekte und einige gestalterische Möglichkeiten von Farbe am Bildschirm.



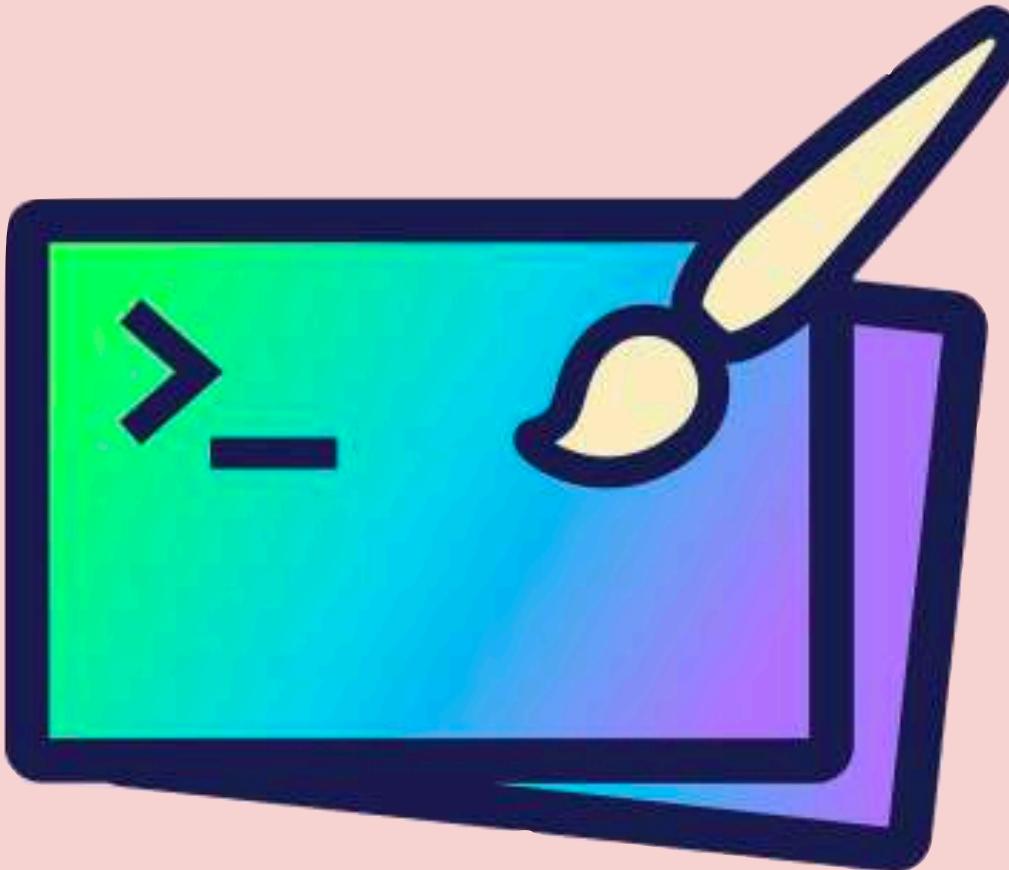
Code as Creative Medium

Golan Levin and Tega Brain (2021), The MIT Press

<https://mitpress.mit.edu/books/code-creative-medium>

A screenshot of a GitHub README.md page. The title is "Why this document?". The text explains that the page is the opposite of "awesome" curated lists, being incomplete and hand-picked. It then lists various categories for creative coding:

- I want to make music!
- I want to use my existing coding skills to make art
- I want to make visuals
- I'm dancer / choreographer and want to make a show with videos!
- I want to make games!
- No! I want to make even stranger games!
- I want to make art on the internet
- I'm a student
- I'm a parent / kid
- I'm an architect
- I'm an artist
- I'm a poet
- I'm a designer
- I want a drawing robot
- I want to build a robot!
- Now I know how to draw lines and circles, what's next?
- Thanks!



AWESOME CREATIVE CODING

Creative Coding Minilist

Naoto Hieda & Raphaël de Courville (2021), Github

<https://github.com/CreativeCodeBerlin/creative-coding-minilist>

Awesome Creative Coding

Terkel Gjervig & contributors (2016-), Github

<https://github.com/terkelg/awesome-creative-coding>

Summing up

Design and code have a lot in common.

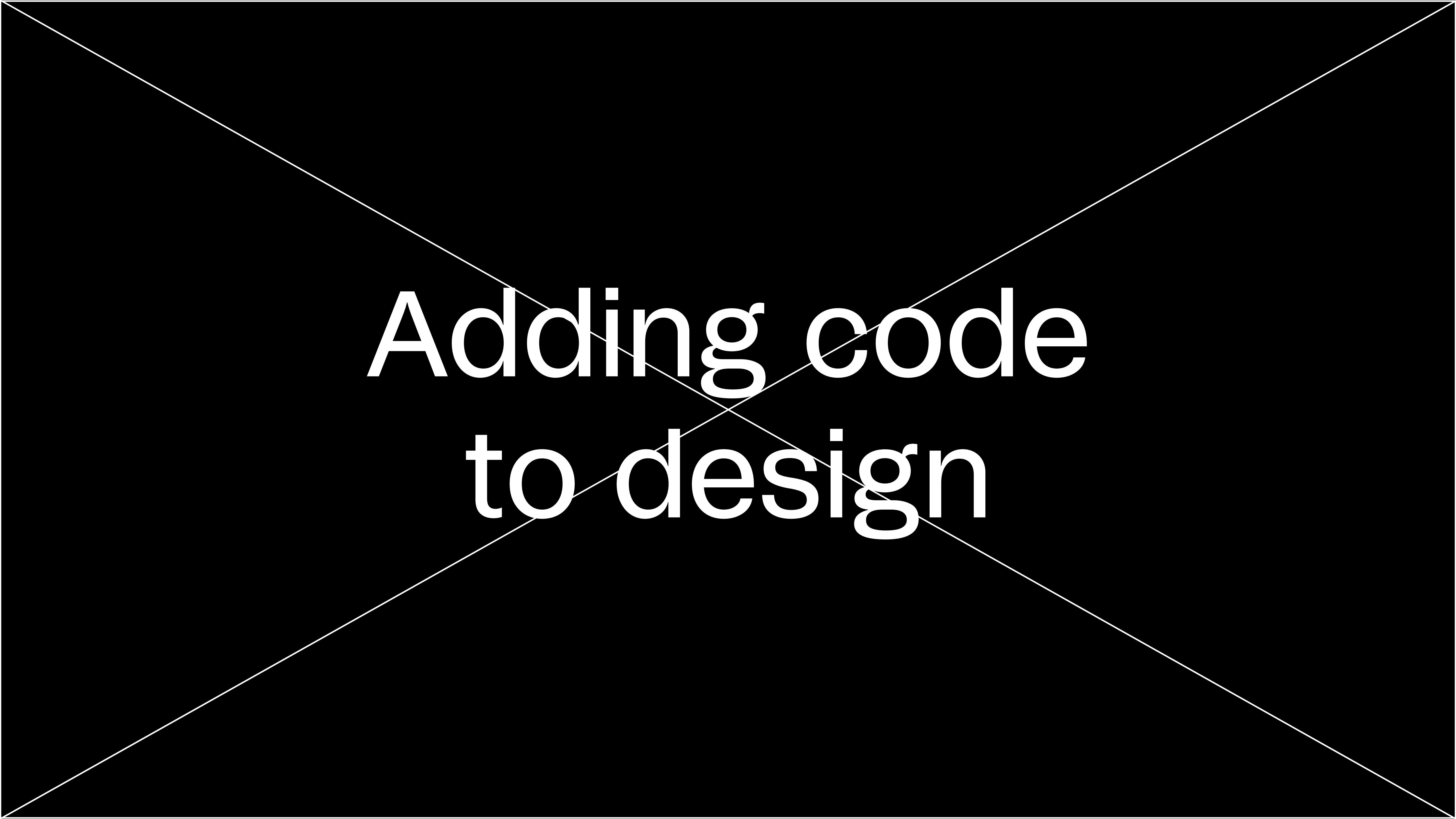
Code will increasingly blend into designers' future practice.

Blending design and code yields lots of benefits.

Learning to code can (and should) be easy and fun!

If code doesn't tickle your fancy: Fine! It's not for everyone.

So...



Adding code
to design

Will it blend?







Get in touch: @ockley & @Stixan

