

GENERATIVE ART

Brief overview and case studies

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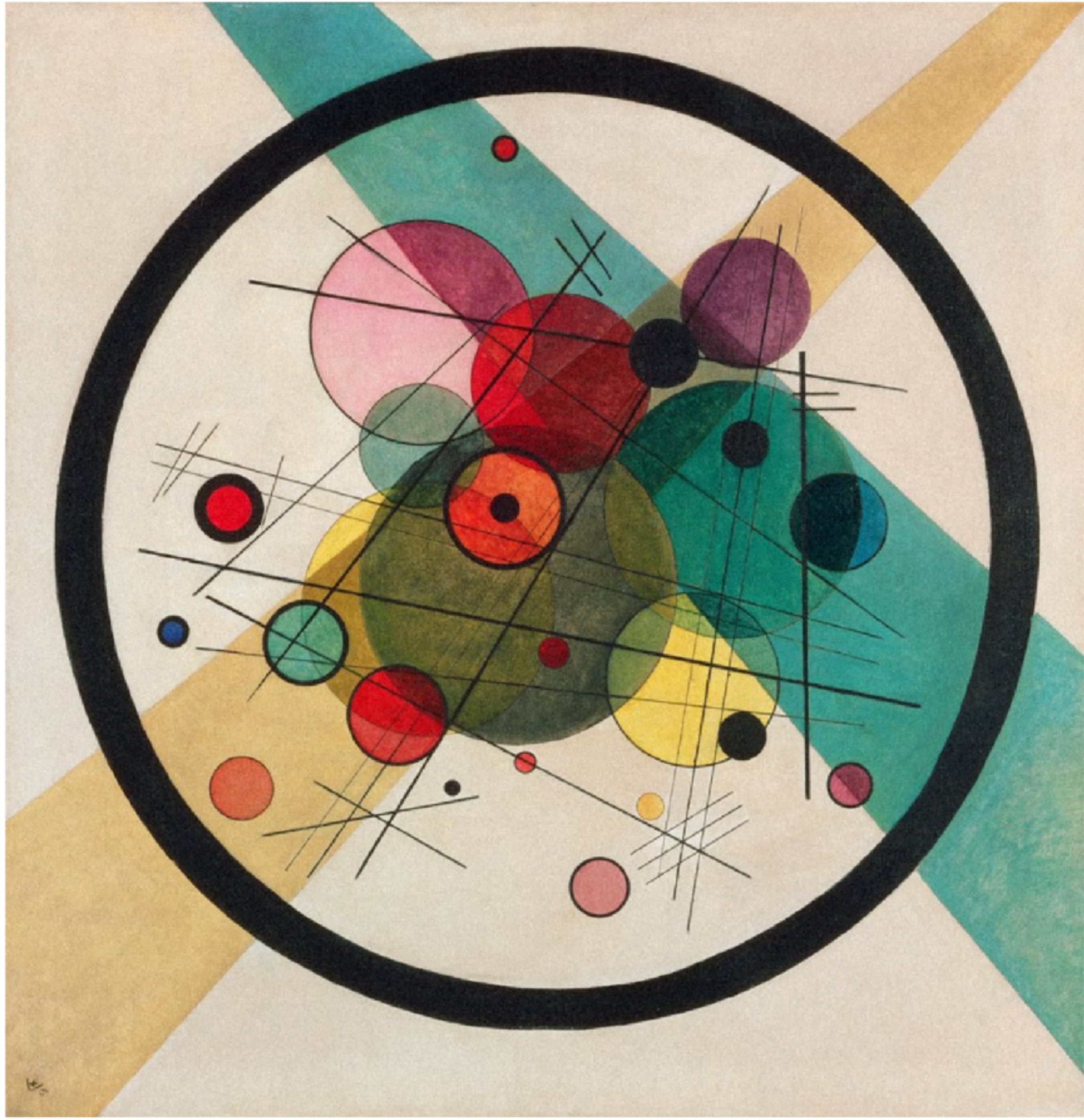
21/2/2023



Group IV, No. 3. The Ten Largest, Youth - Hilma af Klint, 1907



Suprematist Composition - Kasimir Malevich, 1916



Circles in a Circle - Wassily Kandinsky, 1923



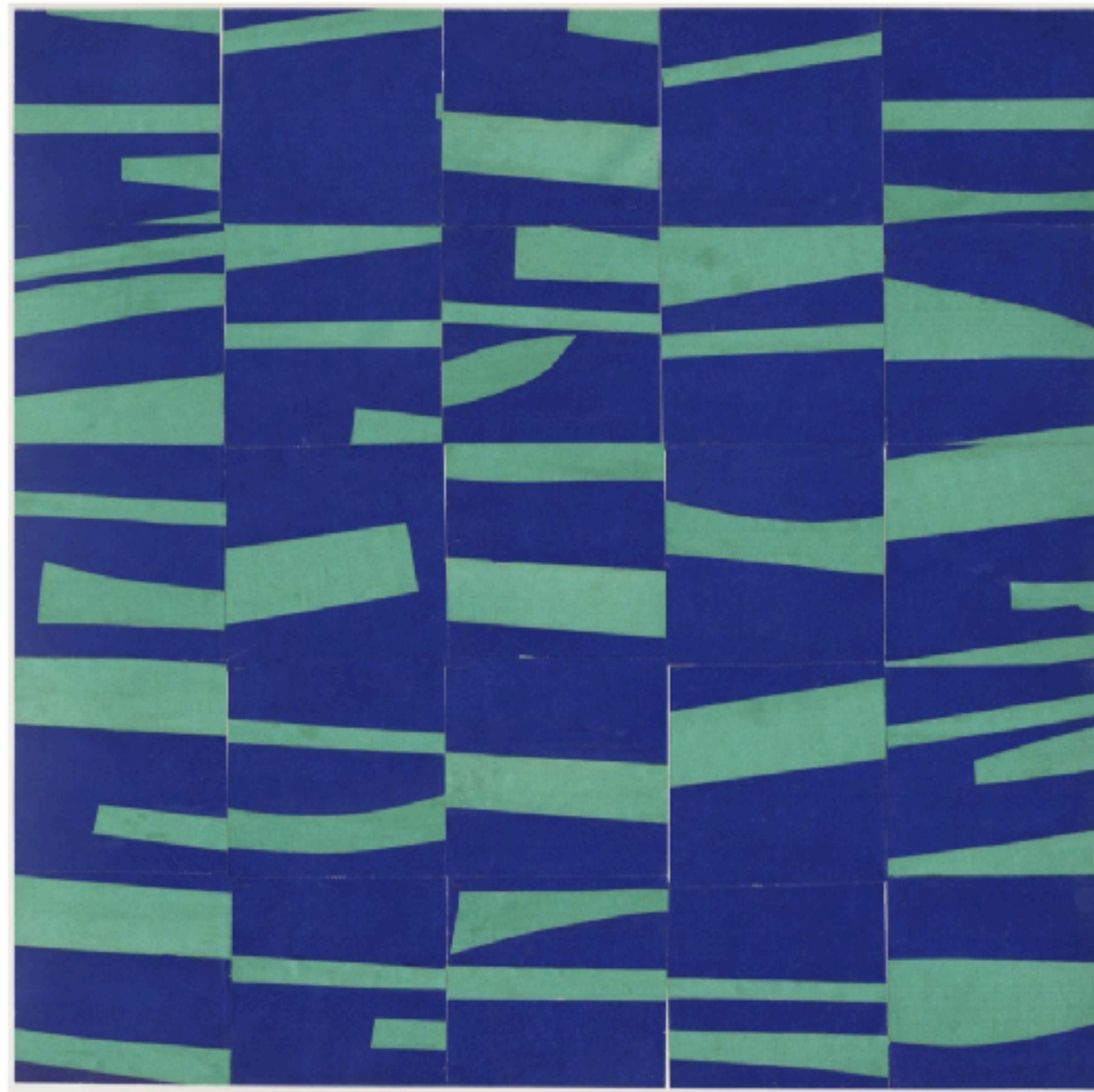
Highway and Byways - Paul Klee, 1928

PARIS – MARIA HELENA VIEIRA DA SILVA (1951)



<https://www.tate.org.uk/art/artworks/vieira-da-silva-paris-t00245>

PREDECESSORS OF GENERATIVE ART



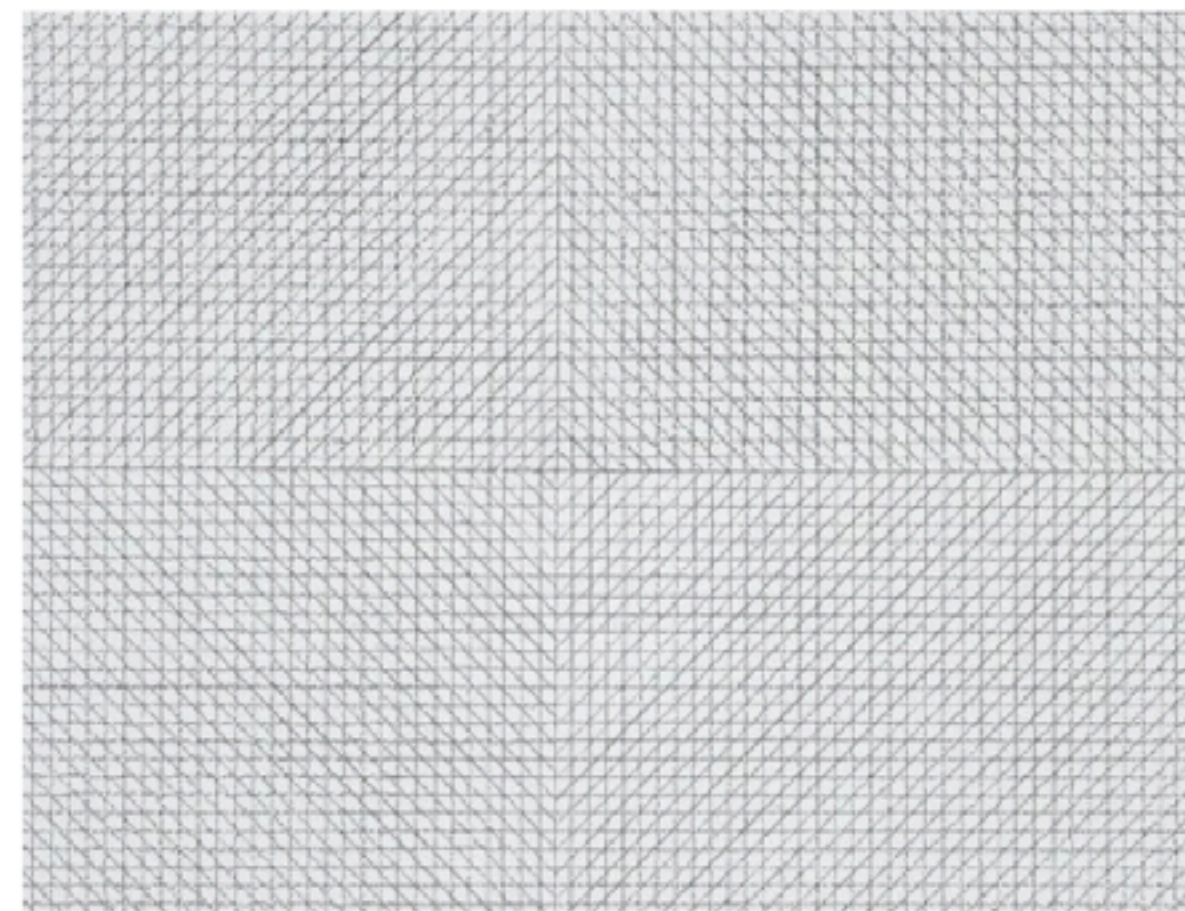
Study for Meschers - Ellsworth Kelly, 1951



Red Meander - Annie Albers, 1954



Burn - Bridget Riley, 1964



Wall Drawing 11 - Sol Lewitt, 1969

- Fracturing of geometry in Analytical Cubism
- Emphasis on technology, machine aesthetic, and mechanized production from Futurism, Constructivism, and the Bauhaus
- Introduction of autonomy and chance in Dada, Surrealism, Abstract Expressionism
- Anti-figurative aesthetic, bold geometry, and intense color of Neoplasticism, Suprematism, Hard-edged Abstraction, and OpArt
- Use of algorithms by Sol Lewitt, others [1]
- *Islamic art? Monet's series? Turner? Cezanne? Conceptual art? Minimalism?*

BEN YOUSSEF MADRASA, MARRAKESH (16TH CENTURY)

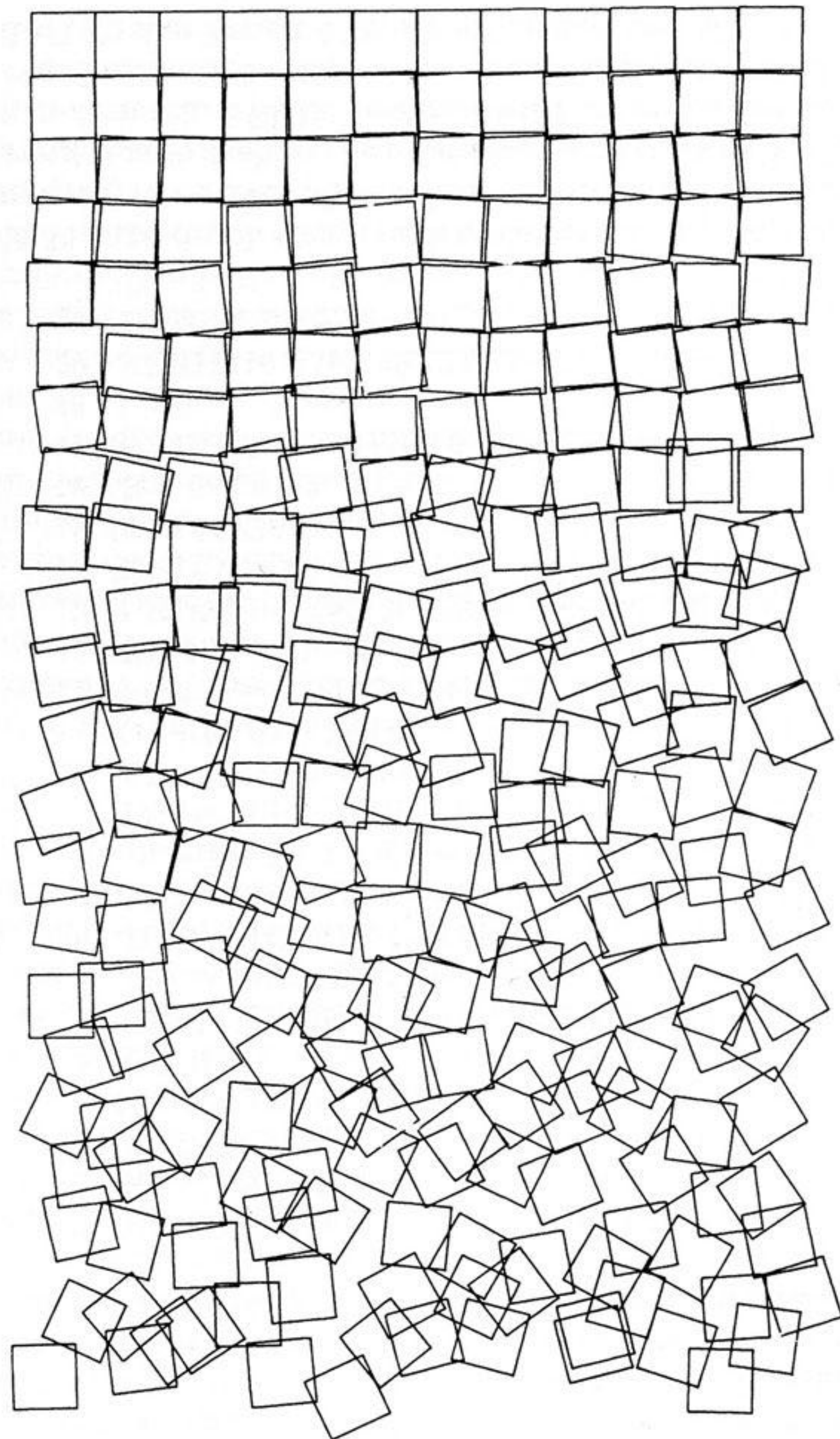


https://en.wikipedia.org/wiki/Ben_Youssef_Madrassa

“

Generative art is art made using a predetermined system that often includes an element of chance – is usually applied to computer based art

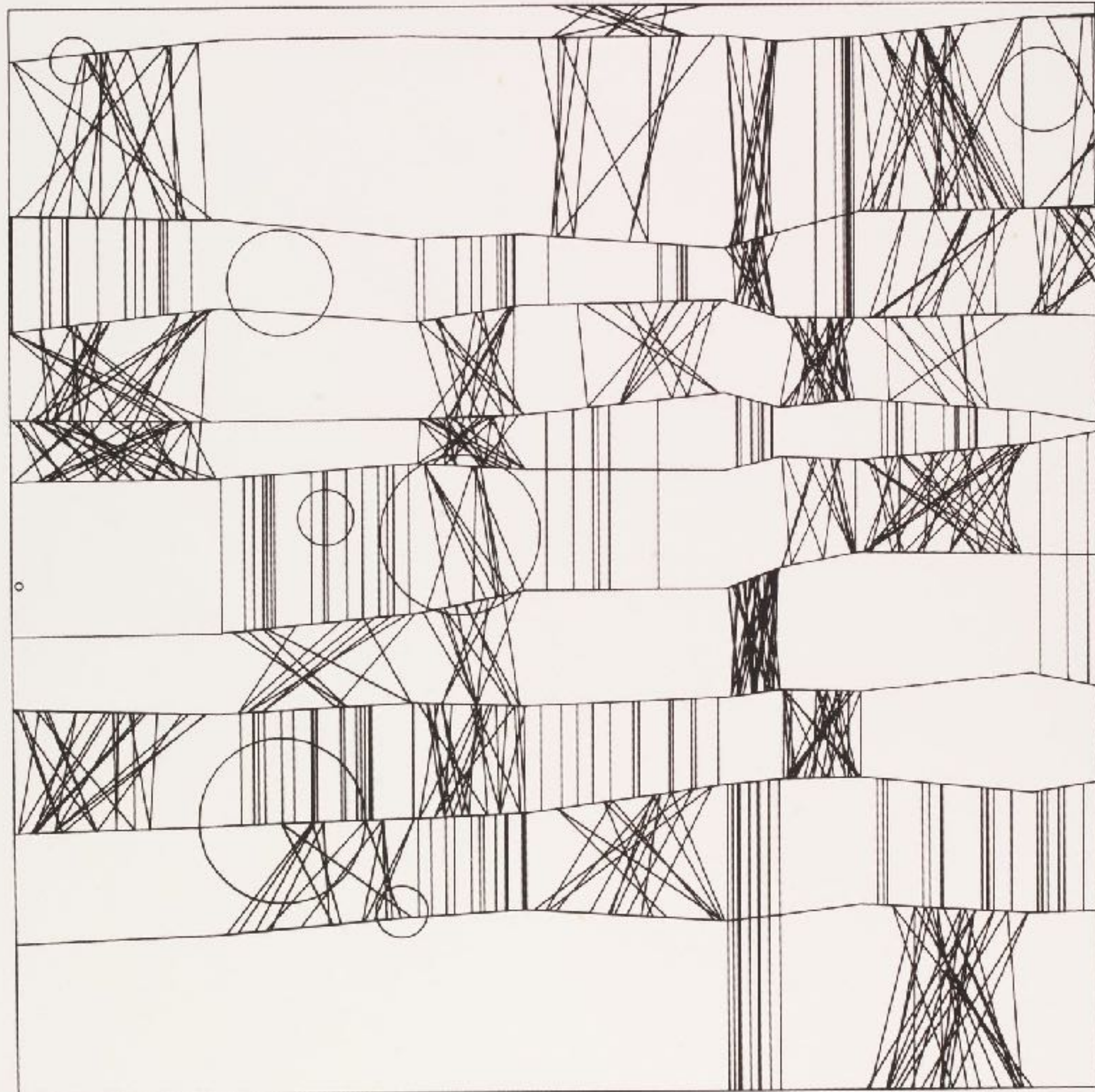
<https://www.tate.org.uk/art/art-terms/g/generative-art>



EARLY EXAMPLE: GEORG NEES

- Georg Nees' 1968 work Schotter (Gravel), one of the earliest and best-known pieces of generative art.
- Schotter starts with a standard row of 12 squares and gradually increases the magnitude of randomness in the rotation and location of the squares as you move down the rows.

[1]



NKE/1965/25

“3N”

- Nees is one of the "3N" computer pioneers, an abbreviation that has become acknowledged for Frieder Nake, Georg Nees and A. Michael Noll

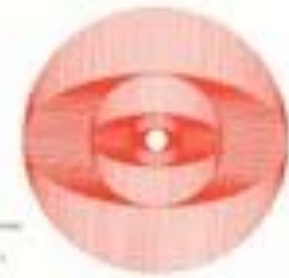
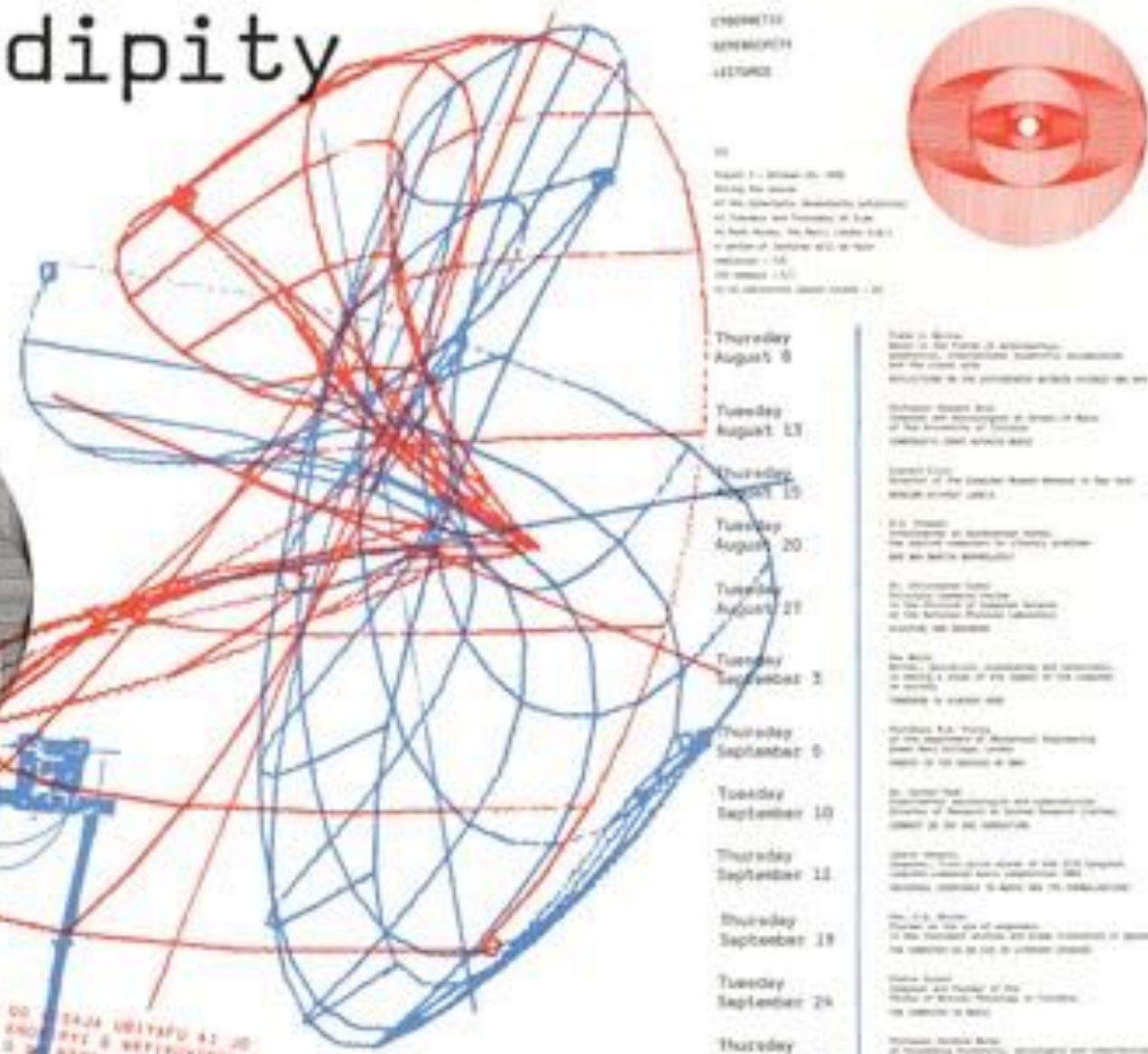
Hommage à Paul Klee - Frieder Nake, 1965

CYBERNETIC SERENDIPITY

Cybernetic Serendipity

Serendipity

the faculty of seeing
happy chance discoveries in
the field of control and communication sciences
tech, human and electronic

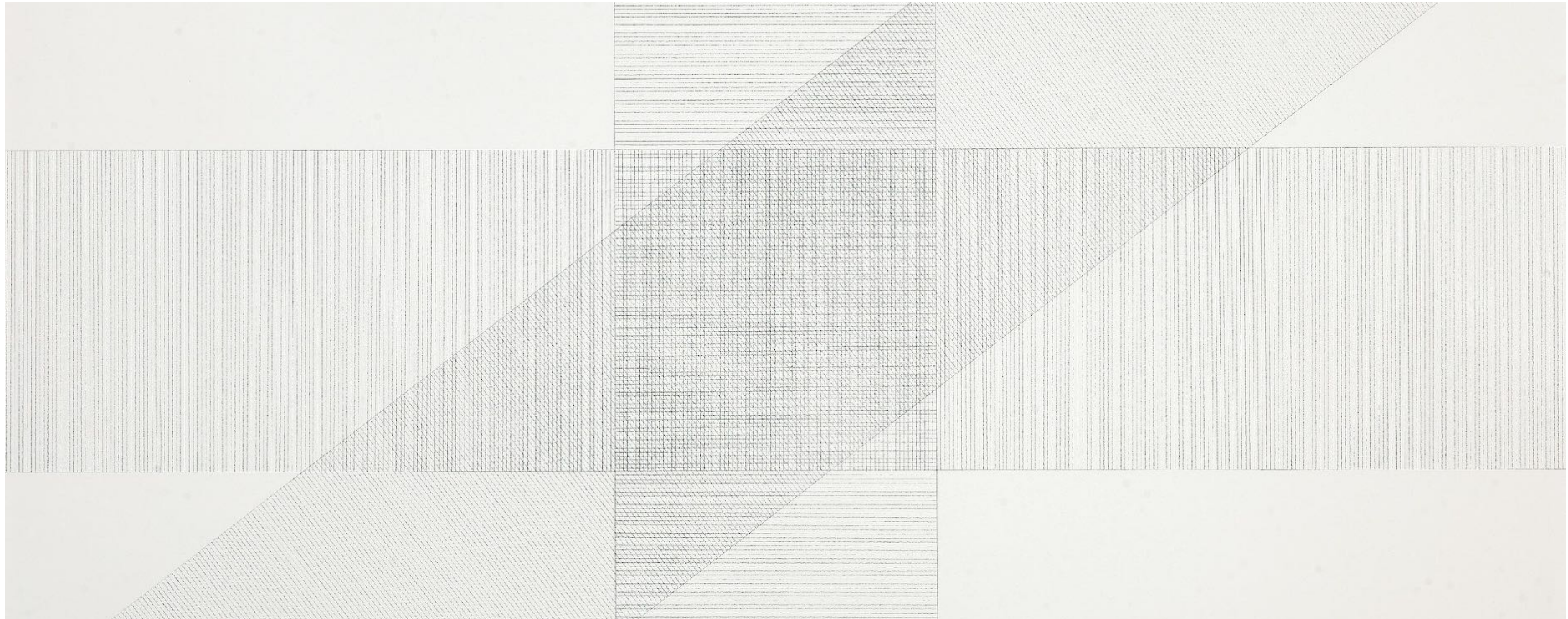


Thursday	August 8
Tuesday	August 13
Thursday	August 15
Tuesday	August 20
Tuesday	August 21
Tuesday	September 2
Thursday	September 5
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Thursday	September 12
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Tuesday	October 1
Tuesday	October 8
Thursday	October 10
Thursday	October 17

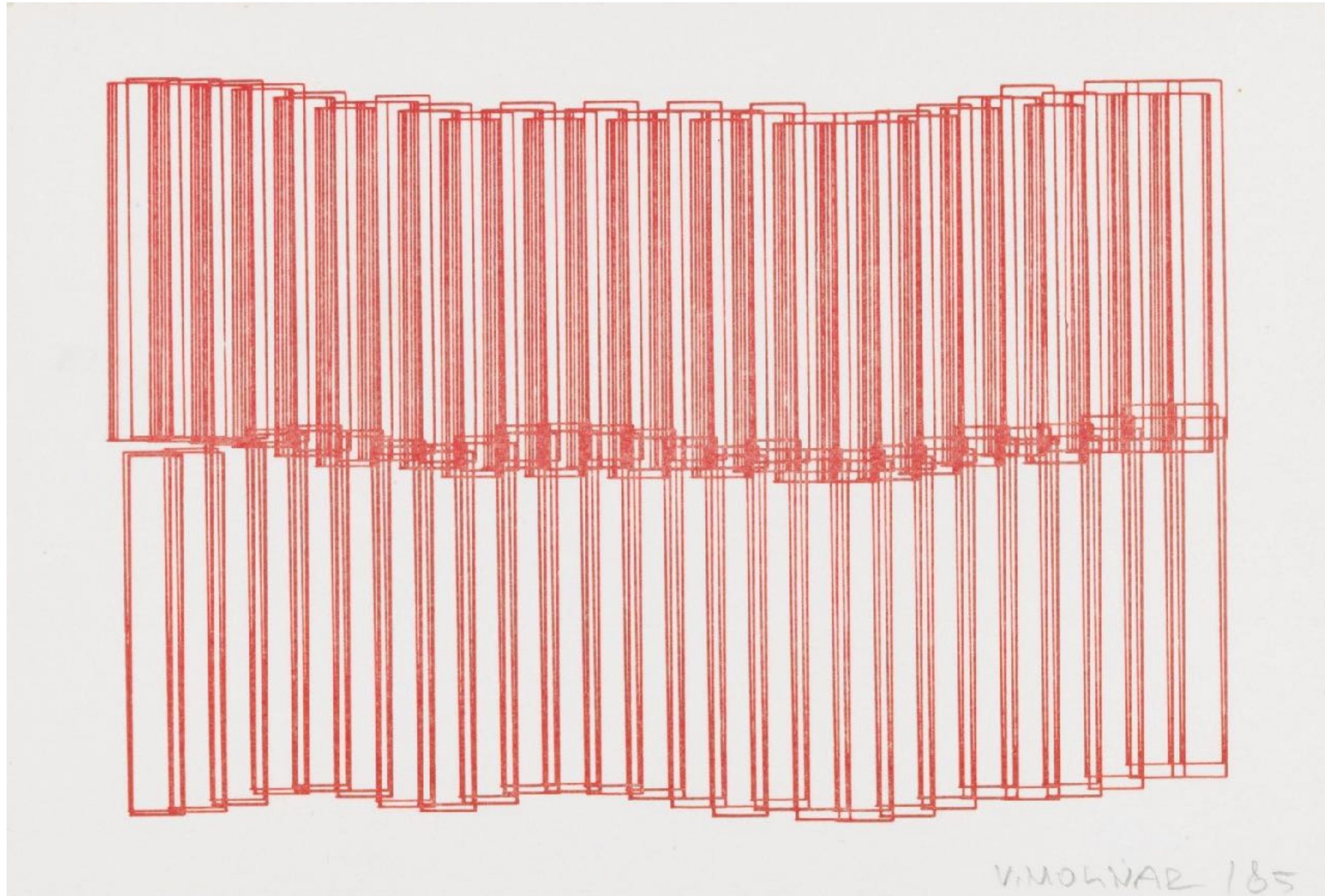
- Attracting the attention of the national and international press at the time, Cybernetic Serendipity was the first international exhibition in the UK devoted to the relationship between the arts and new technology.
- This groundbreaking exhibition, designed by Franciszka Themerson, presented the work of over 130 participants including composers, engineers, artists, mathematicians and poets. The exhibition ran from 2 August - 20 October 1968 and was seen by some 60,000 visitors.
- <https://archive.ica.art/whats-on/cybernetic-serendipity-documentation>

WALL DRAWING 16 - SOL LEWITT (1969)

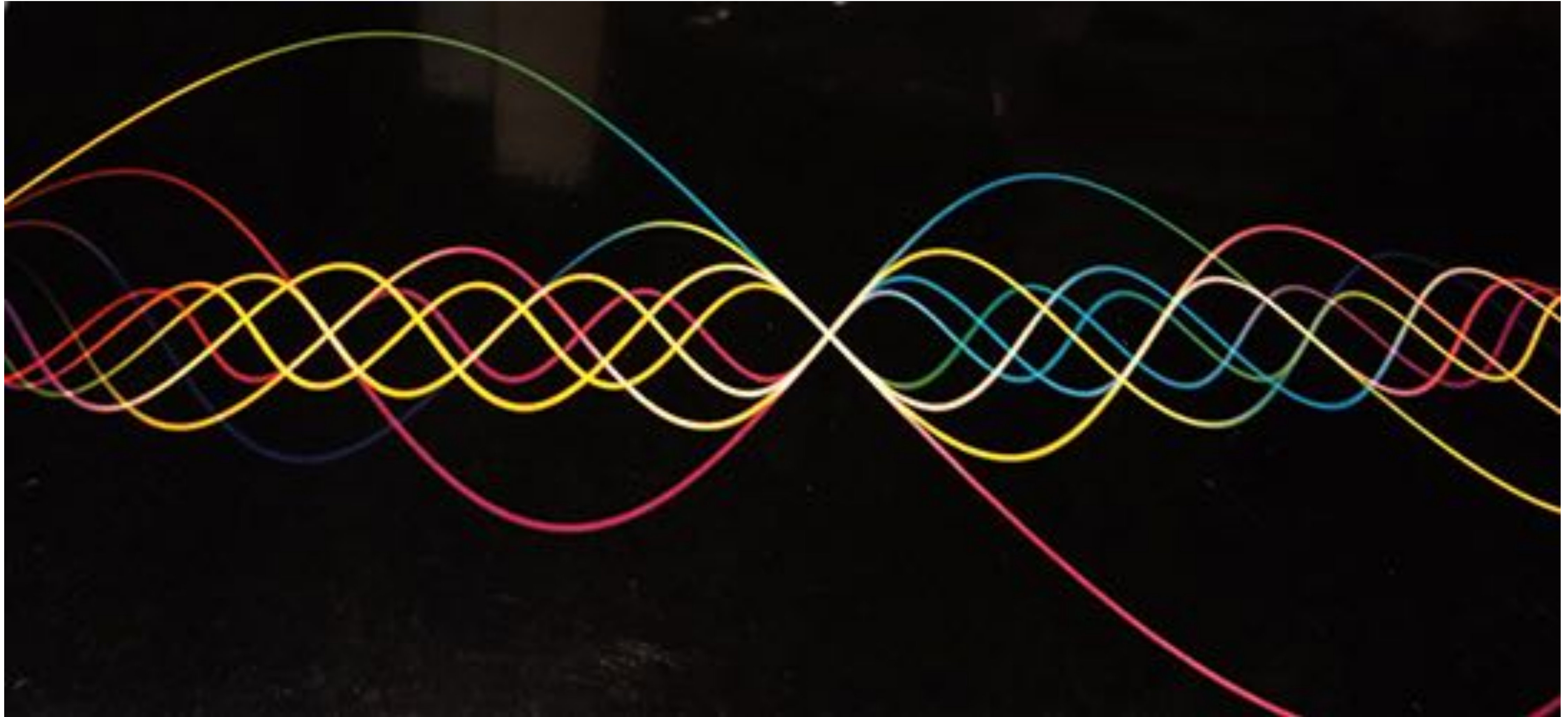
➤ <https://massmoca.org/sol-lewitt/>



(DÉS)ORDRES – VERA MOLNÁR, 1974

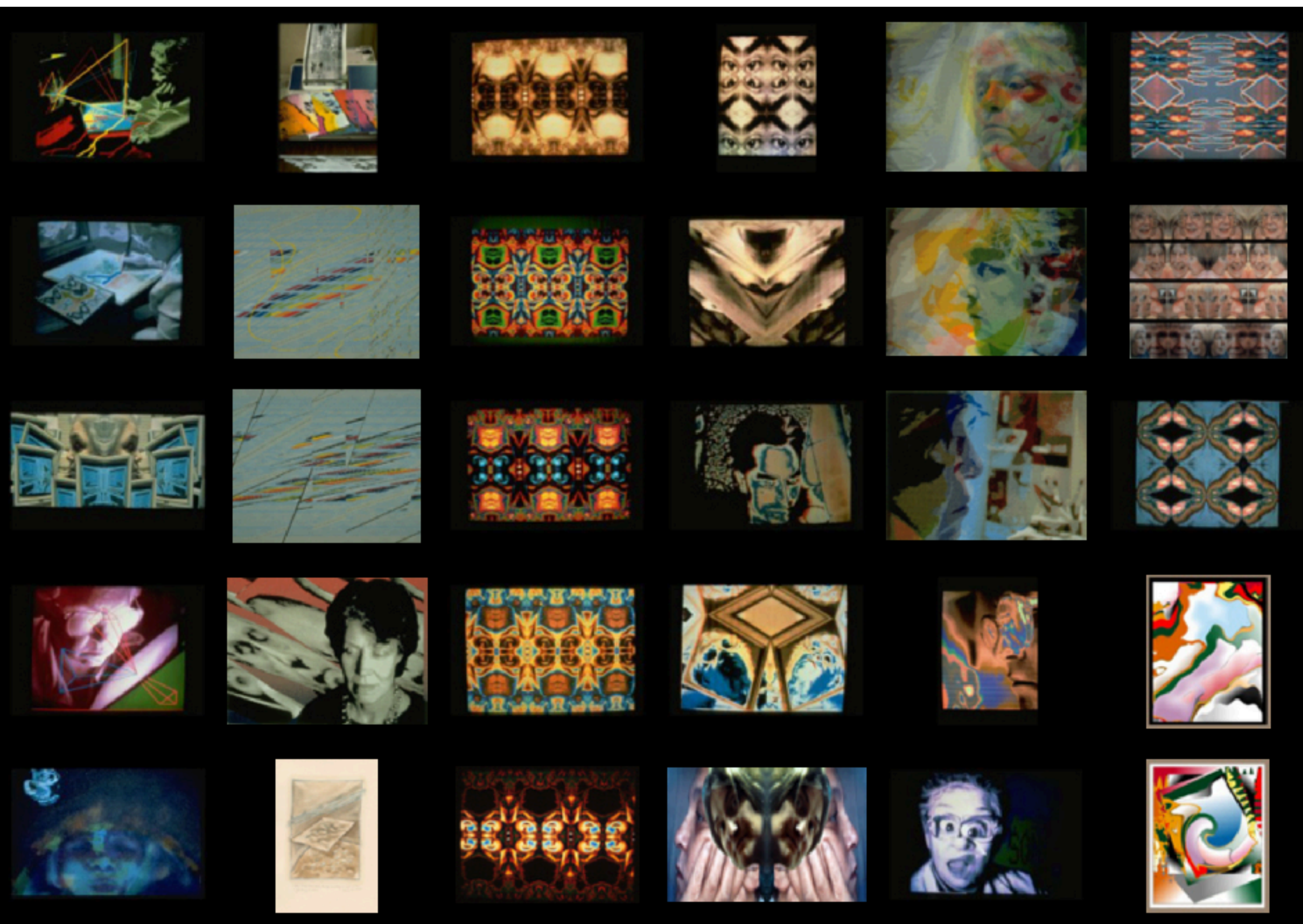


ARABESQUES – JOHN WHITNEY (1975)



<https://www.youtube.com/watch?v=w7h0ppnUQhE>

SONIA LANDY SHERIDAN



- Founded the Generative Systems program at the Art Institute of Chicago in 1970
- It introduced students to various reprography techniques and, in due course, to the basics of infography and computer animation.
- As students became technically competent, they also learned about the advanced research being conducted by engineers in the reproduction technology sector (xerography, electronic imaging).
- <https://www.fondation-langlois.org/html/e/page.php?NumPage=2002>



MURIEL COOPER

- Though not known to be a programmer, Muriel Cooper had as much influence as anyone in establishing the aesthetics of the computing revolution.
- Cooper was trained in the design principles of the Bauhaus and influenced by her friend, (...) designer Paul Rand.
- Cooper imbued these principles at MIT, where she served as a long-time director of the MIT Press.
- She then founded MIT's Visual Language Workshop (VLW) in 1975, which moved to the MIT Media Lab in 1985 as "one of its founding research groups." [1]



JOHN MAEDA

- Maeda started as an engineering student at MIT where he was fascinated by the work of Murial Cooper and the VLW.
 - After completing both his bachelor's and master's degrees in engineering at MIT, Maeda earned a Ph.D. in design at Tsukuba University's School of Art and Design in Japan.
- [1]

AESTHETICS AND COMPUTATION GROUP

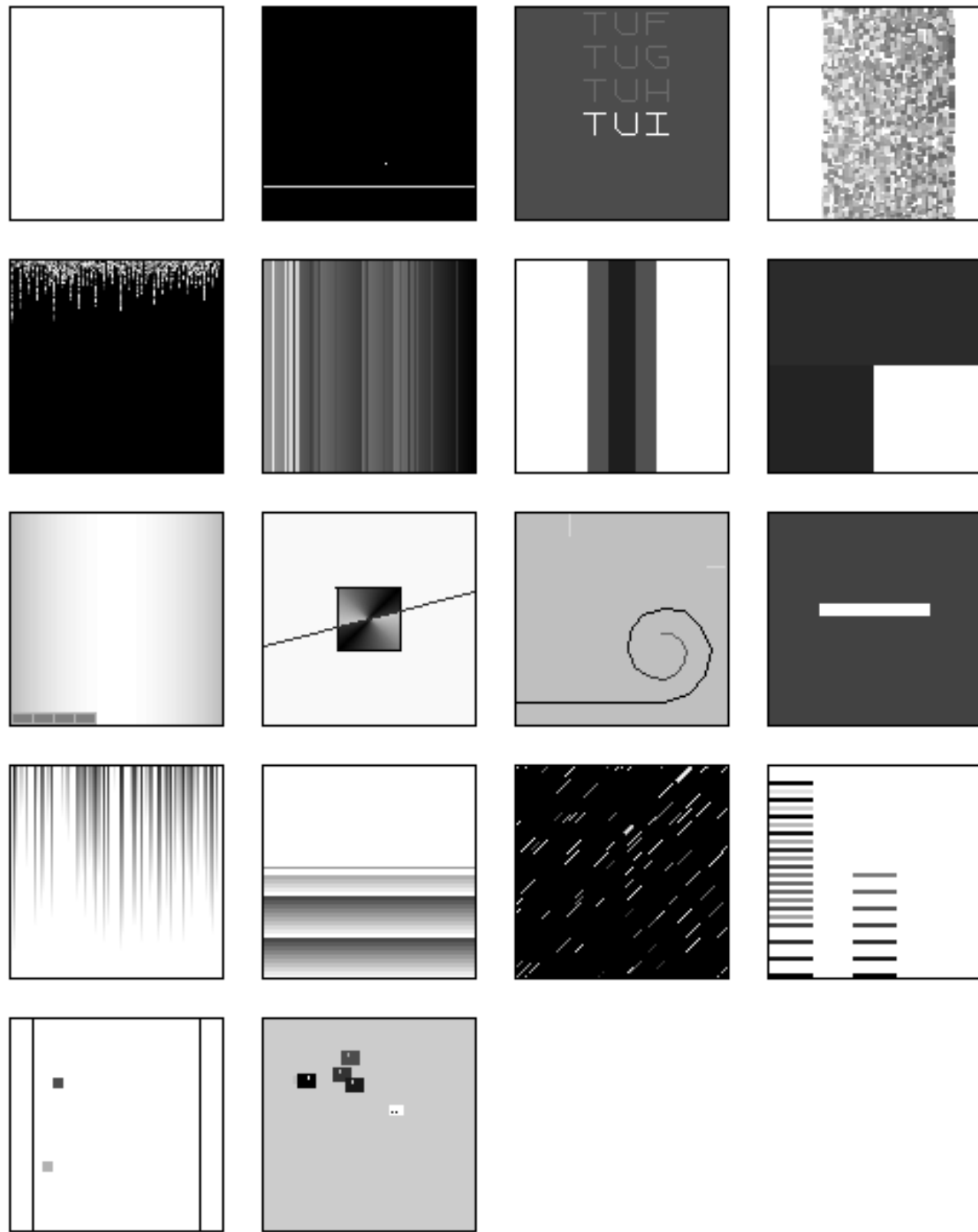
John Maeda

Creative Code

- ▶ Maeda returned to MIT and created the Aesthetics and Computation Group (ACG) within the Media Lab.
- ▶ As a group, ACG were heavily influenced by the prior work done by Muriel Cooper's VLW group.
- ▶ Though Maeda is an accomplished generative artist with works in major museums, his greatest contribution to generative art was his invention of a platform for artists and designers to explore programming called "Design By Numbers."

[1]

Design By Numbers



[aisling](#)
[akilian](#)
[ben](#)
[cameron](#)

[carsonr](#)
[casey](#)
[dana](#)
[darkmoon](#)

[dc](#)
[elise](#)
[golan](#)
[hannes](#)

[james](#)
[jared](#)
[kelly](#)
[ppk](#)

[shyam](#)
[tom](#)

Problem 2A -- Time Display 1: Create a display of time that does not necessarily depict the exact progress of time, but rather the abstract concept of time.

View: for

You are logged in as casey. If you are not casey click [here](#).

DESIGN BY NUMBERS

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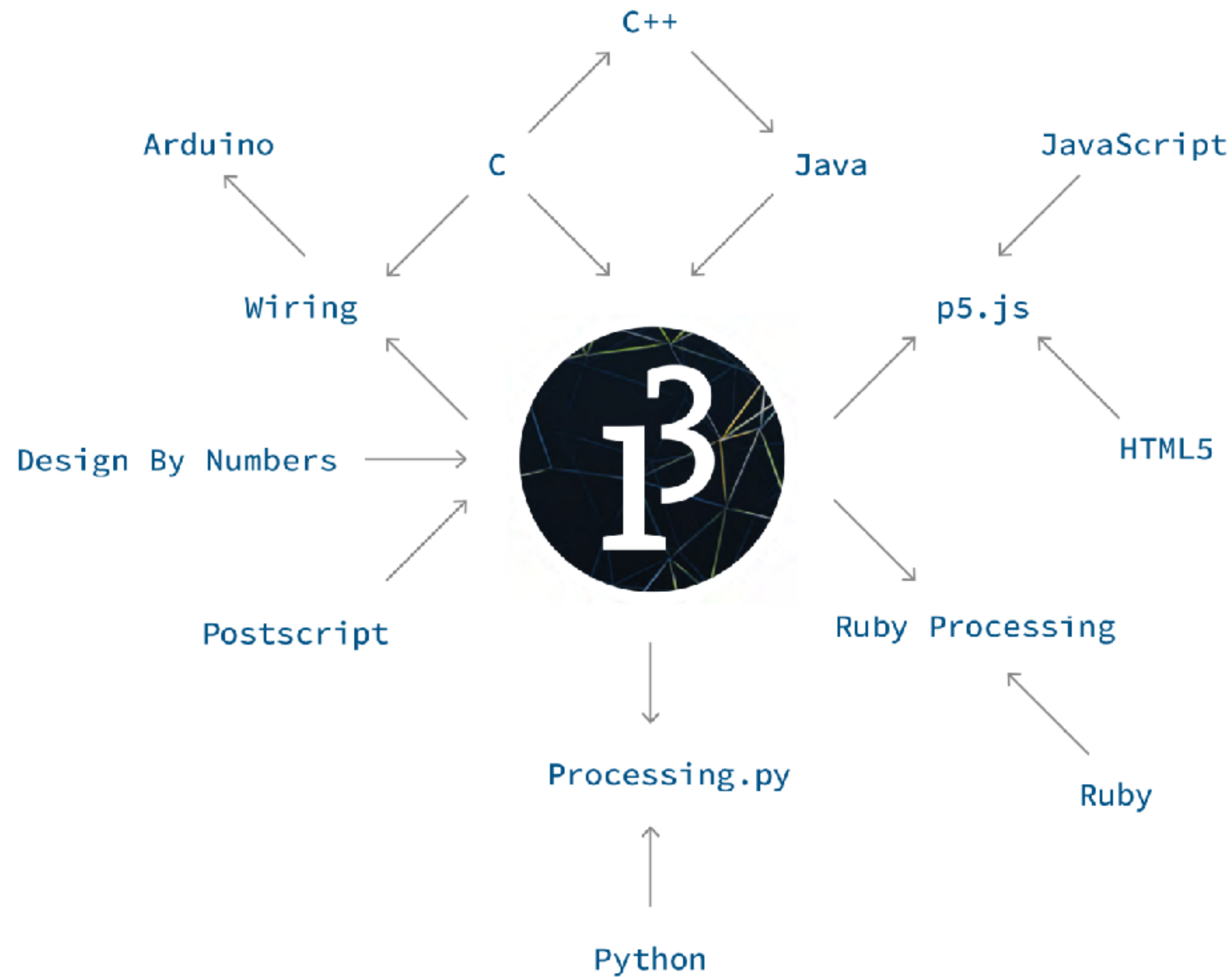
➤ In the late '90s Maeda recruited several brilliant and like-minded artists/technologists into the Media Lab to help work on “Design by Numbers,” including Ben Fry and Casey Reas.

➤ Fry and Reas took Maeda's “Design by Numbers” into classrooms around the world and eventually built their own free platform that could be shared outside of universities and used by anyone with an interest learning to sketch with code. They called this platform “Processing.”

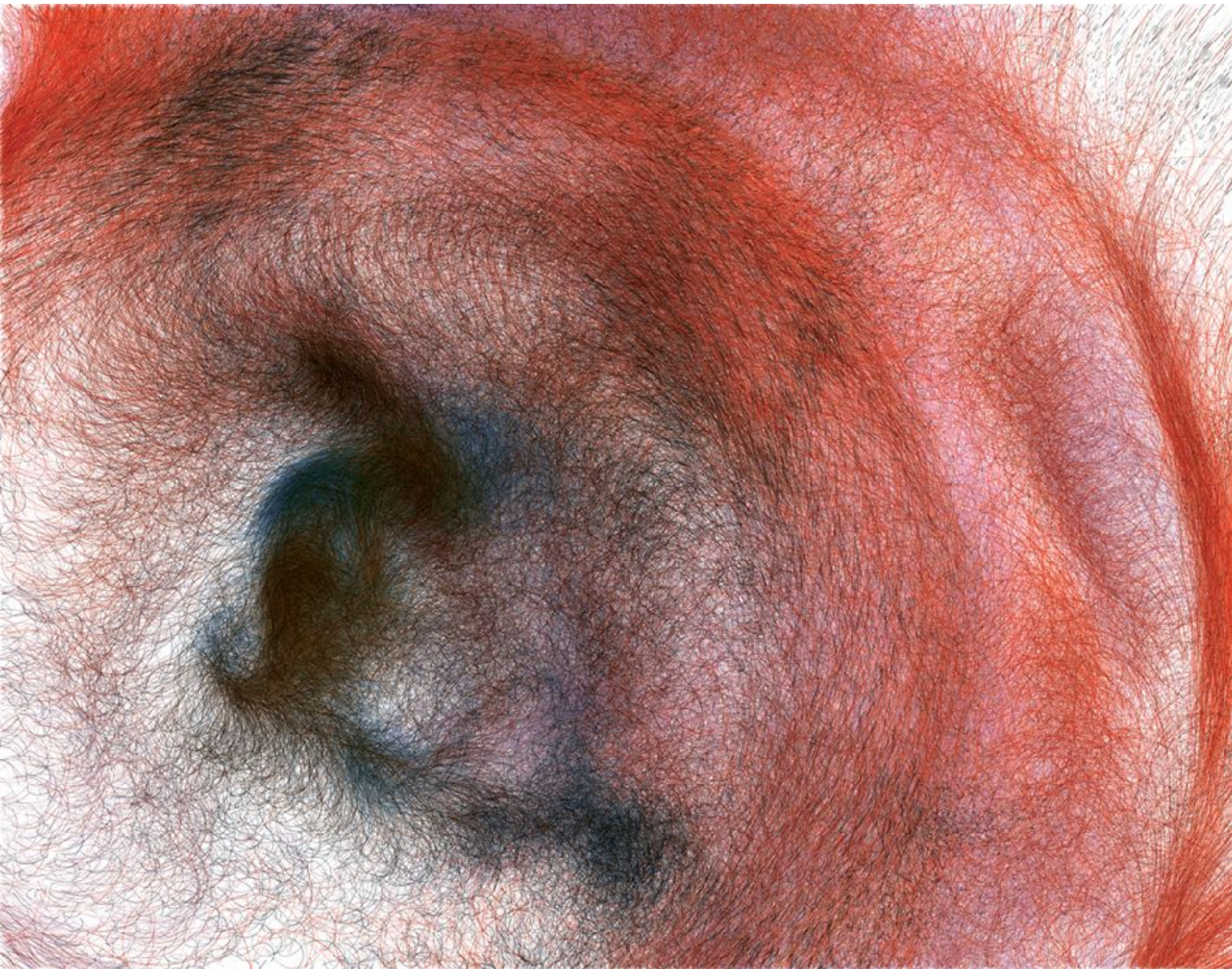
[1]

➤ <https://vimeo.com/72611093>

PROCESSING



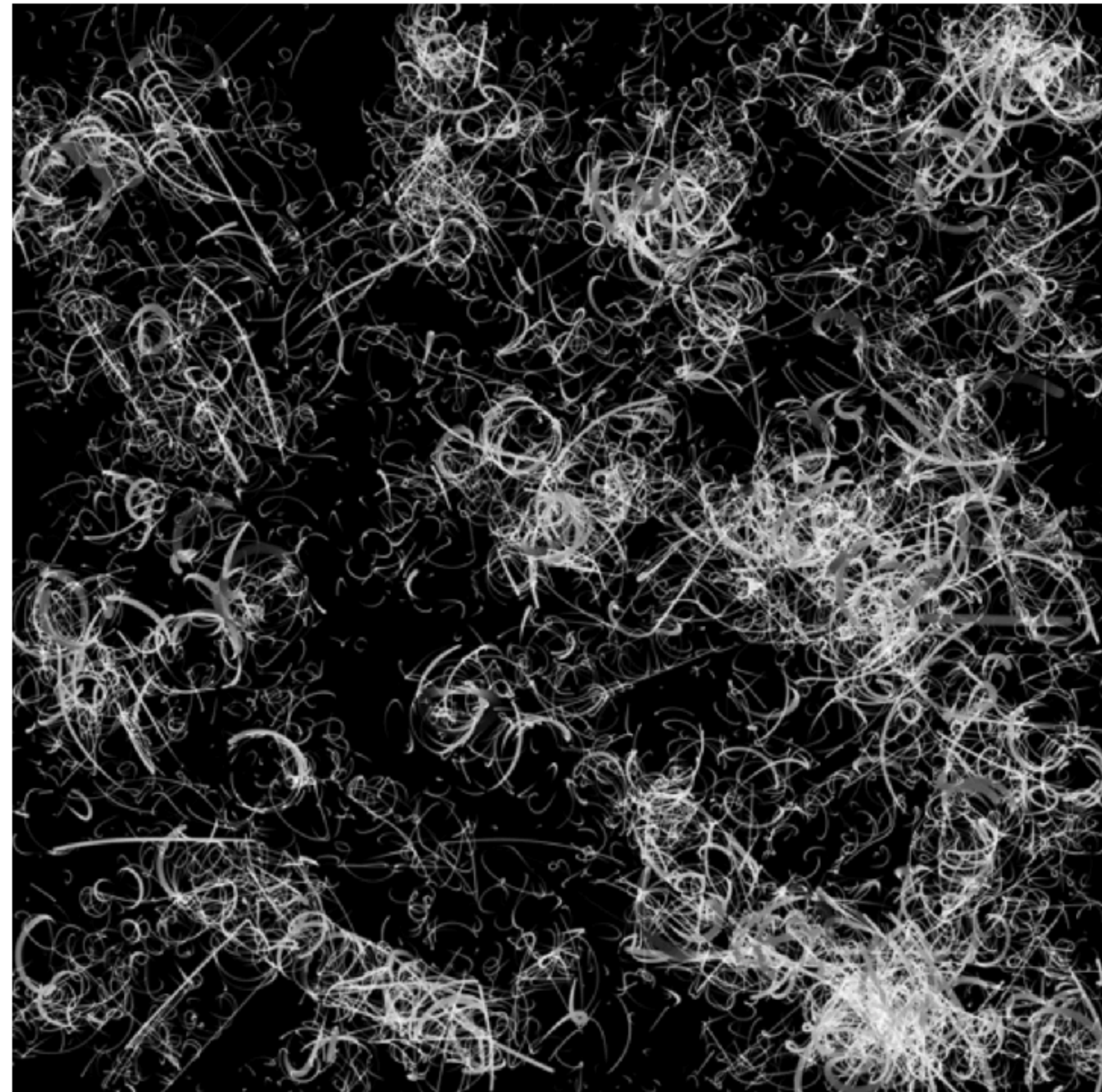
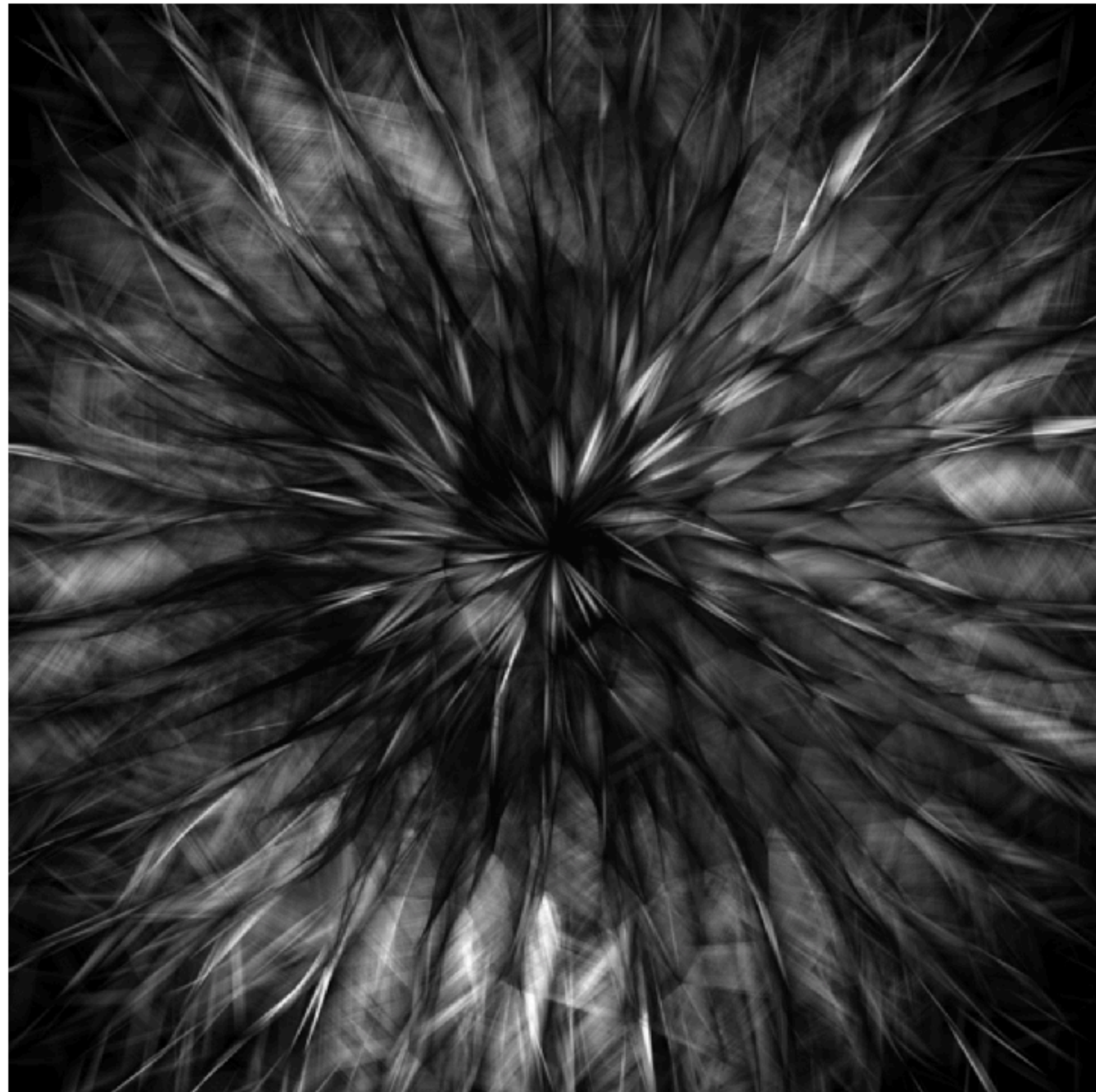
- ▶ “Processing emerged directly from the Aesthetics and Computation Group (ACG), a research group started at the Media Lab by John Maeda in 1996.
- ▶ John Maeda started the Design By Numbers (DBN) programming platform within the ACG. Both the MIT Press book and software for the project were released in 1999.
- ▶ This experience kindled the ambition to start Processing. We started by extending DBN to include color and other features, but soon realized that these limitations were the essence of that platform and it shouldn’t be expanded.
- ▶ We wanted to make a system that was as easy to use as Design By Numbers, but with a bridge to making more ambitious work. We wanted to allow people to work in color, at large sizes, to create 3D graphics, and more.
- ▶ Processing sketches are almost as simple as DBN sketches, but Processing scales up: it has a “low floor” and a “high ceiling.”
- ▶ Processing started with a few notes in a sketchbook in spring 2001.” [2]



CASEY REAS

- In the early years of Processing, many artists explored concepts based on patterns that occur in nature.
- Reas was interested in the phenomenon of emergence, a process in which a collective entity, such as a flock of birds or a school of fish, begins to exhibit properties that its individual members do not.
- His work MicroImage (2002) is an animation built from repetitions of relatively simple parts and commands.
- From thousands of dots, each programmed to react simply to its surroundings, a more complex system takes shape.

PROCESS COMPENDIUM – CASEY REAS (2004–2010)

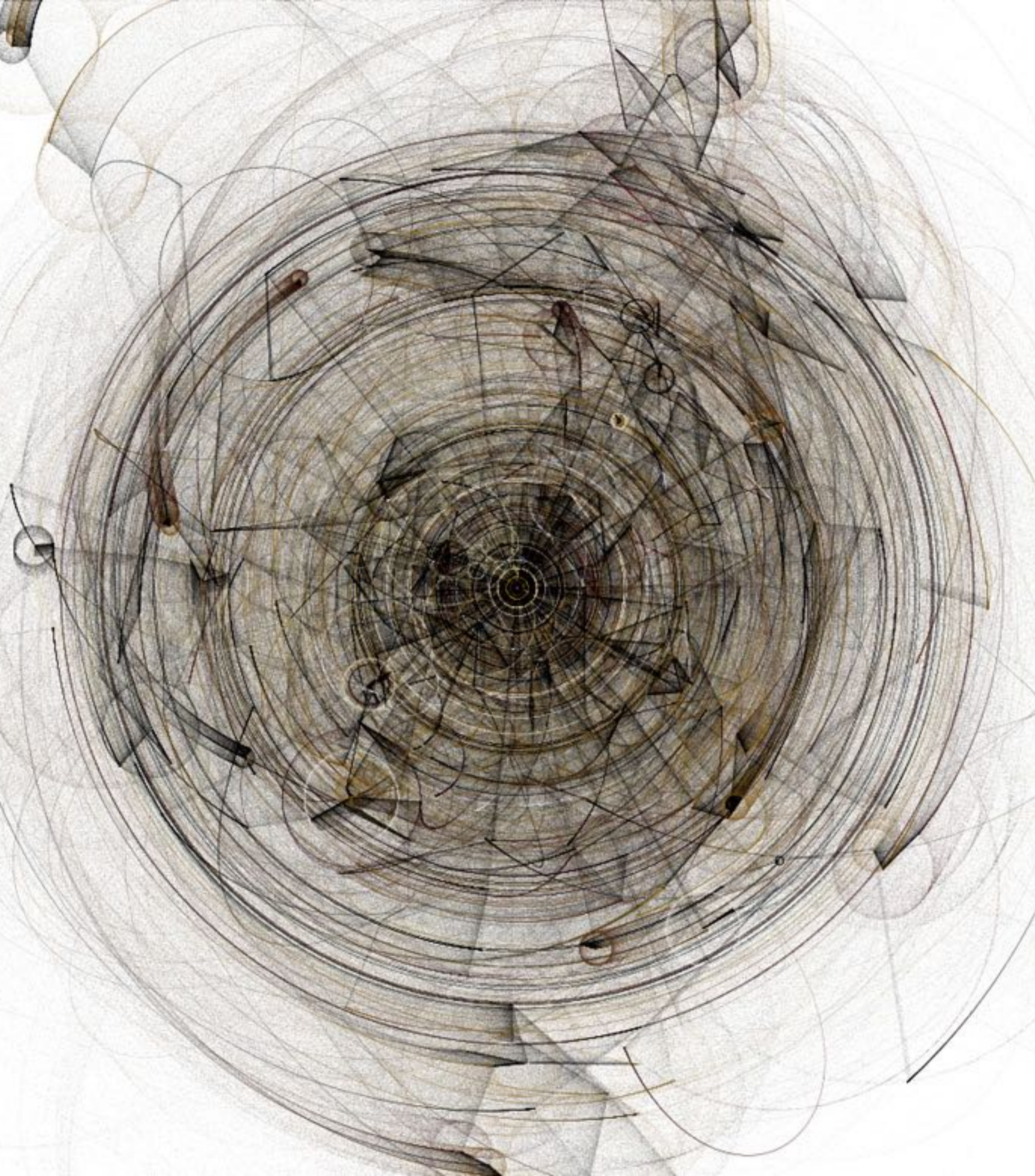


<https://vimeo.com/22955812>

SUBSTRATE – JARED TARBELL (2003)



<http://www.complexification.net/gallery/machines/substrate/>



JARED TARBELL

- “When you write a program, it’s going to be executed the same way every single time. So if you define a system like this where things can happen at random, as the creator, you can be surprised by your own program, which is really great.”
- Before Processing, Tarbell was part of a group of generative artists developing work on the Flash platform from Macromedia (now owned by Adobe). His site levitated.net served as an educational resource.
- One of the artists Jared Tarbell cites as a major influence on his work is Joshua Davis.
[1]

New Masters of Flash

Yugo Nakamura
Tomasz Jankowski
Todd Purgason
Ivo van de Grift
thevoid
Andries Odendaal
Eric Jordan
Manuel Clement
Brendan Dawes
Tony Ke
Irene Chan
Jayson Singe
cut-and-paste.com
Olivier Besson
James Paterson
Vince Suriani
Tomato
Yasuto Suga
Joshua Davis



FLASH

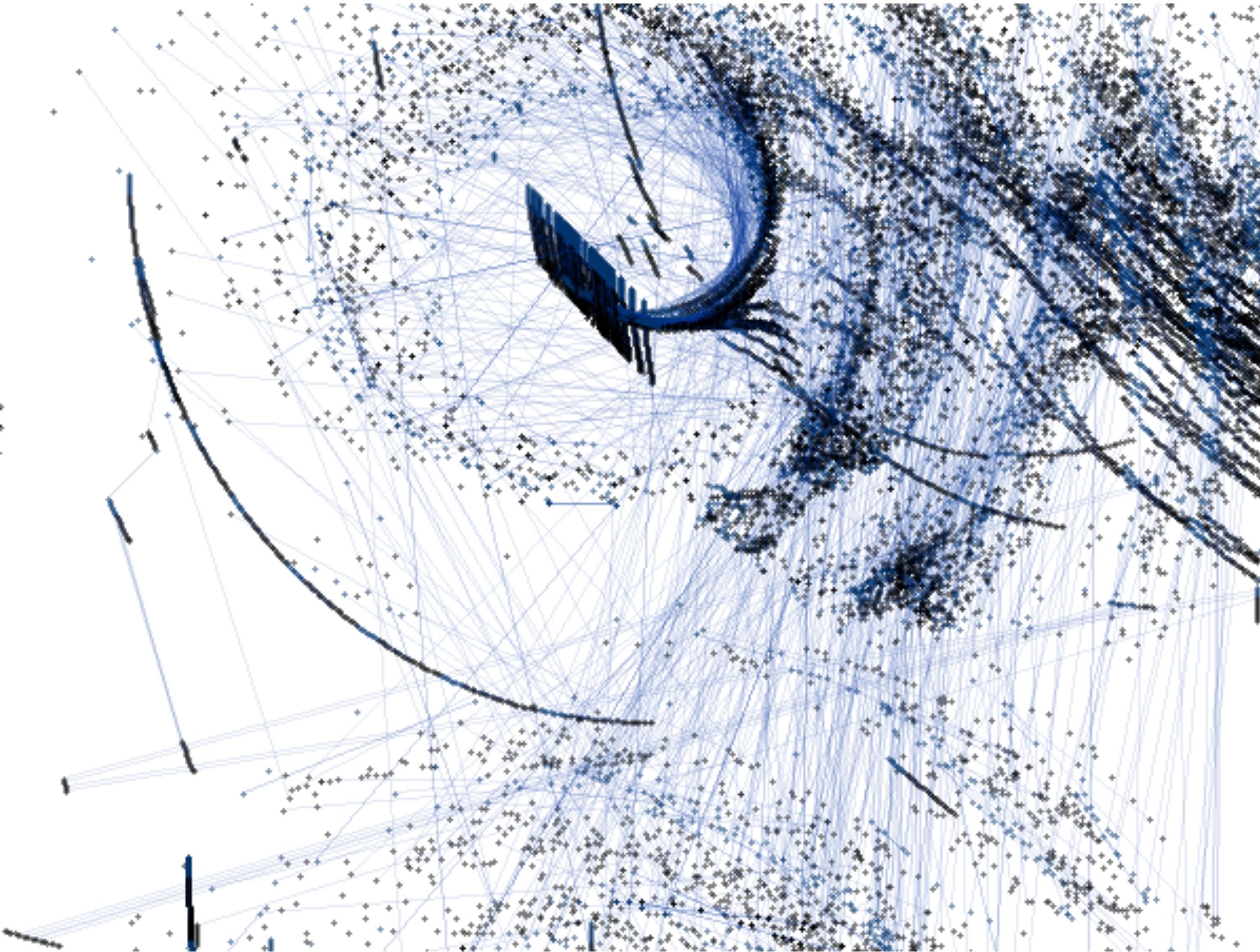
- ▶ In 1996, FutureSplash was acquired by Macromedia, and Macromedia re-branded and released FutureSplash Animator as Macromedia Flash 1.0.
- ▶ Flash was a two-part system, a graphics and animation editor known as Macromedia Flash, and a player known as Macromedia Flash Player.
- ▶ Macromedia upgraded the Flash system between 1996 and 1999 adding MovieClips, Actions (the precursor to ActionScript), Alpha transparency, and other features.
- ▶ As Flash matured, Macromedia's focus shifted from marketing it as a graphics and media tool to promoting it as a Web application platform.
- ▶ 2000: Flash 5, ActionScript, New Masters of Flash book
- ▶ 2010: Job's Thoughts on Flash
- ▶ 2020: Flash Player end of life


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JOSHUA DAVIS

- Joshua Davis is among the first and best known artists to use Flash to create generative art. [1]
- He launched PrayStation in 1998 and won the Prix Ars Electronica in 2001.
- <https://joshuadavis.com>



Turux - LIA (1997-2001)

LIA

- The Austrian artist who goes by the alias LIA used both an older program called Director, optimized for making multimedia CD-ROMs, and later, the more web-friendly Flash [and Processing / openFrameworks], to program interactive works.
- LIA's site re-move.org, online in the late 1990s, combined motion, sound, and interactivity, recalling music videos and video games.
[3]
- <https://www.liaworks.com>

MUCH MORE TO SAY...

- Many artists left out
 - openFrameworks was part of a different presentation earlier
- Other, less told, narratives (eastern bloc etc)
- Text (Tristan Tzara, Brion Gysin, William Burroughs...)
- Narrative / games
- Music (Bach, Serialism, Minimalism, Cage, Eno...)
 - <https://teropa.info/blog/2016/07/28/javascript-systems-music.html>
- Sculpture (Quayola...)
- Architecture
- Robotic art
- Bio art
- AI-based generative art
- NFT
- ...

REFERENCES

- 1. Jason Bailey. 2018. *Why Love Generative Art?* Artnome. Retrieved May 4, 2020 from <https://www.artnome.com/news/2018/8/8/why-love-generative-art>
- 2. Casey Reas and Ben Fry. 2018. *A Modern Prometheus*. Processing Foundation (Medium). Retrieved May 4, 2020 from <https://medium.com/processing-foundation/a-modern-prometheus-59aed94abe85>
- 3. Jason Bailey. 2020. *The Tools of Generative Art, from Flash to Neural Networks*. ARTnews.com. Retrieved May 4, 2020 from <https://www.artnews.com/art-in-america/features/generative-art-tools-flash-processing-neural-networks-1202674657/>