Le Tricodeur workshop
10-11-12 octobre 2014

WORKSHOP TRICODEUR › BORDEAUX

présentations

INFORMATIONS

› designer indépendant

› étudiant-chercheur à l'EnsadLab, à l'Ensad Paris

› coorganisateur des événements au Free Art Bureau

› enseignant en design génératif à HETIC, Montreuil

CONTACT

- site : **louiseveillard.com**
- blog : **beautifulseams.com**
- mail : **hello@louiseveillard.com**

présentations

Et vous ?

› familiers avec la programmation ?

› expériences avec le tricot ?

› ni l'un ni l'autre ?

le projet Tricodeur

« quand le numérique et la maille se rencontrent »

Sew&Laine sewetlaine.com
association dédiée au textile, au fait-main et à la création, basée à Bordeaux

Processing Bordeaux processingbordeaux.org
un association centrée autour des technologies digitales créatives.

Un projet mené en trois temps

1. résidence de création
   2 au 6 septembre
2. workshop de découverte et d'initiation
   10 au 12 octobre
3. exposition et ateliers à la Semaine Digitale
   13 au 18 octobre

Le tricot et la programmation pour créer des images

- tricot et programmation
- algorithmes et codes pour créer des images et des formes
- représenter les informations
- enjeux et objectifs du workshop

Le tricot et la programmation pour créer des images

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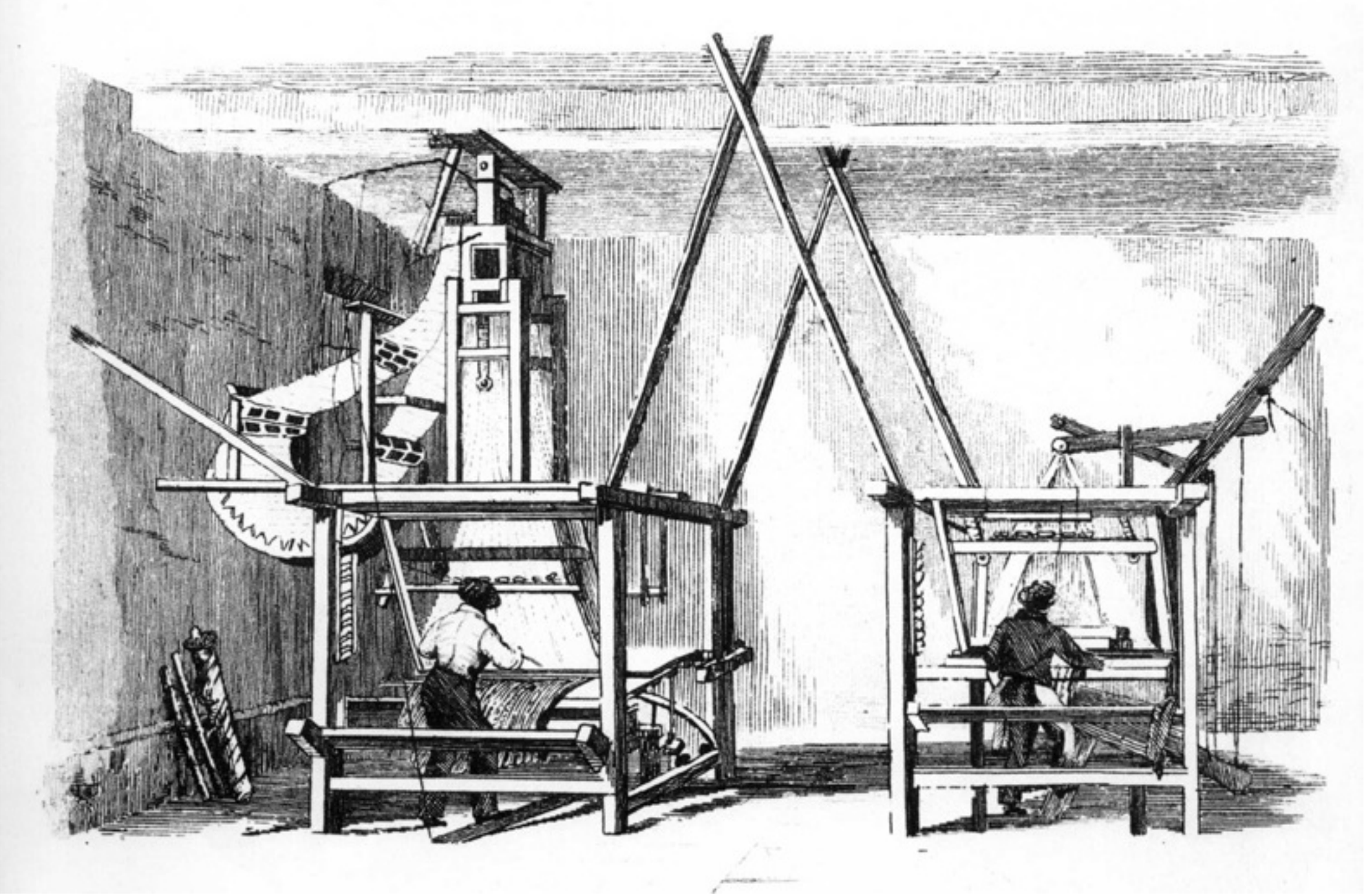
Tricot et programmation

Le tricot est un art très ancien.

- IIIe ou IVe siècle mais la technique est probablement bien plus ancienne.

Tricot et programmation



Métiers Jacquard - 1832
Bibl. des Arts Décoratifs - Coll. Maciet

Jacquardweben im Atelier für Paramentik par Kanal von stoffmarie
https://www.youtube.com/watch?v=CRQ3QF5oRCA

Tricot et programmation

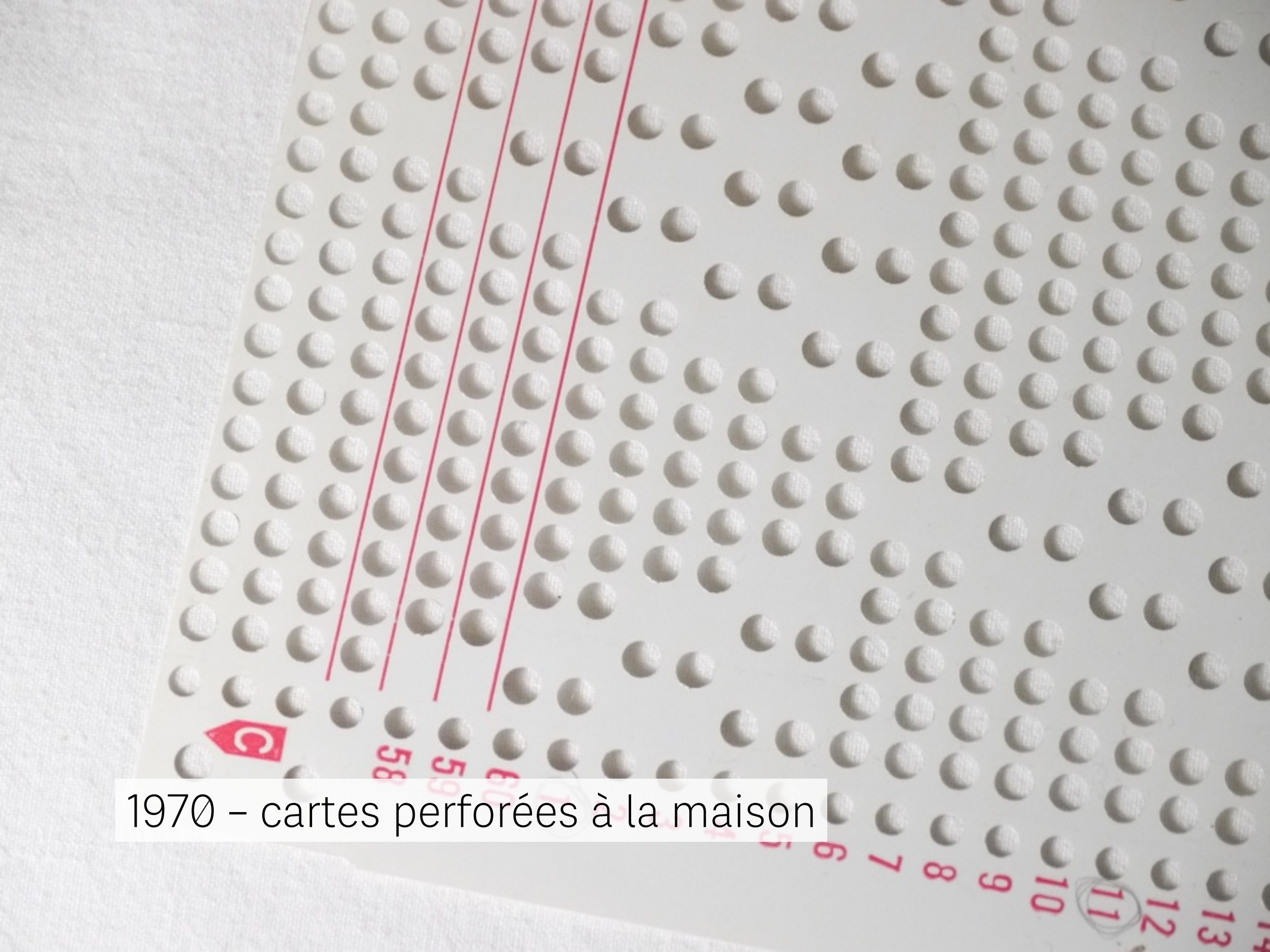
1890 –
Premières machines simples à une seule fonture : pour les petits ateliers et pour la maison.

SOURCE : DEVELOPMENT OF PERSONAL MANUFACTURING. KNITTING PRINTER / VARVARA GULJAJEVA ET MAR CANET SOLA

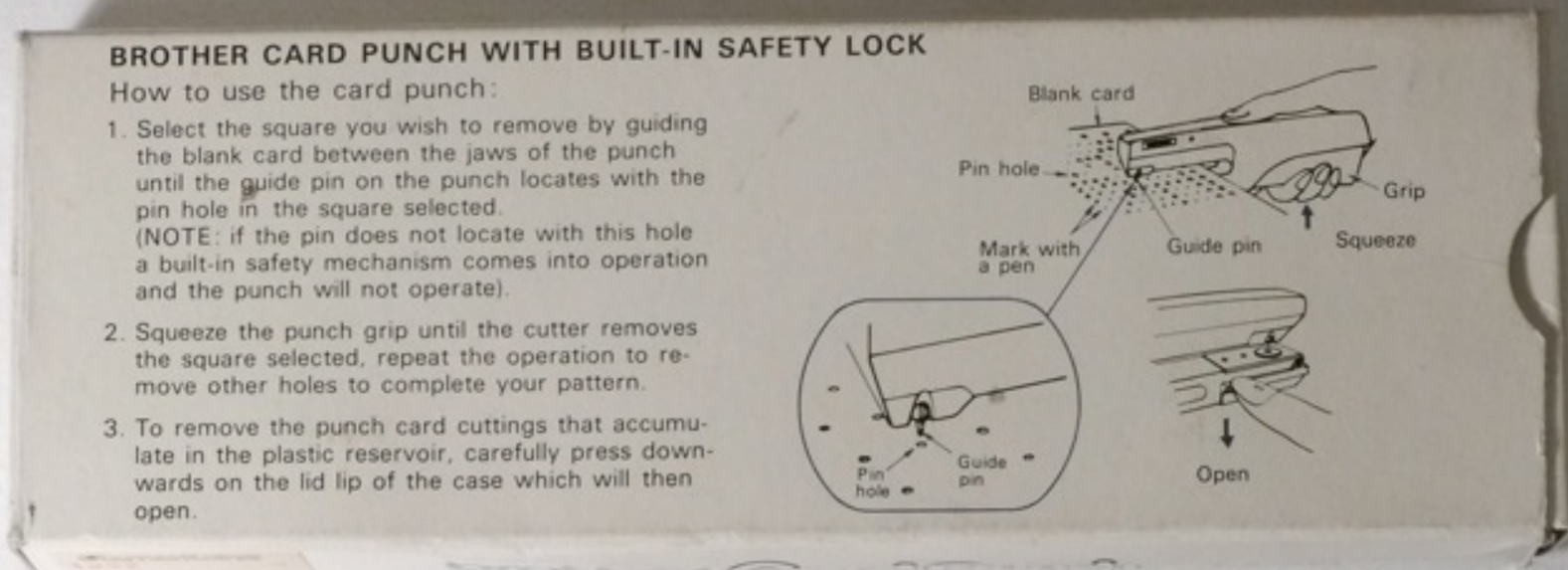
1950 – machines mécaniques manuelles

SOURCE : HTTP://WWW.AMAZON.COM/VINTAGE-1950-27S-BROTHER-KNITTING-MACHINE/DP/B000RIXSKY

1970 – cartes perforées à la maison



1970 – cartes perforées à la maison



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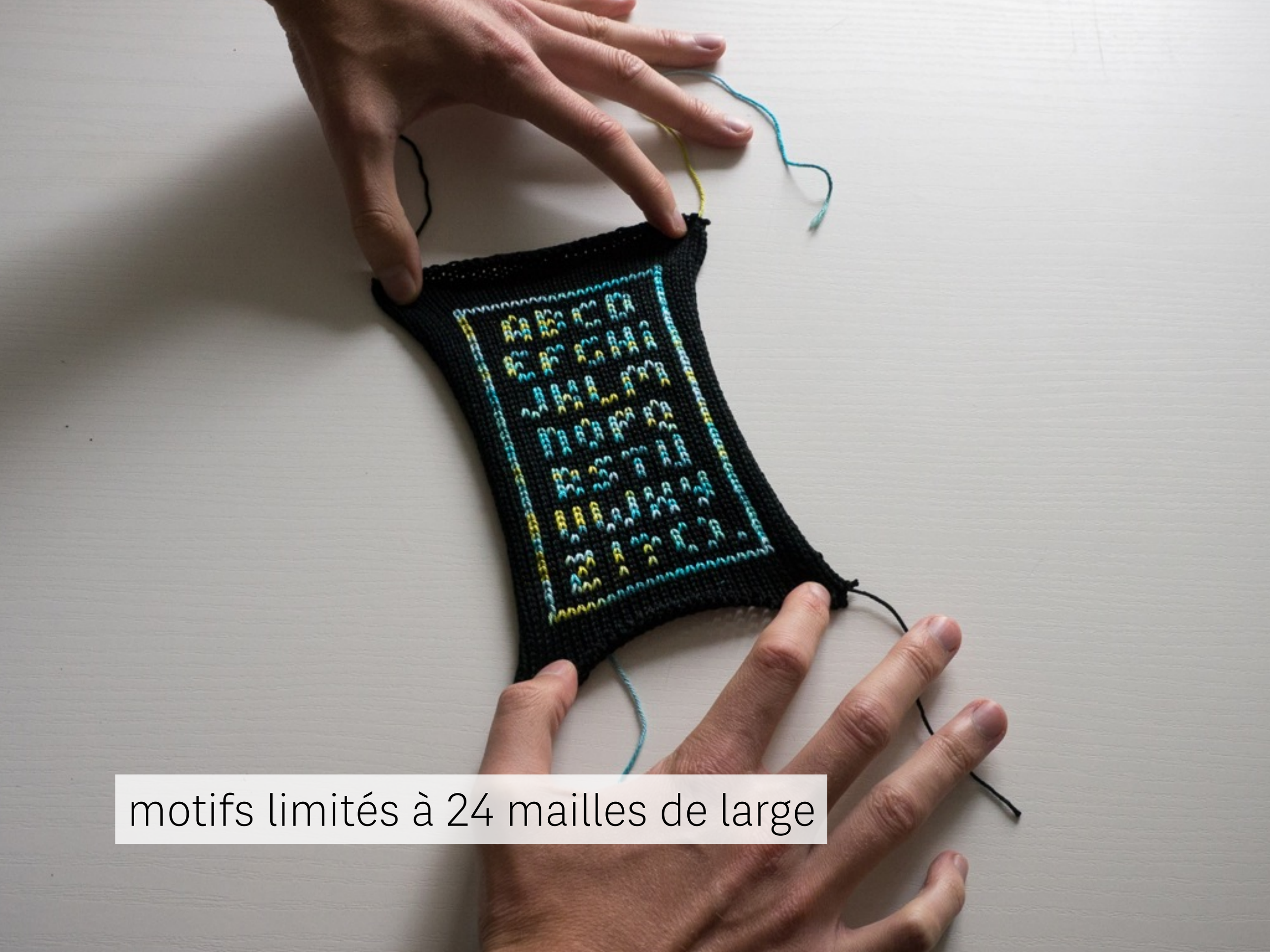
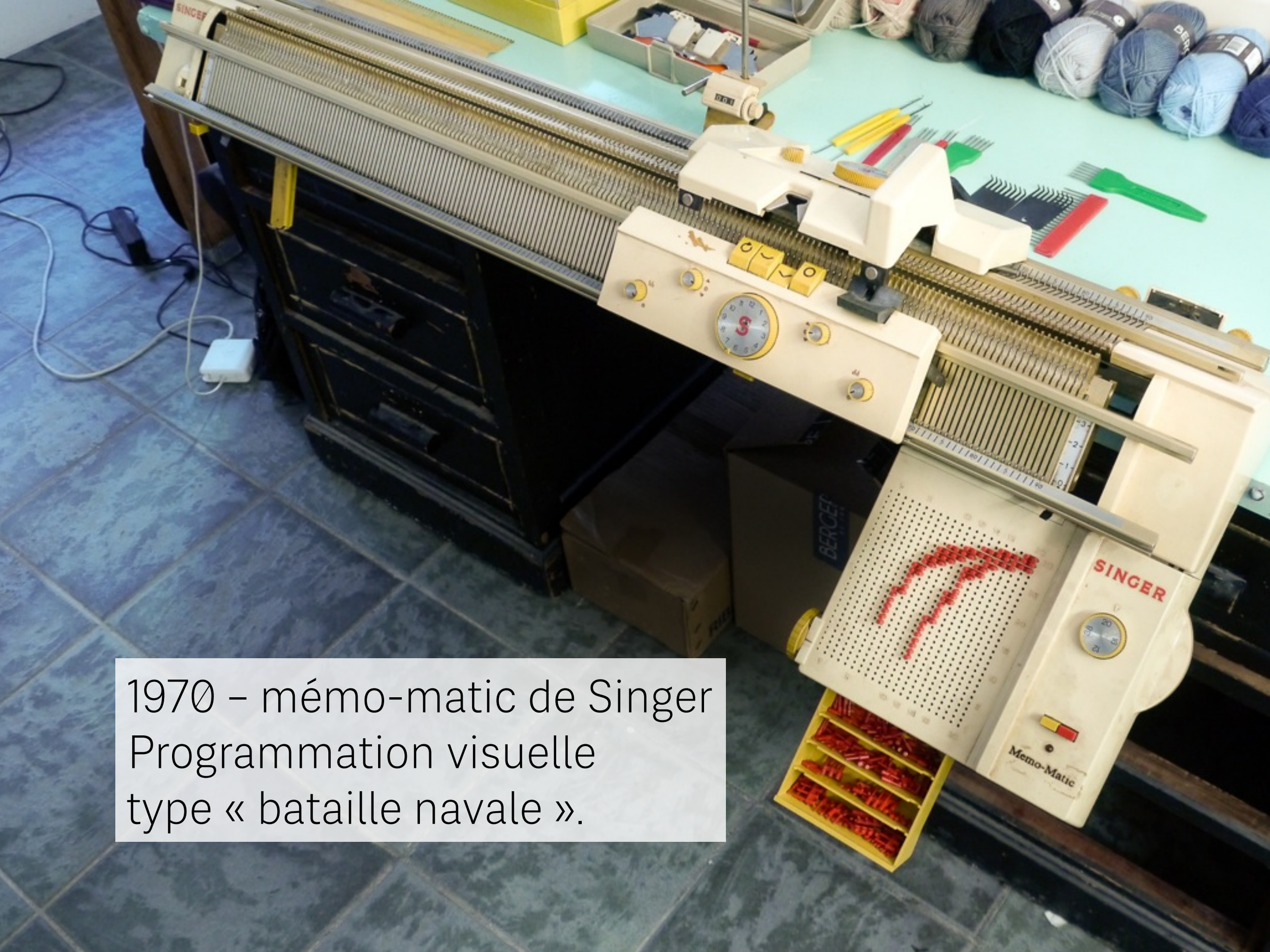
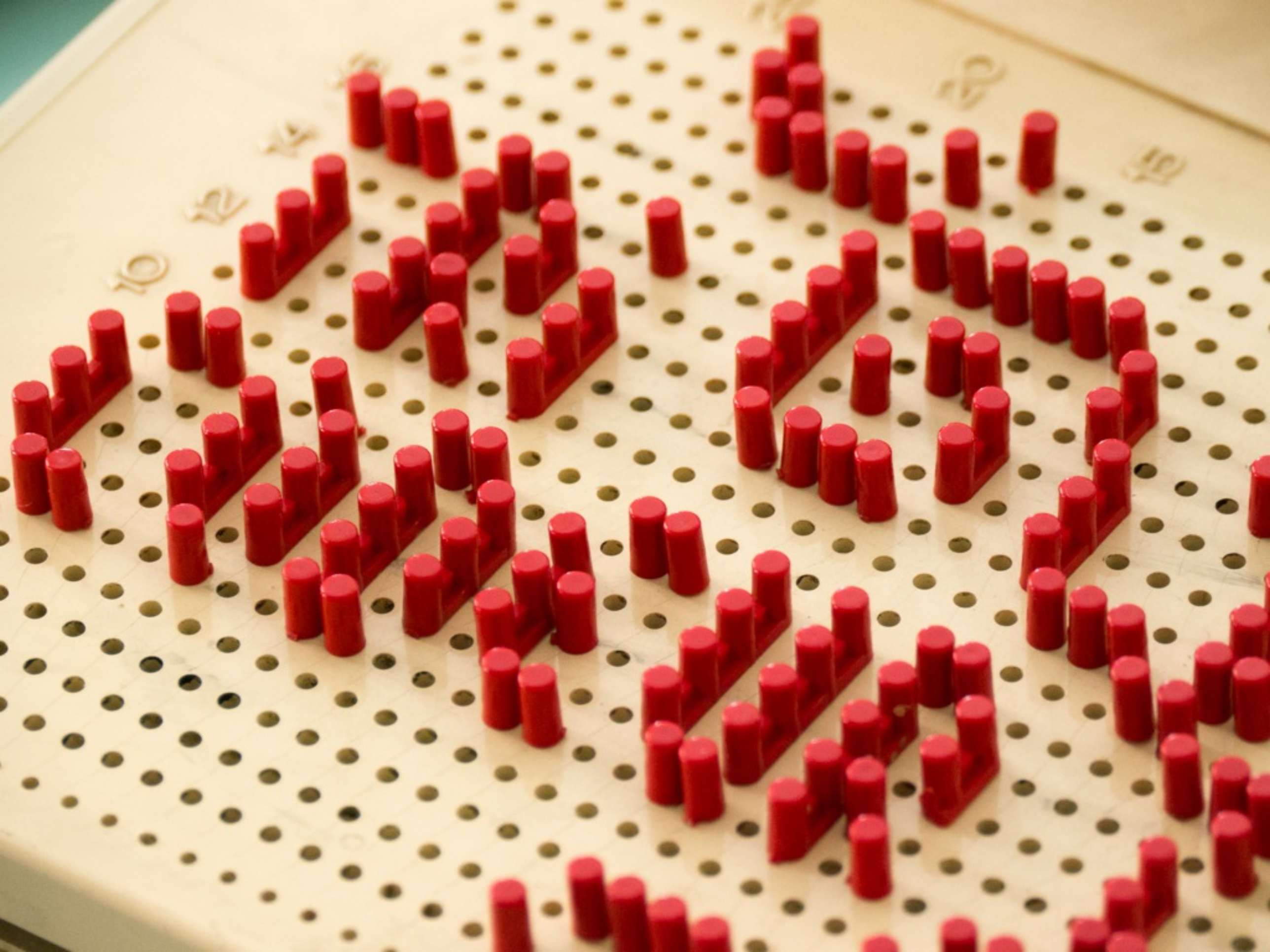


motifs limités à 24 mailles de large



1970 – mémo-matic de Singer
Programmation visuelle
type « bataille navale ».



SINGER
Memo-M

Memo-Manc
38
12
20
16

Tricot et programmation

1980 – arrivée sur le marché et dans les maisons de machines électroniques

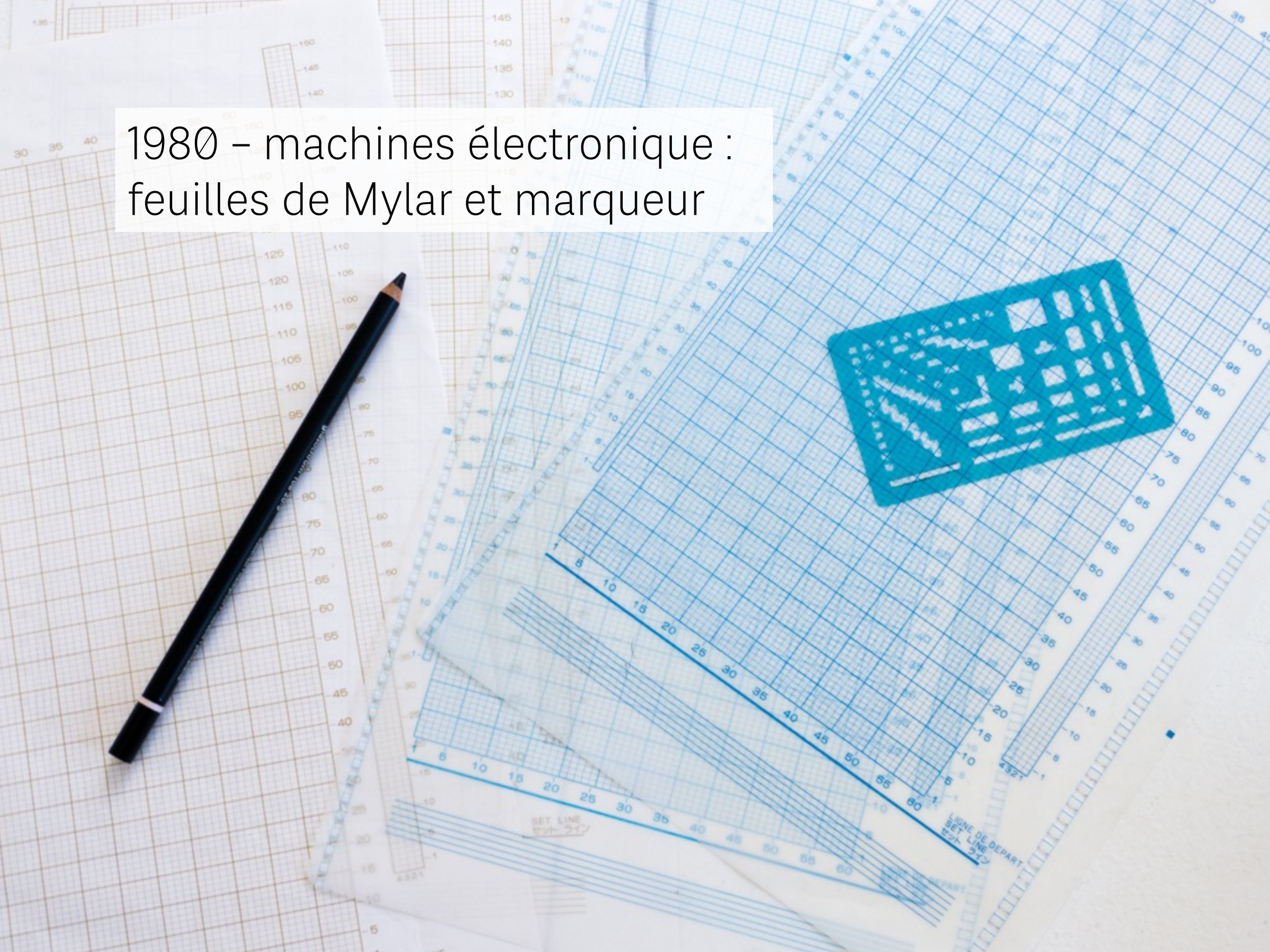
THE MAGIC OF THE

brother 950

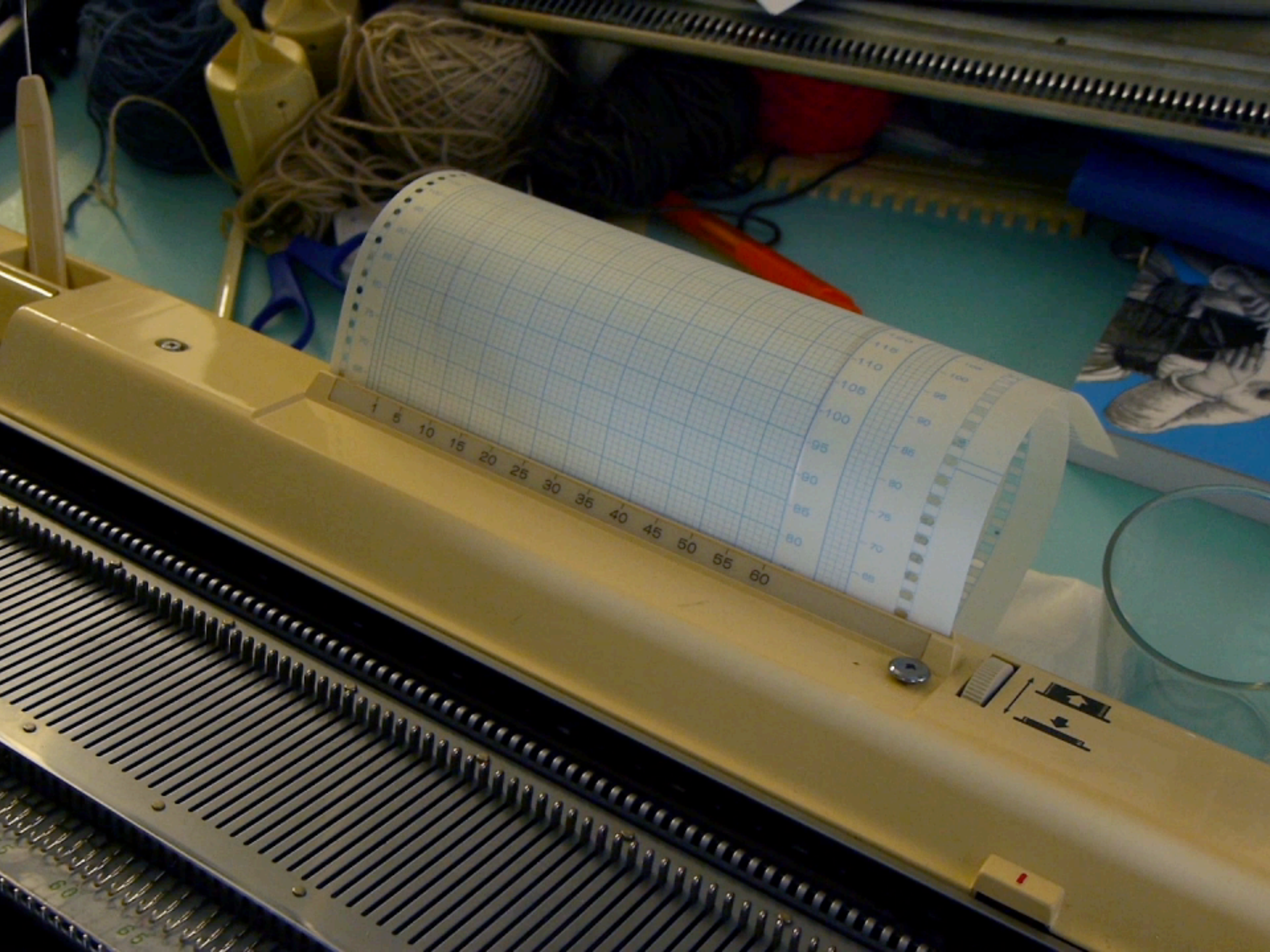
ELECTRONIC KNITTING MACHINE

1980 – machines électronique : sélection d’aiguilles réalisée par des moteurs type Solénoïdes

1980 – machines électronique : feuilles de Mylar et marqueur



1980 – machines électronique : scan de la feuille de Mylar



1980 – machines électronique : programmation par disquettes

SOURCE : HTTP://PASSIONTRICOT[illegible]M/PROGRAMMATEUR/P_ELECTRO.HTM

NEW!

NOW YOU'RE KNITTING WITH POWER.

You're looking at the Nintendo® Knitting Machine.

It's not a game. It's not a toy. It's something [illegible] Nintendo. And a lot more.

It's a machine that interacts with the powerful Nintendo® Entertainment System™ to actually knit sweaters: and not just one or two patterns but a multitude of different and unique designs.

The Nintendo Knitting Machine is just one more example of the innovative thinking that keeps Nintendo on the cutting edge of video technology. And our customers on the edge of their seats.

Of course, we should probably mention that no other video game system offers anything even remotely similar. But why needle the competition?

Now You're Playing With Power. Nintendo®

* & ™ TRADEMARKS OF NINTENDO OF AMERICA INC.
Nintendo of America Inc. P.O. Box 957, Redmond, WA 98052, U.S.A.

www.facebook.com/GamemasterHoward

1987 – Nintendo Knitting Machine

Lucy uses her Commodore 64
to help with her
knitting

A short clip from an episode
of Computer Chronicles
originally aired in 1988

Full episodes are
available online.org

1988 – Lucy uses her C64 for knitting

Tricot et programmation

- les machines électroniques des années 80 et 90 ont été les premières à permettre la fabrication de vêtements de qualité professionnelle à la maison.
- la production de ces machines s'est arrêtée dans les années 90 mais les machines sont robustes et toujours là.

Tricot et programmation

- les années 90 sont aussi le moment où l'apparition d'Internet a relancé l'intérêt pour ces machines et où des groupes et forums de tricots se sont rapidement mis en place.

Tricot et programmation

- le retour à une **production locale** et personnalisée, ainsi que l’intérêt des **communautés de hackers** pour ces merveilles de l'électronique a permis aux machines de vivre une deuxième jeunesse

June 24, 2009 at NYC Resistor

Gigapan Demo Active Image: Gigapan Web Site

Susan and I doing hacker space tourism

Makerbot: Adam Mayer, Bre Pettis, Zack Smith

The knitting machine (Brother KH-930) was spotted on the shelf

We ended up buying a Makerbot kit AND a knitting machine.

2009 – Steve Conklin

SOURCE : HTTP://WWW.AI4QR.COM/PRESENTATIONS/KNITHACK-HISTORY.PDF

2010 – Electroknit par Becky Stern

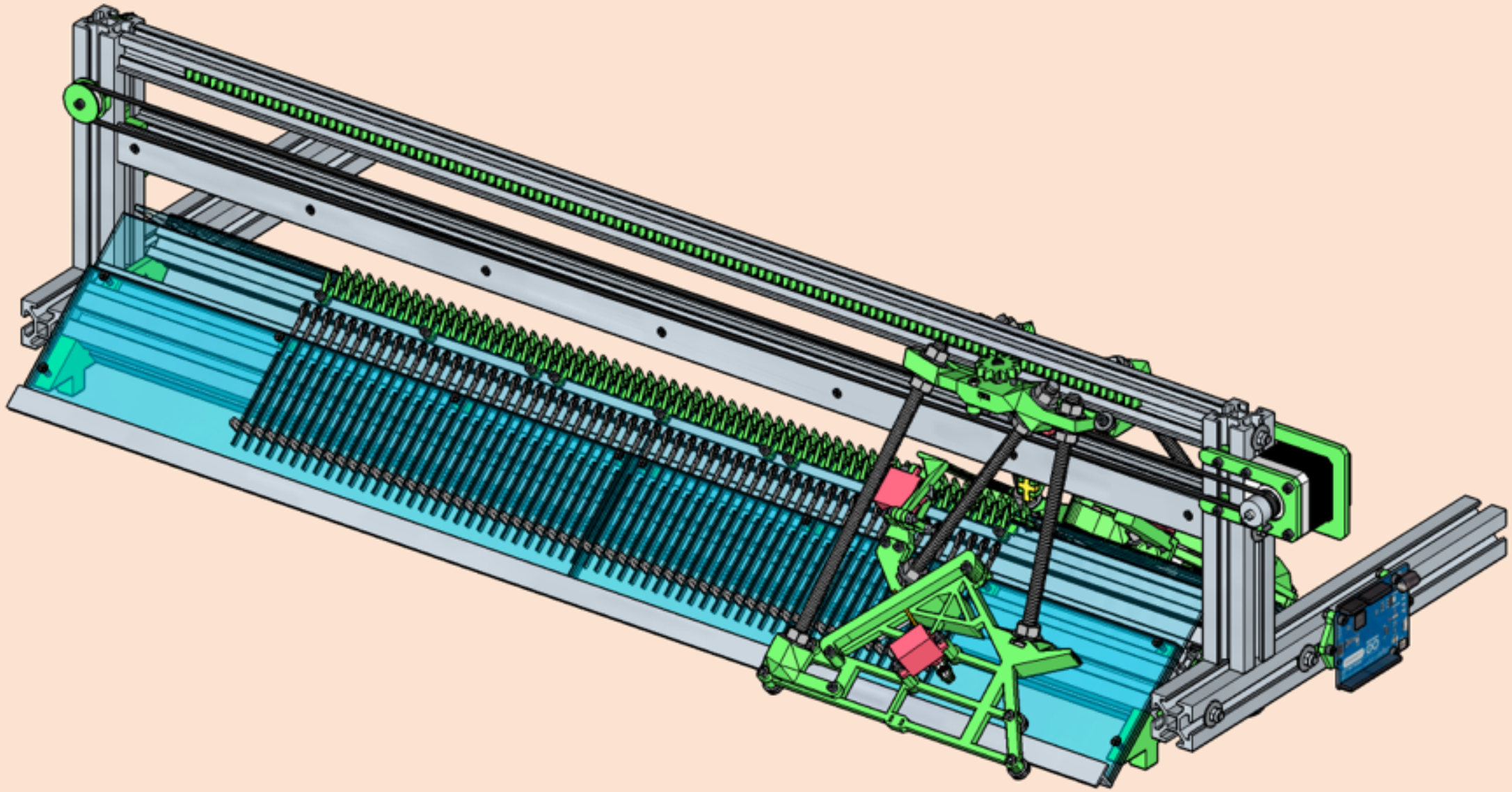
SOURCE : HTTPS://LEARN.ADAFRUIT.COM/ELECTROKNIT/

Knitic: 'Replace old brain with new one' tutorial

Step 2: unplug carefully all wires. Good idea is to mark them, if you want to use the control panel one day again

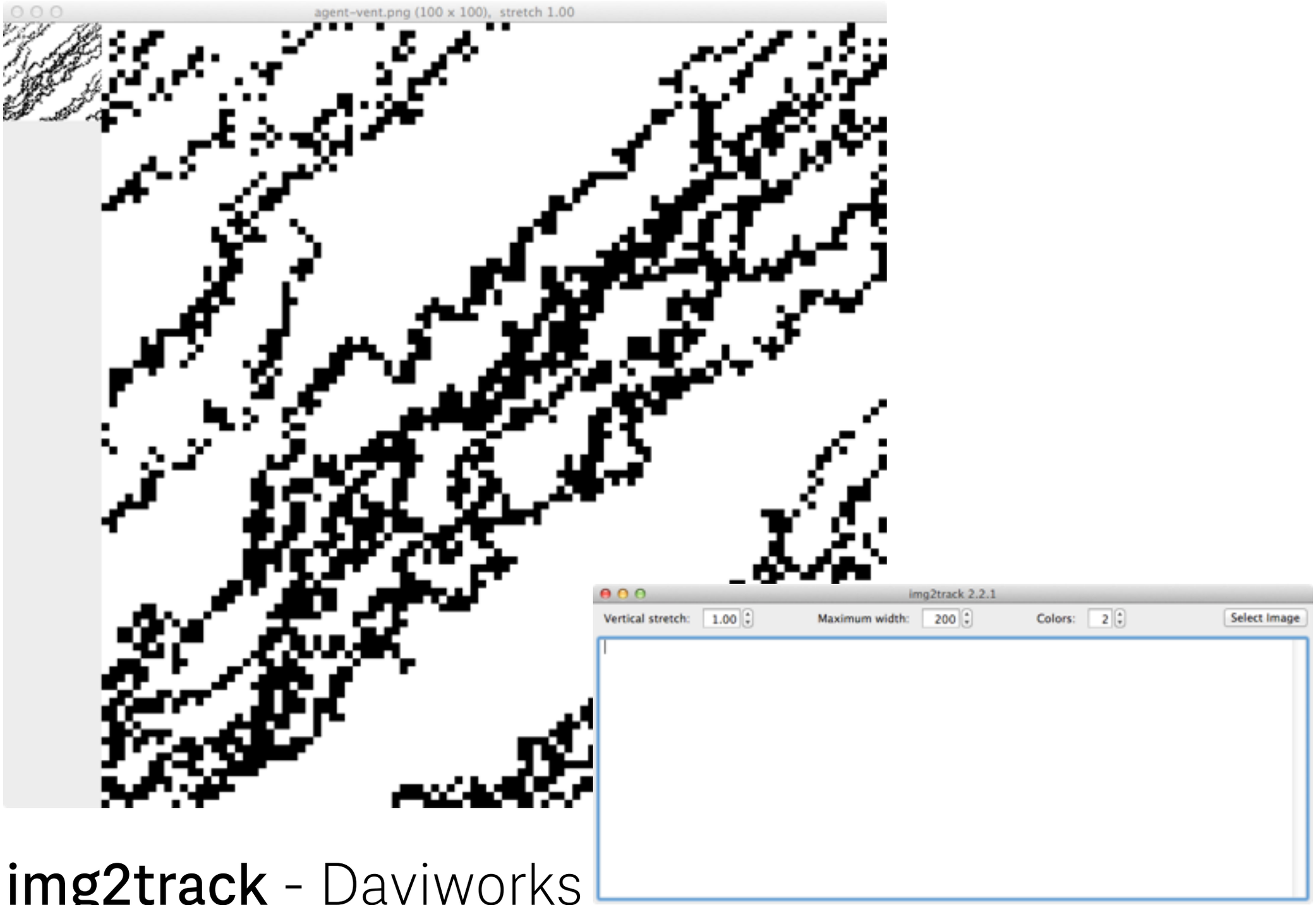
2010 – **Knitic** - Mar Canet et Varvara Guljajeva

SOURCE : HTTP://WWW.KNITIC.COM/



OpenKnit - Gerard Rubio

SOURCE : OPENKNIT.ORG



img2track - Daviworks

SOURCE : DAVIWORKS.COM/KNITTING/

Andrew Salomone

SOURCE : HTTP://ANDREWSALOMONE.COM/

Neuroknitting - Varvara Guljajeva, Mar Canet, and Sebastian Mealla

SOURCE : WWW.KNITIC.COM/NEURO/

Glitch Knit - Kanno, Nukeme, et Tomofumi Yoshida

SOURCE : KANNO.SO/GLITCH-KNIT/

Tricot et programmation

La carte perforée et la machine à tricoter sont les précurseurs de méthodes de programmation visuelle pour créer des images.

Le tricot et la programmation pour créer des images

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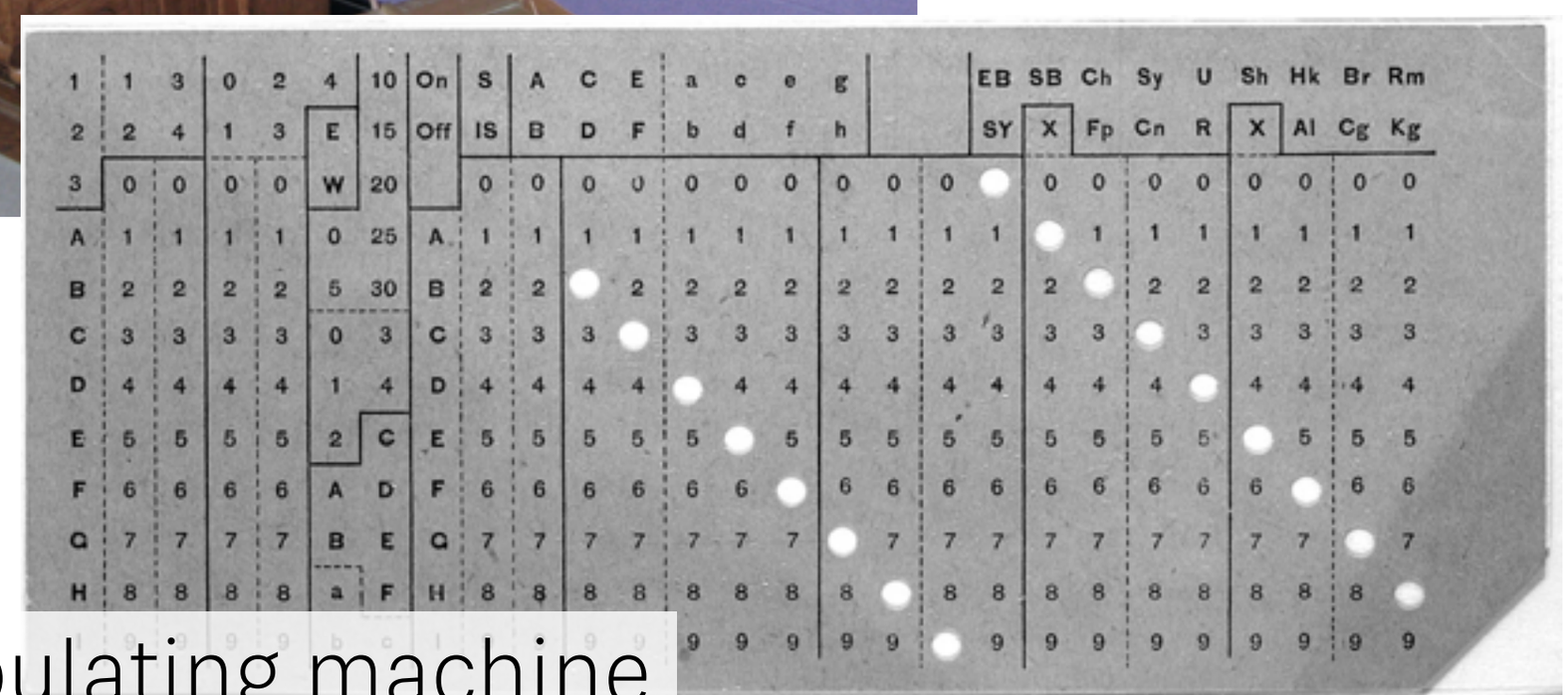
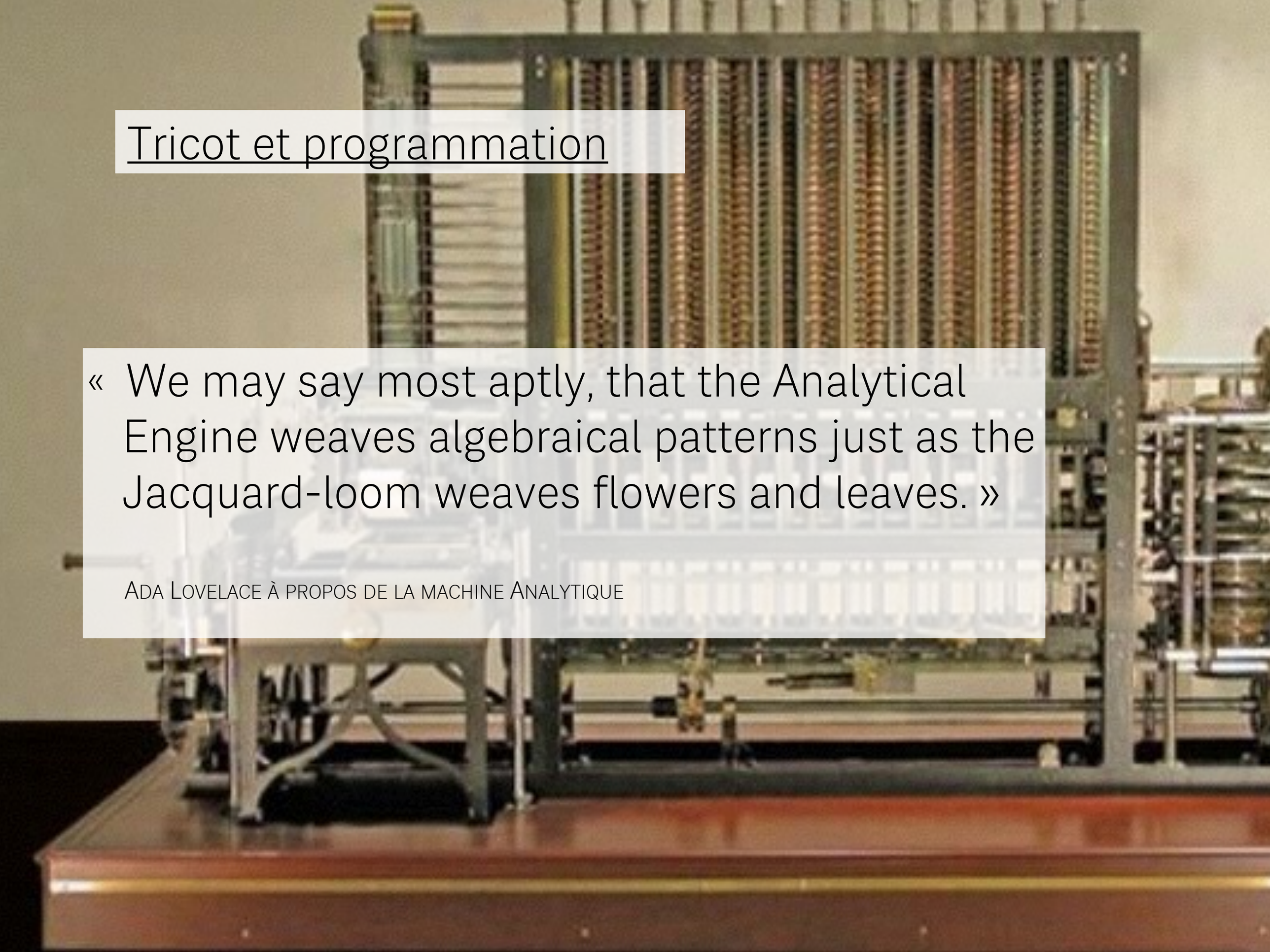
Tricot et programmation

La carte perforée et la machine de Jacquard ont **inspiré à deux ingénieurs de l'époque** des inventions qui allaient profondément **influencer l'informatique moderne**.



Hollerith tabulating machine



Tricot et programmation

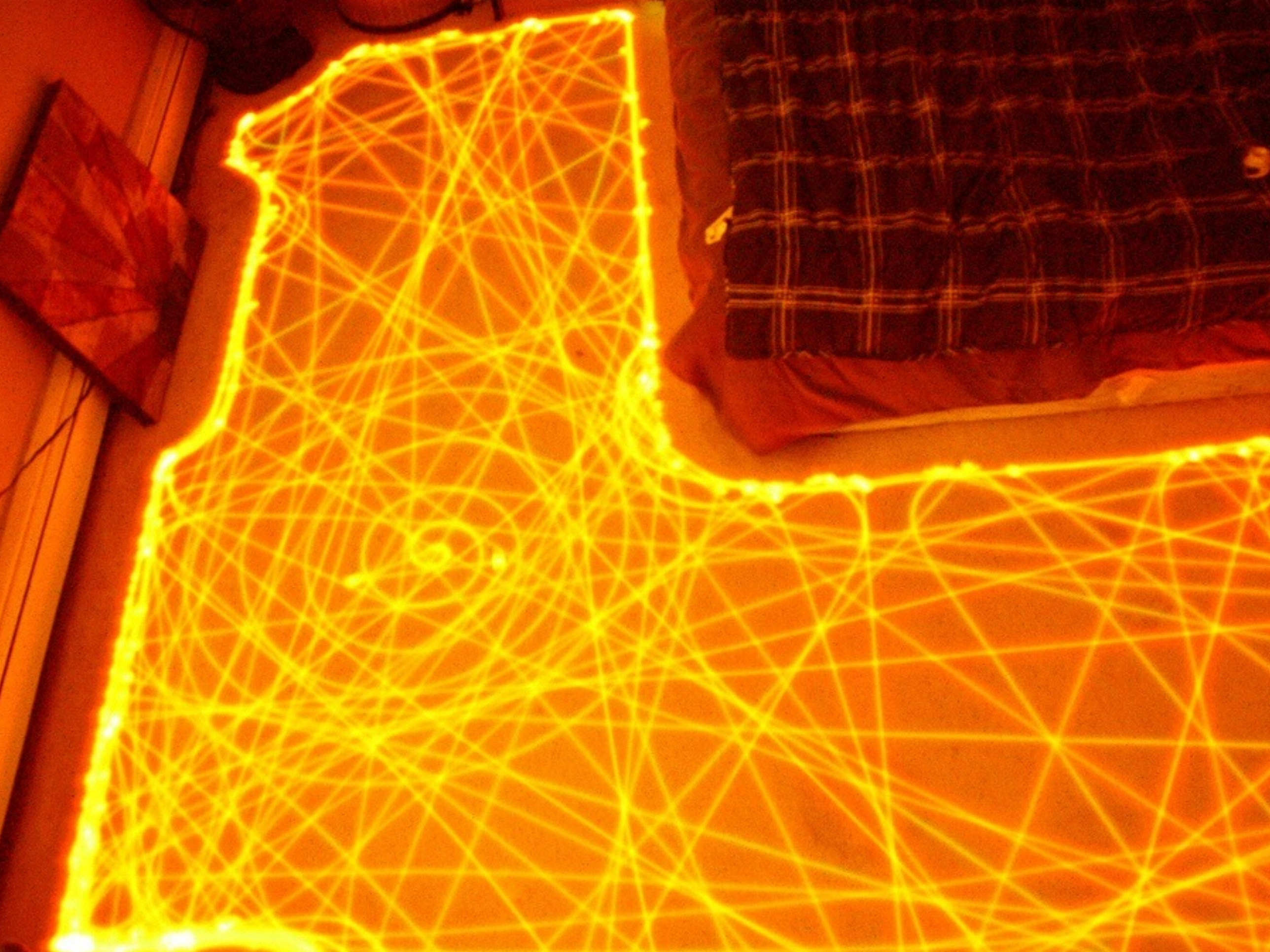
« We may say most aptly, that the Analytical Engine weaves algebraical patterns just as the Jacquard-loom weaves flowers and leaves. »

Ada Lovelace à propos de la machine Analytique

Algorithmes et codes pour créer des images et des formes

Un **algorithme** est essentiellement **une suite d'instructions** suivies par un homme ou par un ordinateur.

Exemple d’algorithme
Le Roomba, apirateur-robot



Exemple d’algorithme :
Personnalisation des résultats Google

Daniel: Travel Information

Google

Egypt | Search

About 321,000,000 results (0.15 seconds) Advanced search

- Everything
- Images
- Videos
- News
- Shopping
- Books
- More

New York, NY
Change location

Any time
Latest
Past 24 hours
Past week
Past month
Past year
Custom range...

All results
Sites with images

Egypt - Wikipedia, the free encyclopedia
Egypt officially the Arab Republic of **Egypt**, is a country mainly in North Africa, with the Sinai Peninsula forming a land bridge in Southwest Asia. ...
Hosni Mubarak - Ancient Egypt - Female genital cutting - History of modern Egypt
en.wikipedia.org/wiki/**Egypt** - Cached - Similar

Egypt Travel, Tours, Vacations, Ancient **Egypt** from Tour **Egypt**
Information for travelers, resources on history, monuments and activities.
www.tour**egypt**.net/ - Cached - Similar

Egypt Daily News, **Egypt** News
Egypt Daily News, covering **Egypt** News, Arab news, Middle East news and World news. Egyptian Guides, egyptian recipes, egyptian food, egyptian airforce, ...
www.**egypt**dailynews.com/ - Cached - Similar

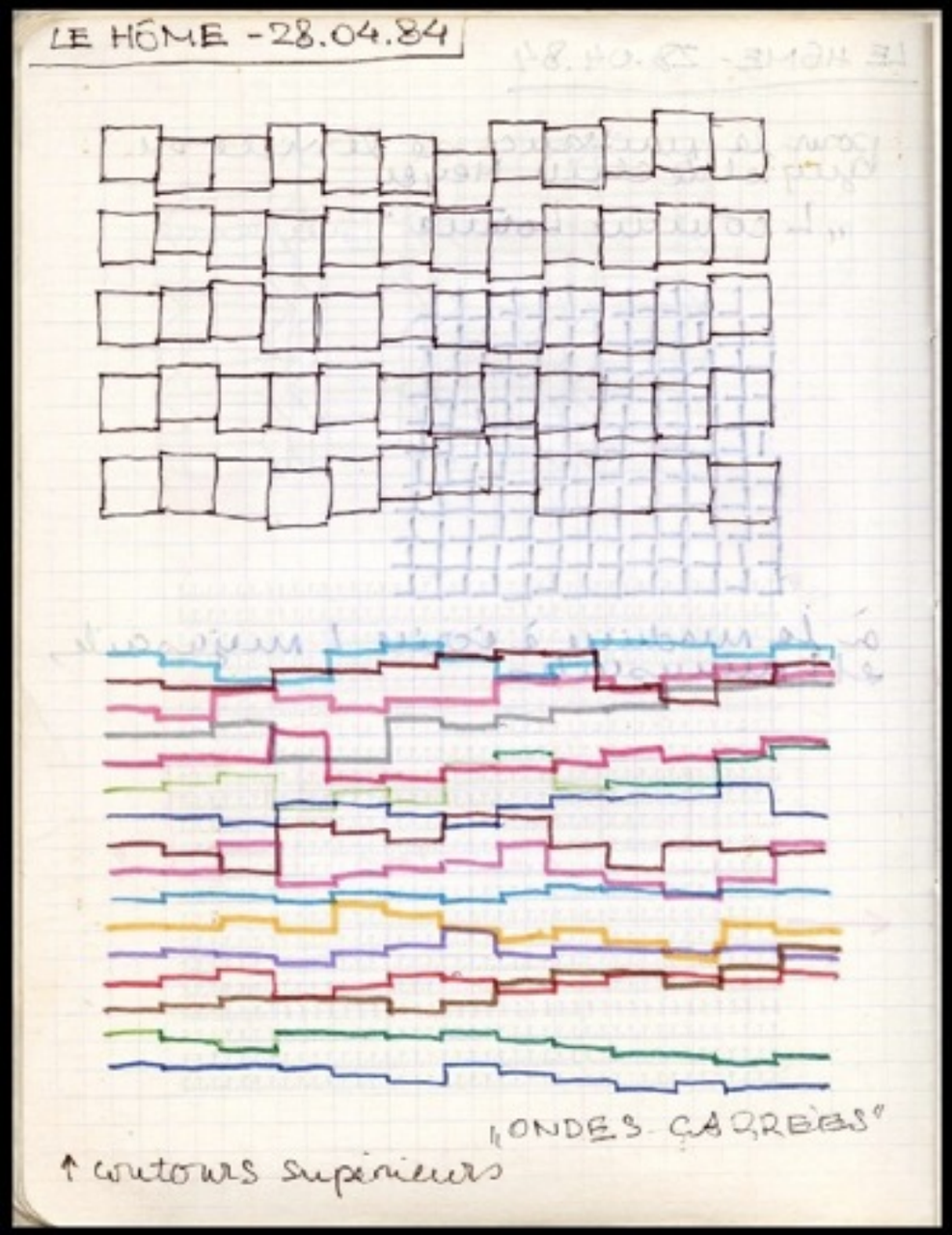
Images for **egypt** - Report images

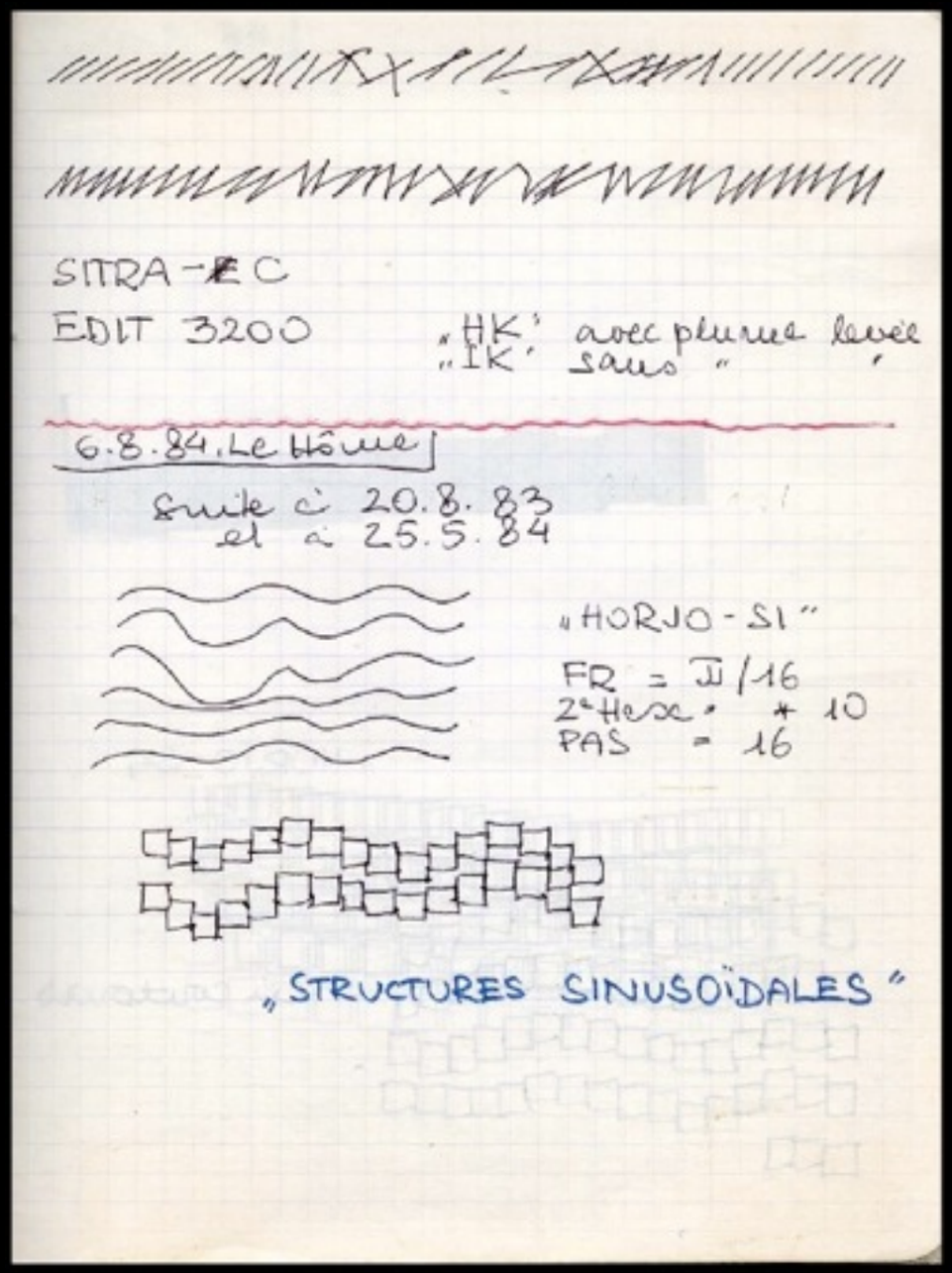
Egypt - CIA - The World Factbook
Feb 1, 2011 ... Features a map and brief descriptions of geography, economy, government, and people.
https://www.cia.gov/library/publications/the-world.../eg.html - Cached - Similar

Algorithmes et codes pour créer des images et des formes

Algorithmes visuels :
la machine imaginaire de Vera Molnár

Vera Molnár (1924 —)

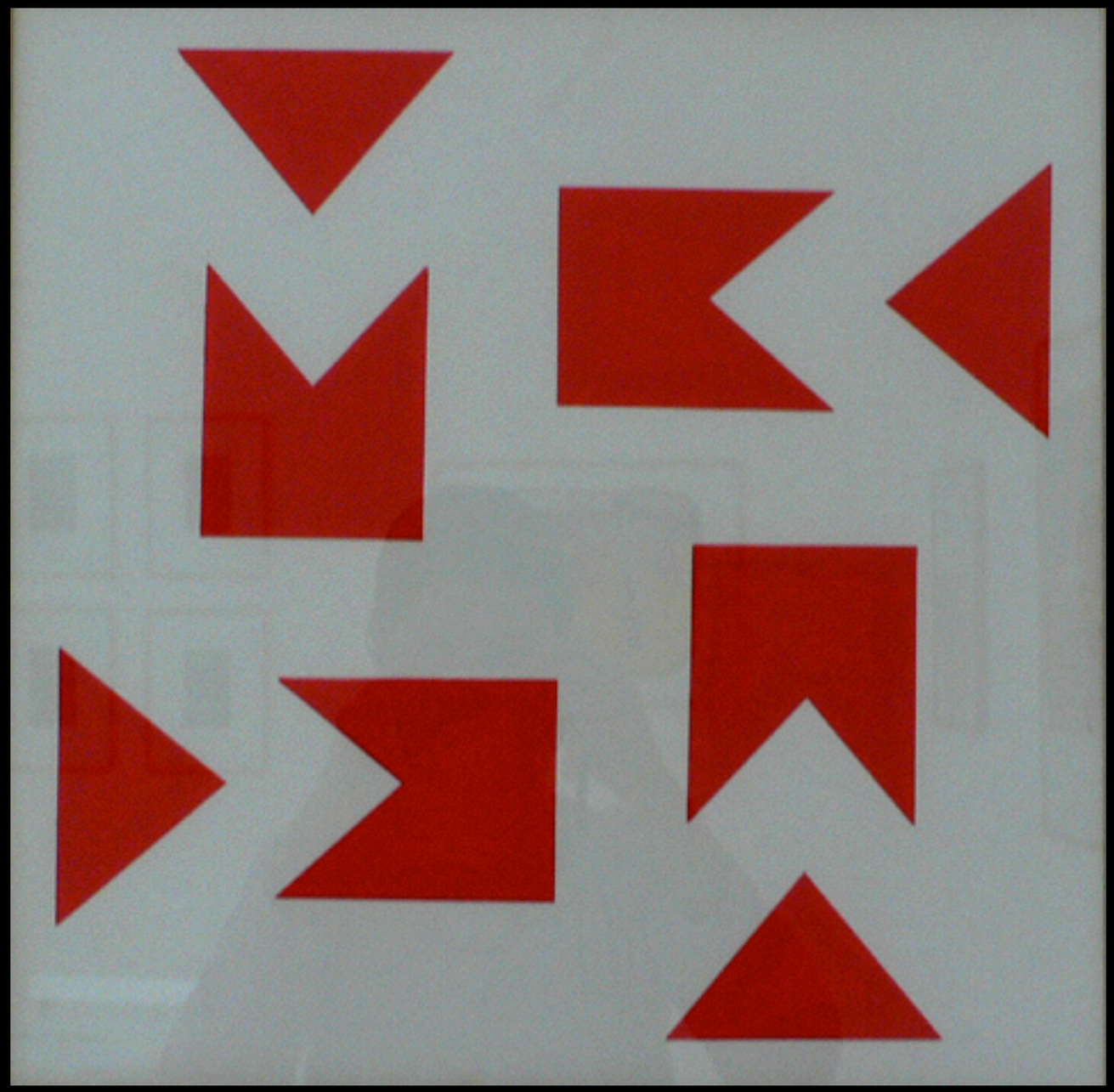




Vera Molnàr — La machine imaginaire

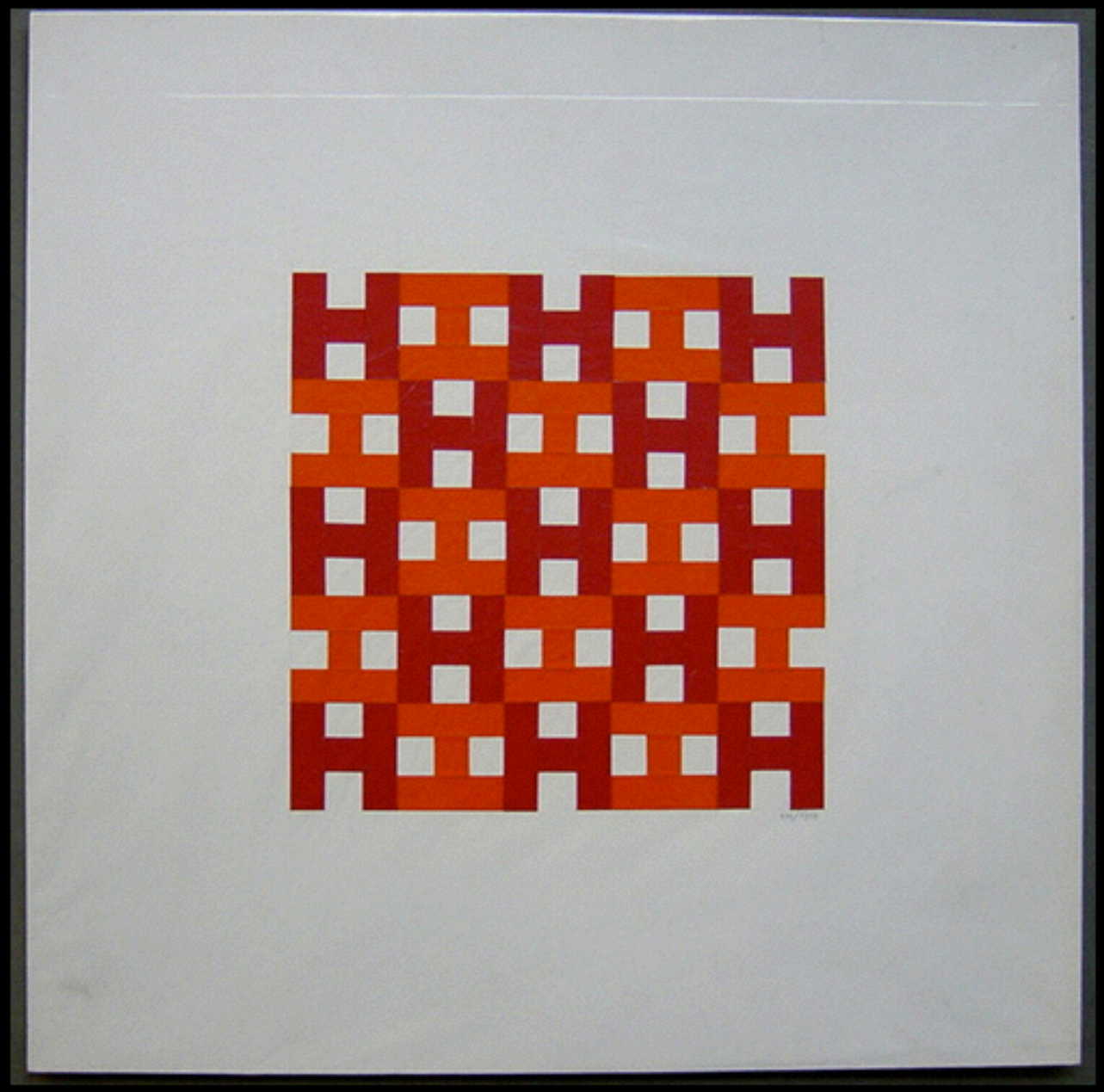
« I imagined I had a computer. I created a program and then, step by step, realized simple, limited series, which, though, were self-contained, thus not skipping any shape combination. »

Vera Molnàr — La machine imaginaire



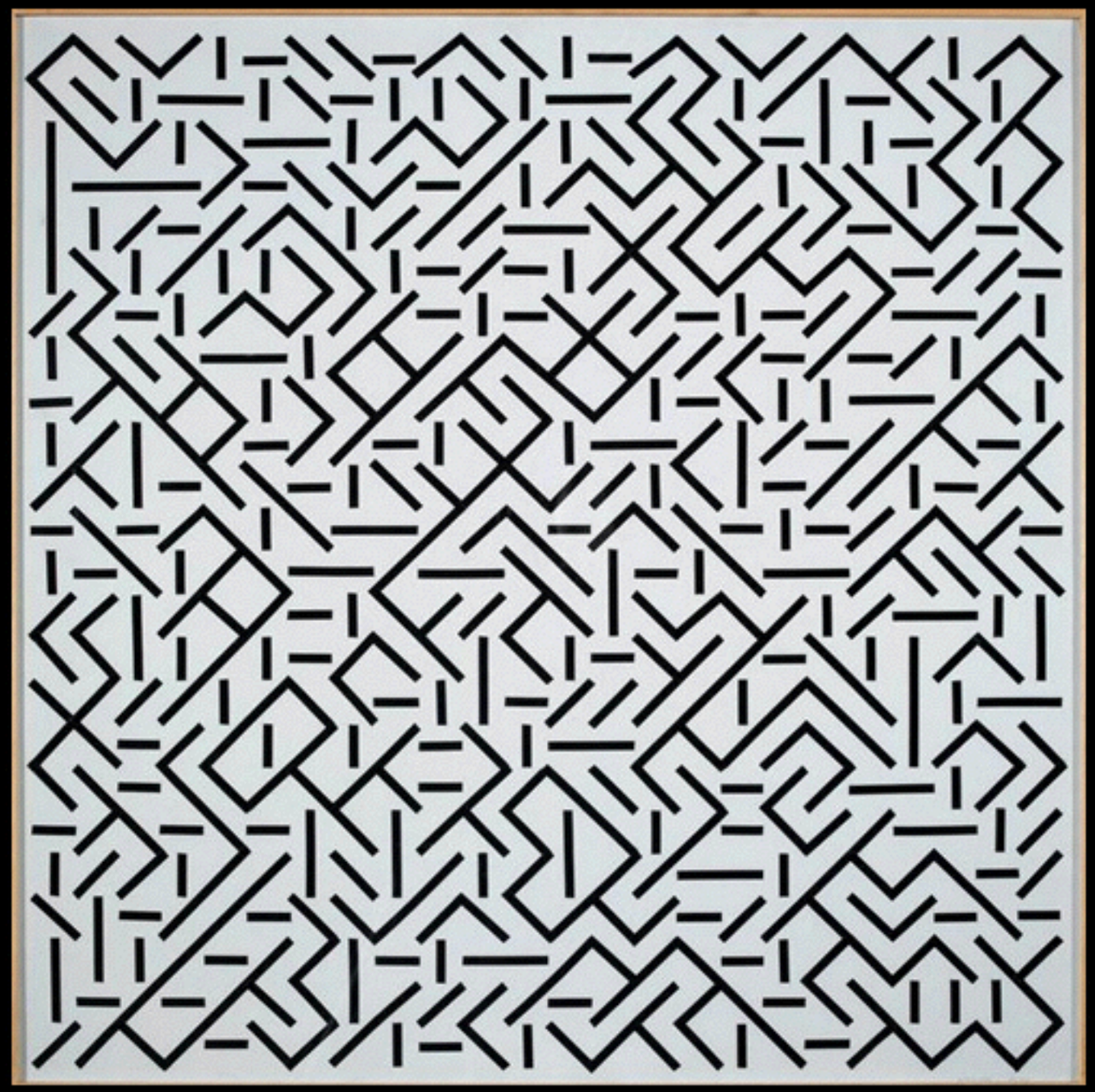
M Comme Malévitch
(1968)

Vera Molnàr — La machine imaginaire



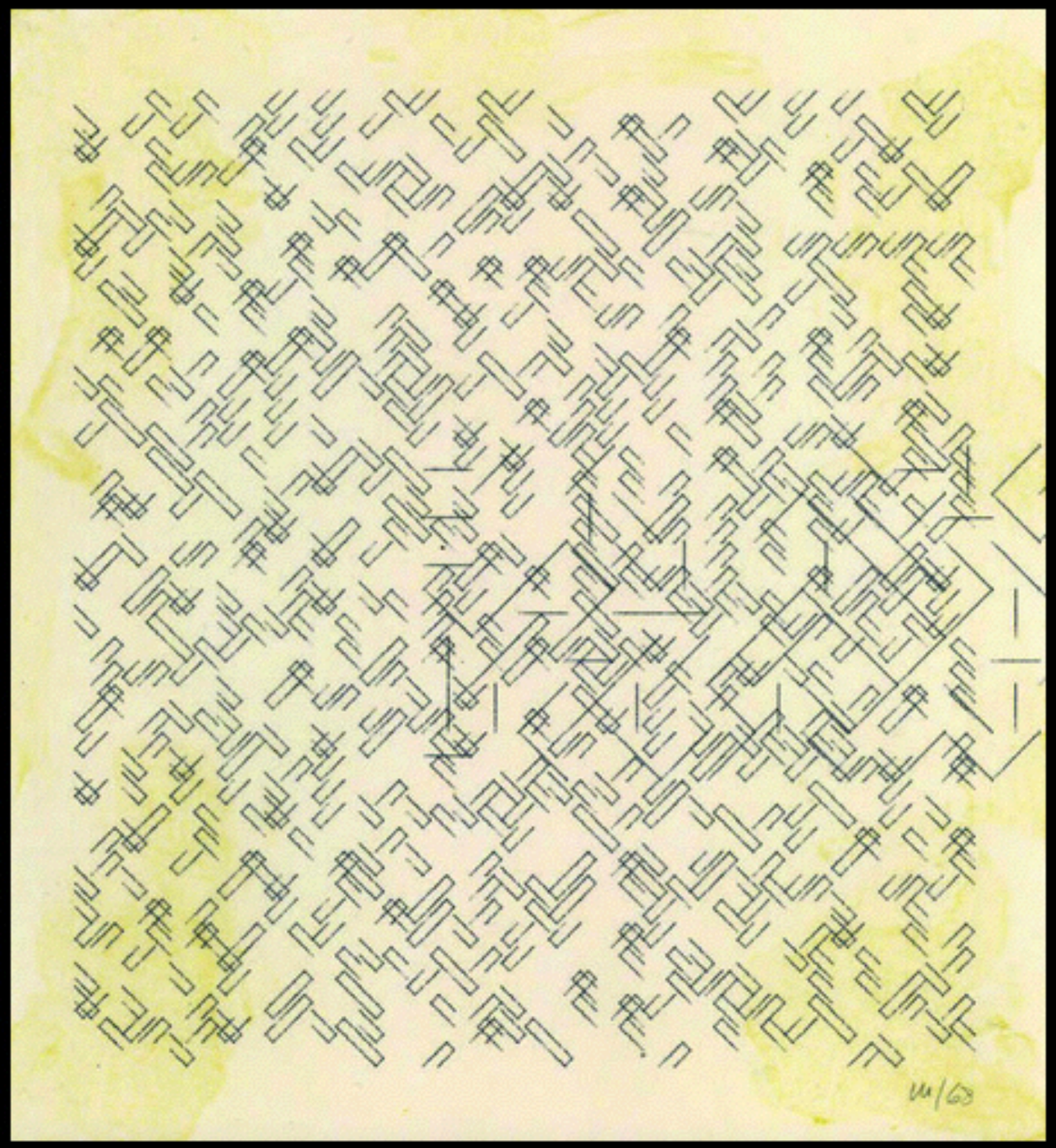
Histoire d'I (1967)

Vera Molnàr — La machine imaginaire



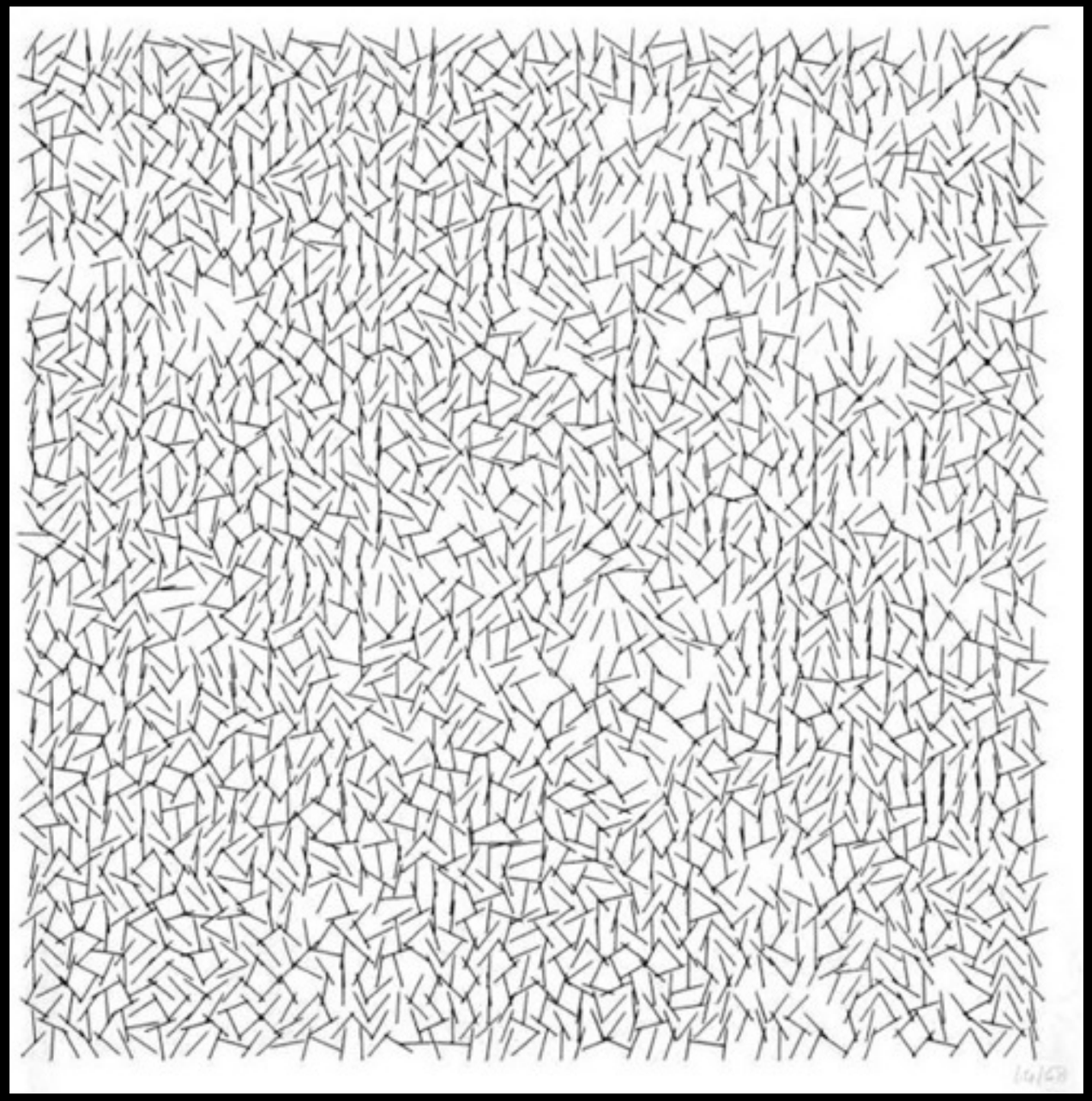
Quatre éléments distribués au hasard (1959)

Vera Molnàr



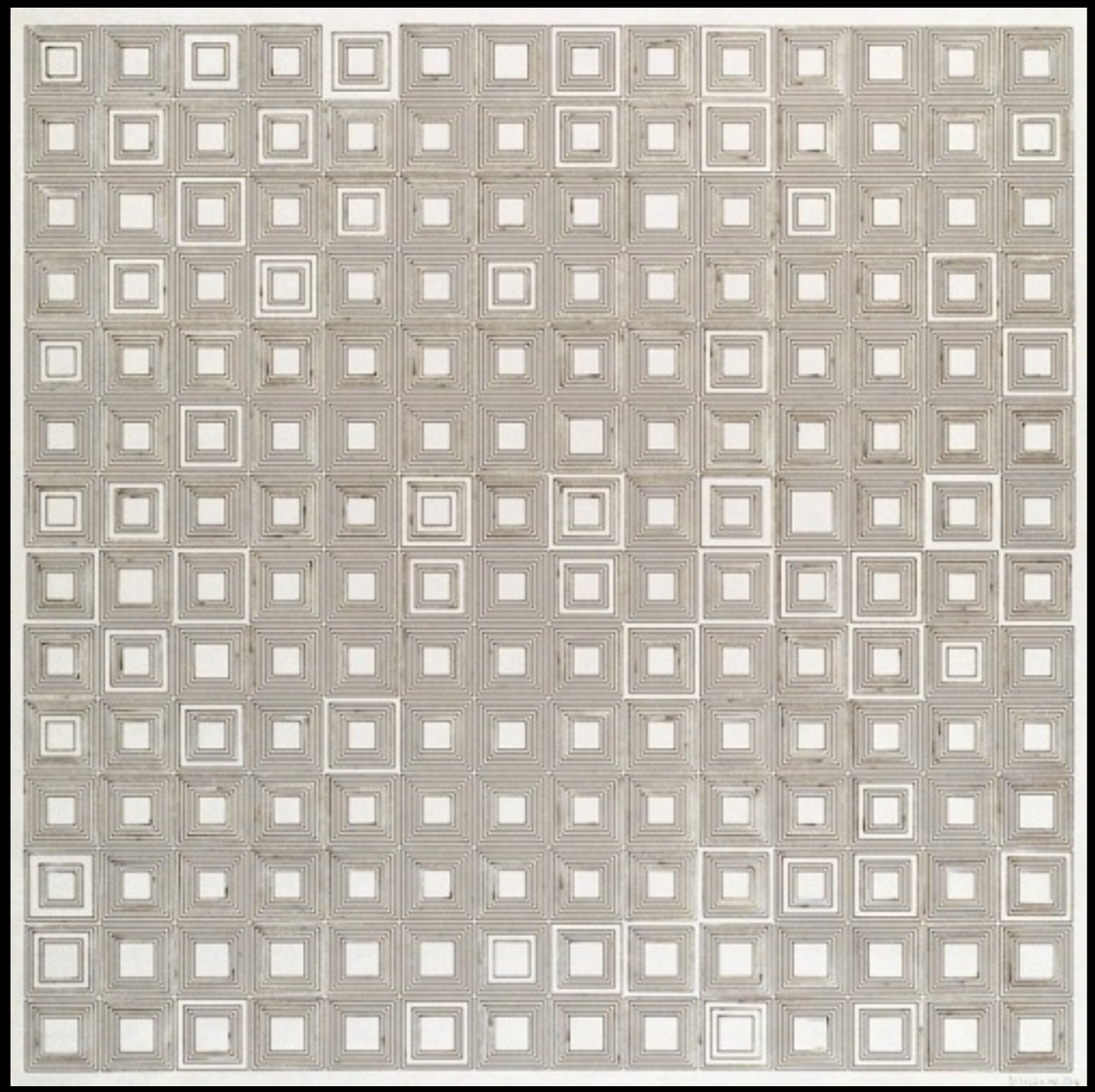
SANS TITRE (1968)

Vera Molnàr



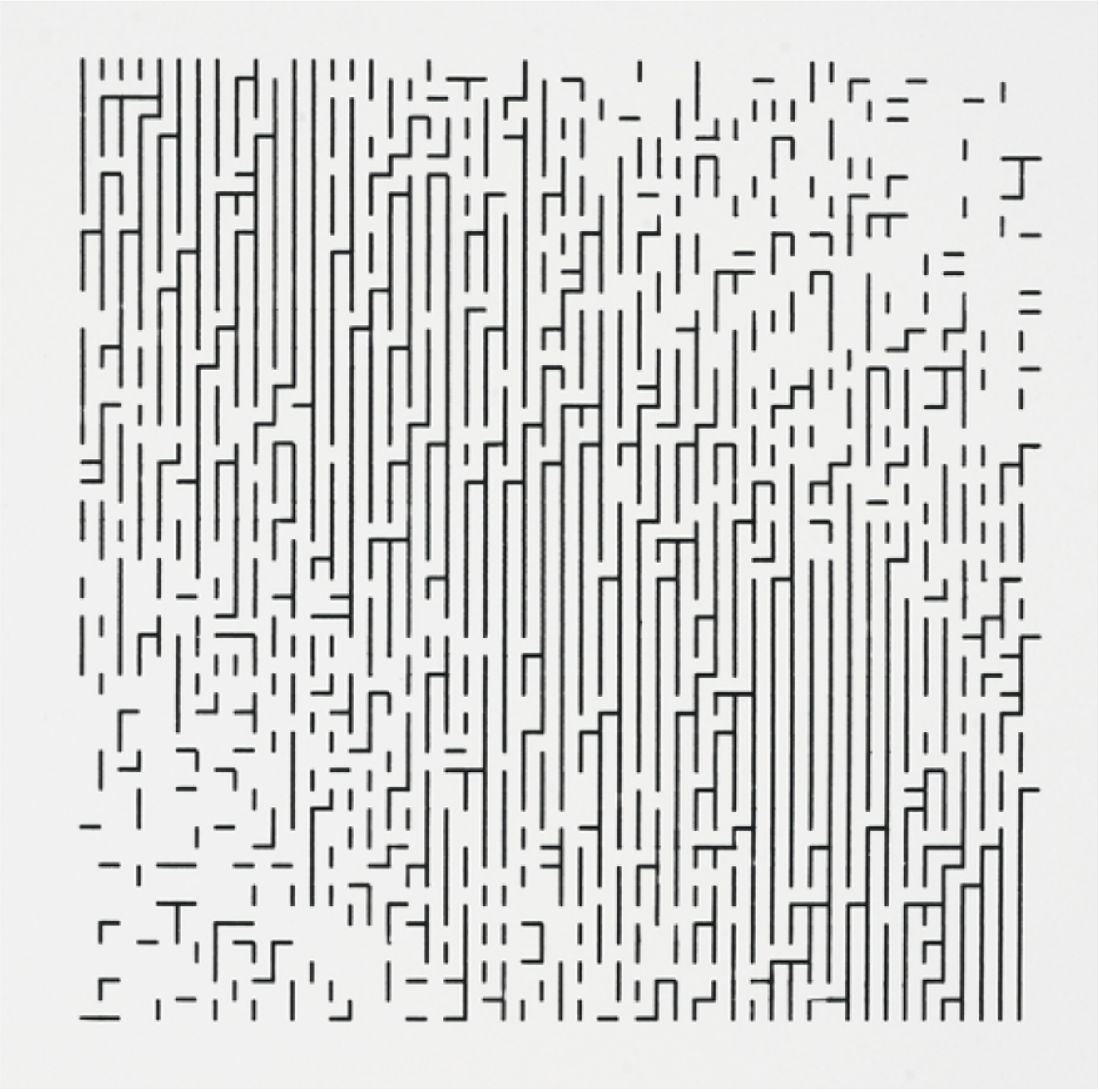
INTERRUPTIONS (1968)

Vera Molnàr



(DÉS)ORDRES (1974)

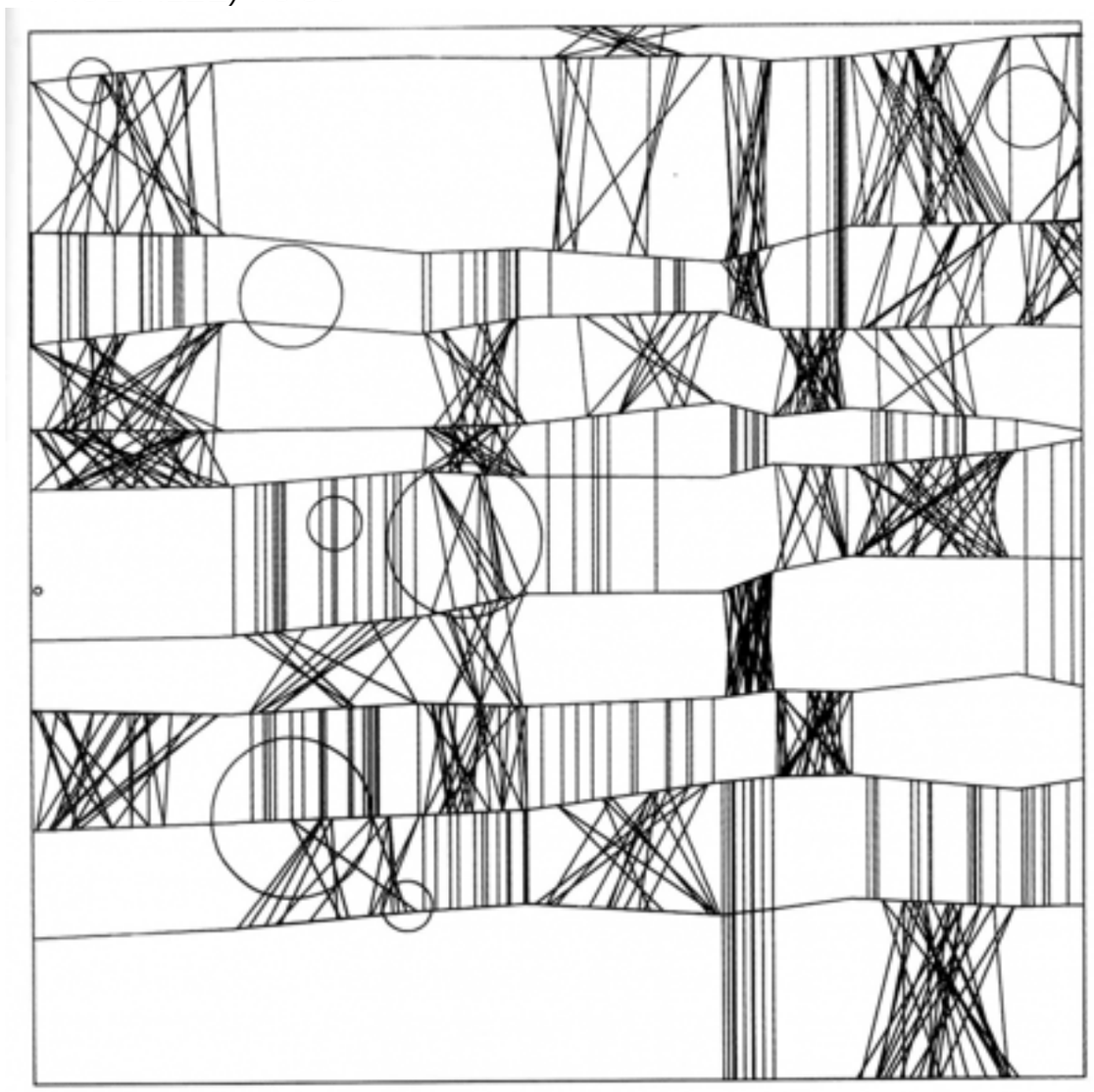
Frieder Nake



WALK-THROUGH-RASTER, SERIES 2, 1-4 (1966)

Frieder Nake

13/9/65 Nr. 2 (also known as Hommage to Paul Klee) 1965

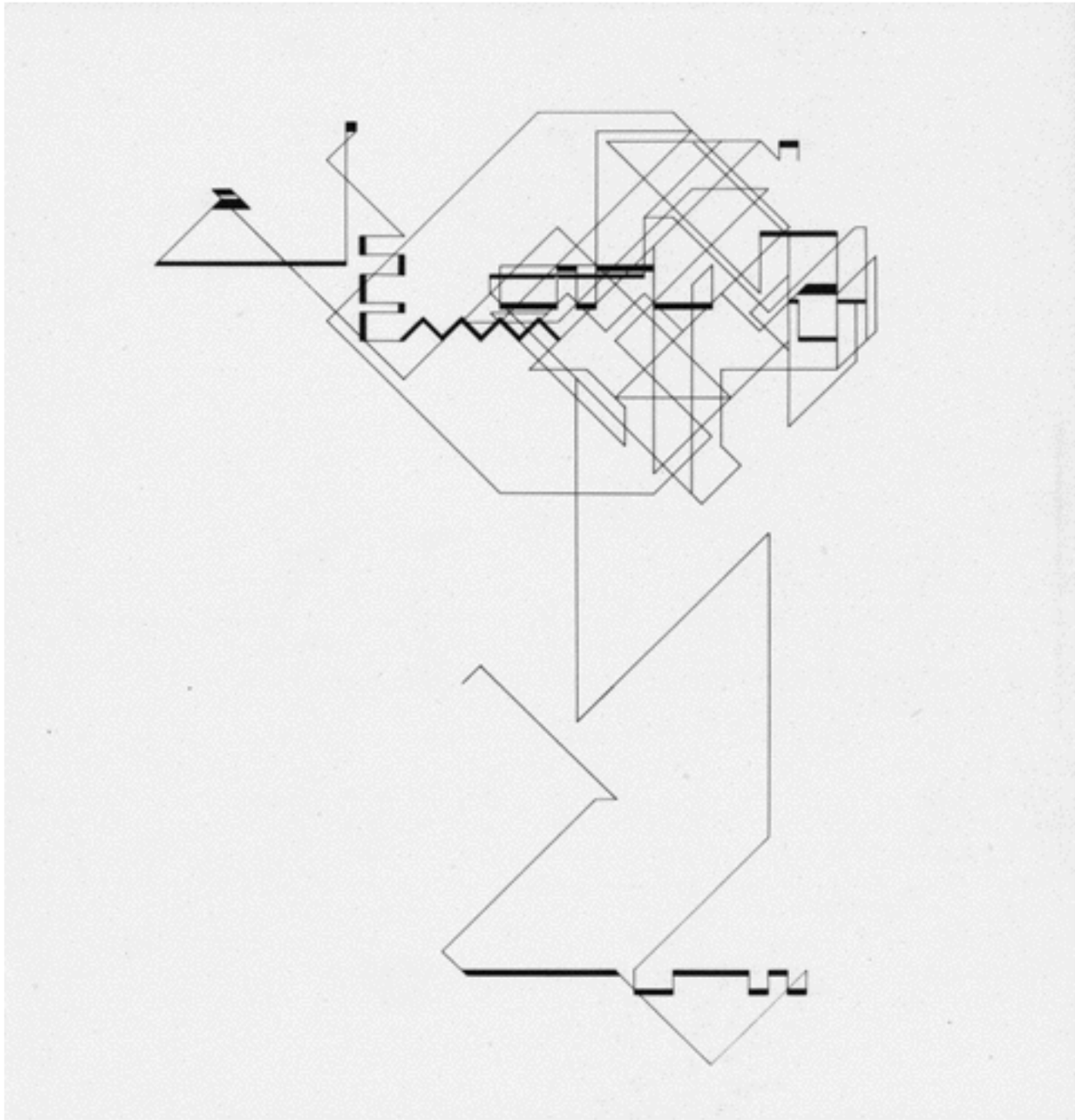


Highroads and Byroads, Paul Klee (1929)

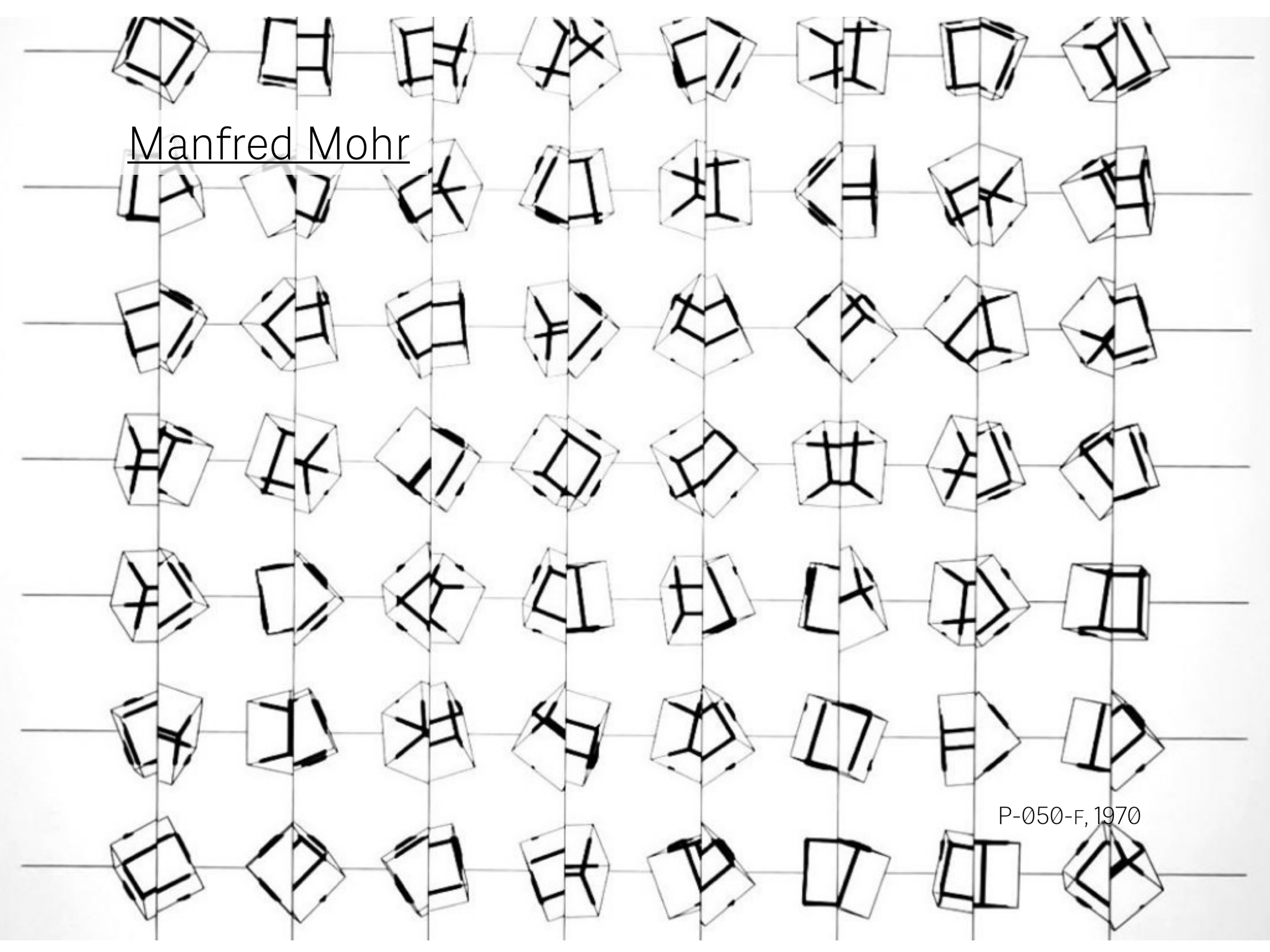
Manfred Mohr

EXPOSITION « UNE ESTHÉTIQUE PROGRAMMÉE » À L'ARC 1971

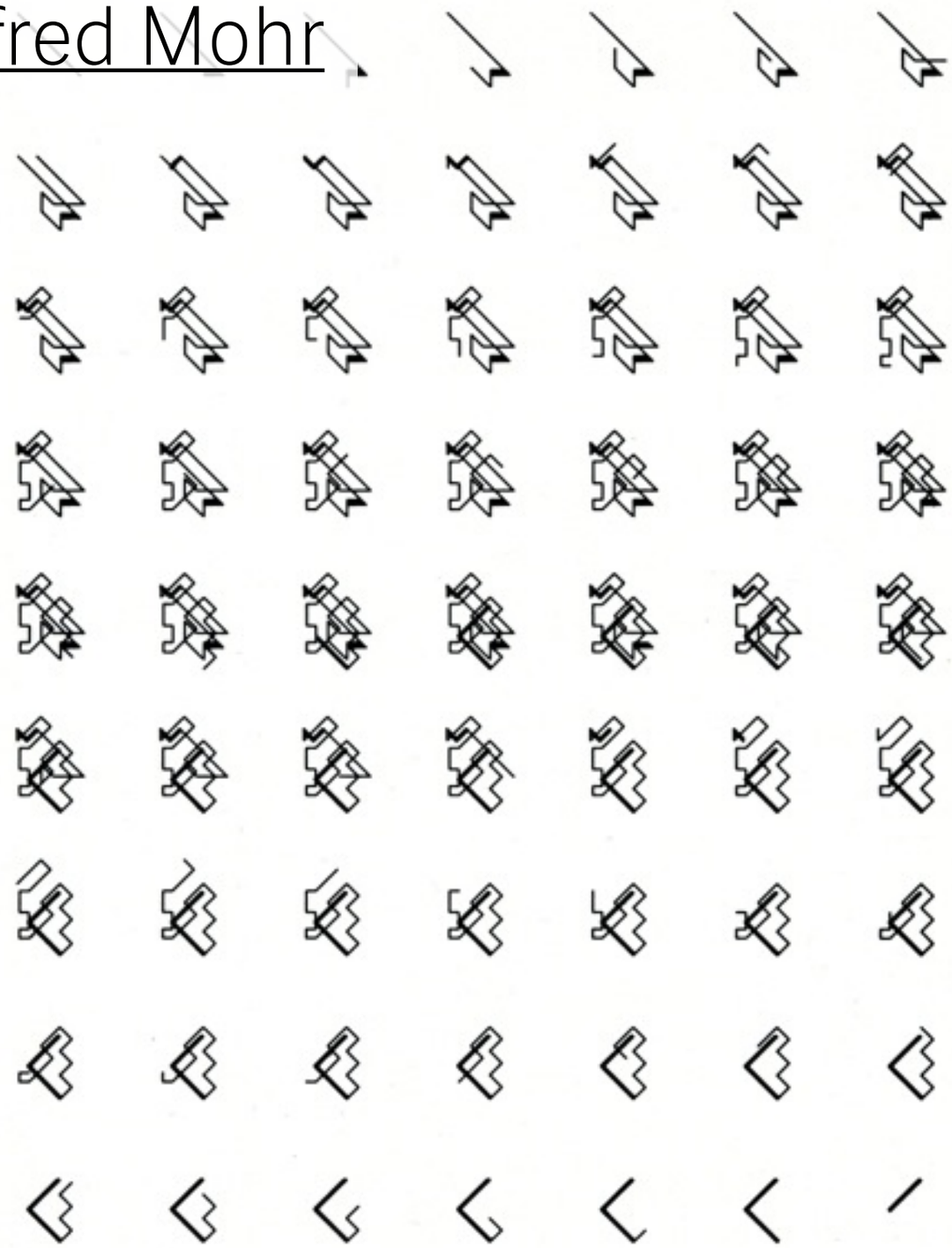
Manfred Mohr



RANDOM WALK 1969

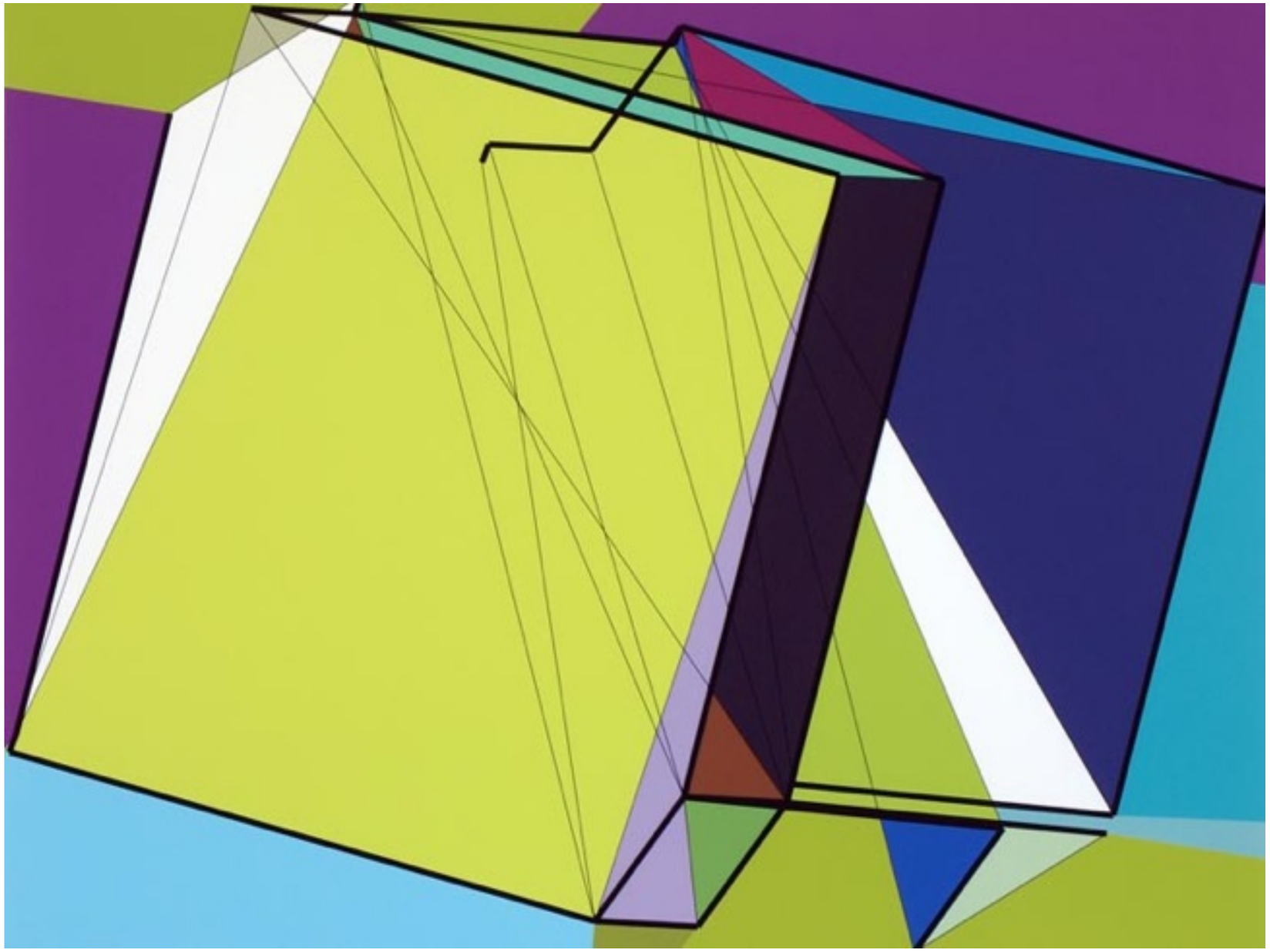

Manfred Mohr
P-050-F, 1970

Manfred Mohr



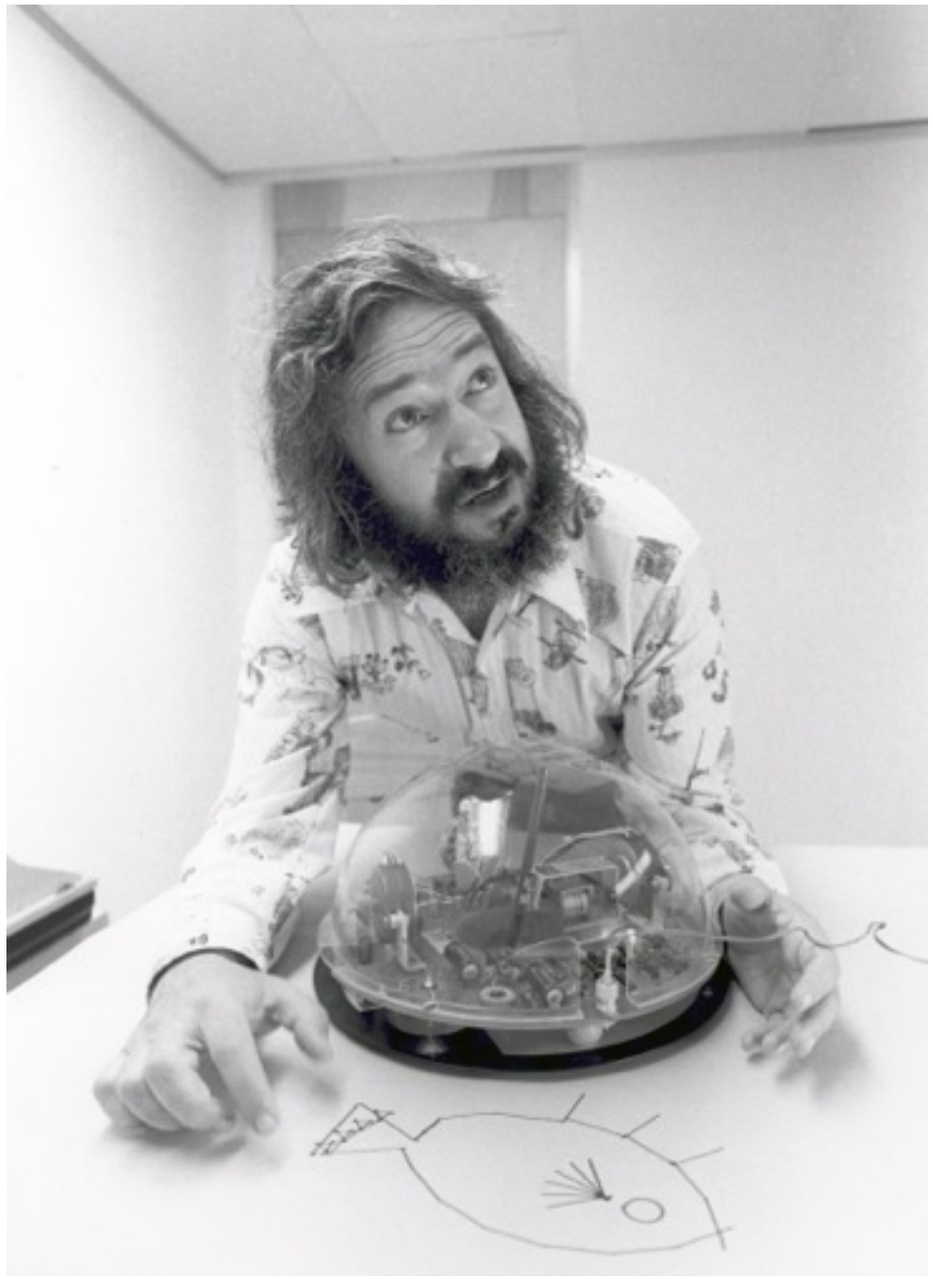
P-26, P-28
"INVERSION LOGIQUE » (1970)

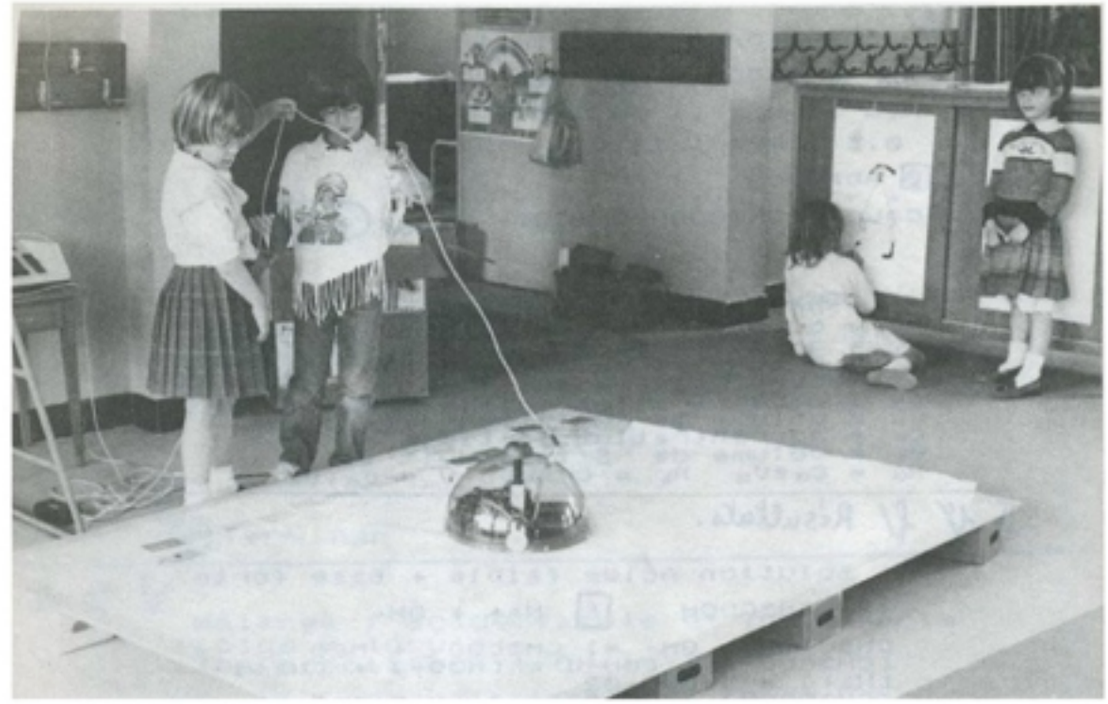
Manfred Mohr



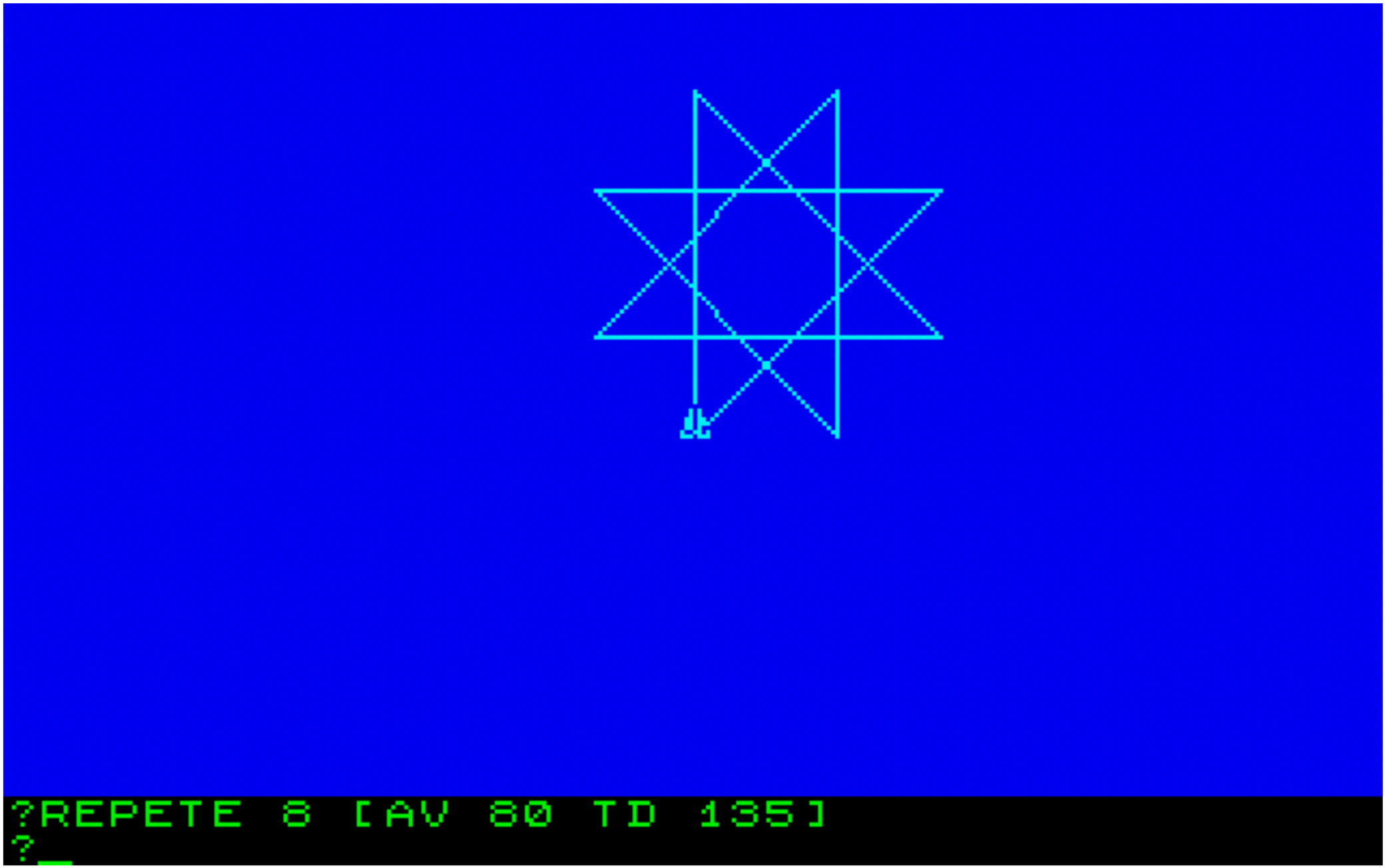
"P971_225" (2000)

Logo (1967)





Logo (1967)



Logo (1967)

« Programmer un ordinateur revient tout simplement plus ou moins à communiquer avec lui dans un langage intelligible pour la machine comme pour le programmeur. Or, apprendre une langue est l'une des choses que les enfants font le mieux. Tout enfant normal apprend à parler. Pourquoi en ce cas ne pourrait-il pas apprendre à parler avec un ordinateur ? »

Seymour Papert

Logo (1967)

Logo — Plan « L’informatique pour tous » (1985)

« Une des caractéristiques de l'informatique est de créer chez les élèves une attitude algorithmique, opérationnelle, organisatrice, laquelle est souhaitable pour bien des disciplines. »

Centre d'Enseignement et de Recherche en Informatique (CERI) 1970

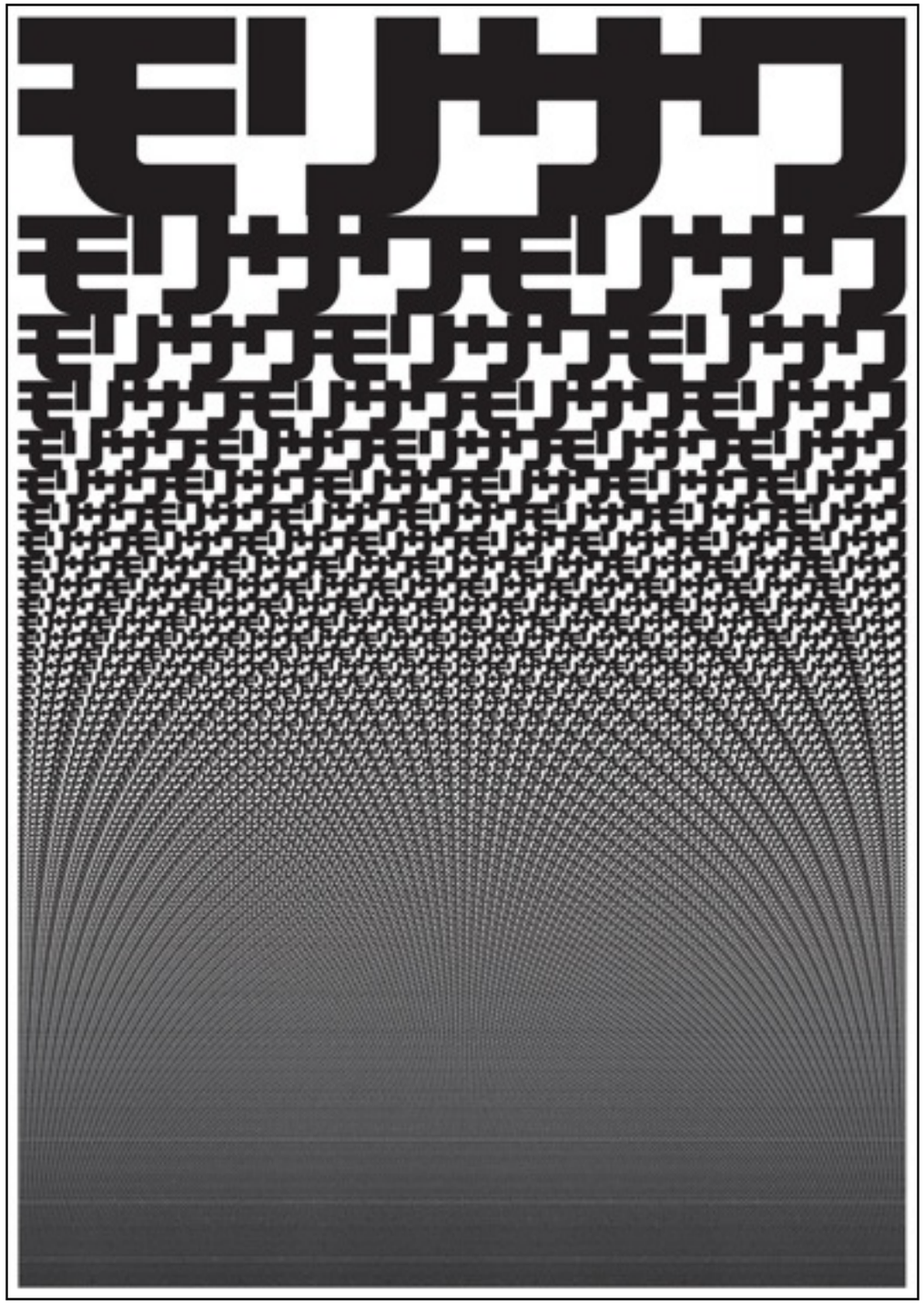
Algorithmes et codes pour créer des images et des formes

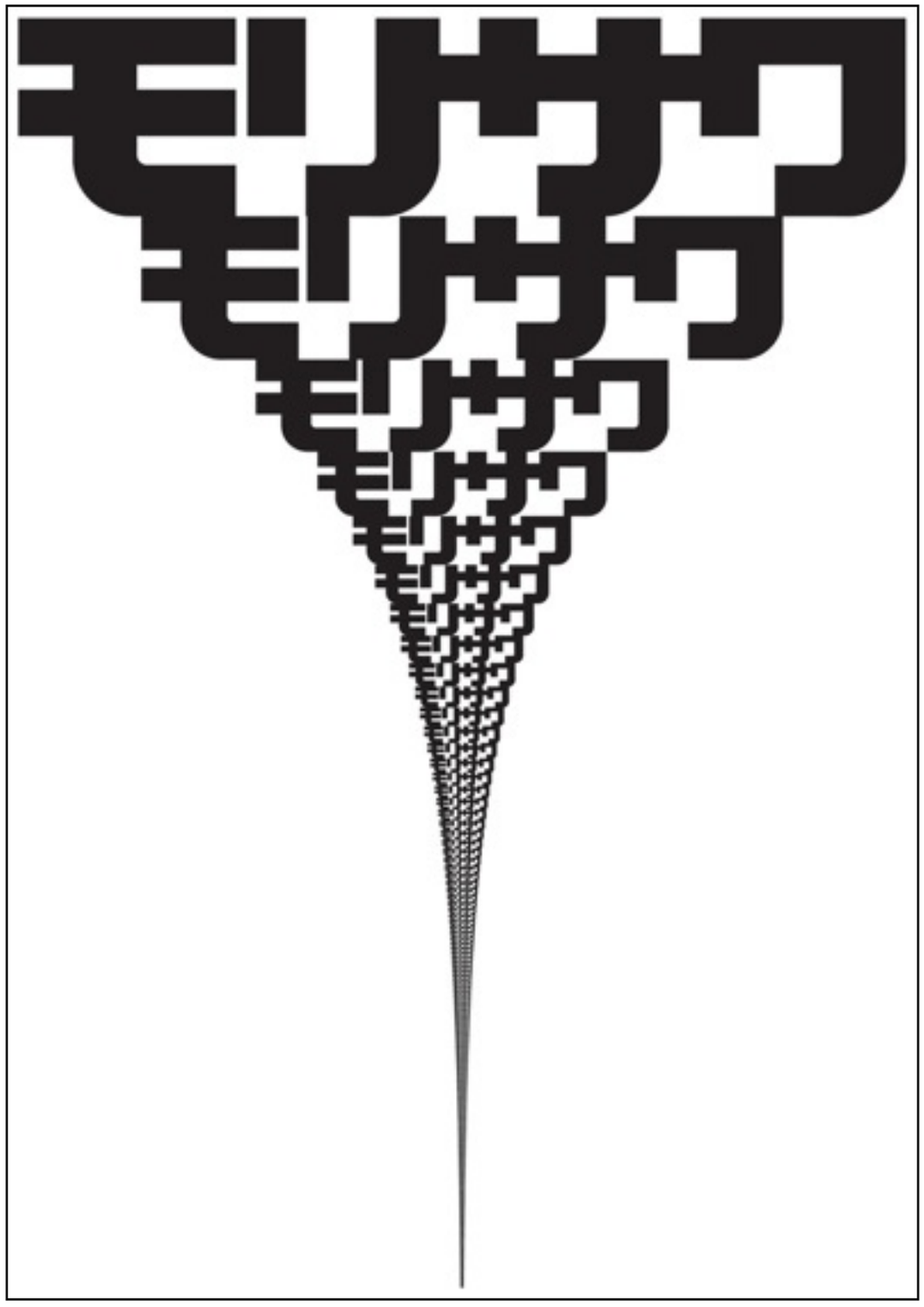
Depuis une vingtaine d'année, l'algorithme est au coeur d’une discipline héritée des mouvements des années 60 et 70 qu’on nomme **design génératif**.

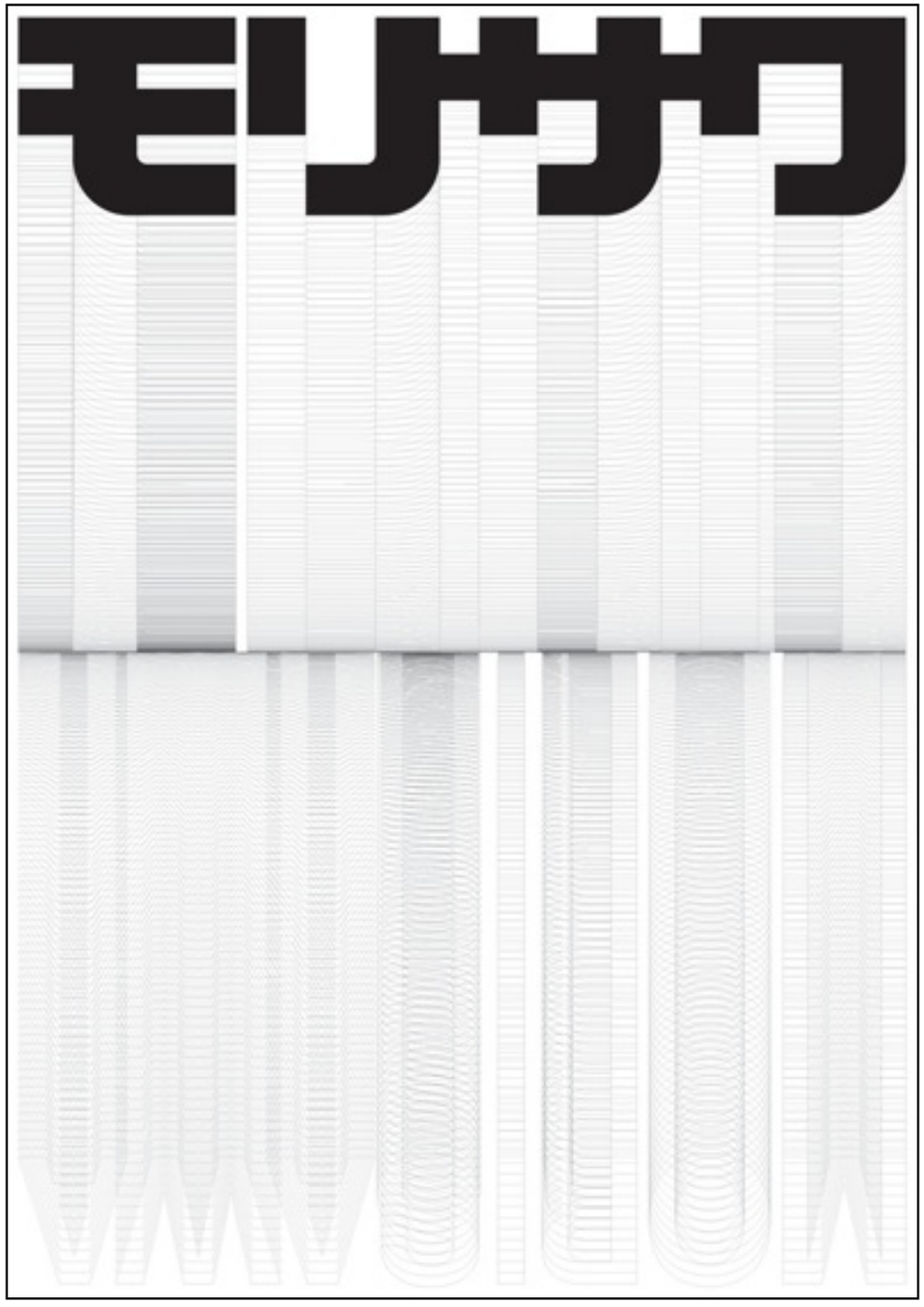
définition du design génératif

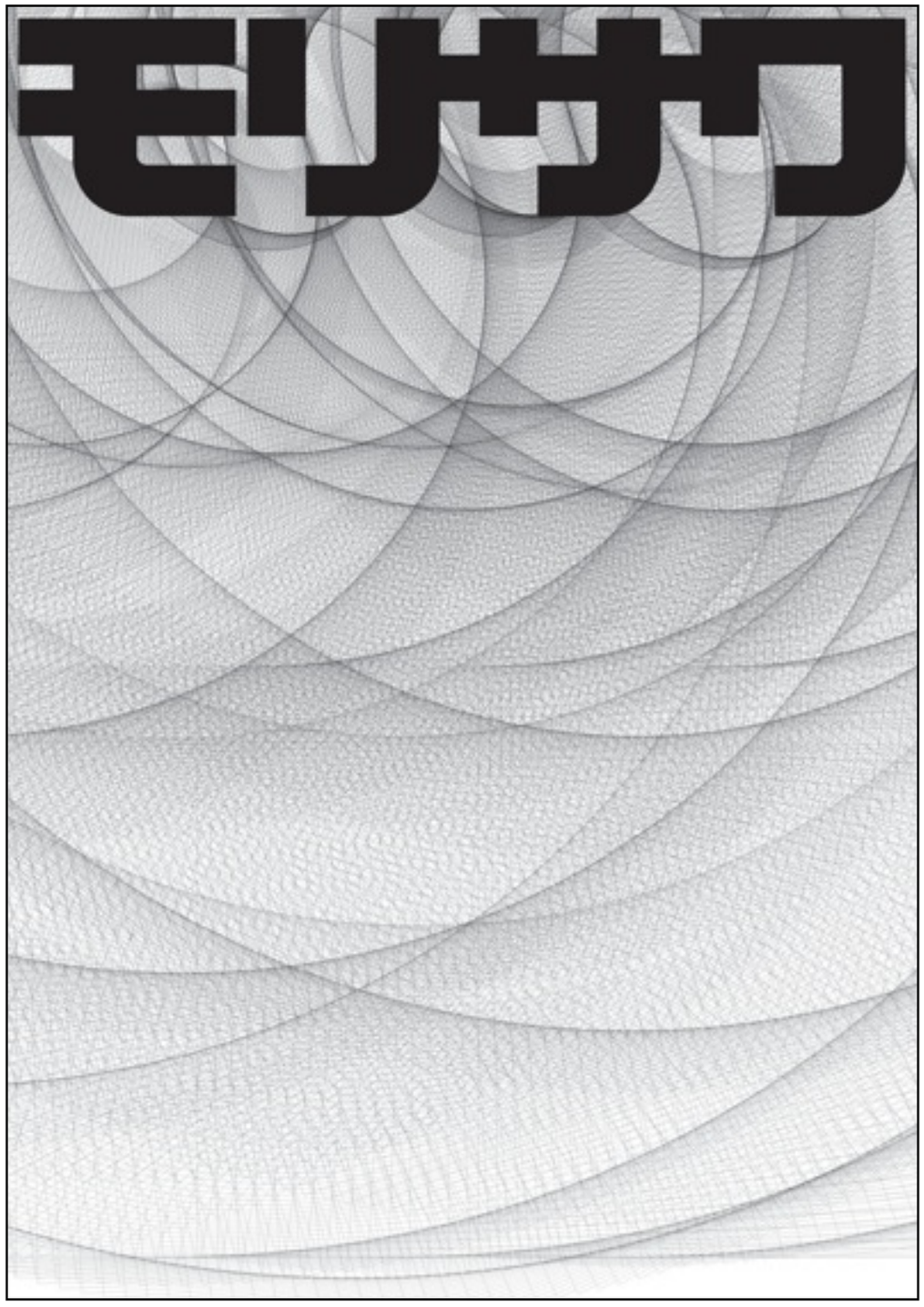
Le designer génératif conçoit des **processus** et des **modèles** capables de **produire des formes** adaptées à son projet de création. En **déléguant certains aspects de la réalisation formelle** de son travail, il explore des possibilités nouvelles, souvent **inconcevables par d'autres moyens**.

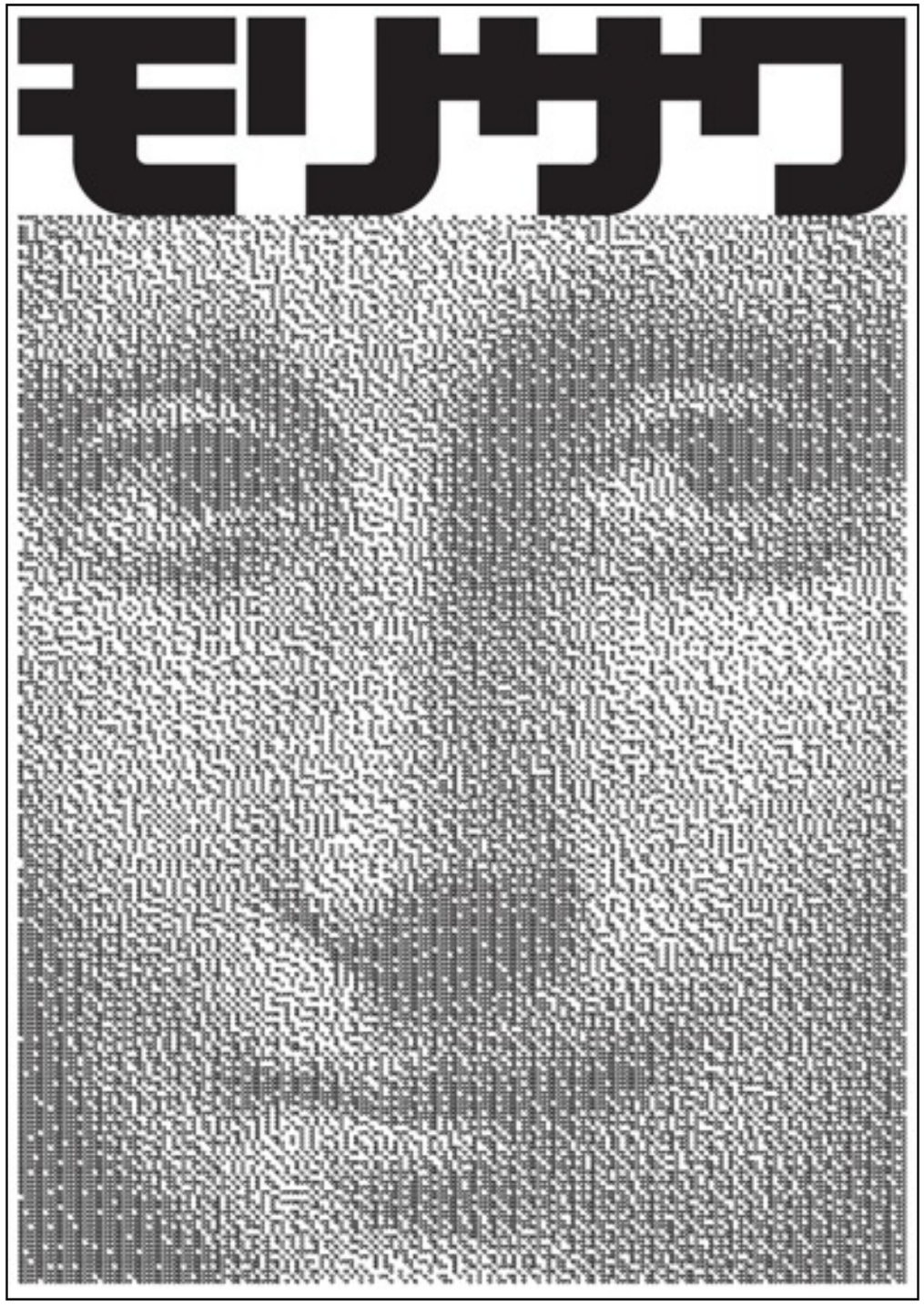
John Maeda
— The 10 Morisawa Posters (1996)

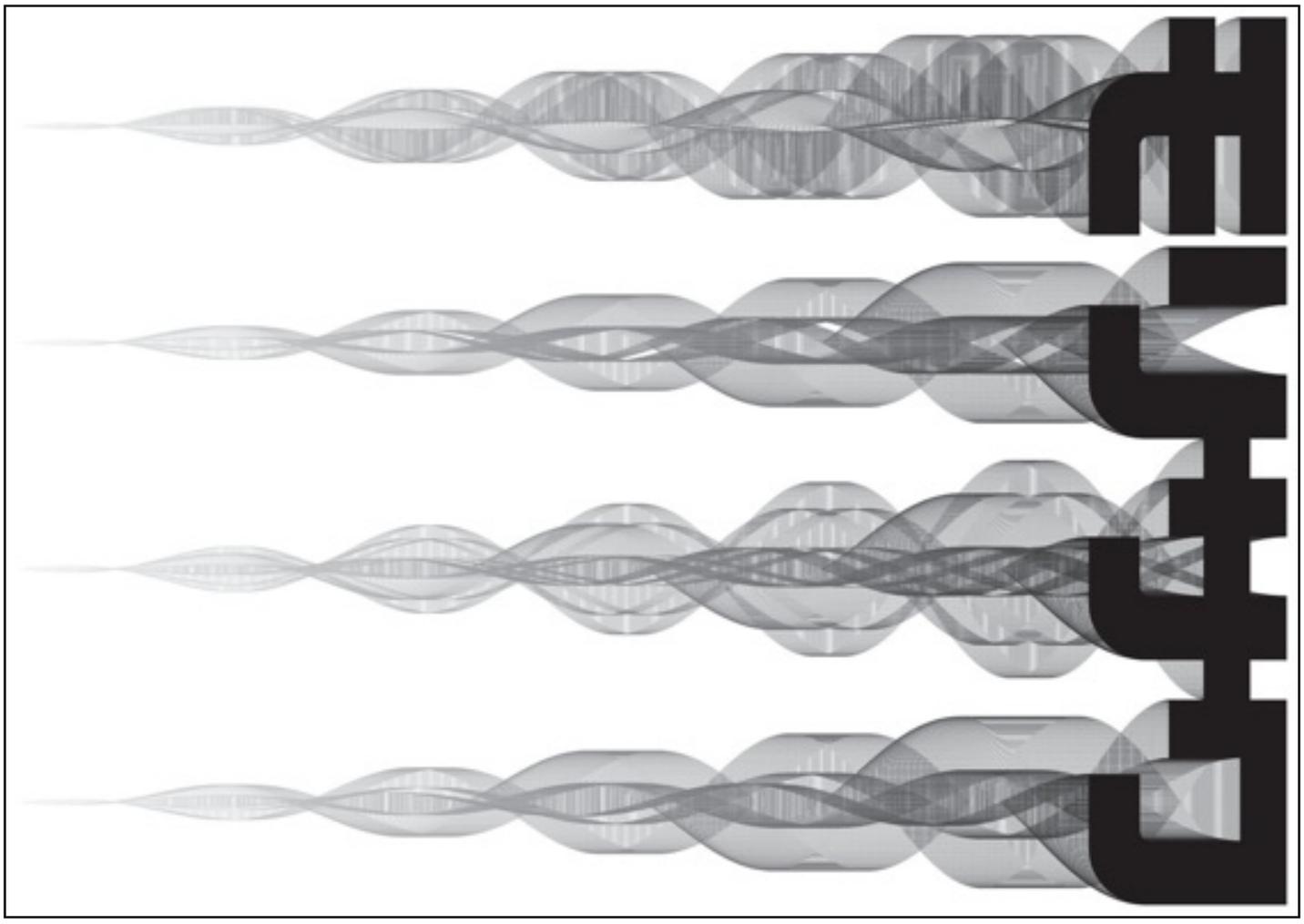

モリサワ

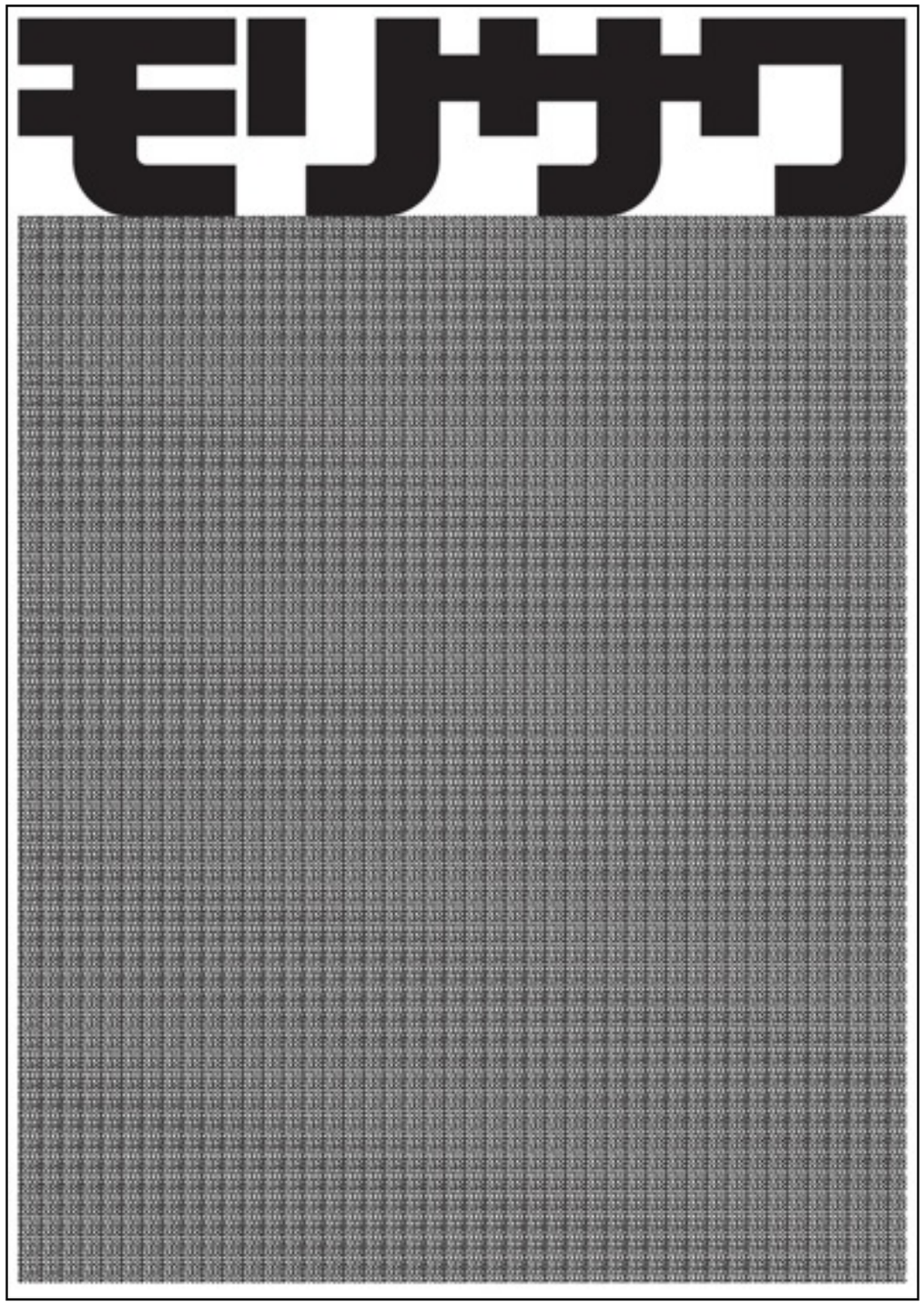


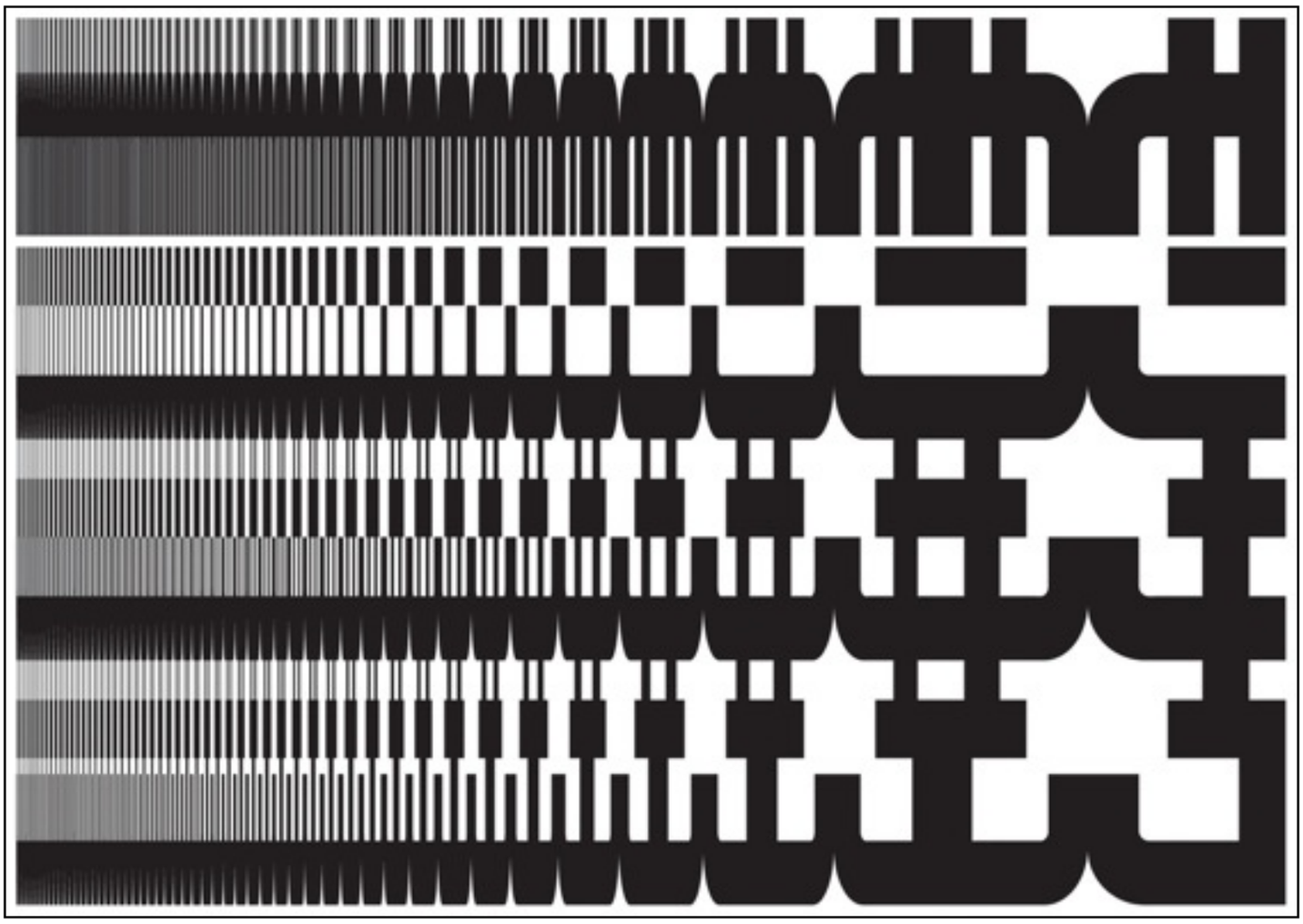




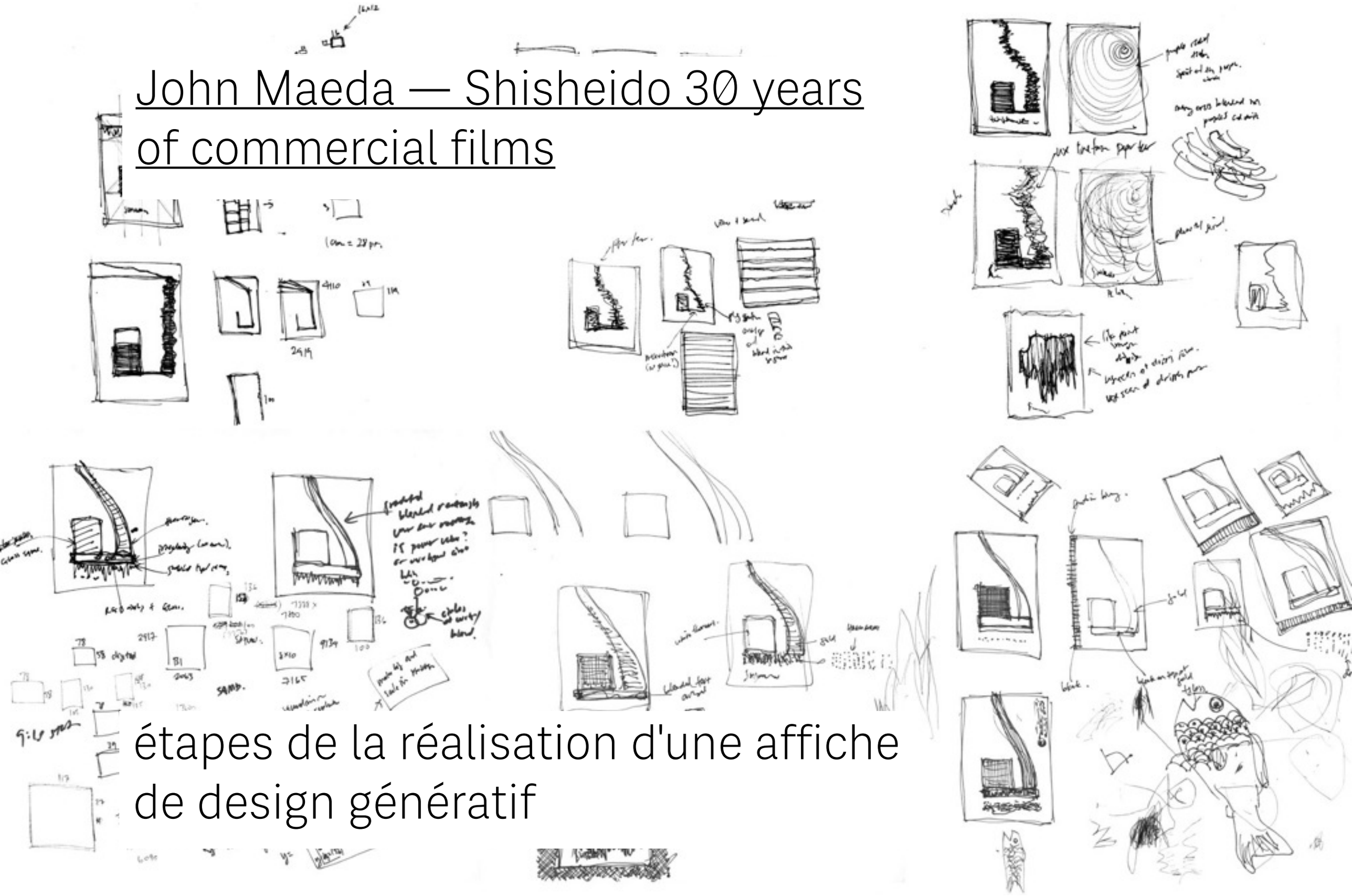




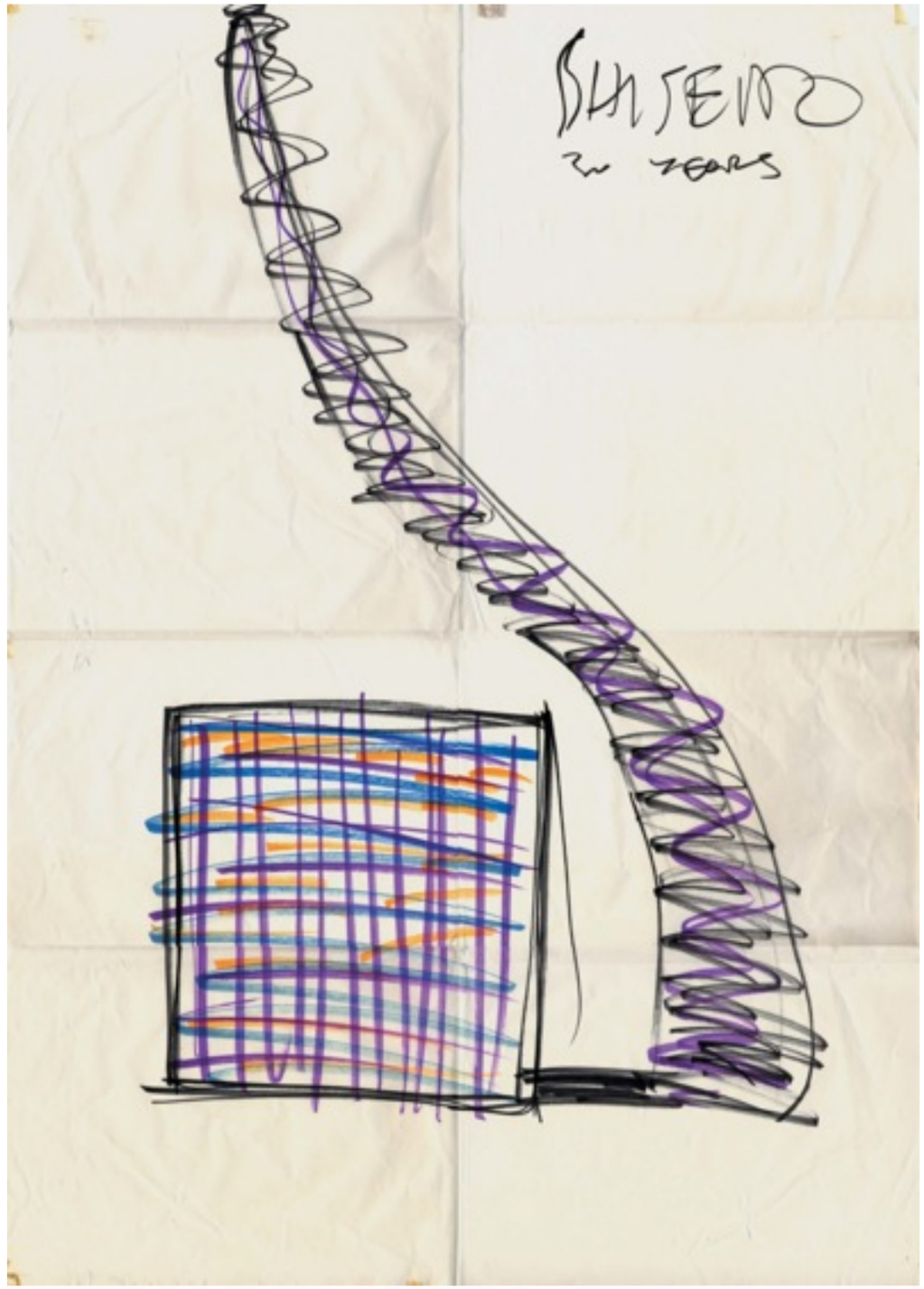


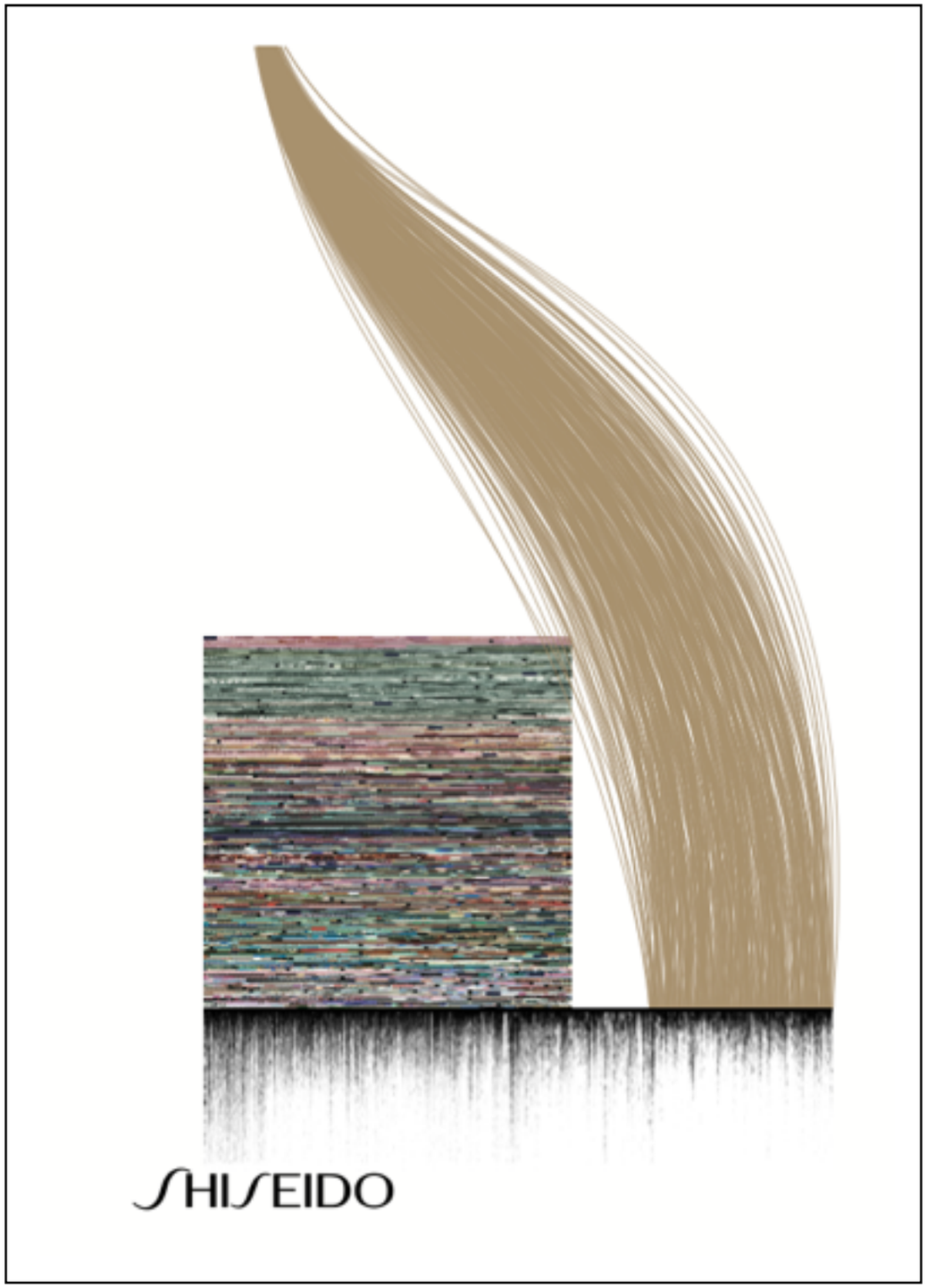


John Maeda — Shisheido 30 years of commercial films



étapes de la réalisation d'une affiche de design génératif


SHISEIDO
20 YEARS

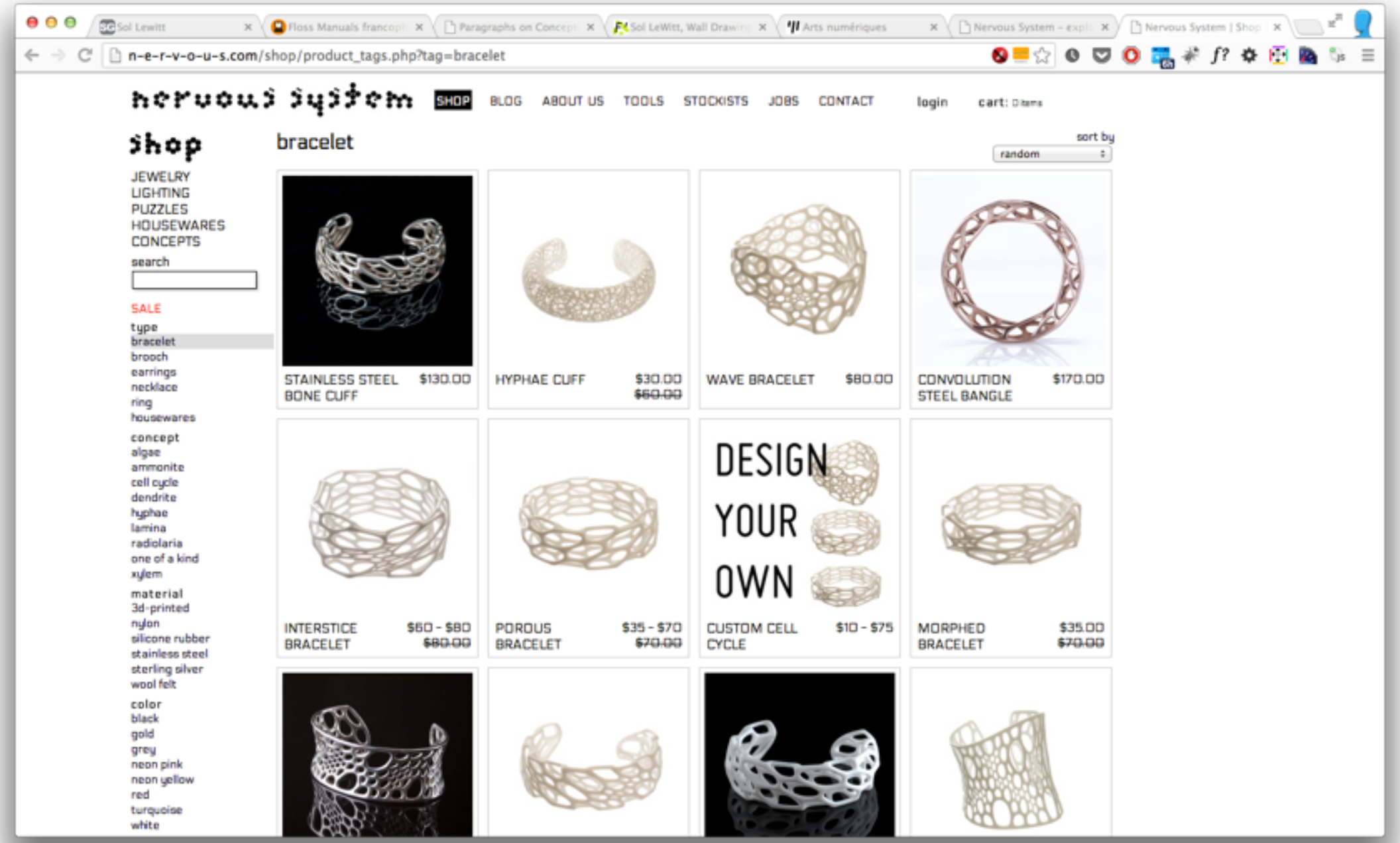

SHISEIDO

10 000 digital paintings — Field

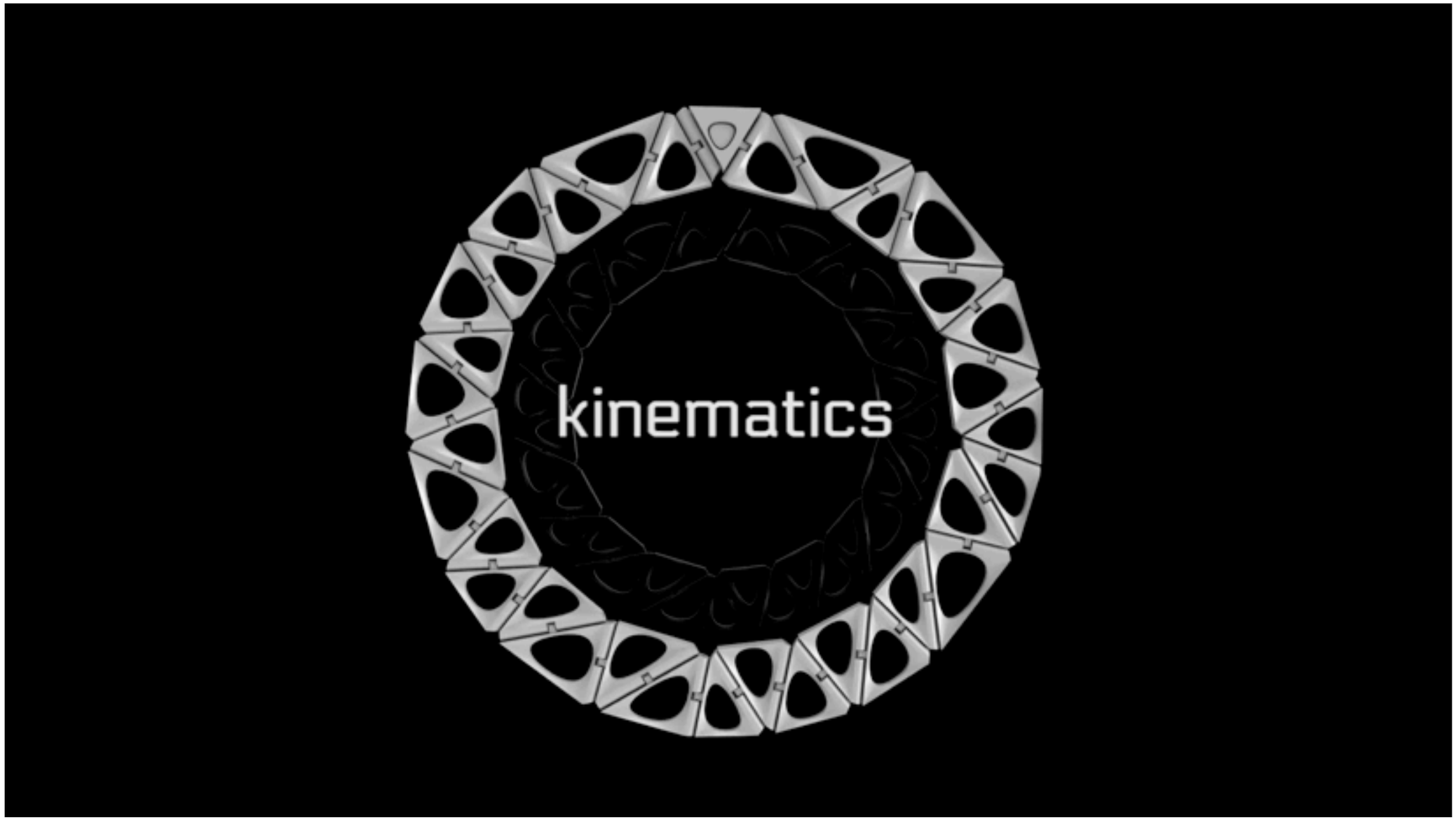
10 000 digital paintings — Field

Hyphaes — Nervous System

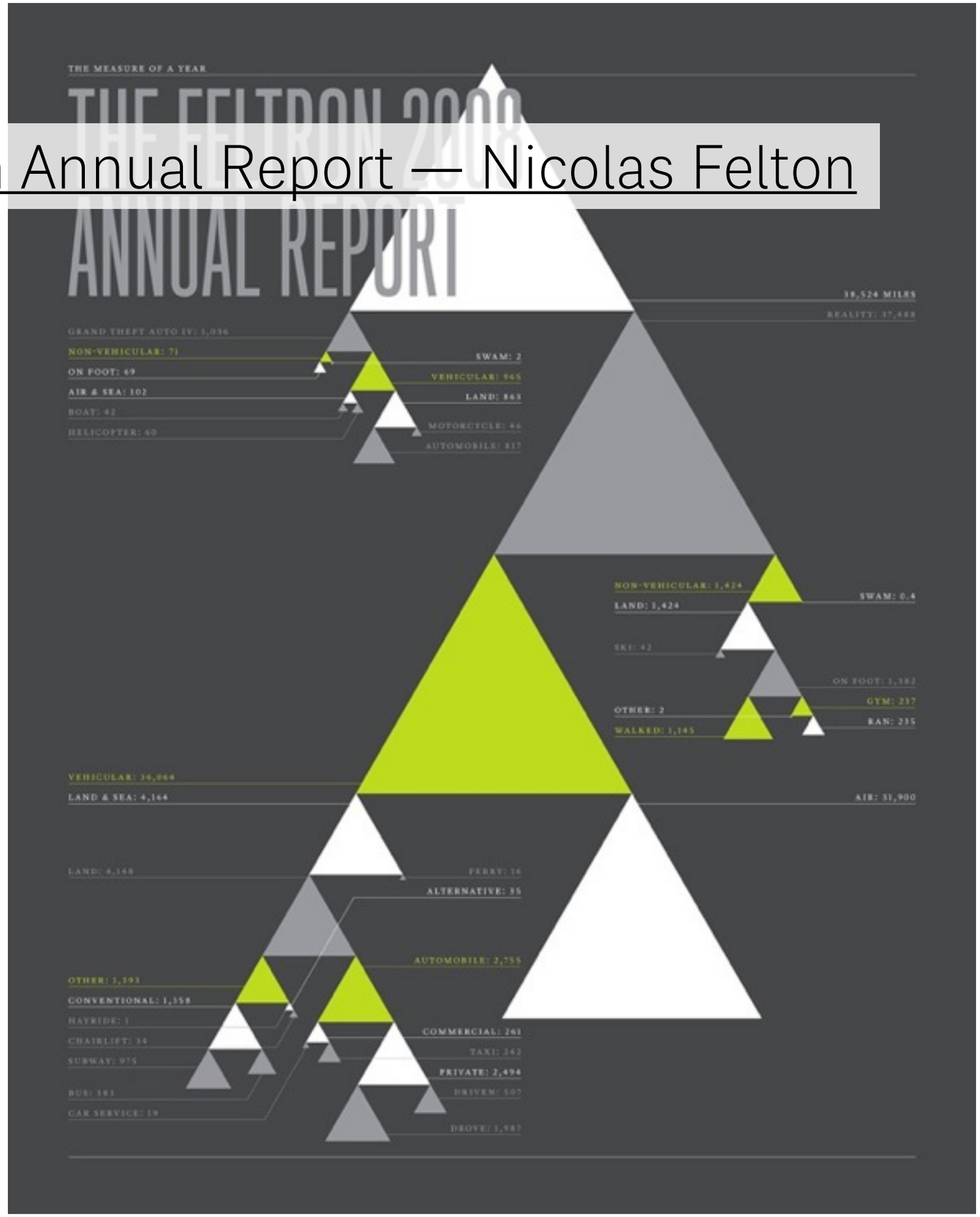
Nervous System — shop



Nervous System — kinematics



Feltron Annual Report — Nicolas Felton



Relationships

Reporting on the reporters.

FIGURE 3. RELATIONSHIPS REPORTED

SHORTEST RELATIONSHIP

5 Mins

ERIC, MAY 15

LONGEST RELATIONSHIP

Forever

ELISE, JAN 7

AVERAGE RELATIONSHIP DURATION

About 3 Years

3 YEARS, 3 MONTHS, 22 DAYS

MOST COMMON RELATIONSHIP

Friend

234 REPORTS

STUDENT TO TEACHER RATIO

3:1

6 STUDENTS, 1 TEACHER AND 1 BIRDING INSTRUCTOR

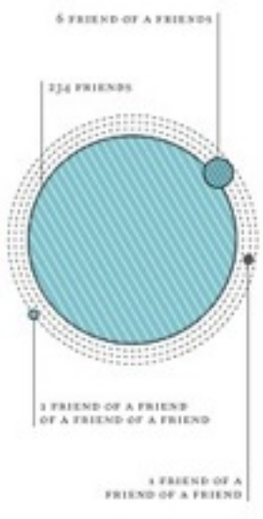
DISTINCT RELATIONSHIPS

179

NO RELATIONSHIP REPORTED

Eight

FIGURE 4. DEGREES OF FRIENDSHIP



QUESTION 1. WHAT IS YOUR RELATIONSHIP TO NICHOLAS?

Friend / esteemed colleague.
RYAN, JANUARY 12

Internet buddy.
NOAH, FEBRUARY 18

Grill master.
WARREN, MAY 10

Drinking buddy.
HANA, JUNE 12

Double-digit sociability.
OLGA, SEPTEMBER 17

Ex-wife.
NICK R, OCTOBER 21

Statistic.
KEVIN, DECEMBER 21

Dentist.
JOHN B, DECEMBER 23

QUESTION 2. HOW LONG HAVE YOU KNOWN NICHOLAS?

A year, come February 22.
ELISE, JANUARY 26

Since Summer 2004.
MARGARET, FEBRUARY 9

17 days at the time of recording.
IAN, MARCH 14

About three hours
ACE JET 170, APRIL 2

5 years, my whole life.
JULIAN, APRIL 12

Sixty four days.
JESSICA B, APRIL 19

Since birth.
CAROL, MAY 15

Since I was a teenager? Could that be?
MARIANA, SEPTEMBER 1

Years... I'm bad with time.
MELISSA, NOVEMBER 20

Activities

The length and habits of an encounter.

FIGURE 5. AVERAGE LENGTH OF AN ENCOUNTER

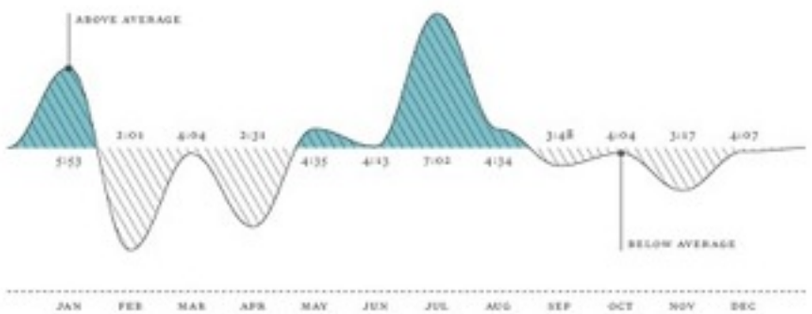
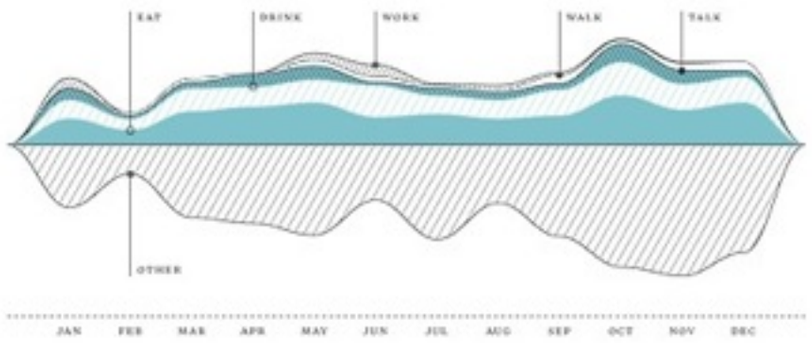


FIGURE 6. FREQUENTLY REPORTED ACTIVITIES



CUMULATIVE REPORTING TIME

Three Months

99 DAYS, 6 HOURS AND 17 MINUTES

MOST FREQUENT ACTIVITY

Dinner

105 REPORTS

AVERAGE ENCOUNTER LENGTH

Four Hours

4 HOURS, 15 MINUTES AND 15 SECONDS

MOST ACTIVITIES IN A MONTH

157

OCTOBER

DJING TO DANCING RATIO

5:4

AVERAGE ACTIVITIES PER ENCOUNTER

2.3

INSTANCES OF LAUGHTER

14

QUESTION 3. APPROXIMATELY HOW LONG WAS YOUR ENCOUNTER?

A total of about 60 minutes.
LORI, JANUARY 7

10am-11pm on 03/26/09.
RUKI, MARCH 26

900 seconds.
CHRISTOPHER F, APRIL 2

3 hours (they always seem to be 3 hours!)
BONNIE, JUNE 19

Personal - 7 mins; Impersonal - 35 mins.
ANDREW K, AUGUST 19

7 hours 30 minutes.
MARINA F, DECEMBER 24

QUESTION 4. WHAT ACTIVITIES DID YOU AND NICHOLAS PARTICIPATE IN?

Drinking, in a social sense.
KRIS, JANUARY 7

A walk to the peak, riding roller coasters at Ocean Park, browsing for books.
DANIELLE, JANUARY 18

Conversation, light computer use.
NICK S, MARCH 31

Chomp chomp chomp.
GORDON, MAY 18

Ate crabs, drank, watched fireworks, got ice cream.
AARON L, JULY 10

Reviewing work.
MIKE A, AUGUST 12

Waiting for a plane.
GIDEON, OCTOBER 25

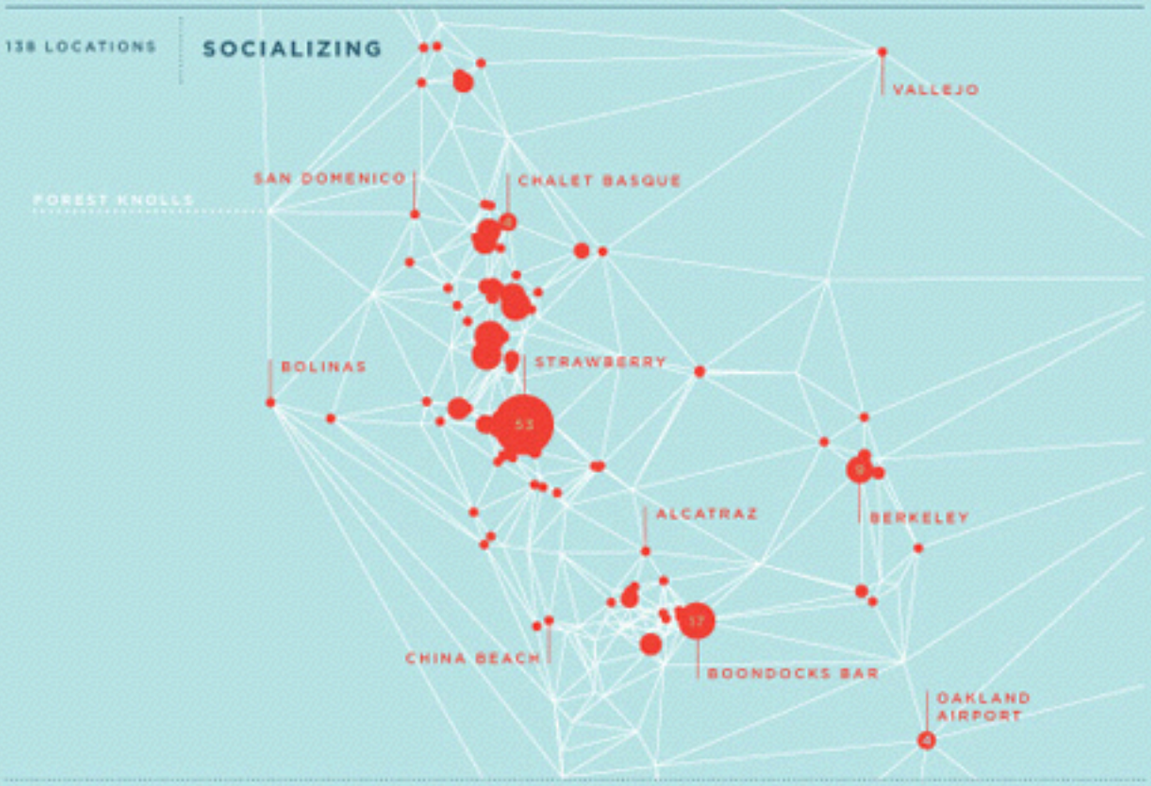
Studio tour; business meeting
WILLY, NOVEMBER 23

2000–2010
SAN RAFAEL

THE 21ST CENTURY

138 LOCATIONS

SOCIALIZING



JAN 5, 2001
71 YEARS, 6 MONTHS AND 1 DAY

PERSON SEEN THE MOST
MARINA
117 TIMES

BLACK PANTHERS MET
ONE
BOBBY SEALE

WALKS RECORDED
THIRTY-FIVE
AND 1 HIKE

2009–2010 GOLDEN GATE TOLL BOOTH PREFERENCE
LANE 6
14 VISITS

ENTERTAINMENT

- 123 MOVIES
- 45 MUSIC
- 38 LECTURES
- 29 DANCES
- 29 POKER
- 22 PLAYS
- 19 TELEVISION
- 8 SLIDE SHOWS
- 5 ACROBATS
- 3 MIMES

MOST WATCHED TV SHOW
THE OSCARS
8 TIMES

LAST DAY
SEP 12, 2010
81 YEARS, 2 MONTHS AND 8 DAYS OLD

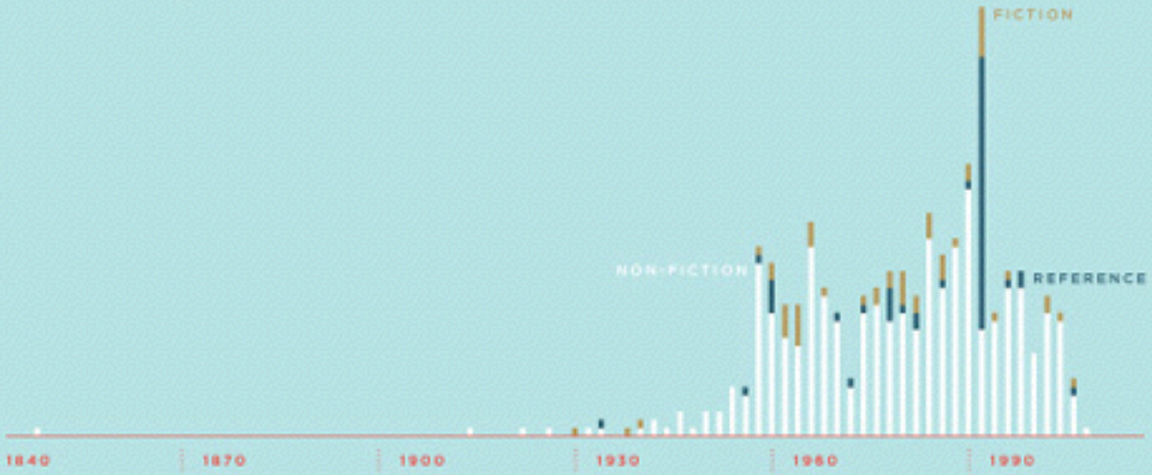
WEATHER SEP 12, 2010 3:20 PM
49.8° F AND OVERCAST
LARKSPUR, CALIFORNIA

1848–2009

BOOKS

536 BOOKS

DATE PUBLISHED



BOOKS
561
SPANNING 161 YEARS

MEDIAN PUBLISHING DATE
1983
11 BOOKS

REGION WITH MOST TRAVEL BOOKS
RUSSIA
6 BOOKS

TRAVEL BOOKS FOR UNVISITED PLACES
SIX
AUSTRALIA, ICELAND, GREENLAND, IRAN, PAKISTAN AND VENEZUELA

MOST REPRESENTED AUTHOR
MARTIN GILBERT
5 BOOKS

COOKBOOKS
FIVE

TYPES OF BOOKS

- 88 TRAVEL
- 77 HISTORY
- 42 MACHINES
- 37 GEOGRAPHY
- 32 ENCYCLOPEDIA
- 26 RELIGION
- 23 HEALTH
- 23 NOVEL
- 22 SCIENCE
- 17 HOW-TO

WAR-RELATED BOOKS
51
35 BOOKS ABOUT WORLD WAR 2

ELEVATOR BOOKS
TWELVE
1941–1991

BIOGRAPHIES
8
FROM ARMSTRONG TO STALIN

HOW-TO TOPICS
FOURTEEN
BICYCLES, CLEANING, CROSS COUNTRY SKIING, DOING EVERYTHING RIGHT, HANDICRAFT, HOME REPAIR, PEST CONTROL, PHOTOGRAPHY, PREVENTING AND SURVIVING FIRES, SAILING, SURVIVAL AND TAI CHI

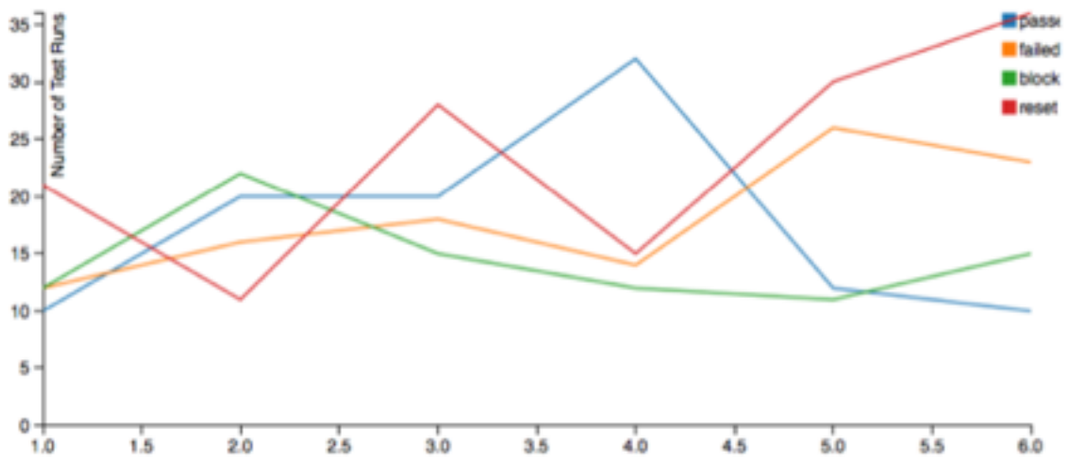
Le tricot et la programmation pour créer des images

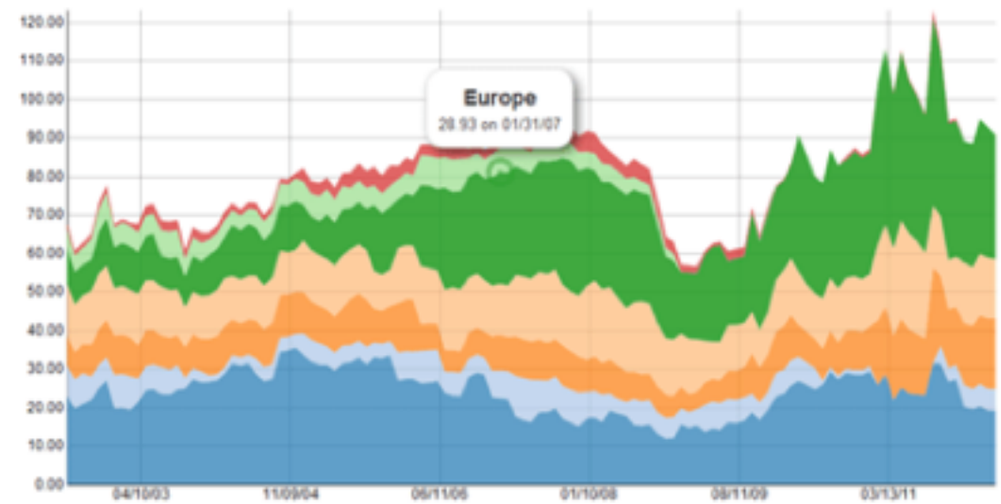
- tricot et programmation
- algorithmes et codes pour créer des images et des formes
- **représenter les informations**
- enjeux et objectifs du workshop

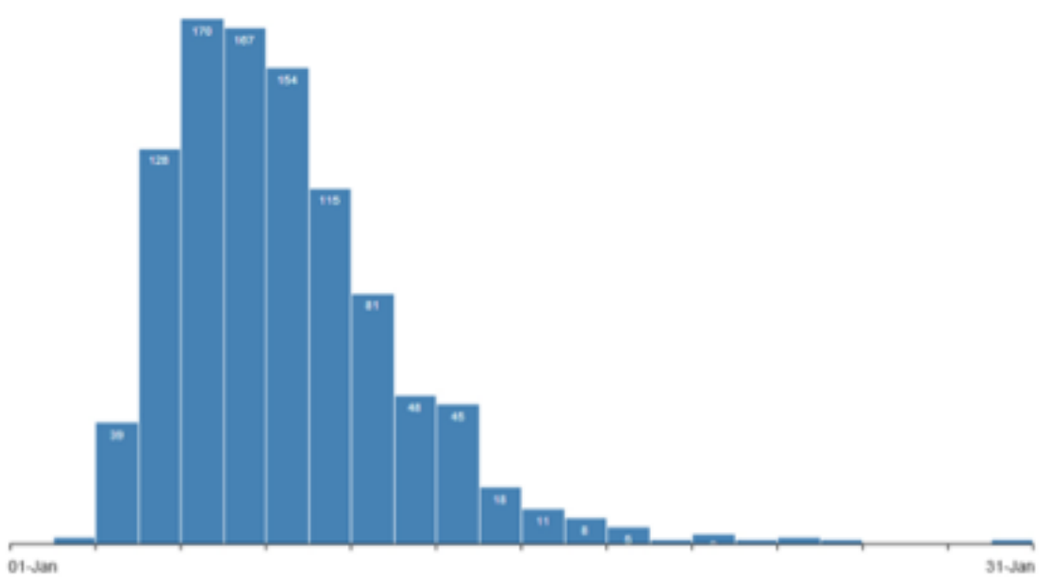
La **visualisation de données** (ou datavizualisation) désigne l'emploi de représentations pour faciliter l'interprétation de données abstraites.

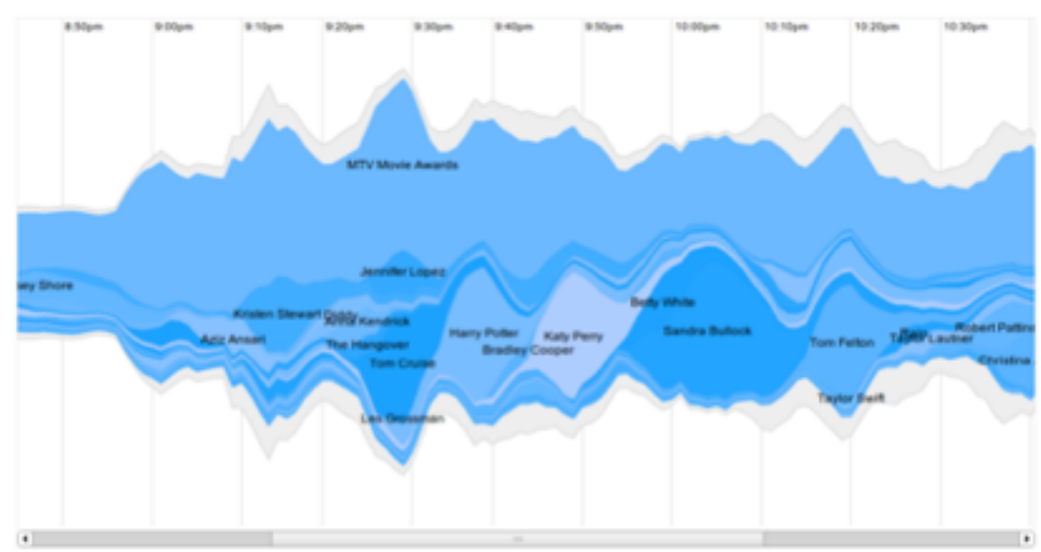
DÉFINITION ISSUE D'UN ARTICLE À PARAÎTRE DE JEREMY BOY, CHERCHEUR EN INFOVIS À PARIS

La dataviz

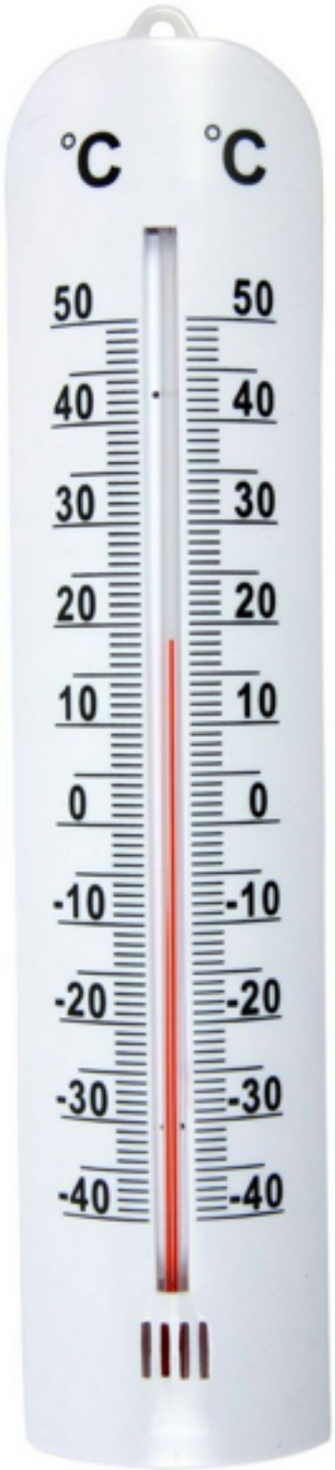

Number of Test Runs
passed
failed
blocked
reset


Europe
28.93 on 01/31/07


01-Jan
31-Jan


MTV Movie Awards
Jennifer Lopez
Kristen Stewart
Adiz Ansari
The Hangover
Tom Cruise
Harry Potter
Bradley Cooper
Katy Perry
Betty White
Sandra Bullock
Tom Felton
Taylor Swift

Dans le quotidien



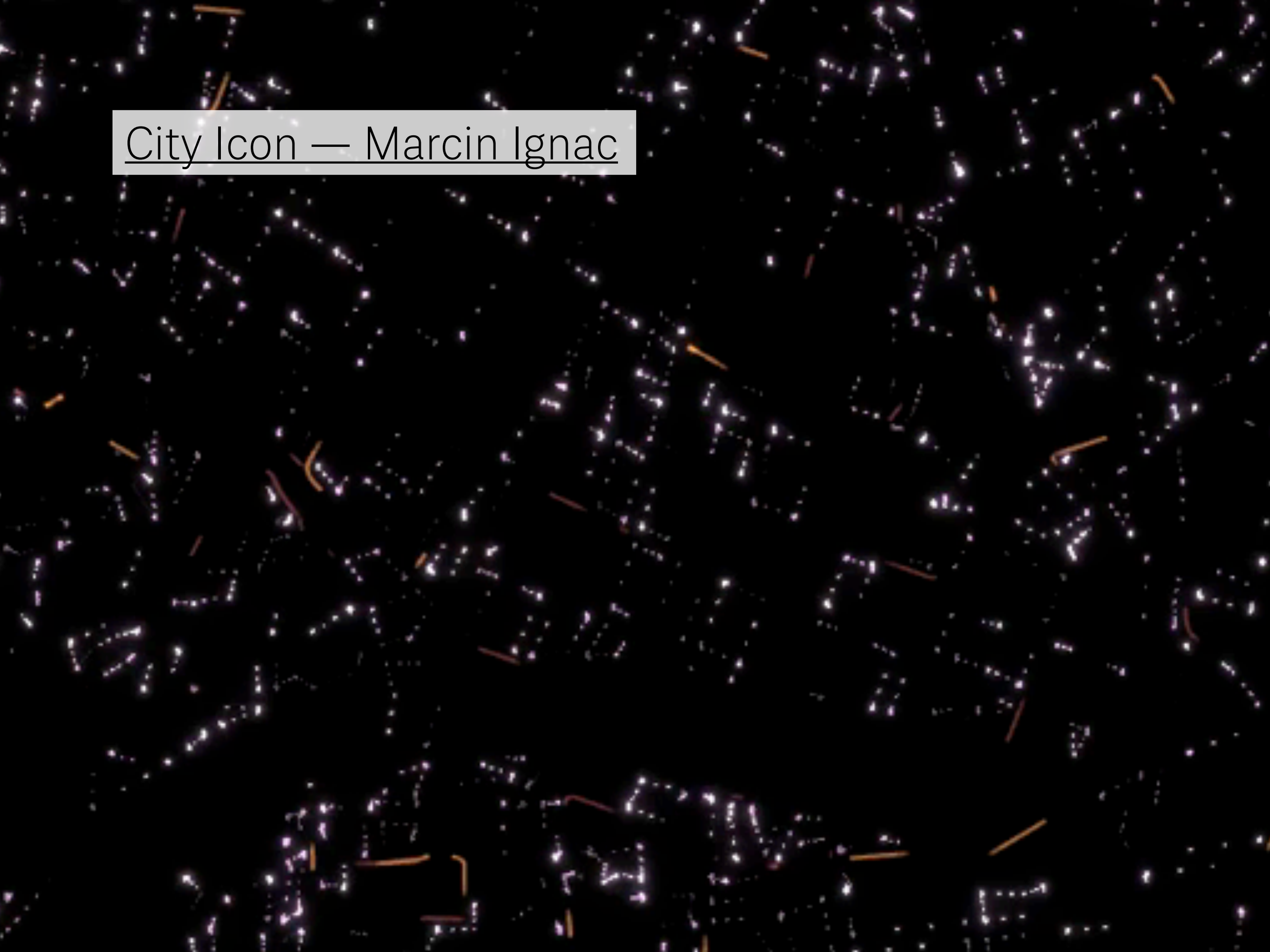
Lipsticks — Stacy Greene

SOURCE : /GOLAN-LEVIN-PRESENTATION-FROM-MALOFIEJ-22-2014

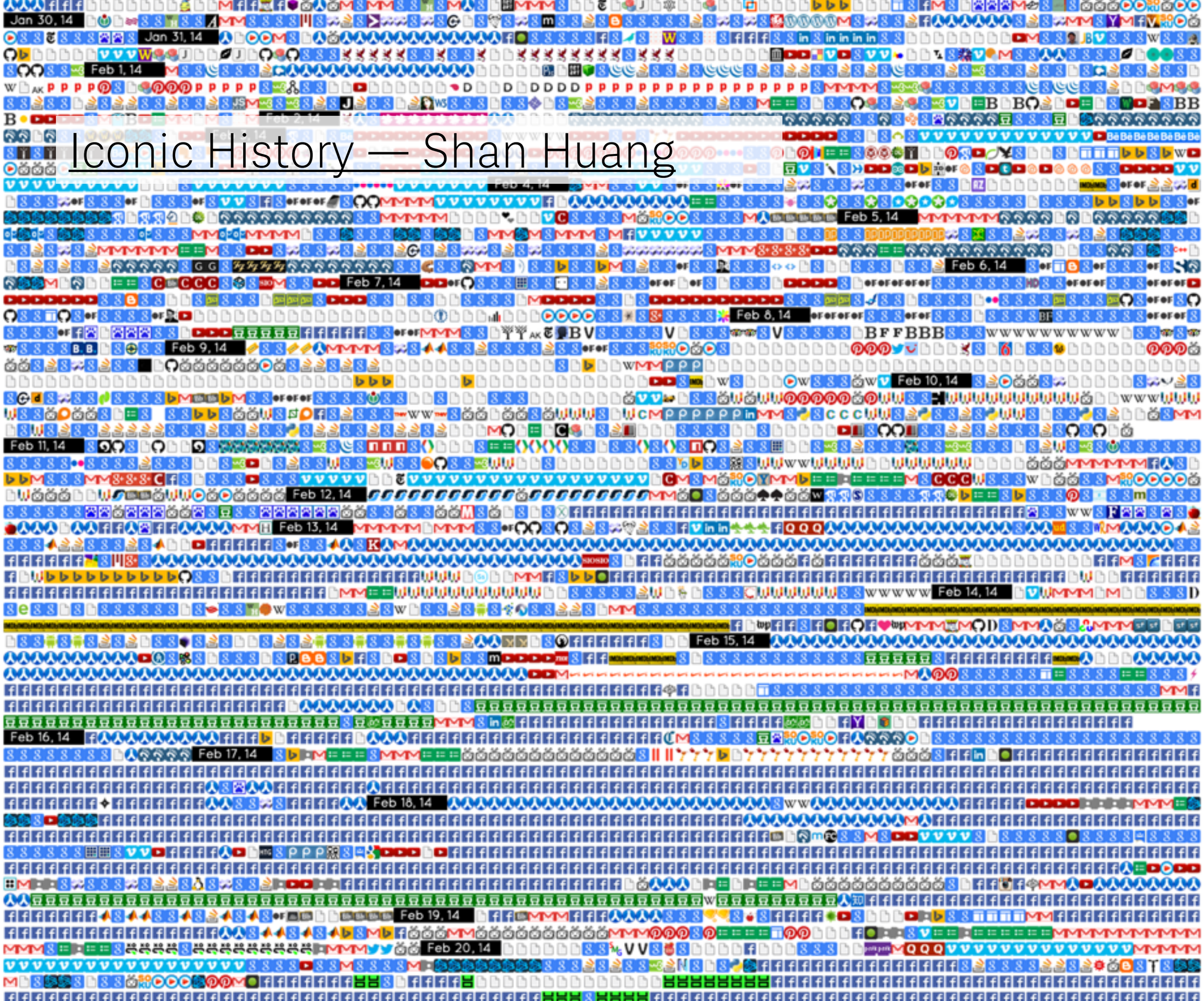
Evan Roth — SkyMall Liberation

source : /Golan-Levin-presentation-from-Malofiej-22-2014

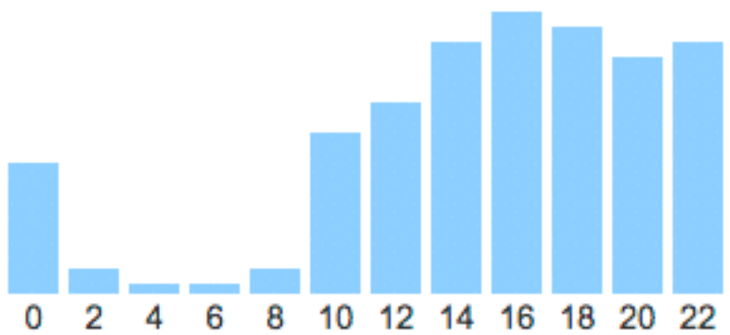
Welcome
Safety
SkY
Mall


City Icon — Marcin Ignac

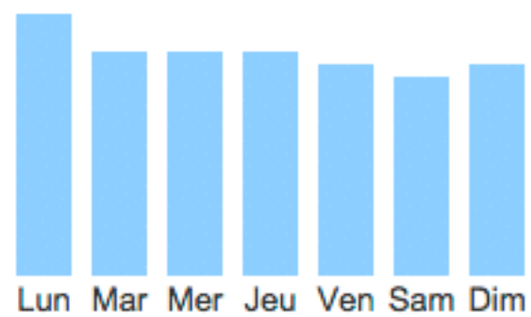
Iconic History — Shan Huang



Recherches par heure



Recherches par jour



Activité

Total des recherches Google : 80390

<< Afficher moins de tendances

Clics les plus nombreux

1. http://maps.google.com/
2. YouTube
3. http://www.google.com/latitude
4. http://forum.hardware.fr/hfr/OrdinateursPortabl…
5. http://fr-fr.facebook.com/

Requêtes les plus fréquentes

1. weather
2. youtube
3. météo
4. calendar
5. louis eveillard

Sites les plus visités

1. en.wikipedia.org
2. stackoverflow.com
3. fr.wikipedia.org
4. www.youtube.com
5. maps.google.com

https://history.google.com/history/

Données Facebook : fichiers XML


```xml
<data>
    <id>487325711389904_1407325255</id>
    <from>
        <id>100007624183992</id>
        <name>Cindy Beuhlah</name>
    </from>
    <message>je sais pas si tu aurais du temps</message>
    <created_time>2014-08-06T11:40:55+0000</created_time>
</data>
<data>
    <id>487325711389904_1407325274</id>
    <from>
        <id>100007624183992</id>
        <name>Cindy Beuhlah</name>
    </from>
    <message>mais julian me fait traduire son texte anglais en français</message>
    <created_time>2014-08-06T11:41:14+0000</created_time>
</data>
<data>
    <id>487325711389904_1407325283</id>
    <from>
        <id>100007624183992</id>
        <name>Cindy Beuhlah</name>
    </from>
    <message>et c&#039;est super trop compliqué pour moi</message>
    <created_time>2014-08-06T11:41:23+0000</created_time>
</data>
```

Timeline Twitter : fichier CSV

"TWEET_ID","IN_REPLY_TO_STATUS_ID","IN_REPLY_TO_USER_ID","TIMESTAMP","SOURCE","TEXT","RETWEETED_STATUS_ID","RETWEETED_STATUS_USER_ID","RETWEETED_STATUS_TIMESTAMP","EXPANDED_URLS"
"421753332345348097","421752867188244481","40197991","2014-01-10 21:20:04 +0000","<a href=""https://about.twitter.com/products/tweetdeck"" rel=""nofollow"">TweetDeck</a>","@Enroweb Argh mince je serai pas là.","","","","",""
"421749968639389697","421570368579448833","40197991","2014-01-10 21:06:42 +0000","<a href=""https://about.twitter.com/products/tweetdeck"" rel=""nofollow"">TweetDeck</a>","@Enroweb Un ciné bientôt sinon ?","","","","",""
"421680851995623424","","","2014-01-10 16:32:04 +0000","<a href=""http://twitter.com/download/iphone"" rel=""nofollow"">Twitter for iPhone</a>","John Whitney @CAPCmusee #SigmaFocus http://t.co/We062U8s8u","","","","","http://twitter.com/v3ga/status/421680851995623424/photo/1"
"421574806346424320","421570368579448833","40197991","2014-01-10 09:30:40 +0000","<a href=""http://twitter.com/download/iphone"" rel=""nofollow"">Twitter for iPhone</a>","@Enroweb merci, j'avais

Historique Last.FM : fichier JSON


```
1  {
2      "time": 1209318066000,
3      "artist": "Animal Collective",
4      "title": "Bees",
5      "album": "Feels",
6      "trackMBID": "8a2bef25-238b-4f3f-a53e-2bf438019294",
7      "artistMBID": "0c751690-c784-4a4f-b1e4-c1de27d47581",
8      "albumMBID": "1ddb09aa-e6e7-3c50-9204-406bd0fadf4d"
9  } {
10     "time": 1209318407000,
11     "artist": "Animal Collective",
12     "title": "Banshee Beat",
13     "album": "Feels",
14     "trackMBID": "1b9eed6f-5762-40b3-848f-c2464fd6fe7e",
15     "artistMBID": "0c751690-c784-4a4f-b1e4-c1de27d47581",
16     "albumMBID": "1ddb09aa-e6e7-3c50-9204-406bd0fadf4d"
17 } {
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20     "title": "Daffy Duck",
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22     "trackMBID": "1847c0a8-1ef3-4c3b-99a9-5a84e5263275",
23     "artistMBID": "0c751690-c784-4a4f-b1e4-c1de27d47581",
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25 } {
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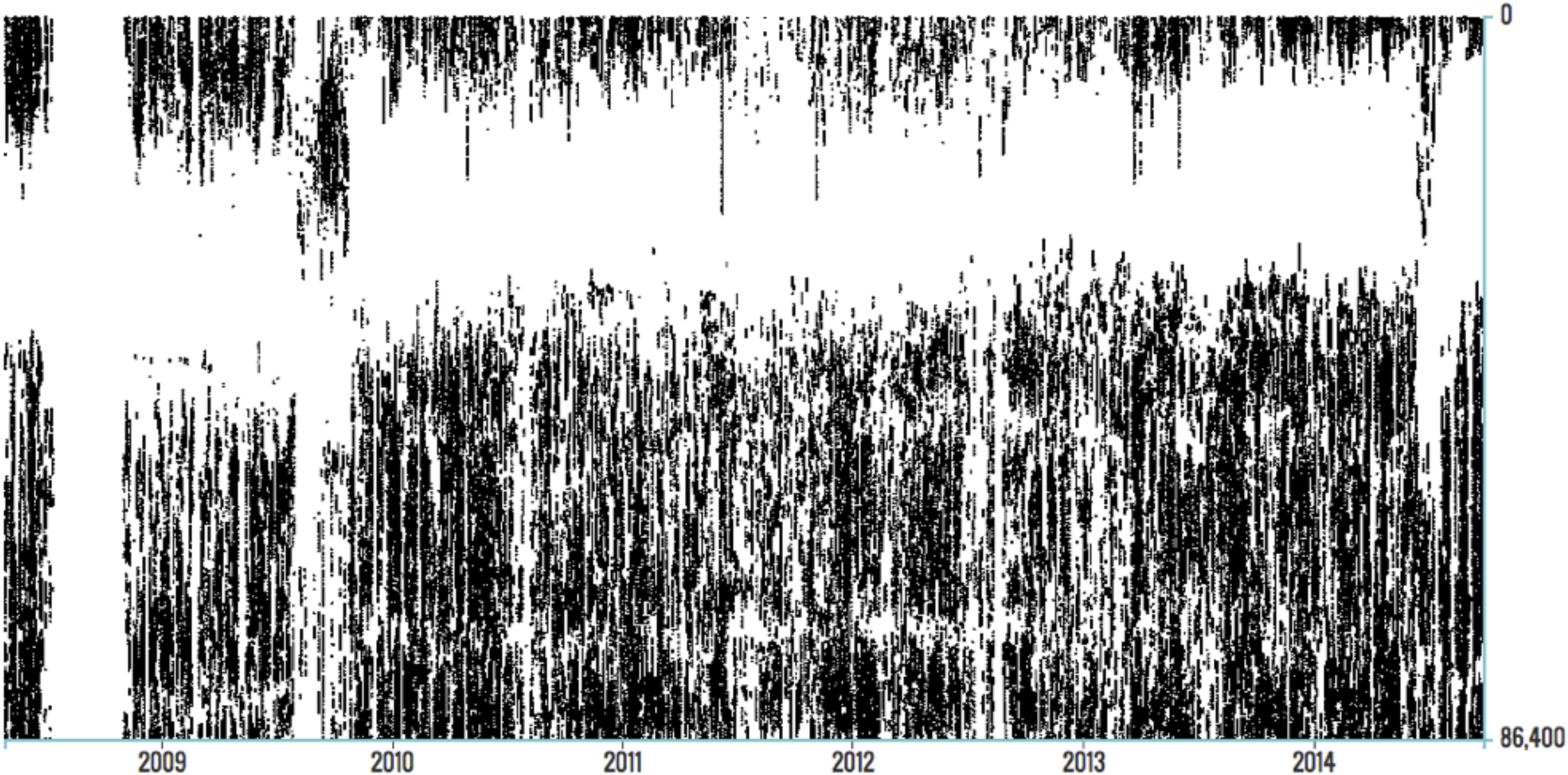

Visualisation d’un historique Last.FM

L’obsession du web pour les données est surtout lié à la **publicité** qui réclame d’**en savoir toujours plus sur les personnes susceptibles d’y être exposés** (c’est à dire tout le monde).

Le tricot et la programmation pour créer des images

- tricot et programmation
- algorithmes et codes pour créer des images et des formes
- représenter les informations
- **enjeux et objectifs du workshop**

« Imaginons maintenant que les individus puissent utiliser à leurs propres fins les masses de données dont les organisations disposent sur eux, que ce soit pour retourner la surveillance, ou pour mieux se connaître eux-mêmes [...] »

INFORMATIQUE, LIBERTÉS, IDENTITÉS - DANIEL KAPLAN (2010)

Le tricot offre la **possibilité d’investir une surface publique** (les vêtements) pour **exprimer ces données** et les transformer en **motifs esthétiques uniques** où la lisibilité de l’information encodée dépend de la volonté du porteur à la dévoiler.

Utiles

Intéressantes

Esthétiques

SOURCE : MARTIN WATTENBERG

Tricot et programmation

Objectifs du workshop

- apprendre le tricot sur machine hackée
- créer des images avec du code informatique
- explorer et visualiser des jeux de donnée informations personnelles

Ingrédients

- des jeux de donnée venant de Twitter, Facebook, Google, historique du navigateur, bracelet connecté, etc.
- l'outil Processing de création de tricot
- famille de caractère Tricofonttype