

NEURAL NETWORKS & AESTHETICS

**Frieder Nake
A Workshop, Summer 2020**

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“NETWORK”?

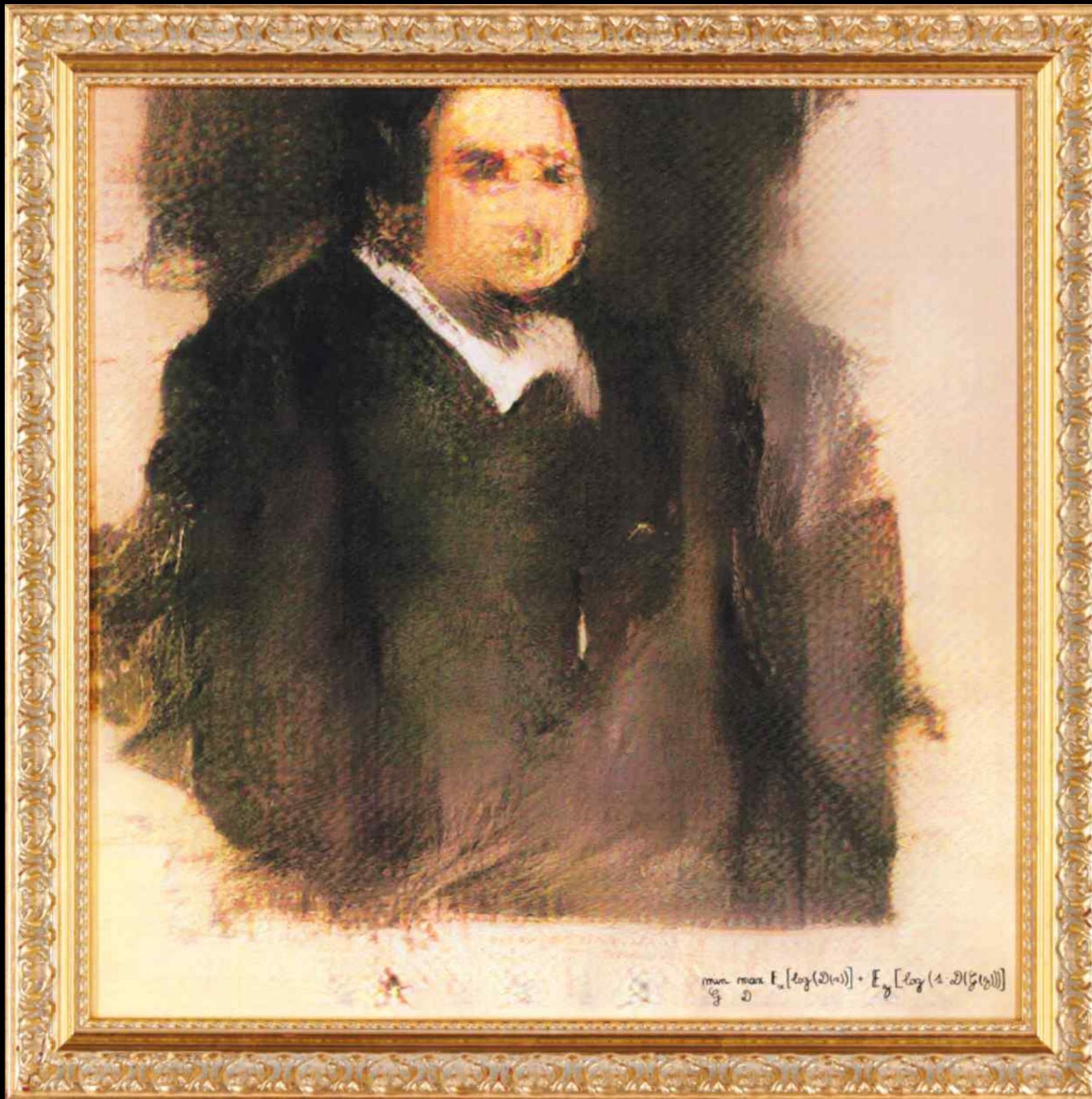
– what may this be? –

“NEURAL NETWORK”?

– what may this be? –

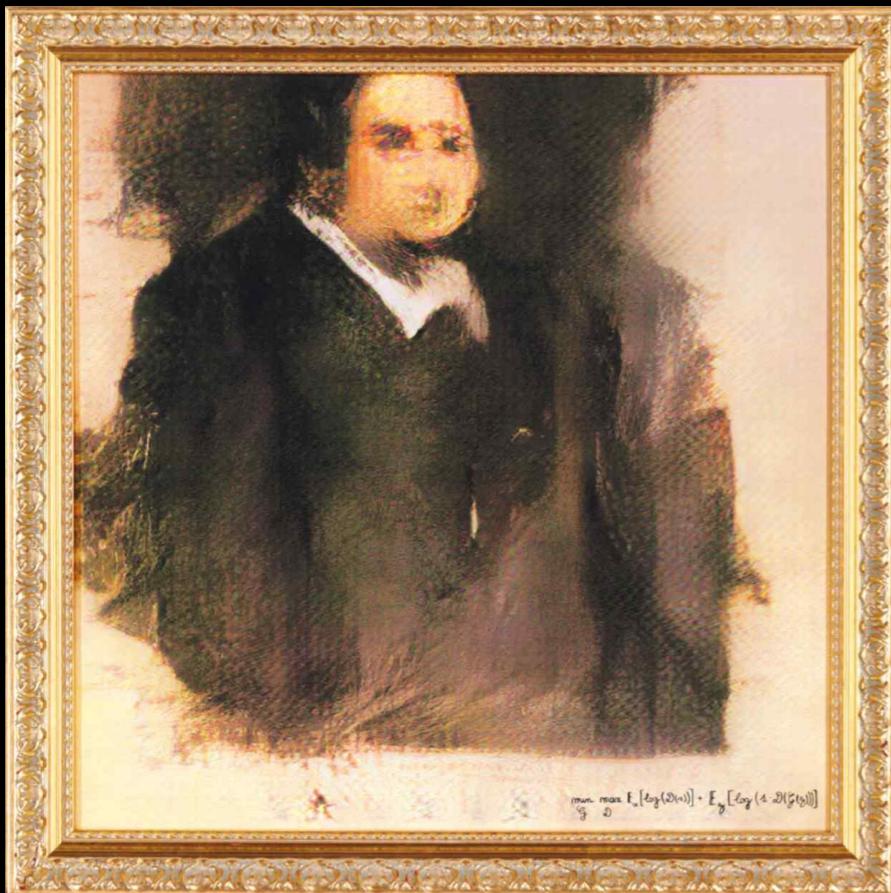
“AESTHETICS”?

– what may this be? –



Obvious:
Edmond de Belamy

2018, 70 x 70 cm

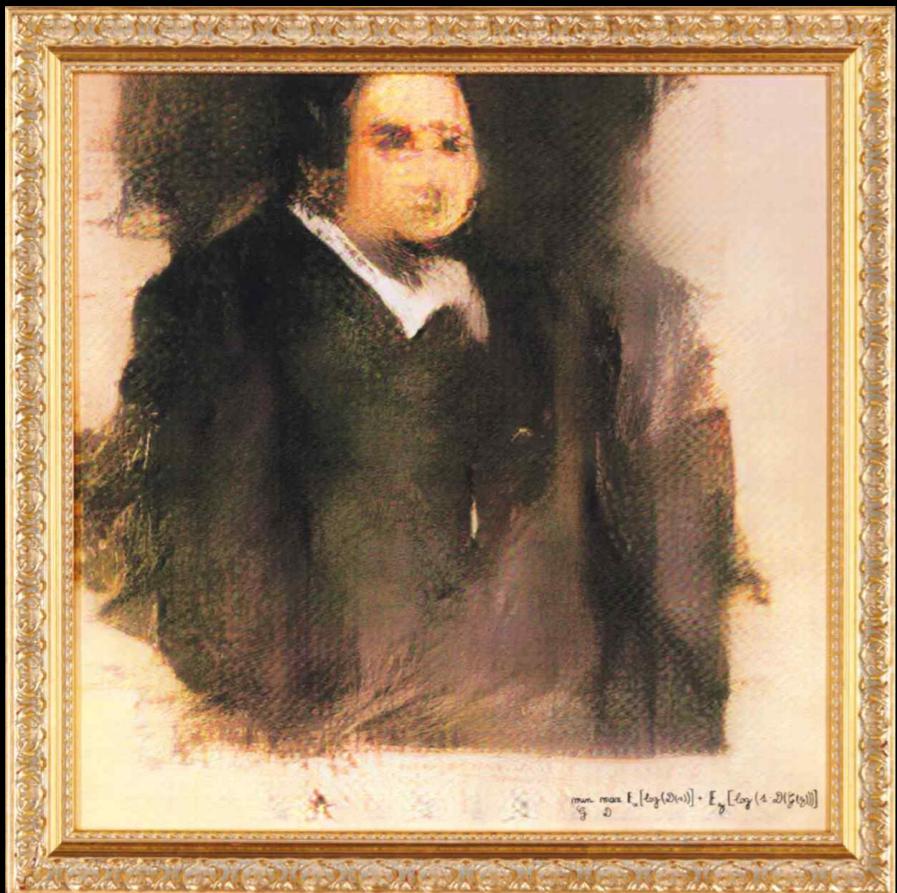


“Obvious” (Paris):
Pierre Fautrel
Hugo Casselles-Dupré
Gauthier Vernier

Edmond de Belamy from the family of de Belamy
bel ami = good friend = good fellow

first AI art work to be professionally auctioned
by Christie's of London
estimated \$7,000-10,000, sold for \$432,500

GAN
Generative Adversarial Network
Ian Goodfellow – inventor of GAN



found on the internet:

From a distance, the 70 cm by 70 cm portrait printed on canvas and hung in a gilded wood frame, looks like it belongs in a museum of classical art.

But upon closer inspection, the artist's signature — the mathematical formula that created it

$(\min G \max D \times [\log(D(x))] + z [\log(1 - D(G(z)))])$ — reveals that the artist was not human.

and somewhere else, similarly great:

It is signed at the bottom right with
 $\text{minGmaxDEx}[\log(D(x))] + \text{Ez}[\log(1 - \text{D}(G(z)))]$,
which is part of the algorithm code that produced it.

The algorithm was trained on a set of 15,000 portraits from online art encyclopedia WikiArt, spanning the 14th to the 19th century.



Robbie Barrat (17 years by the time)

“These are important visual moments”: artist Robbie Barrat pushes, tests and breaks AI in his works.

a

“element”

A

“set”

a ∈ A

“a in A”

what is a “set”?

– and now: what is this? –

think about it

write about it

send your answer to

nake@uni-bremen.de

what is a set?

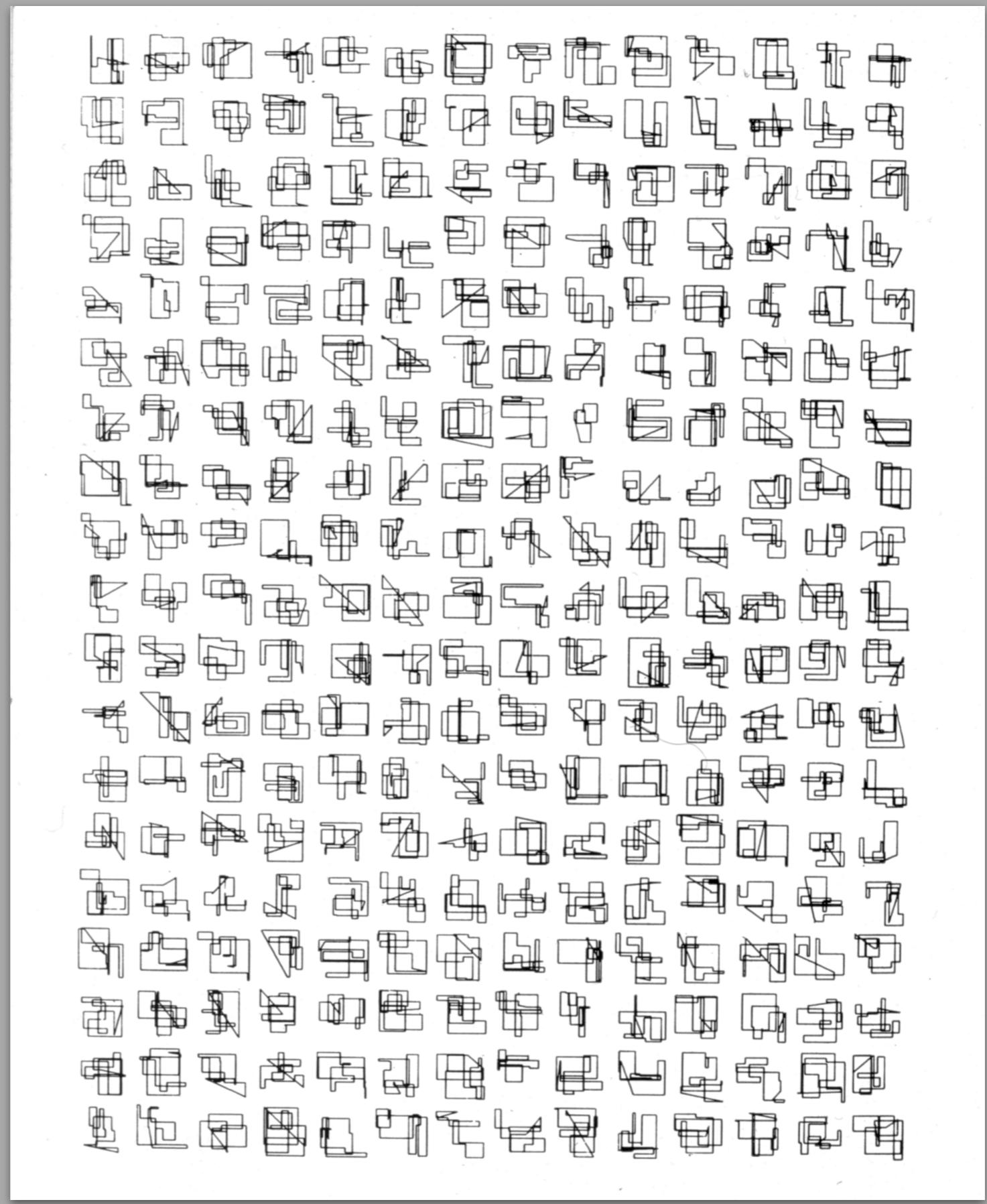
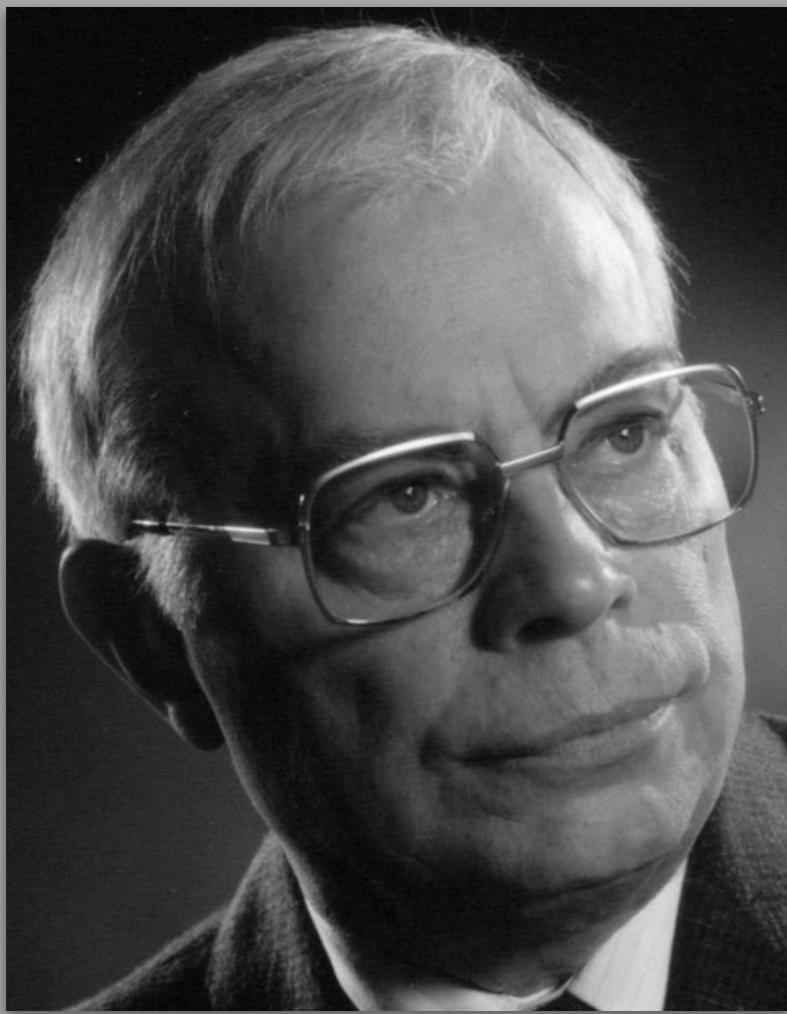
**A set is a gathering together
into a whole
of definite, distinct objects
of our perception [Anschauung]
or of our thought –
which are called elements of the set.**

(Georg Cantor 1895)

what is a “relation”?

**a (binary) relation between two sets
is a set of ordered pairs (a, b)
where $a \in A$ and $b \in B$.**

Georg Nees (1926-2016)
23-Ecke





Harold Cohen (1928-2016)





Mario Klingemann



Helena Sarin





Anna Ridler (b. 1985)



Tom White

