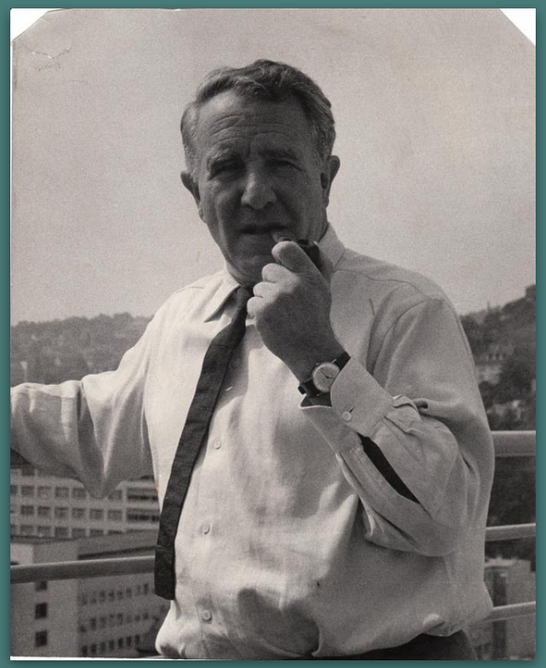
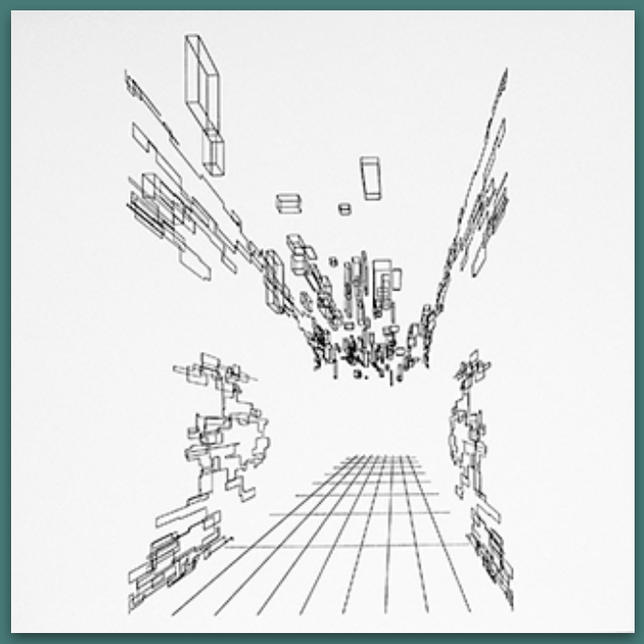
NEURAL NETWORKS
&
AESTHETICS

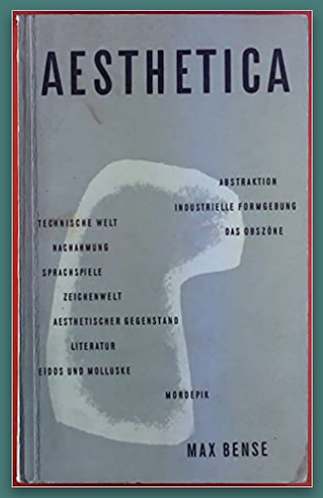
Frieder Nake
A Workshop, Summer 2020

–day5–

ARTIFICIAL INTELLIGENCE | ARTIFICIAL ART







“Pure Chance. The unforeseeable from Marcel Duchamp to Gerhard Richter”
Sprengel Museum, Hannover
May to September 2013

Georg Nees

A. Michael Noll

Charles Csuri/
James Schaffer

Frieder Nake

randomness

pseudo-random numbers

$x_n = x_{n-1} * a \pmod{m}$

$x_0 = 7 \quad a = 11 \quad m = 23$

multiples of 23:

23 46 69 92 115 138 161 184 207 230

the sequence of random numbers:

7, 8, 19, 17, 3, 10, 18, 14, 16, 15, 4, 21,
1, 11, 6, 20, 13, 5, 9, 7, ...

Proposal for the Dartmouth summer workshop, first paragraph
by McCarthy, Minsky, Rochester, Shannon

We propose that a 2-month, 10-man study of *artificial intelligence*
be carried out during the summer of 1956
at Dartmouth College in Hanover, New Hampshire.

The study is to proceed on the basis of the *conjecture*
that *every aspect of learning or any other feature of intelligence*
can in principle be so precisely described
that a machine can be made to simulate it.

An attempt will be made to find
how to make machines use language,
form abstractions and concepts,
solve kinds of problems now reserved for humans,
and improve themselves.

We think that a significant advance can be made
in one or more of these problems
if a *carefully selected group of scientists*
work on it together for a summer.

3. NEURON NETS

How can a set of (hypothetical) neurons
be arranged so as to form concepts.

Considerable theoretical and experimental work
has been done on this problem
by Uttley, Rashevsky and his group, Farley and Clark,
Pitts and McCulloch, Minsky, Rochester and Holland, and others.
Partial results have been obtained but the problem needs more theoretical work.

(one of 7 problems, the 7th being "randomness & creativity")

participants
at the Dartmouth summer workshop
for, at least, one days

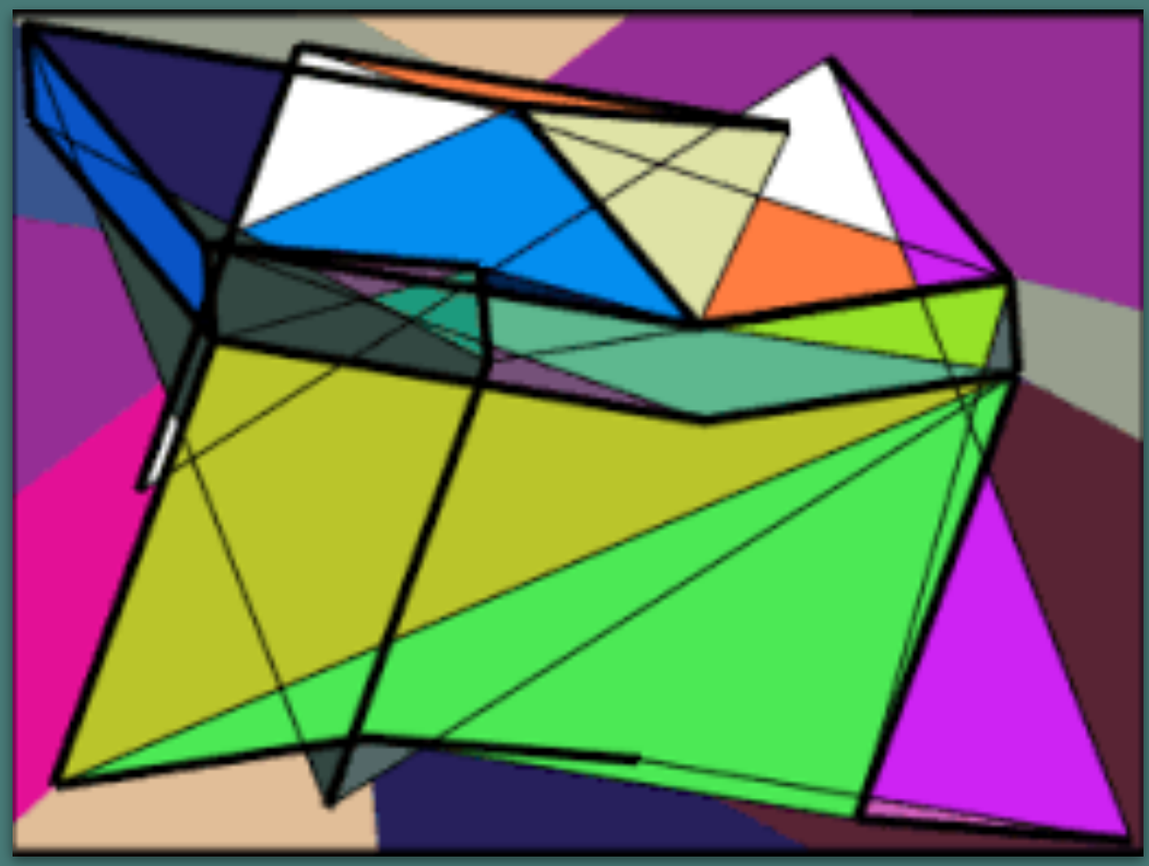
1956

Ray Solomonoff
Marvin Minsky
John McCarthy
Claude Shannon
Trenchard More
Nat Rochester
Oliver Selfridge
Julian Bigelow
W. Ross Ashby
W.S. McCulloch
Abraham Robinson
Tom Etter
John Nash
David Sayre
Arthur Samuel
Kenneth R. Shoulders
Shoulders' friend
Alex Bernstein
Herbert Simon
Allen Newell

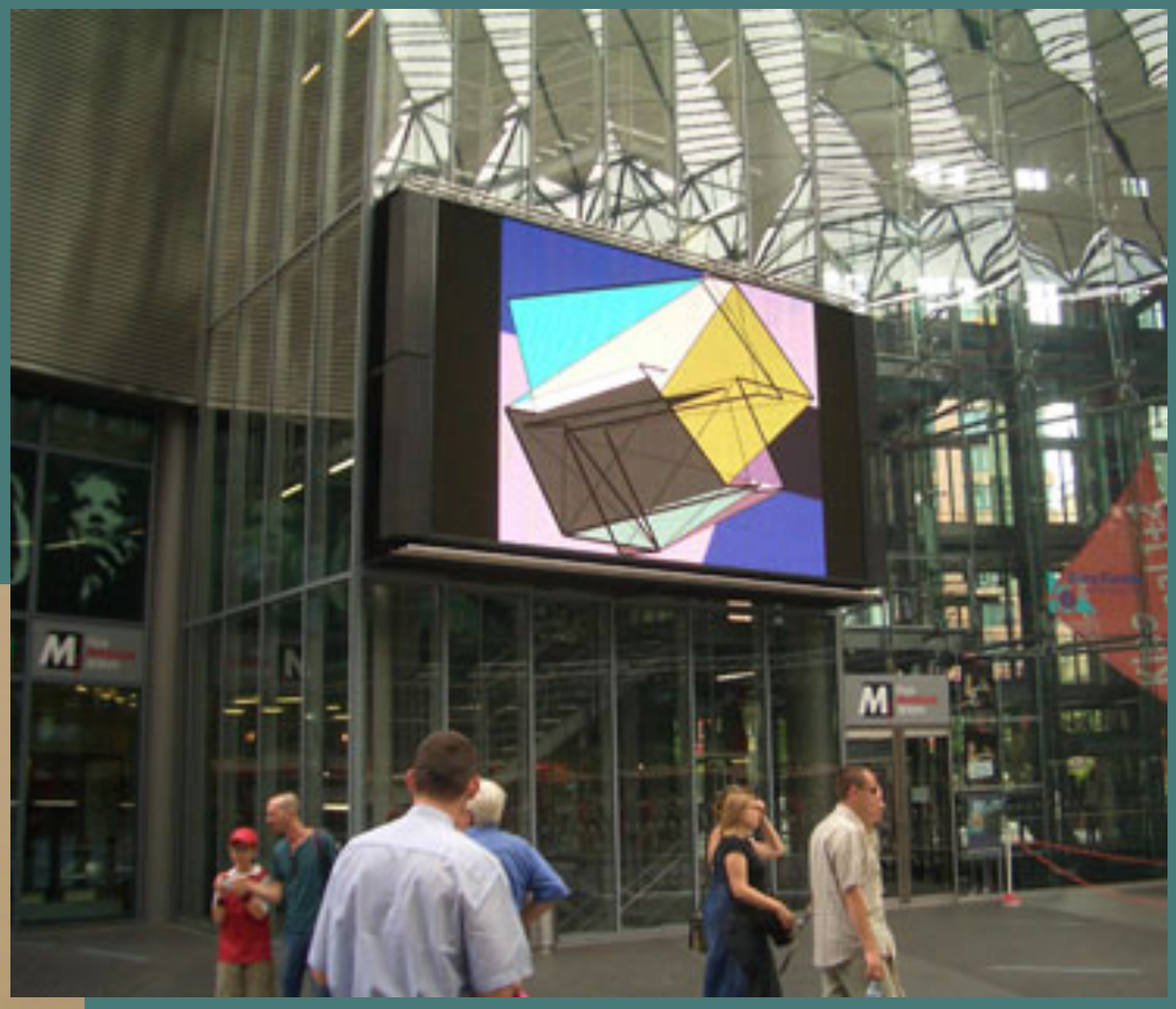
Manfred Mohr “Mensch sein mit Algorithmen”

space.color.motion

Manfred Mohr, P-021, 1970

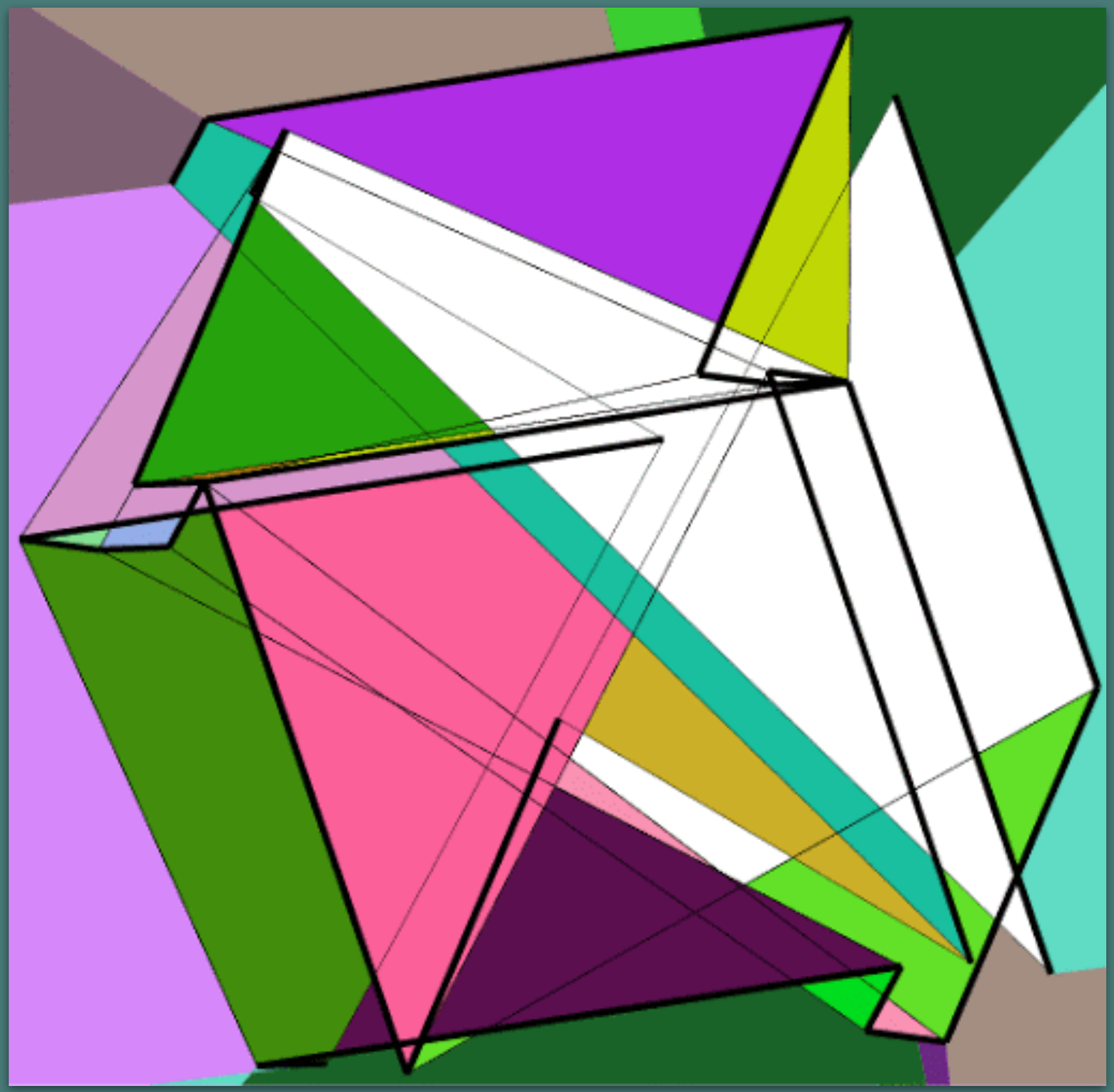


Manfred Mohr, space.color.motion, 2002-2004



http://www.emohr.com/www_m1/motion_777.html

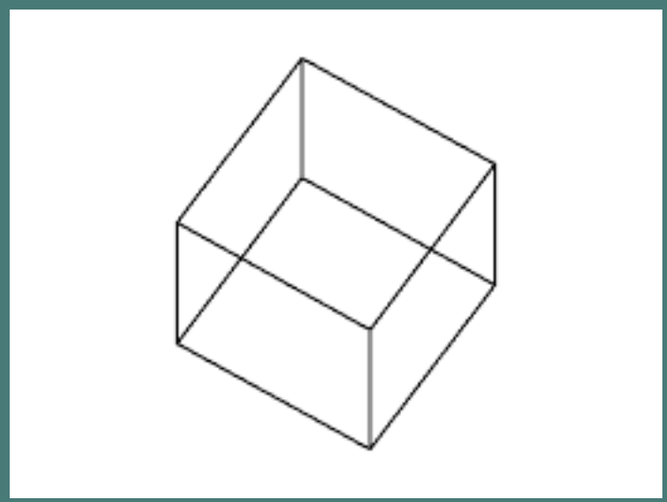
the cube and hypercube



0D

1D

2D



3D

4D … ?

aesthetics in times of the artificial?