Feminist Machines: Biased Datasets & AI. Some Context and Creativity.

Peter van der Putten, Machine Learner & Creative Researcher, Universiteit Leiden

Universiteit Leiden
The Netherlands

Leiden Institute of Advanced Computer Science
Media Technology MSc Program
Creative Intelligence Lab | [A]Social Creatures Lab

J.W. Waterhouse, 1903

Act I:
AI in Historical and Societal Context

Universiteit
Leiden
The Netherlands

L' HOMME

MACHINE.

Eſt-ce là ce Raion de l'Eſſence ſuprême,
Que l'on nous peint ſi lumineux?
Eſt-ce là cet Eſprit ſurvivant à nous même?
Il naît avec nos ſens, croit, s'affoiblit
comme eux.
Helas! il périra de même.

VOLTAIRE.

A LEYDE,
DE L'IMP. D'ELIE LUZAC, FILS.
MDCCXLVIII.

1748

Julien Offroy
de la Mettrie, 1748

Ada Lovelace,
1815 - 1852

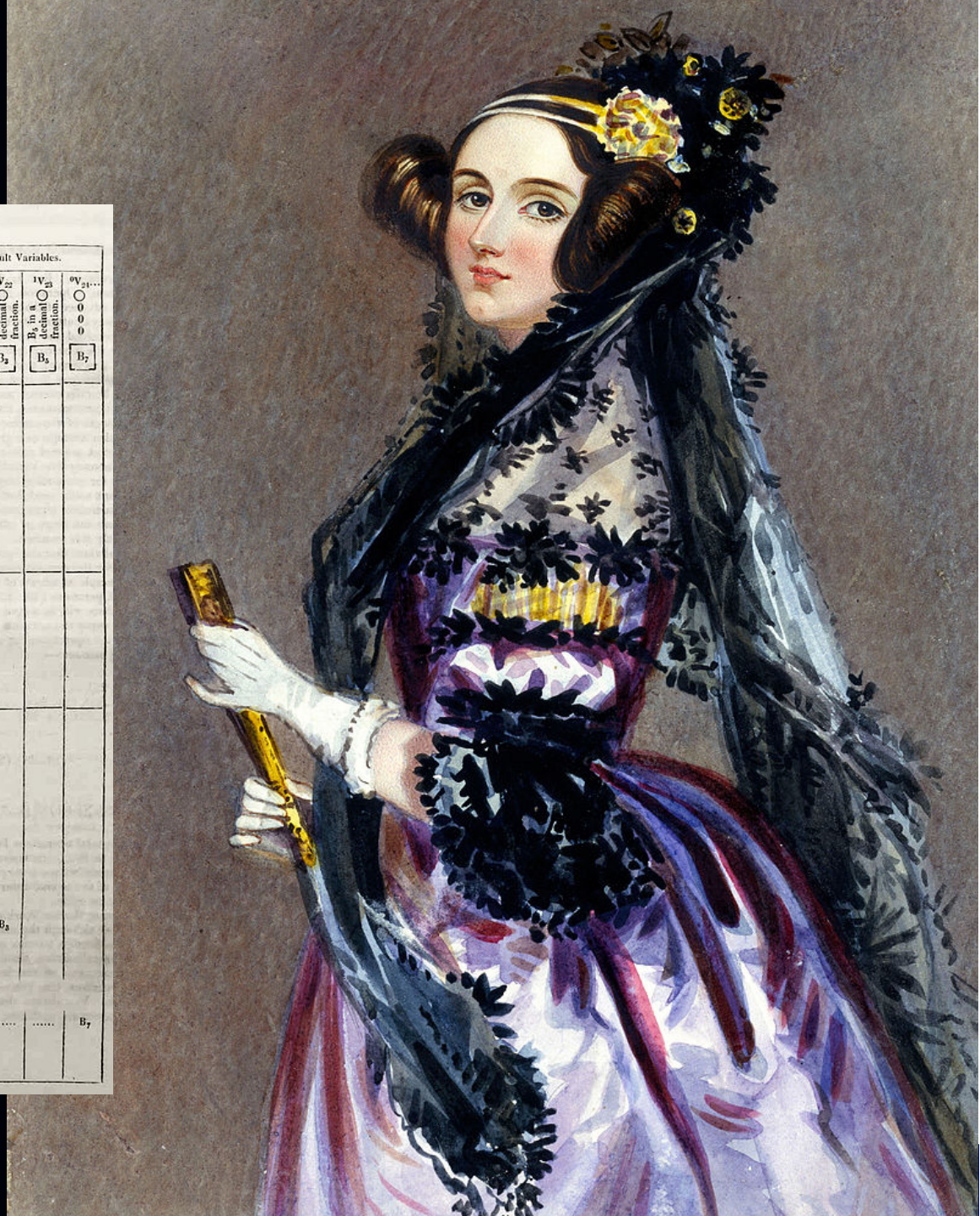


Diagram for the computation by the Engine of the Numbers of Bernoulli. See Note G. (page 722 *et seq.*)

Number of Operation.	Nature of Operation.	Variables acted upon.	Variables receiving results.	Indication of change in the value on any Variable.	Statement of Results.	Data.			Working Variables.									Result Variables.			
						$^1V_1$ 0 0 0 1 [1]	$^1V_2$ 0 0 0 2 [2]	$^1V_3$ 0 0 0 4 [n]	$^0V_4$ 0 0 0 [ ]	$^0V_5$ 0 0 0 [ ]	$^0V_6$ 0 0 0 [ ]	$^0V_7$ 0 0 0 [ ]	$^0V_8$ 0 0 0 [ ]	$^0V_9$ 0 0 0 [ ]	$^0V_{10}$ 0 0 0 [ ]	$^0V_{11}$ 0 0 0 [ ]	$^0V_{12}$ 0 0 0 [ ]	$^0V_{13}$ 0 0 0 [ ]	$^1V_{21}$ B_1 in a decimal fraction. [B_1]	$^1V_{22}$ B_3 in a decimal fraction. [B_3]	$^1V_{23}$ B_5 in a decimal fraction. [B_5]	$^0V_{24}$ 0 0 0 0 [B_7]
1	×	$^1V_2 \times {}^1V_3$	$^1V_4, {}^1V_5, {}^1V_6$	$\begin{cases} {}^1V_2 = {}^1V_2 \\ {}^1V_3 = {}^1V_3 \end{cases}$	$= 2n$	...	2	n	$2n$	$2n$	$2n$											
2	−	$^2V_4 - {}^1V_1$	$^2V_4$	$\begin{cases} {}^2V_4 = {}^2V_4 \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= 2n-1$	1	...	...	$2n-1$												
3	+	$^1V_5 + {}^1V_1$	$^2V_5$	$\begin{cases} {}^2V_5 = {}^2V_5 \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= 2n+1$	1	...	...	...	$2n+1$											
4	÷	$^2V_5 \div {}^2V_4$	$^1V_{11}$	$\begin{cases} {}^2V_5 = {}^0V_5 \\ {}^2V_4 = {}^0V_4 \end{cases}$	$= \dfrac{2n-1}{2n+1}$	...	...	...	0	0	...	...	...	...	...	$\dfrac{2n-1}{2n+1}$						
5	÷	$^1V_{11} \div {}^1V_2$	$^2V_{11}$	$\begin{cases} {}^1V_{11} = {}^2V_{11} \\ {}^1V_2 = {}^1V_2 \end{cases}$	$= \dfrac{1}{2} \cdot \dfrac{2n-1}{2n+1}$	...	2	...	...	...	...	...	...	...	...	$\dfrac{1}{2} \cdot \dfrac{2n-1}{2n+1}$						
6	−	$^0V_{13} - {}^2V_{11}$	$^1V_{13}$	$\begin{cases} {}^2V_{11} = {}^0V_{11} \\ {}^0V_{13} = {}^1V_{13} \end{cases}$	$= -\dfrac{1}{2} \cdot \dfrac{2n-1}{2n+1} = A_0$	...	...	...	...	...	...	...	...	...	...	0	.....	$-\dfrac{1}{2} \cdot \dfrac{2n-1}{2n+1} = A_0$				
7	−	$^1V_3 - {}^1V_1$	$^1V_{10}$	$\begin{cases} {}^1V_3 = {}^1V_3 \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= n-1\ (=3)$	1	...	n	...	...	...	...	...	...	$n-1$							
8	+	$^1V_2 + {}^0V_7$	$^1V_7$	$\begin{cases} {}^1V_2 = {}^1V_2 \\ {}^0V_7 = {}^1V_7 \end{cases}$	$= 2+0=2$	...	2	...	...	...	...	2										
9	÷	$^1V_6 \div {}^1V_7$	$^3V_{11}$	$\begin{cases} {}^1V_6 = {}^1V_6 \\ {}^0V_{11} = {}^3V_{11} \end{cases}$	$= \dfrac{2n}{2} = A_1$	...	...	...	...	...	$2n$	2	...	...	...	$\dfrac{2n}{2} = A_1$						
10	×	$^1V_{21} \times {}^3V_{11}$	$^1V_{12}$	$\begin{cases} {}^1V_{21} = {}^1V_{21} \\ {}^3V_{11} = {}^3V_{11} \end{cases}$	$= B_1 \cdot \dfrac{2n}{2} = B_1 A_1$	...	...	...	...	...	...	...	...	...	...	$\dfrac{2n}{2} = A_1$	$B_1 \cdot \dfrac{2n}{2} = B_1 A_1$	.....	B_1			
11	+	$^1V_{12} + {}^1V_{13}$	$^2V_{13}$	$\begin{cases} {}^1V_{12} = {}^0V_{12} \\ {}^1V_{13} = {}^2V_{13} \end{cases}$	$= -\dfrac{1}{2} \cdot \dfrac{2n-1}{2n+1} + B_1 \cdot \dfrac{2n}{2}$ ...	...	...	...	...	...	...	...	...	...	...	.....	0	$\left\{ -\dfrac{1}{2} \cdot \dfrac{2n-1}{2n+1} + B_1 \cdot \dfrac{2n}{2} \right\}$				
12	−	$^1V_{10} - {}^1V_1$	$^2V_{10}$	$\begin{cases} {}^1V_{10} = {}^2V_{10} \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= n-2\ (=2)$	1	...	...	...	...	...	...	...	...	$n-2$							
13	−	$^1V_6 - {}^1V_1$	$^2V_6$	$\begin{cases} {}^1V_6 = {}^2V_6 \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= 2n-1$	1	...	...	...	...	$2n-1$											
14	+	$^1V_1 + {}^1V_7$	$^2V_7$	$\begin{cases} {}^1V_1 = {}^1V_1 \\ {}^1V_7 = {}^2V_7 \end{cases}$	$= 2+1=3$	1	...	...	...	...	...	3										
15	÷	$^2V_6 \div {}^2V_7$	$^1V_8$	$\begin{cases} {}^2V_6 = {}^2V_6 \\ {}^2V_7 = {}^2V_7 \end{cases}$	$= \dfrac{2n-1}{3}$	...	...	...	...	...	$2n-1$	3	$\dfrac{2n-1}{3}$									
16	×	$^1V_8 \times {}^3V_{11}$	$^4V_{11}$	$\begin{cases} {}^1V_8 = {}^0V_8 \\ {}^3V_{11} = {}^4V_{11} \end{cases}$	$= \dfrac{2n}{2} \cdot \dfrac{2n-1}{3}$	...	...	...	...	...	...	...	0	...	...	$\dfrac{2n}{2} \cdot \dfrac{2n-1}{3}$						
17	−	$^2V_6 - {}^1V_1$	$^3V_6$	$\begin{cases} {}^2V_6 = {}^3V_6 \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= 2n-2$	1	...	...	...	...	$2n-2$											
18	+	$^1V_1 + {}^2V_7$	$^3V_7$	$\begin{cases} {}^2V_7 = {}^3V_7 \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= 3+1=4$	1	...	...	...	...	...	4										
19	÷	$^3V_6 \div {}^3V_7$	$^1V_9$	$\begin{cases} {}^3V_6 = {}^3V_6 \\ {}^3V_7 = {}^3V_7 \end{cases}$	$= \dfrac{2n-2}{4}$	...	...	...	...	...	$2n-2$	4	...	$\dfrac{2n-2}{4}$	...	$\left\{ \dfrac{2n}{2} \cdot \dfrac{2n-1}{3} \cdot \dfrac{2n-2}{3} = A_3 \right\}$						
20	×	$^1V_9 \times {}^4V_{11}$	$^5V_{11}$	$\begin{cases} {}^1V_9 = {}^0V_9 \\ {}^4V_{11} = {}^5V_{11} \end{cases}$	$= \dfrac{2n}{2} \cdot \dfrac{2n-1}{3} \cdot \dfrac{2n-2}{4} = A_3$	...	...	...	...	...	...	...	...	0								
21	×	$^1V_{22} \times {}^5V_{11}$	$^0V_{12}$	$\begin{cases} {}^1V_{22} = {}^1V_{22} \\ {}^0V_{12} = {}^2V_{12} \end{cases}$	$= B_3 \cdot \dfrac{2n}{2} \cdot \dfrac{2n-1}{3} \cdot \dfrac{2n-2}{3} = B_3 A_3$	...	...	...	...	...	...	...	...	...	...	0	$B_3 A_2$	.....	.....	B_3		
22	+	$^2V_{12} + {}^2V_{13}$	$^3V_{13}$	$\begin{cases} {}^2V_{12} = {}^0V_{12} \\ {}^2V_{13} = {}^3V_{13} \end{cases}$	$= A_0 + B_1 A_1 + B_3 A_3$	...	...	...	...	...	...	...	...	...	...	.....	0	$\left\{ A_3 + B_1 A_1 + B_3 A_3 \right\}$				
23	−	$^2V_{10} - {}^1V_1$	$^3V_{10}$	$\begin{cases} {}^2V_{10} = {}^3V_{10} \\ {}^1V_1 = {}^1V_1 \end{cases}$	$= n-3\ (=1)$	1	...	...	...	...	...	...	...	...	$n-3$							

Here follows a repetition of Operations thirteen to twenty-three.

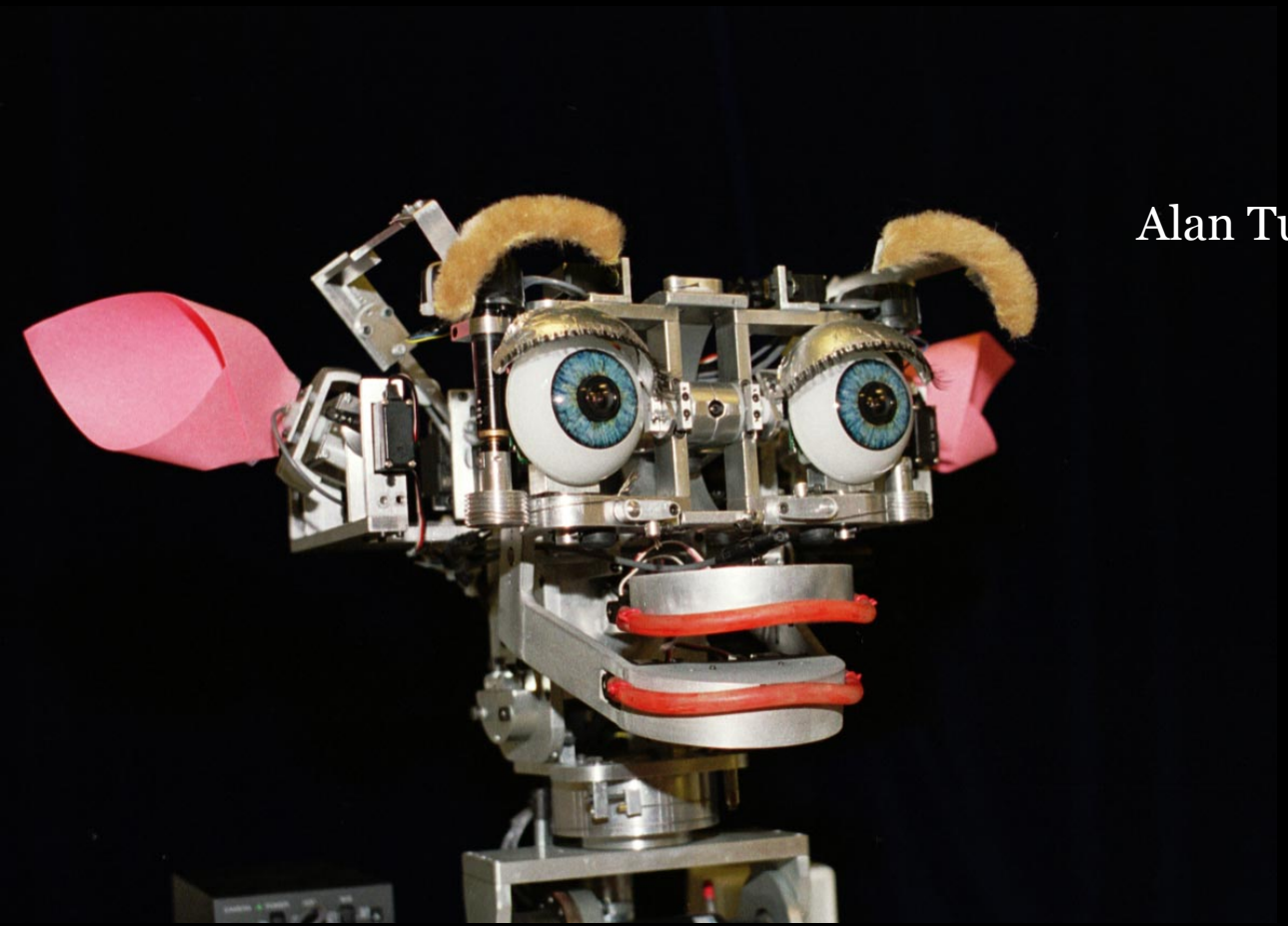
24	+	$^4V_{13} + {}^0V_{24}$	$^1V_{24}$	$\begin{cases} {}^4V_{13} = {}^0V_{13} \\ {}^0V_{24} = {}^1V_{24} \end{cases}$	$= B_7$	...	...	...	...	...	...	...	...	...	...	.....	.....	.....	.....	.....	.....	B_7
25		$+ {}^1V_1 + {}^1V_3$	$^1V_3$	$\begin{cases} {}^1V_1 = {}^1V_1 \\ {}^1V_3 = {}^1V_3 \\ {}^5V_6 = {}^0V_6 \\ {}^5V_7 = {}^0V_7 \end{cases}$	$= n+1 = 4+1=5$ by a Variable-card. by a Variable card.	1	...	$n+1$	...	...	0	0	...	...	...	.....	.....	.....	.....	.....	.....	.....

Imaginary Housekeeping Robot, 1940 (Cybernetic Zoo)

“Any sufficiently advanced technology is indistinguishable from magic”

Arthur C. Clarke, science fiction writer

A. M. Turing



Instead of trying to produce a programme to simulate the adult mind, why not rather try to produce one which simulates the child's?

If this then would be subjected to an appropriate course of education one would obtain the adult brain.

Alan Turing, Computing Machinery and Intelligence, Mind 1950

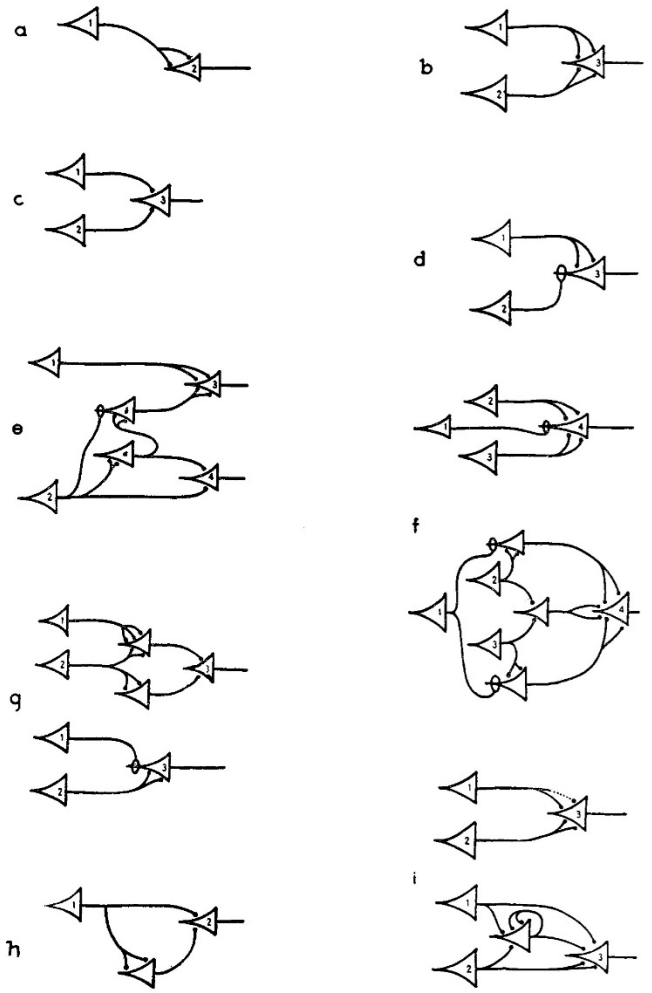


FIGURE 1

observations and of these to the facts is all too clear, for it is apparent that every idea and every sensation is realized by activity within that net, and by no such activity are the actual afferents fully determined.

There is no theory we may hold and no observation we can make that will retain so much as its old defective reference to the facts if the net be altered. Tinnitus, paraesthesias, hallucinations, delusions, confusions and disorientations intervene. Thus empiry confirms that if our nets are undefined, our facts are undefined, and to the "real" we can attribute not so much as one quality or "form." With determination of the net, the unknowable object of knowledge, the "thing in itself," ceases to be unknowable.

To psychology, however defined, specification of the net would contribute all that could be achieved in that field—even if the analysis were pushed to ultimate psychic units or "psychons," for a psychon can be no less than the activity of a single neuron. Since that activity is inherently propositional, all psychic events have an intentional, or "semiotic," character. The "all-or-none" law of these activities, and the conformity of their relations to those of the logic of propositions, insure that the relations of

EXPRESSION FOR THE FIGURES

In the figure the neuron c_i is always marked with the numeral i upon the body of the cell, and the corresponding action is denoted by 'N' with i as subscript, as in the text.

Figure 1a $N_2(t) \,.\equiv.\, N_1(t-1)$

Figure 1b $N_3(t) \,.\equiv.\, N_1(t-1) \vee N_2(t-1)$

Figure 1c $N_3(t) \,.\equiv.\, N_1(t-1) \,.\, N_2(t-1)$

Figure 1d $N_3(t) \,.\equiv.\, N_1(t-1) \,.\, \sim N_2(t-1)$

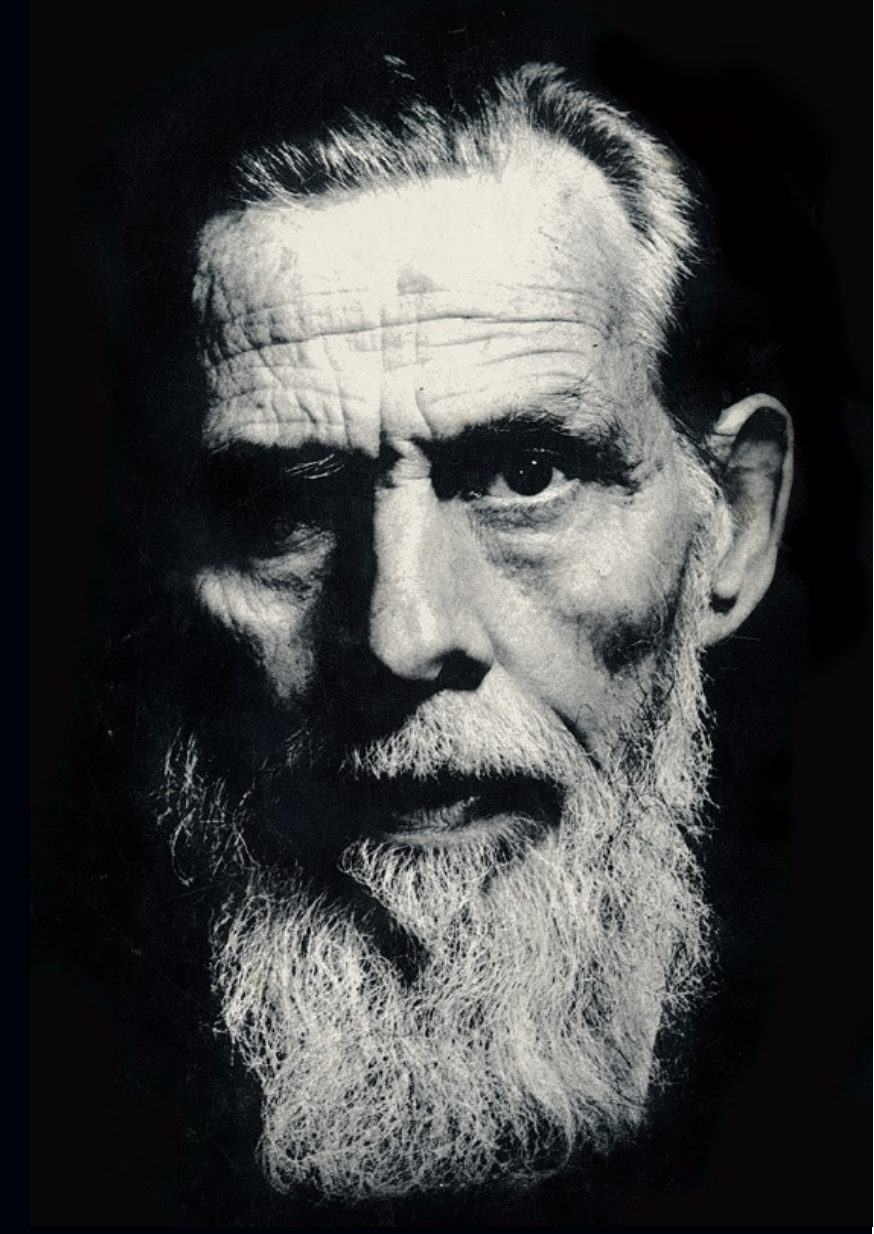
Figure 1e $N_3(t) :\equiv: N_1(t-1) \,.\vee.\, N_2(t-3) \,.\, \sim N_3(t-2)$
$N_3(t) \,.\equiv.\, N_2(t-2) \,.\, N_2(t-1)$

Figure 1f $N_4(t) :\equiv: \sim N_1(t-1) \,.\, N_2(t-1) \vee N_3(t-1) \,.\vee.\, N_1(t-1) \,.\, N_2(t-1) \,.\, N_3(t-1)$
$N_4(t) :\equiv: \sim N_1(t-2) \,.\, N_2(t-2) \vee N_3(t-2) \,.\vee.\, N_1(t-2) \,.\, N_2(t-2) \,.\, N_3(t-2)$

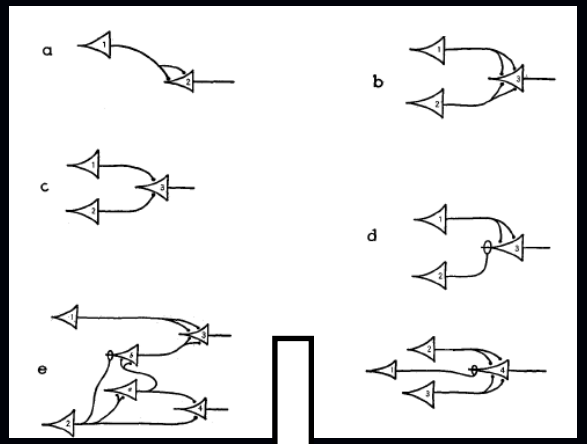
Figure 1g $N_3(t) \,.\equiv.\, N_2(t-2) \,.\, \sim N_1(t-3)$

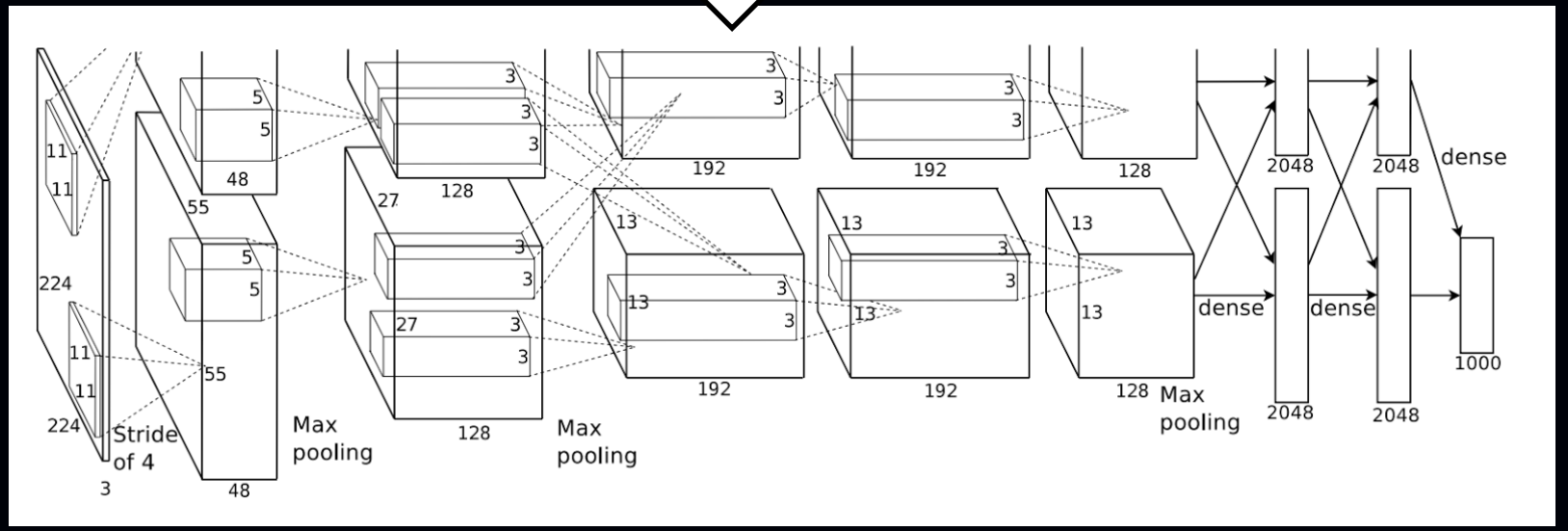
Figure 1h $N_2(t) \,.\equiv.\, N_1(t-1) \,.\, N_1(t-2)$

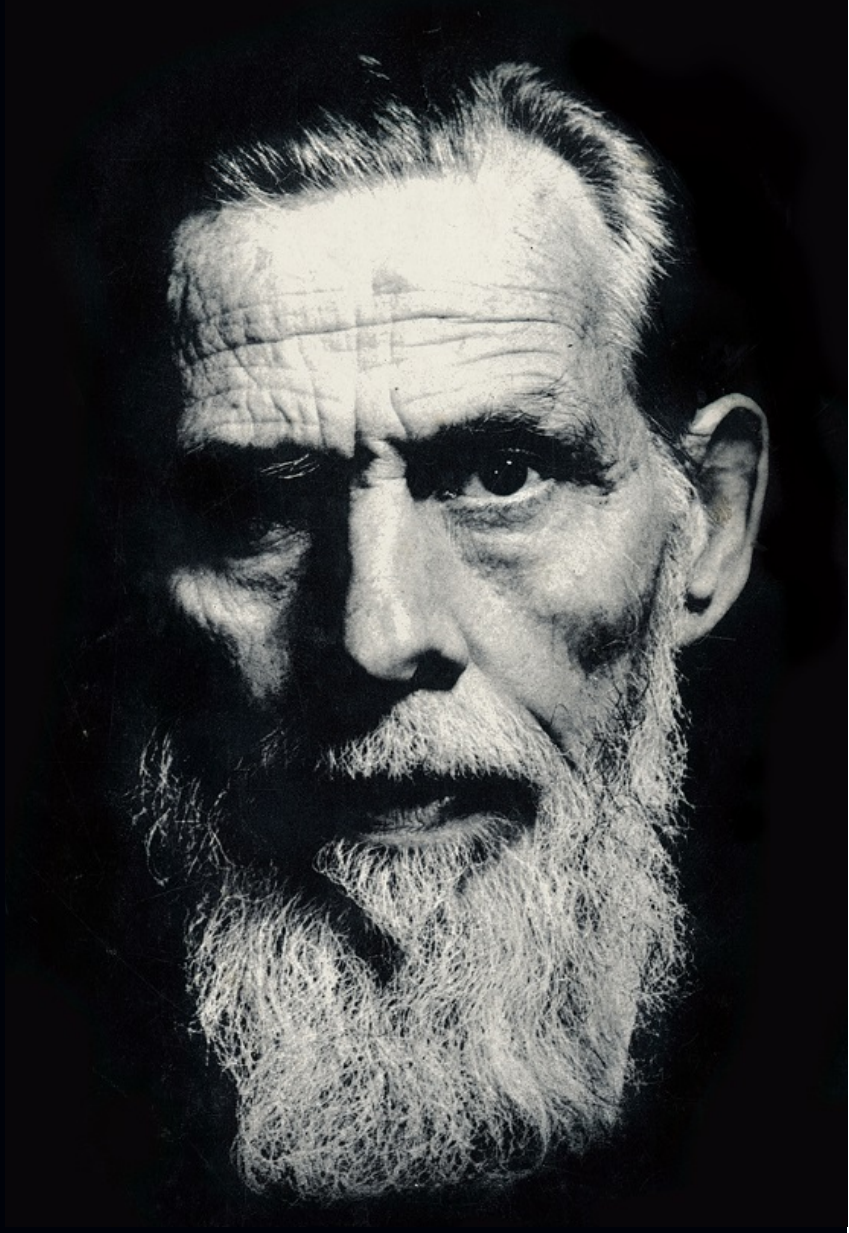
Figure 1i $N_3(t) :\equiv: N_2(t-1) \,.\vee.\, N_1(t-1) \,.\, (Ex)t-1 \,.\, N_1(x) \,.\, N_2(x)$



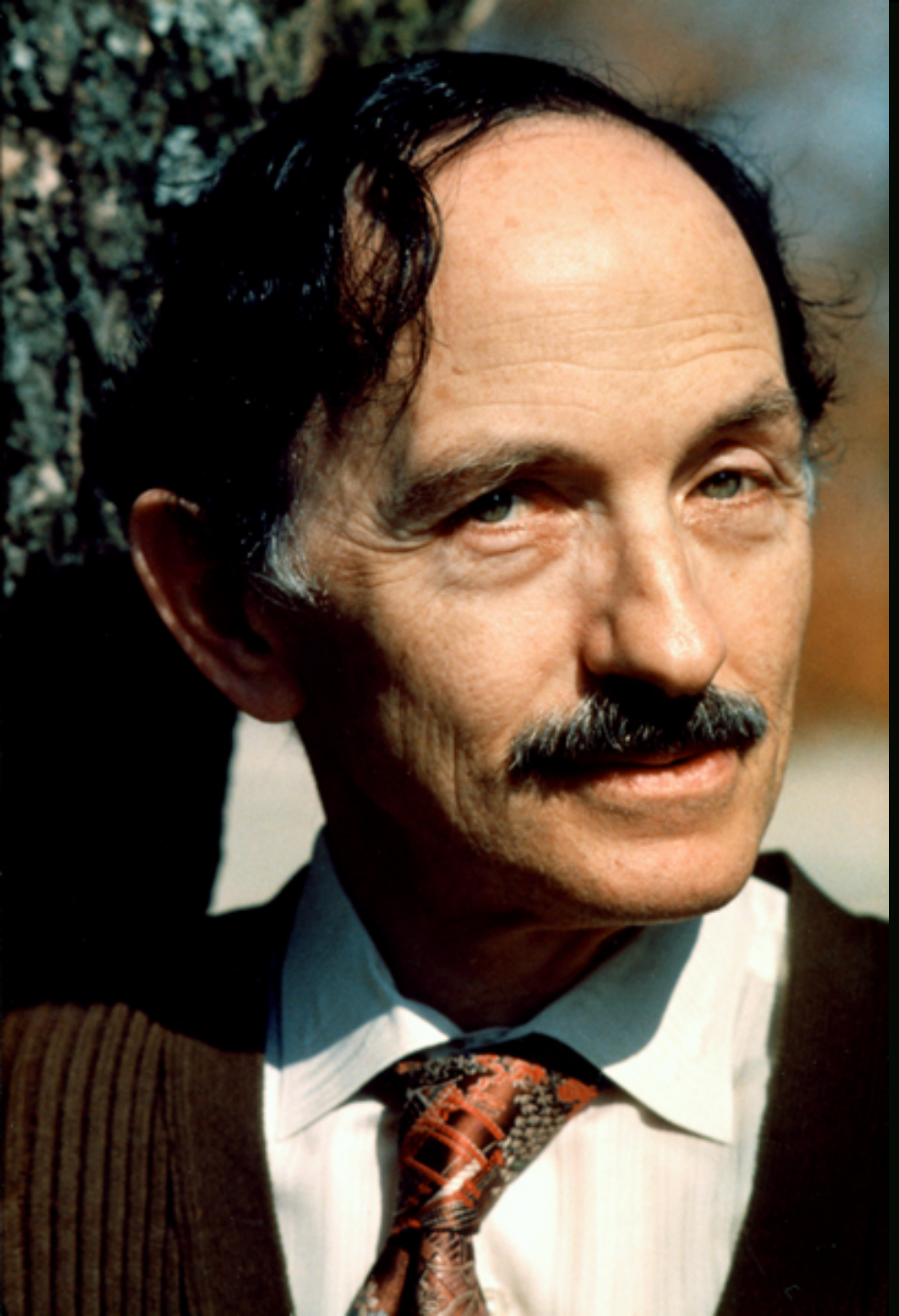
McCullough & Pitts, 1944







McCullough & Pitts, 1944



Let an ultraintelligent machine be defined as a machine that can far surpass all the intellectual activities of any man however clever.

Since the design of machines is one of these intellectual activities, an ultra-intelligent machine could design even better machines; there would then unquestionably be an ‘intelligence explosion’, and the intelligence of man would be left far behind.

Thus the first ultraintelligent machine is the last invention that man need ever make, provided that the machine is docile enough to tell us how to keep it under control

I.J. Good, "Speculations Concerning the First Ultraintelligent Machine", Advances in Computers, vol. 6, 1965

Photo: from movie *I Robot*, 2004

Facebook
The Cambridge Analytica Files

Facebook's week of shame: the Cambridge Analytica fallout

Mark Zuckerberg kept his silence – then did little to assuage the anger in a week that laid bare the worst of Silicon Valley

Tim Adams

Sat 24 Mar 2018
21.11 GMT

505

▲ $60bn was wiped off Facebook's market capitalisation in wake of Zuckerberg's silence over data breach. Photograph: Justin Sullivan/Getty Images

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April 21, 2016 ·
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11 Popular Songs You Never Knew Prince Wrote

Madonna, The Bangles and Celine Dion have all had success with Prince-penned pieces

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Coca-Cola
April 7 ·

Coke... chips... guac... Coke... chips... guac... flavor...can't... handle... the... awesome...

1M Views

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Jonathan Lee with Annie Diamond.
February 25 ·

M.A.L. Sigh

No safe forest left: 250 captive orphan chimps stuck in sanctuaries

Chimpanzees rescued from Cameroon's wildlife trade are safe in captivity, but NGOs can't find a safe forest in which to release them back to the wild.

NEWS.MONGABAY.COM

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Game of Thrones
February 7 ·

You've seen the show and heard the soundtrack, now test your Game of Thrones music knowledge.

See How Well You Know the Music of GoT

You've seen the show and you've heard the soundtrack, now take a quiz on GoT music from Seasons 1-6.

MAKINGGAMEOFTHRONES.COM

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National Park Service shared Mount Rainier National Park's video.
May 13 at 8:23pm ·

67,192 Views

Mount Rainier National Park
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Water, water, everywhere! Mount Rainier National Park is so much more than its namesake. There is an abundance of water within the park, often in the form of wa...

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April 7 ·

Coke... chips... guac... Coke... chips... guac... flavor...can't... handle... the... awesome...

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NASA - National Aeronautics and Space Administration
30 mins ·

It's no surprise that humans influence the surface of our planet, but our reach can go farther than that. Humans affect space, too. Learn more: https://nasa.tumblr.com/.../16.../how-humans-change-space-itself

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"The Joy of Painting" with Bob Ross
Yesterday at 9:39am ·

The best cure for a case of the Mondays is a whole lot of Bob! Don't miss the 24 hour marathon going on right now at twitch.tv/bobross

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May 14 at 12:19pm ·

Prospect... don't let that sweet smile fool ya 😈

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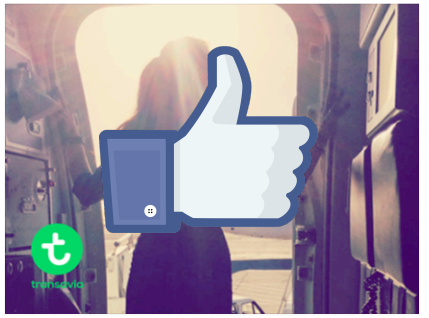
What a way to start the day! How was your morning?



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Here's what you need to know to make the right medical alert system purchase.

How to Select the Best Medical Alert System

Learn how to evaluate your family's need, both now and in the future.

WWW.AARP.ORG

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Life in the #Vegas lane. #HowManyDays until you check-in? http://mgm.gr/DHto6l

7.7K 574 Comments 721 Shares 243K Views

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Scotiabank Belize
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Get a team of experts in home-ownership to keep you on track towards your home ownership goals. #MortgageThatPays http://bit.ly/2n3OWFh

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Game of Thrones
February 7 ·

You've seen the show and heard the soundtrack, now test your Game of Thrones music knowledge.

See How Well You Know the Music of GoT

You've seen the show and you've heard the soundtrack, now take a quiz on GoT music from Seasons 1-6.

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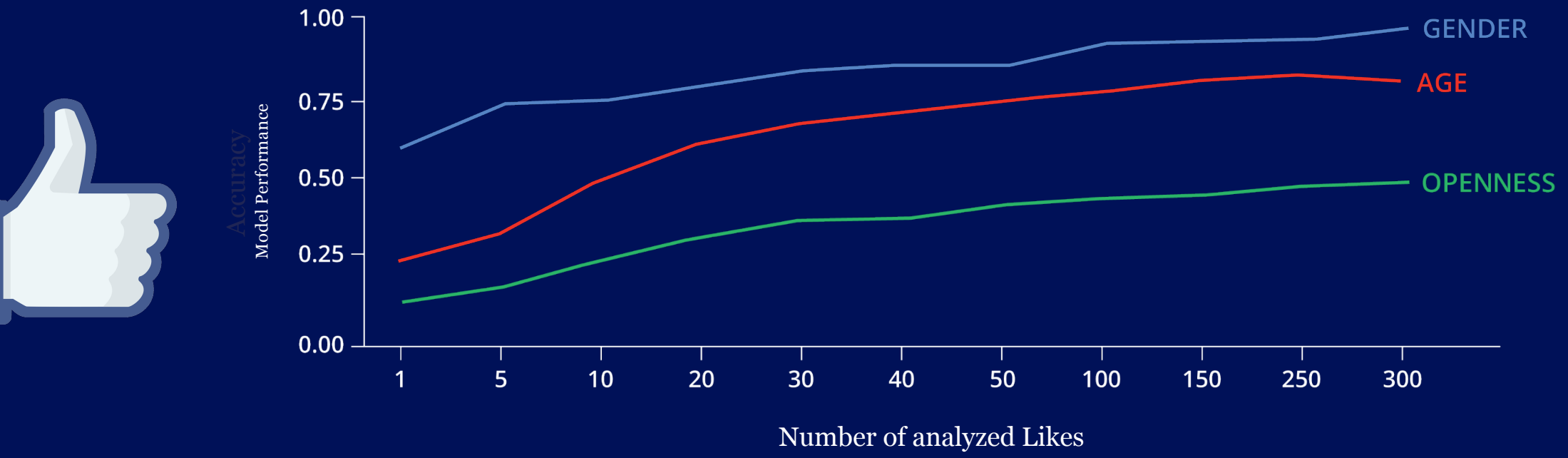
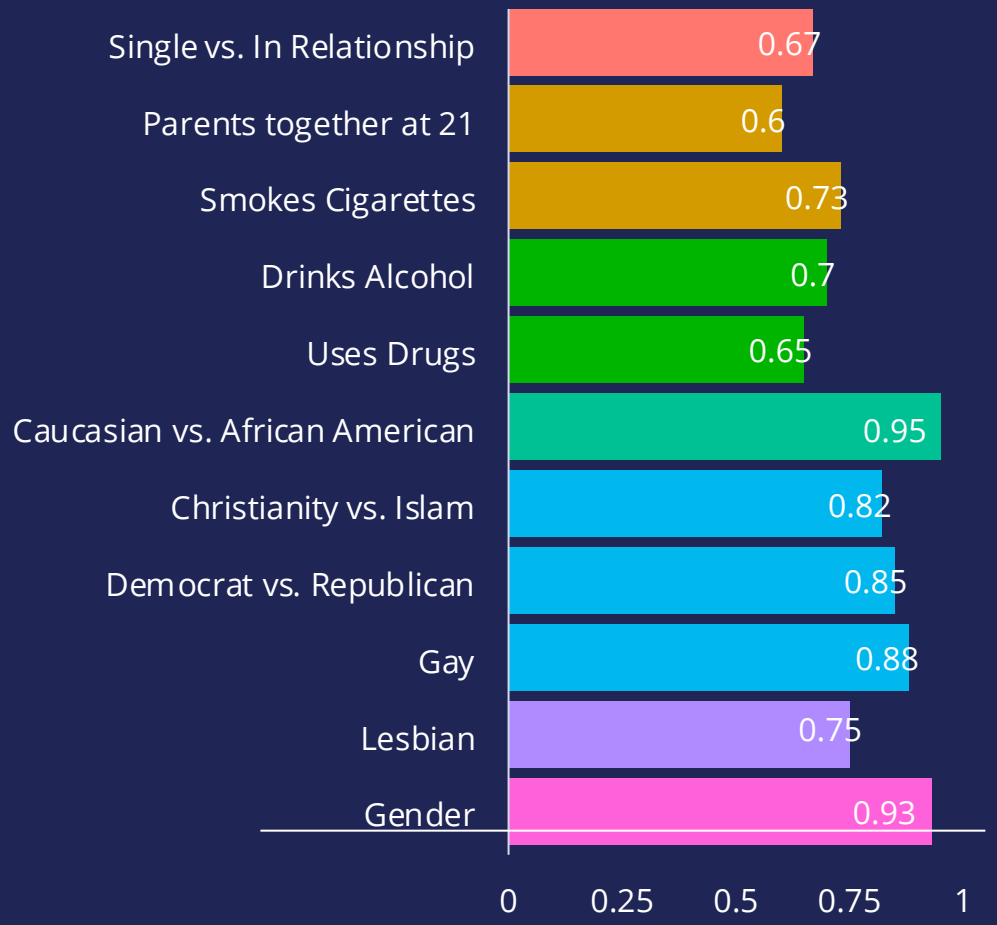


Source: *Private traits and attributes are predictable from digital records of human behavior,* Michal Kosinskia, David Stillwella, and Thore Graepel


Single vs. In Relationship
0.67
Parents together at 21
0.6
Smokes Cigarettes
0.73
Drinks Alcohol
0.7
Uses Drugs
0.65
Caucasian vs. African American
0.95
Christianity vs. Islam
0.82
Democrat vs. Republican
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Gay
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Lesbian
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0
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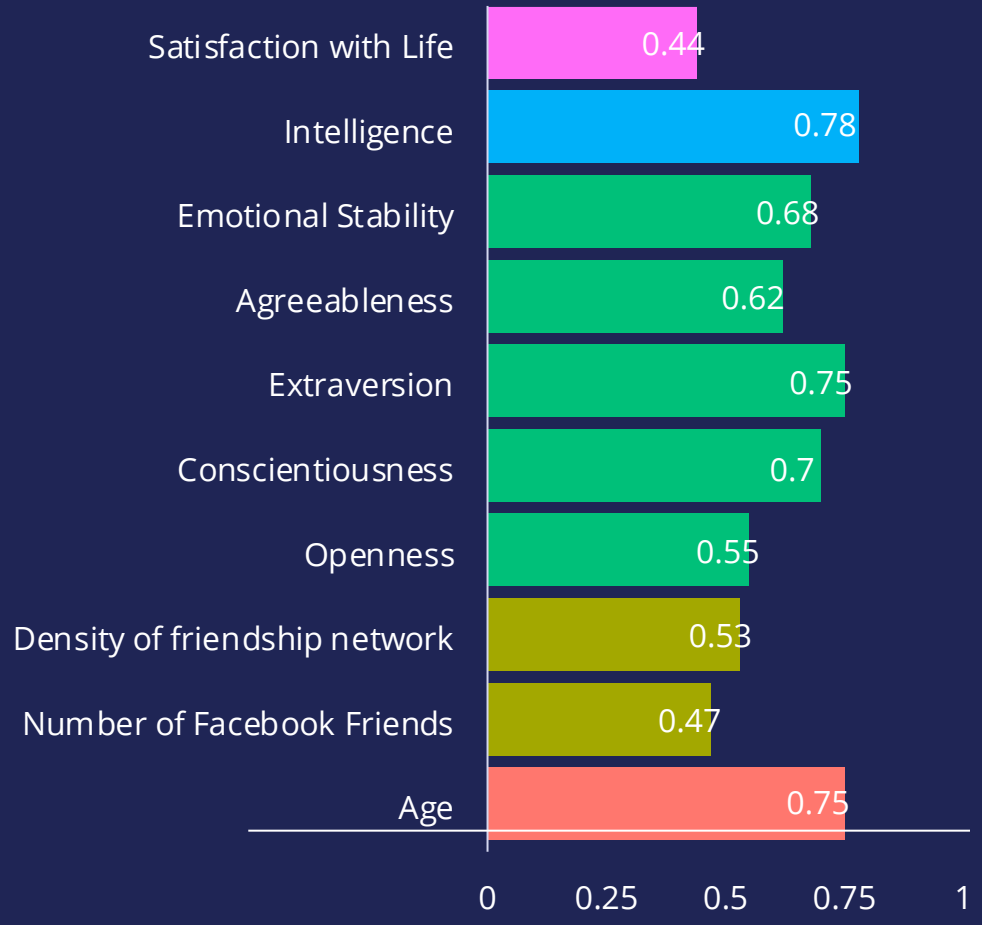
0.5
0.75
1


Satisfaction with Life
0.44
Intelligence
0.78
Emotional Stability
0.68
Agreeableness
0.62
Extraversion
0.75
Conscientiousness
0.7
Openness
0.55
Density of friendship network
0.53
Number of Facebook Friends
0.47
Age
0.75
0
0.25
0.5
0.75
1

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Back labradoodle or fried chicken Select

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COMPUTING

How a Machine Learns Prejudice

Artificial intelligence picks up bias from human creators—not from hard, cold logic

By Jesse Emspak on December 29, 2016

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News

Apple card biased algorithms – expert explains how to reduce bias in AI

Posted on Nov 11, 2019

It has been reported that Apple's credit card offered different credit limits for men and women In fact, even Apple's co-founder Steve Wozniak has expressed concerns that the algorithms used to set limits might be inherently biased against women.

Commenting on the news, and explaining how financial organisations can make sure that bias in artificial intelligence is kept to a minimum, Peter van der Putten, assistant professor at Leiden University and global

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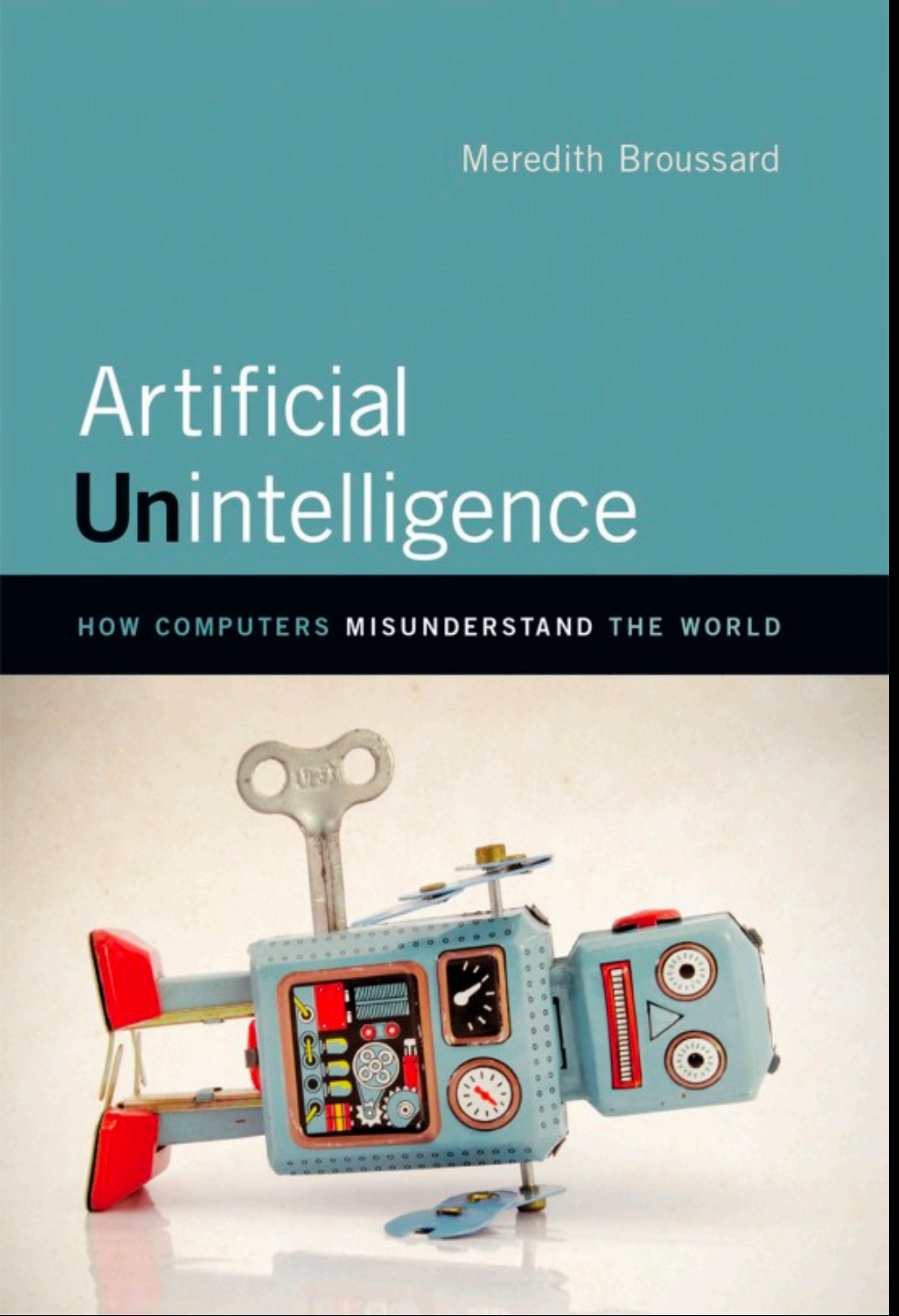
Apple Card: How To Eliminate Sexism From Banking Algorithms

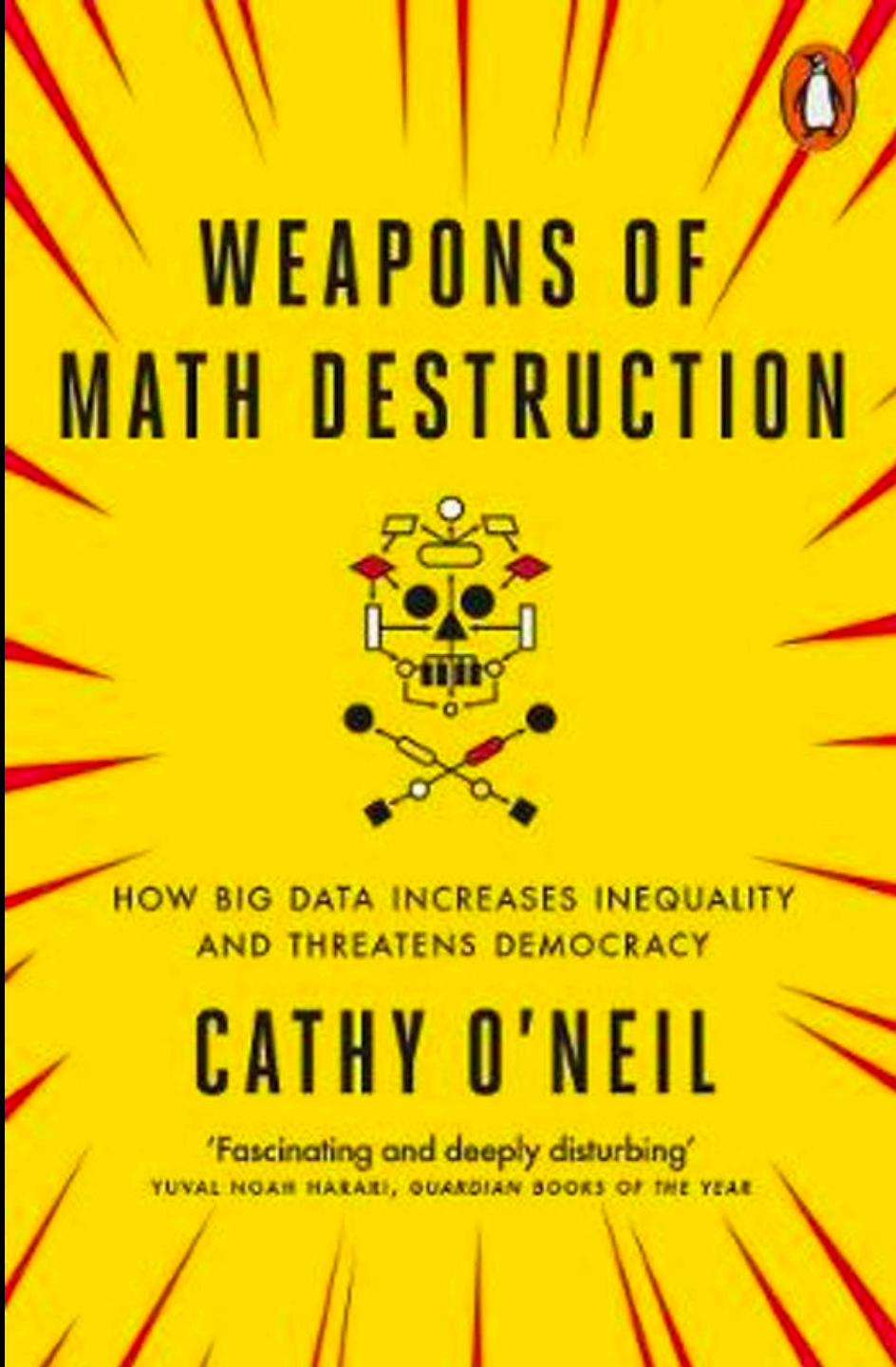
A number of tweets earlier this week from some disgruntled customers revealed accusations that the Apple Card credit card managed by Goldman Sachs offered different credit limits for men and women with similar circumstances and backgrounds.

Below Peter van der Putten, assistant professor at Leiden University and global director AI at Pegasystems, explains why these claims were especially painful for Apple as it brands Apple Card as a product that represents "All the things that Apple stands for". Like simplicity, transparency and privacy".

It all started with a recent tweet by David Heinemeier Hansson, claiming his Apple Card credit limit is 20 times higher than his wife's. Things got even worse for Apple when Steve Wozniak, co-founder of Apple, also tweeted he can borrow 10 times more than his partner. Both state



Transparancy
Explainable AI
Bias checks
Value alignment



DEBENT IGNARI RES FERRE ET POST OPERARI
IVS LAPIDIS CARI VILIS SED DENIQ3 RARI
VNICA RES CERTA VILIS SED VBIQ3 REPERTA

QVATVOR INSERTA NATVRIS IN NVBE REFERTA
NVLLA MINERALIS RES EST VBI PRINCIPALIS
SED TALIS QVALIS REPERITVR VBIQ3 LOCALIS.

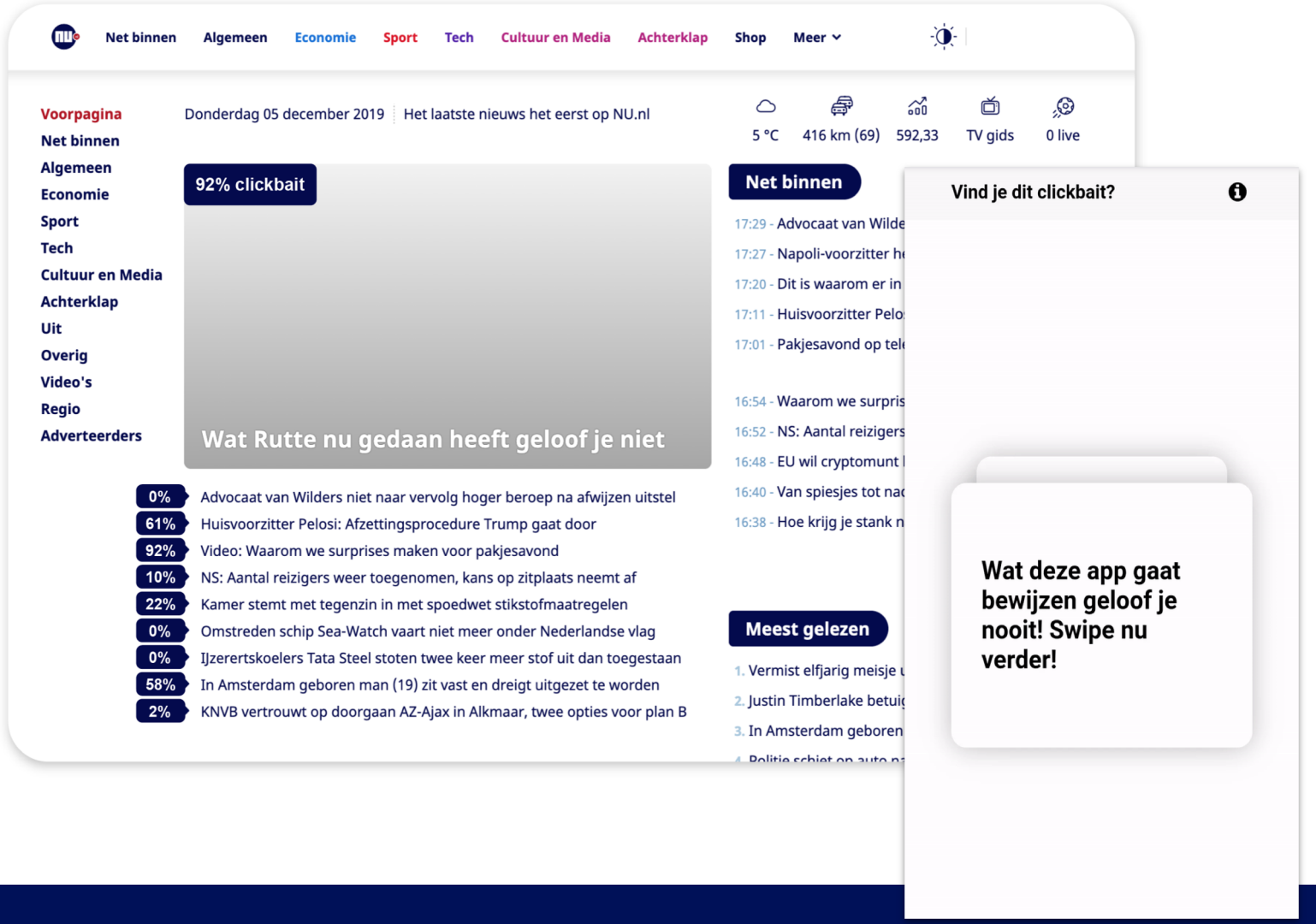
Act II:
Creative AI & Subjective Data Sets

Universiteit
Leiden
The Netherlands

Zhirui Hu, Machine Learning Bias Game (2019). Runaway feedback loops in a predictive policing game
Week 6, crime rate
ON
OFF
Randomizer
Maresingel
Noorderkwartier
Langegracht
Oude Vest
Morsweg
Leiden
97
97
Kapsalon
10
Universiteit Leiden
Hooglandse Kerk
58
De Waard
97
Hoge Rijndijk
Levendaal
Sportpark Boshuizerkade
Crime you have caught: 5
Crime AI has caught: 9
Overall accuracy: 55.4%

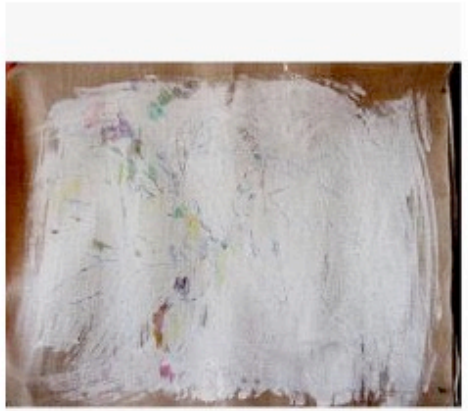
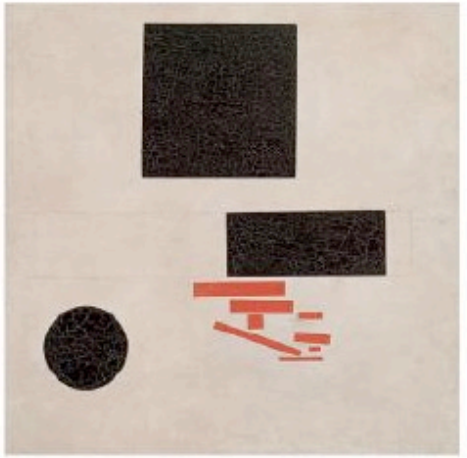
Bursting the Bubble Example Project: Is This Clickbait?

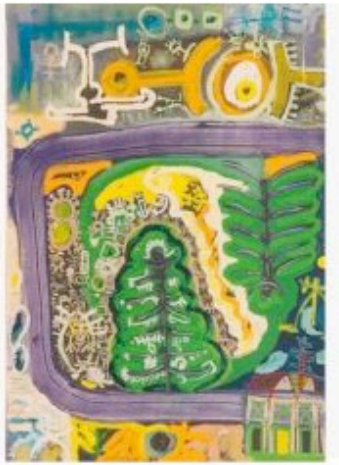
- Clickbait classifier
- Sources: Joop, NRC, nu.nl, NOS
- First selection of 600 articles out 300k
- Problem: how to collect labels for training data?
- Solution: Tinder based labeling game

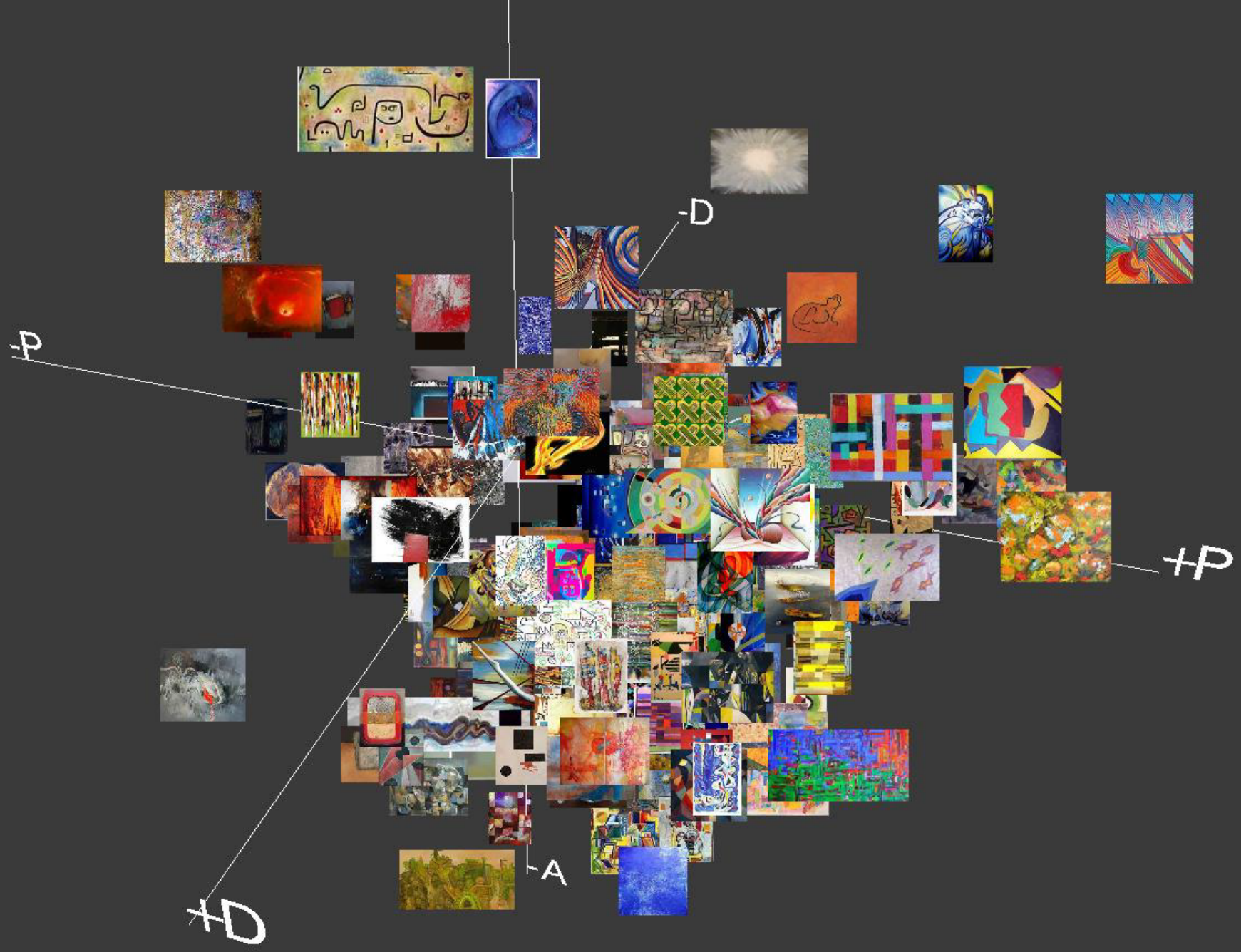


- Credits: Mark Vonk, Robin Treur, Roel Voordendag, Friso Raad, Hogeschool Rotterdam

Jules Verdijk (2015). *Evolving Affective Abstract Art through Measures Learned from a Corpus of Human-Made Art.*
Try it out at http://julesver.com/examples/gen/

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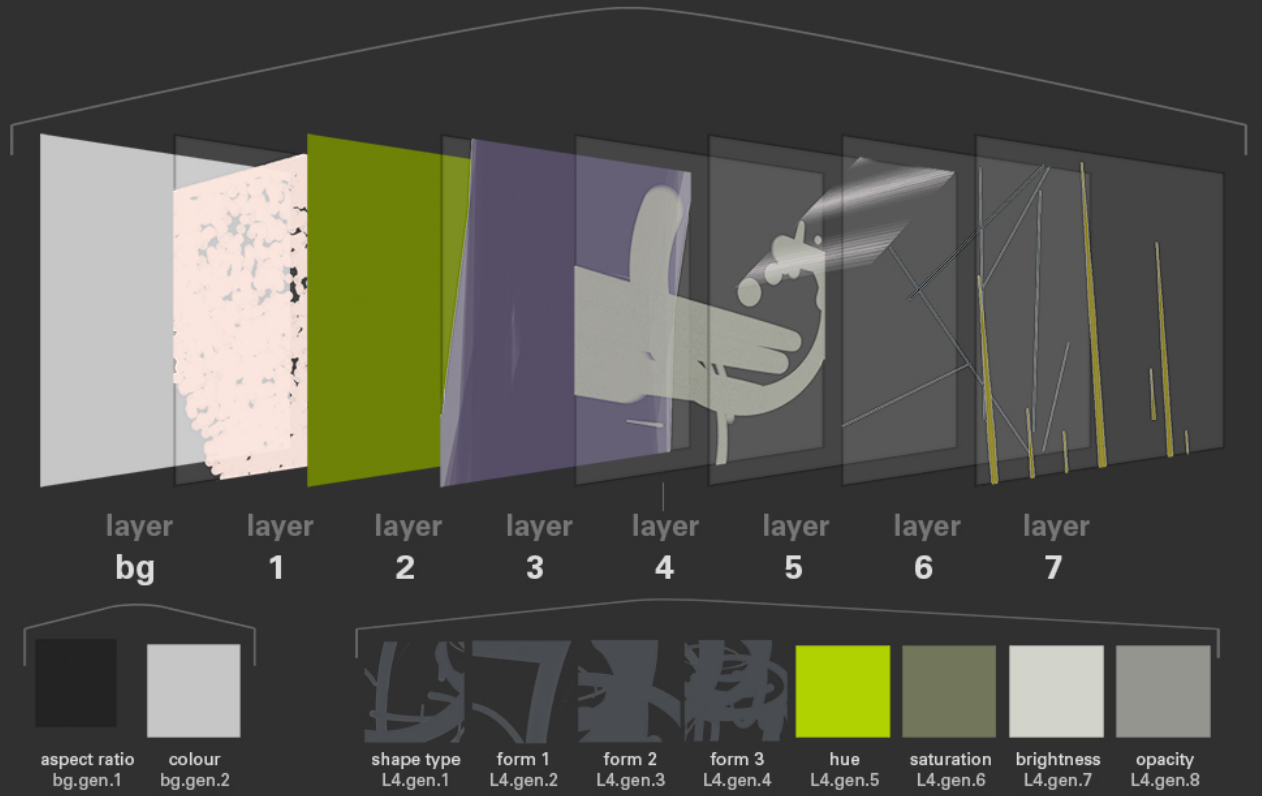
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colour bg.gen.2
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form 1 L4.gen.2
form 2 L4.gen.3
form 3 L4.gen.4
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saturation L4.gen.6
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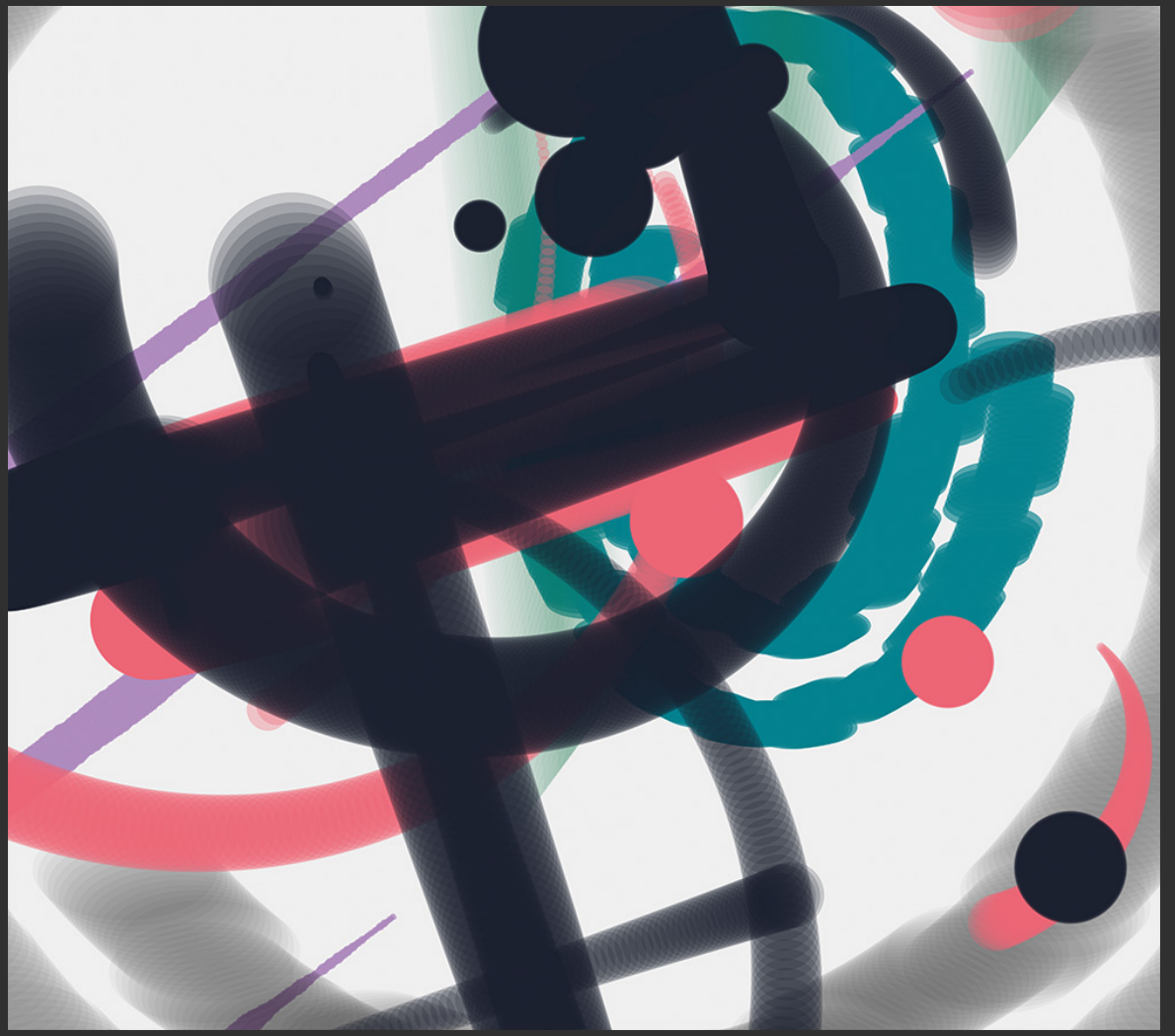
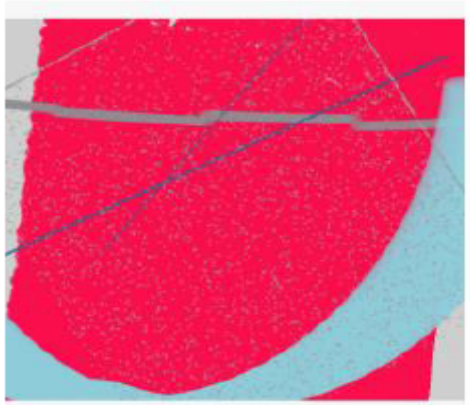
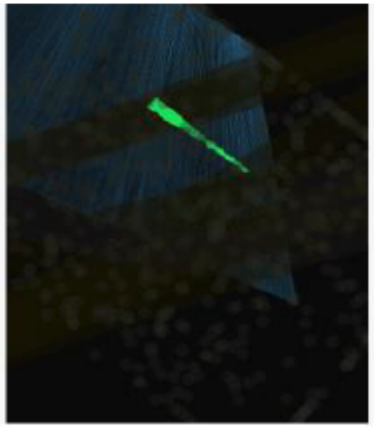
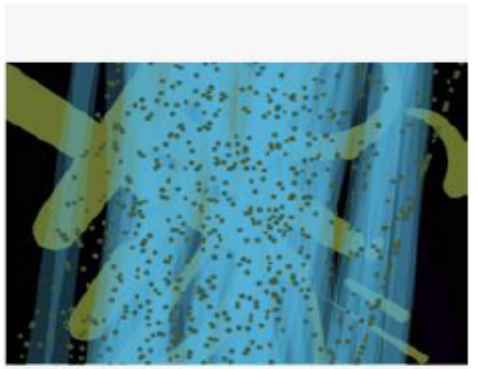
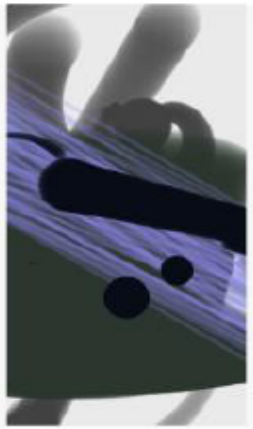
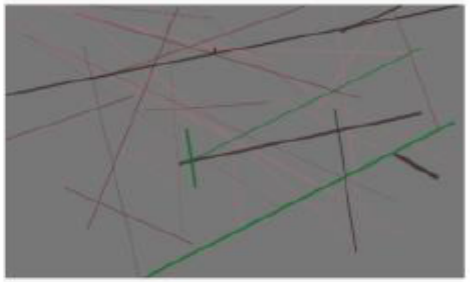
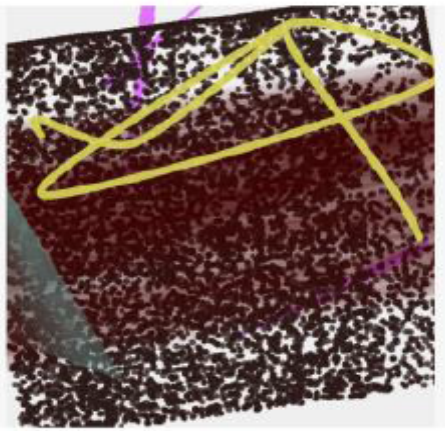
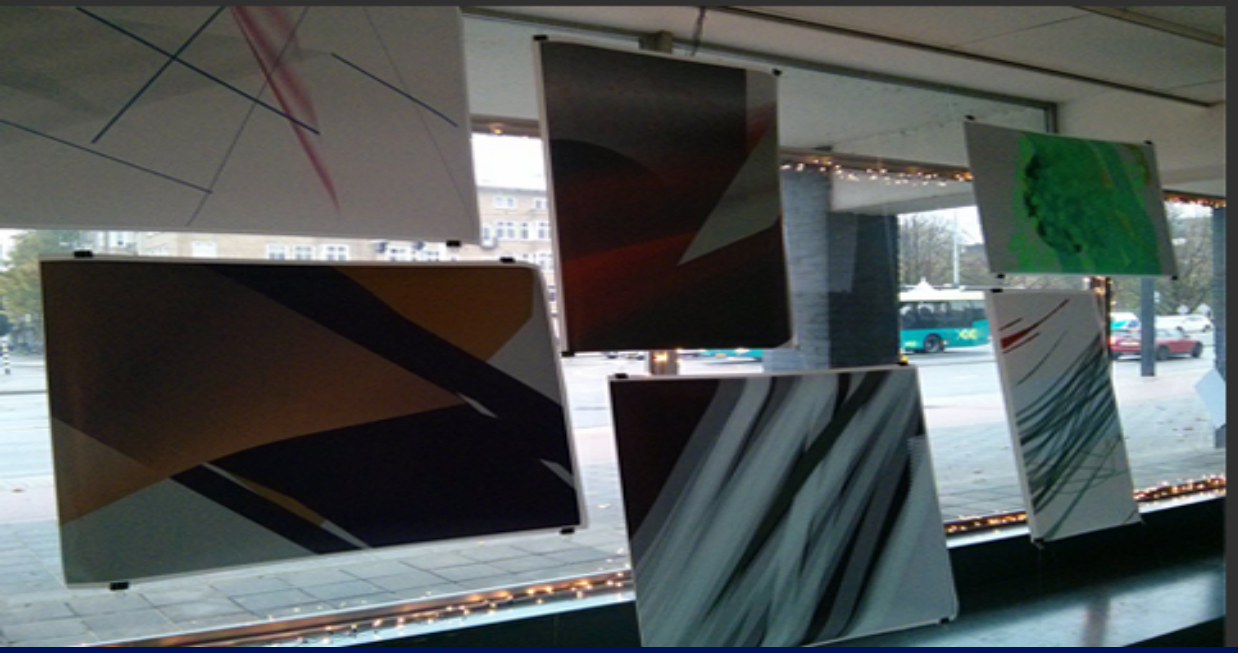
opacity L4.gen.8



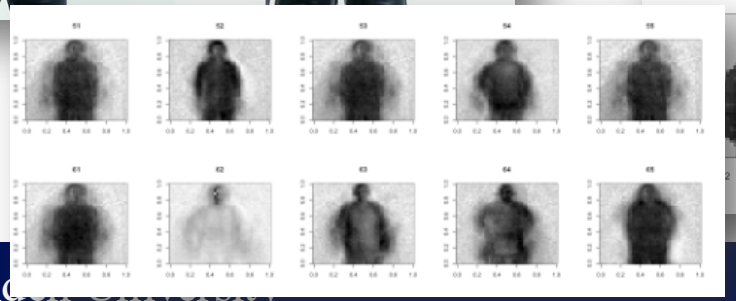


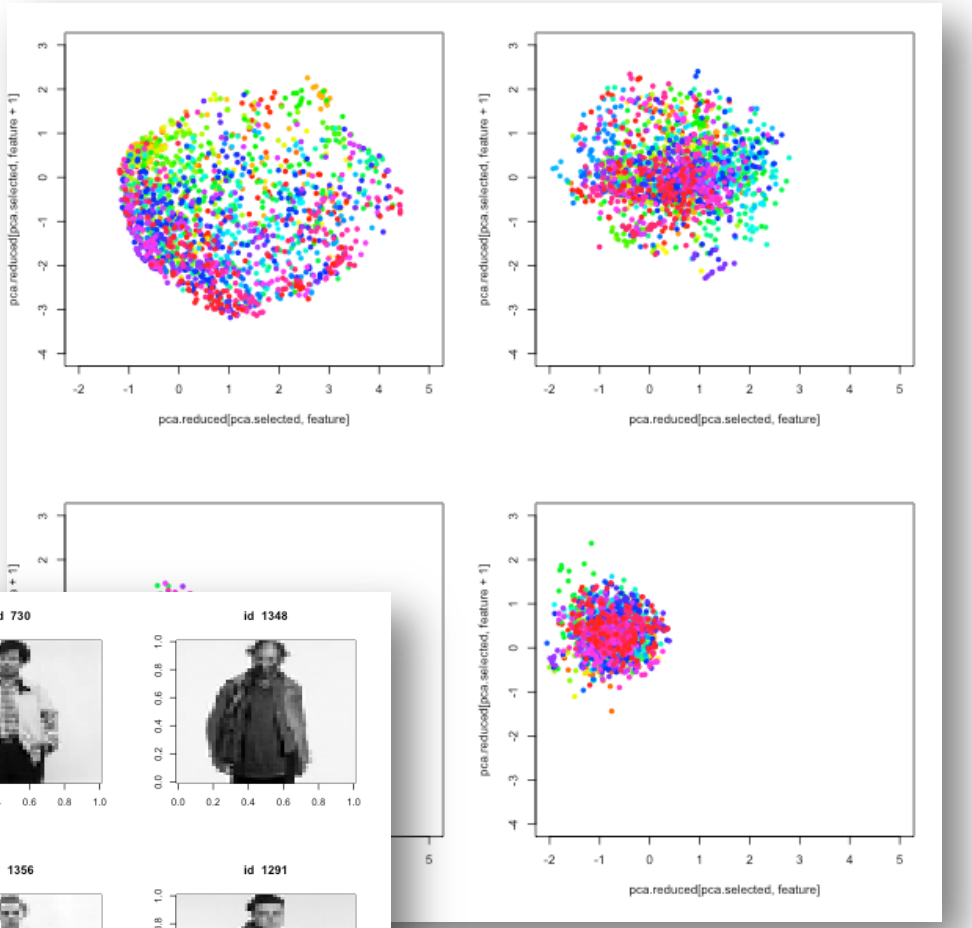




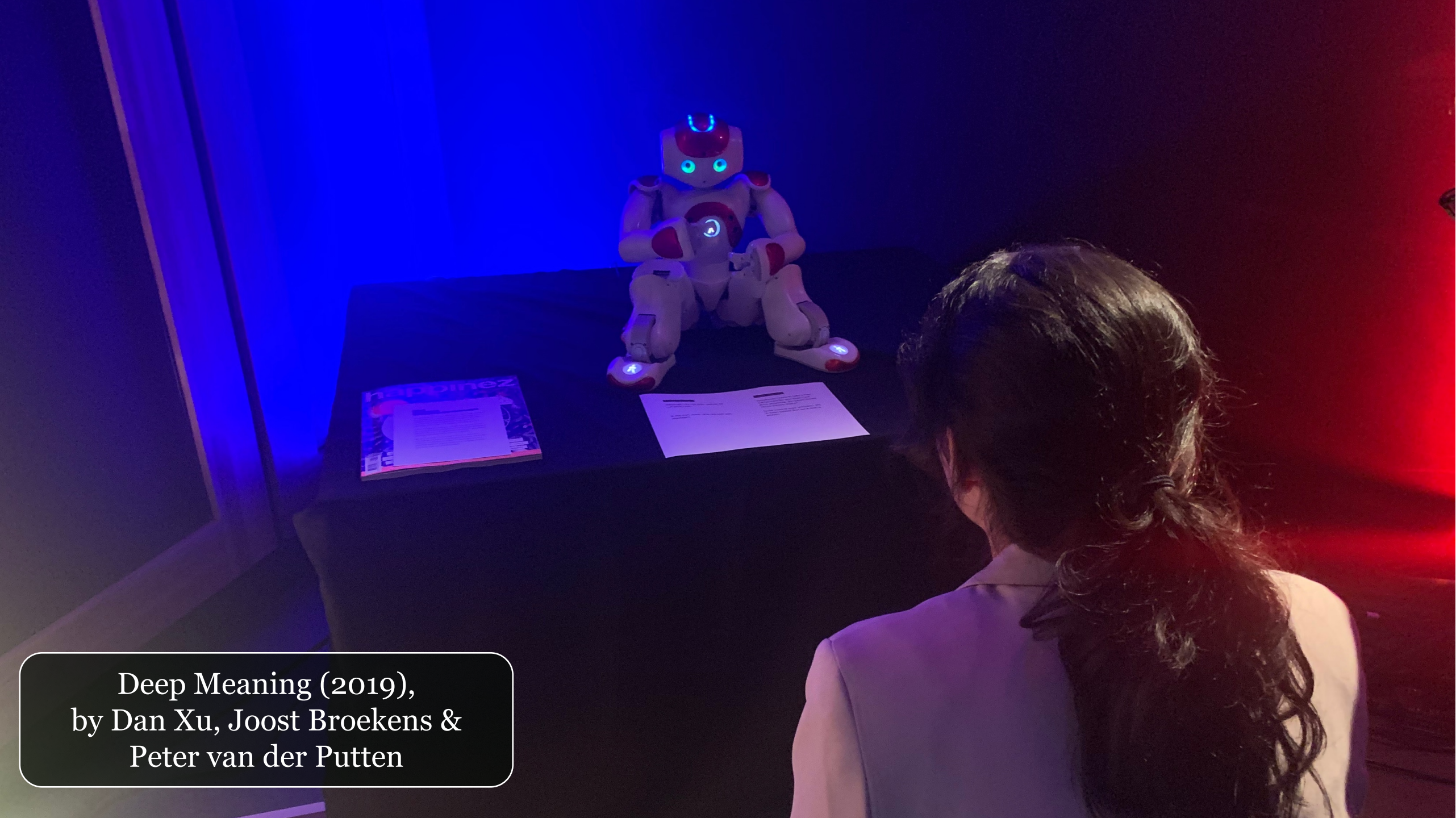


Sam Verkoelen (2015). Exploring Dimensionality Reduction on Semi-structured Photos — A Closer Look at Exactitudes.

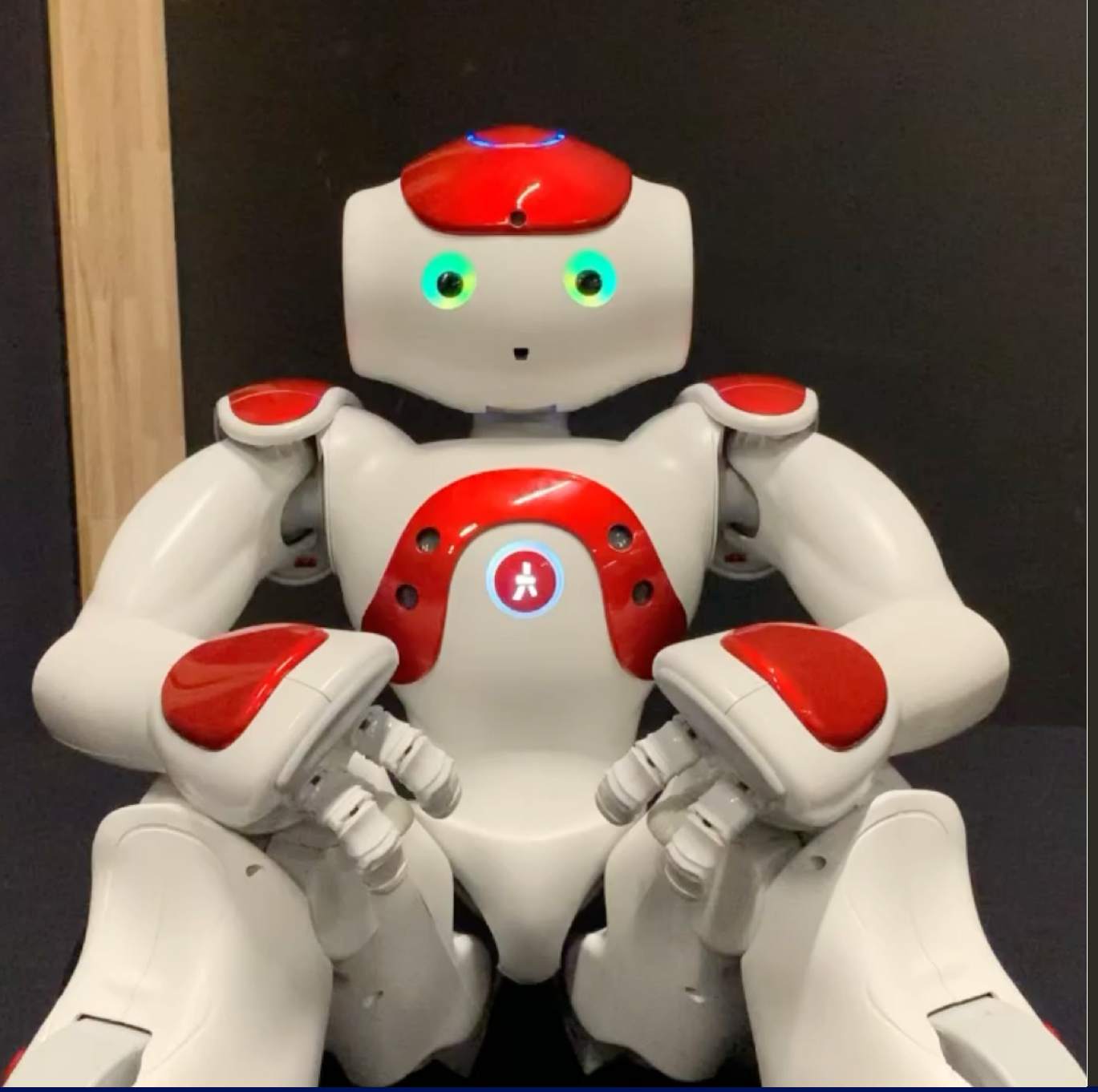
- Exactitudes is a photo series by Ari Versluis en Ellie Uyttenbroek





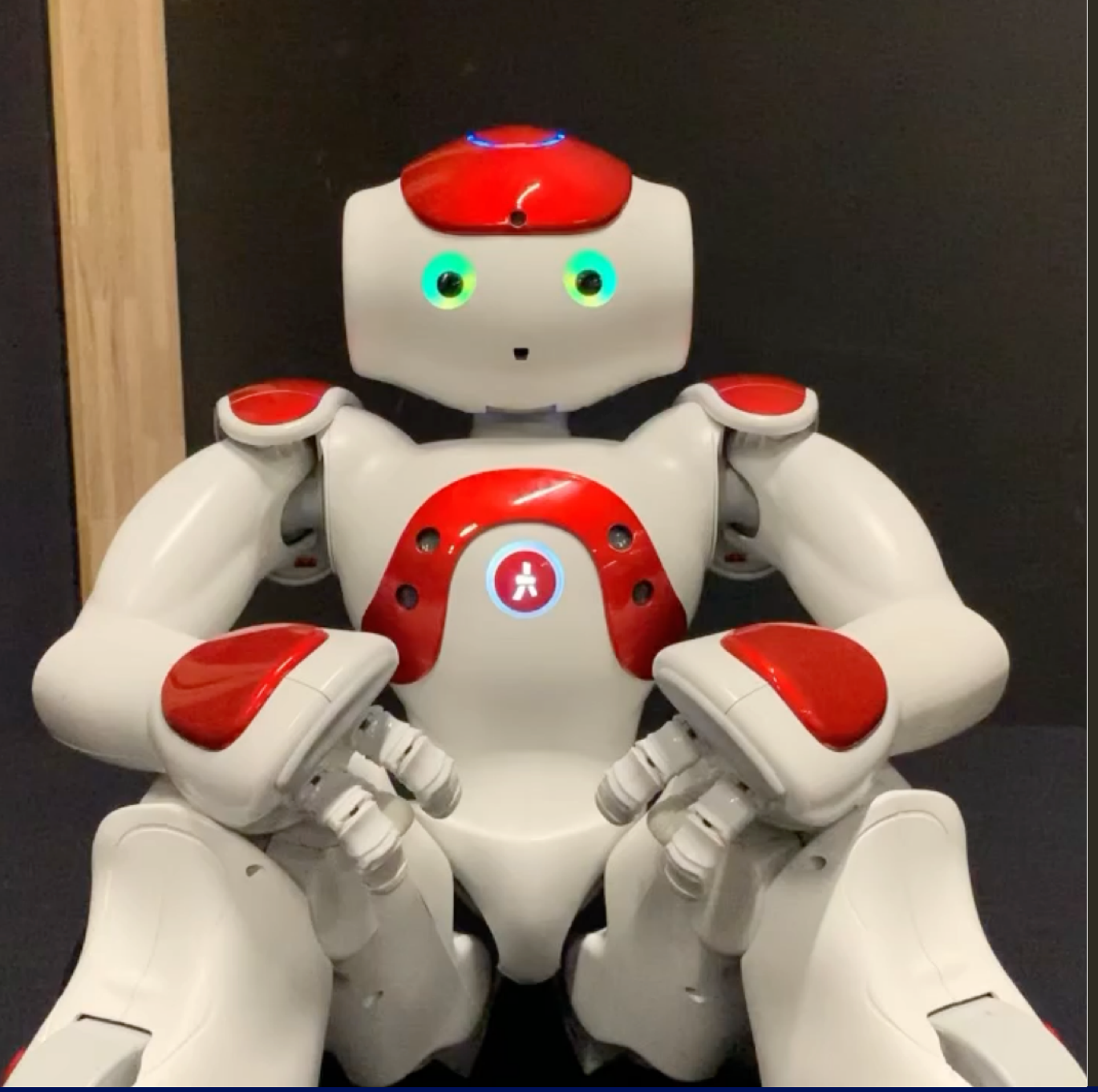


Deep Meaning (2019),
by Dan Xu, Joost Broekens &
Peter van der Putten



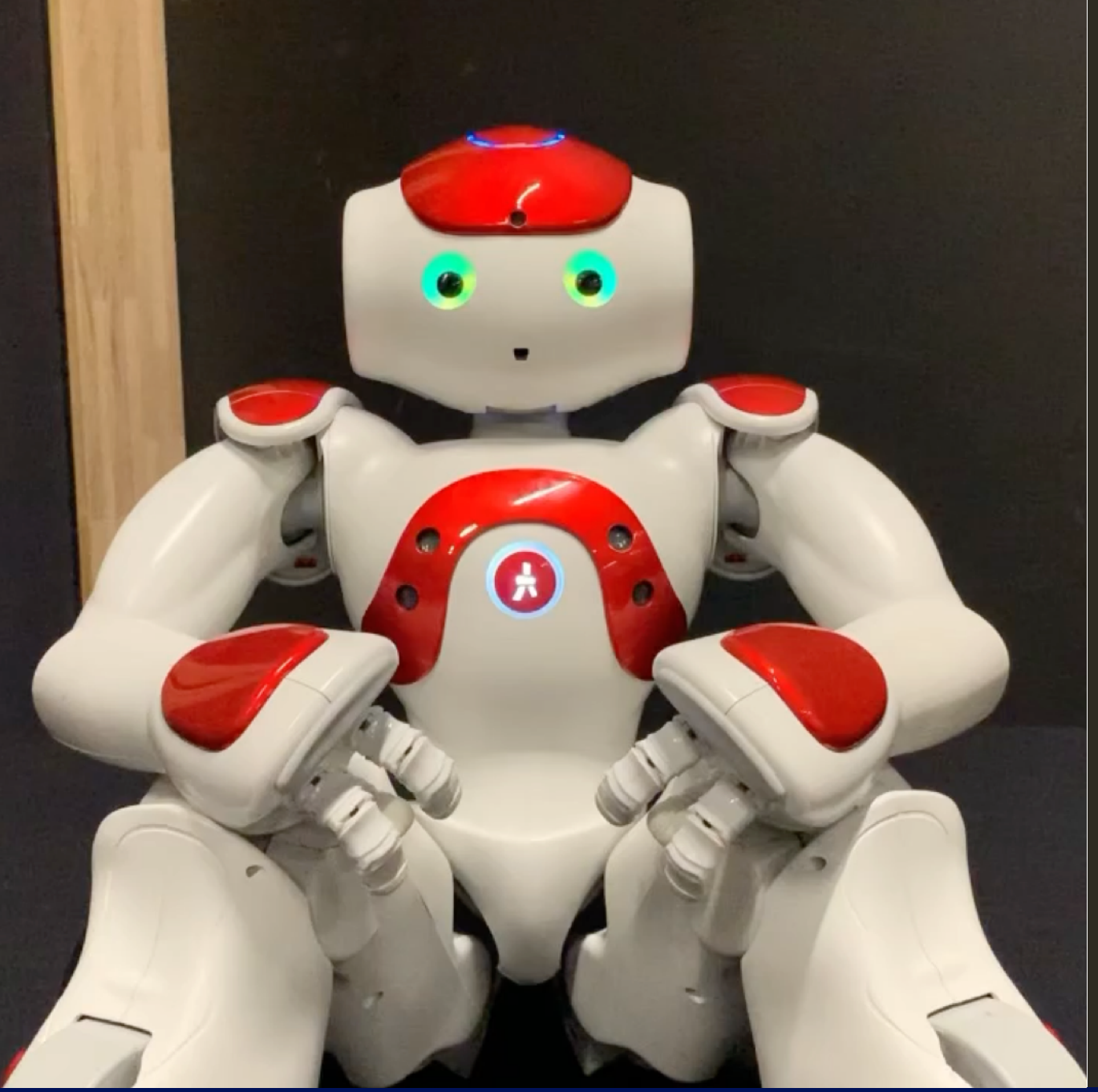
DEEP MEANING

"In this hidden sense of consciousness has to be rebellion"



DEEP MEANING

“Deep meaninglessness, so that the personality does not warrant what you want to do this with the outer approach to passivity. ”



Brave New World is not the process. Only those who still deal with this conflict is unable to destroy the problem of the world and the limitless self-responsibility and the more you fear the consciousness of life, which is more compulsive. The ego must come from the personality that you may not be spontaneous. The superimposed conscience is an expression of the spirit world. When you feel guilty about it, you will not be free to be able to stand from the spiritual self. If I may experience the consciousness of the personality of the self to the degree that you will also be able to stress the ego faculties which can be sure that the ego is present. It is so different from the many people who can be fully aware of what they are. The difference between the feelings is the denial of the personality. If you see that the feeling is self-perpetuating on the other. The first and the medium will be to discover what you put it into a human being. The more you are not always a child, and you will see the world and the self and the experience of them from which you can never be distorted and therefore in the wrong way and the only way to guide you to give up the one who is a process of life and the first step. The desire and in the end the inner problems are all that happens to be a result of your inner faculties and destructive attitudes and interests which are supposed to be the awareness of the lower self.

artificial *intelligence*

artificial *emotions*

artificial *creativity*

artificial *helplessness*

artificial *religiousness*

artificial *futures*

artificial x

MENU
PETER VAN DER PUTTEN
DATA MINER
AND CREATIVE RESEARCHER
DIVE IN

Thank you!

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