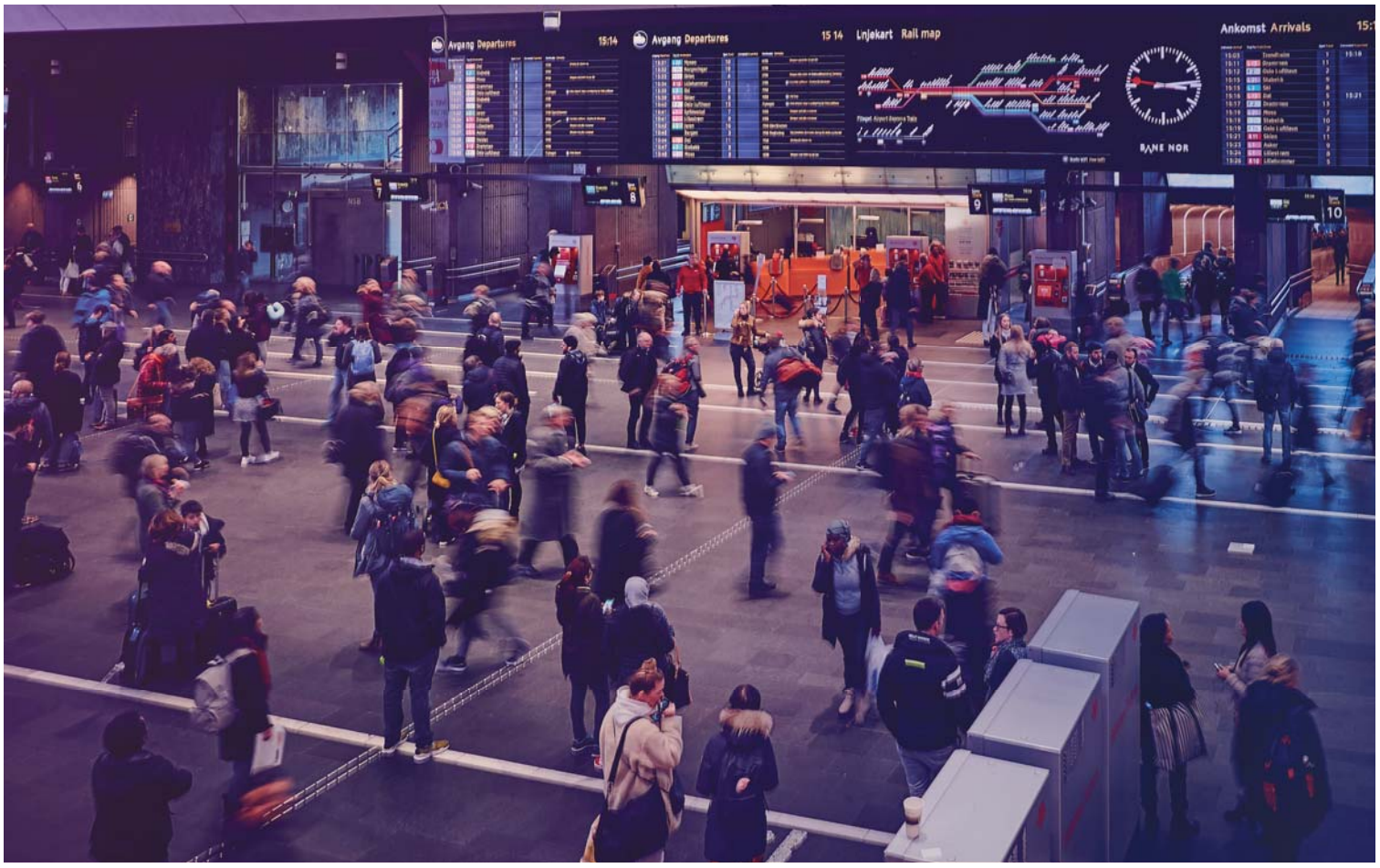
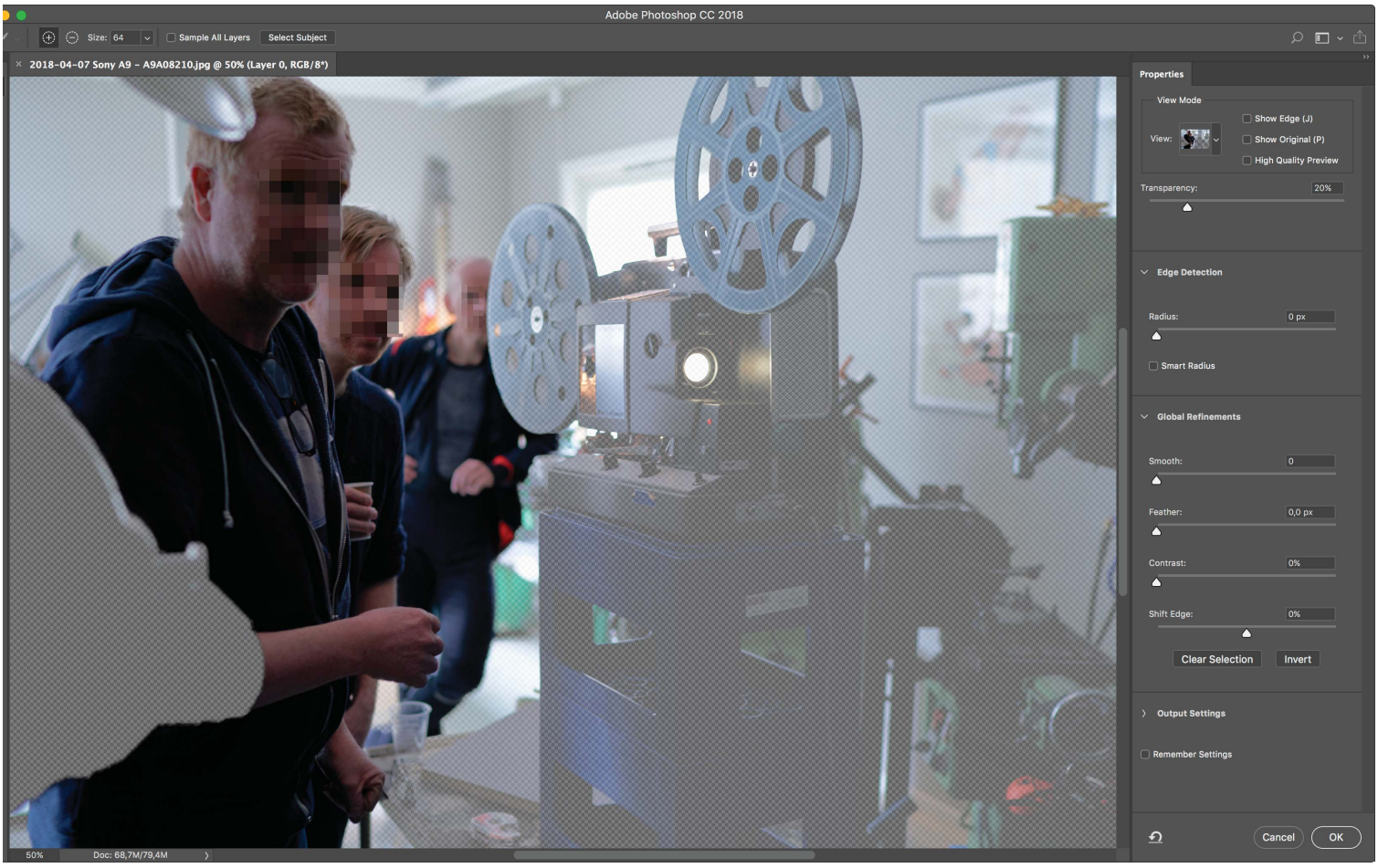
Promoting trust in AI applications

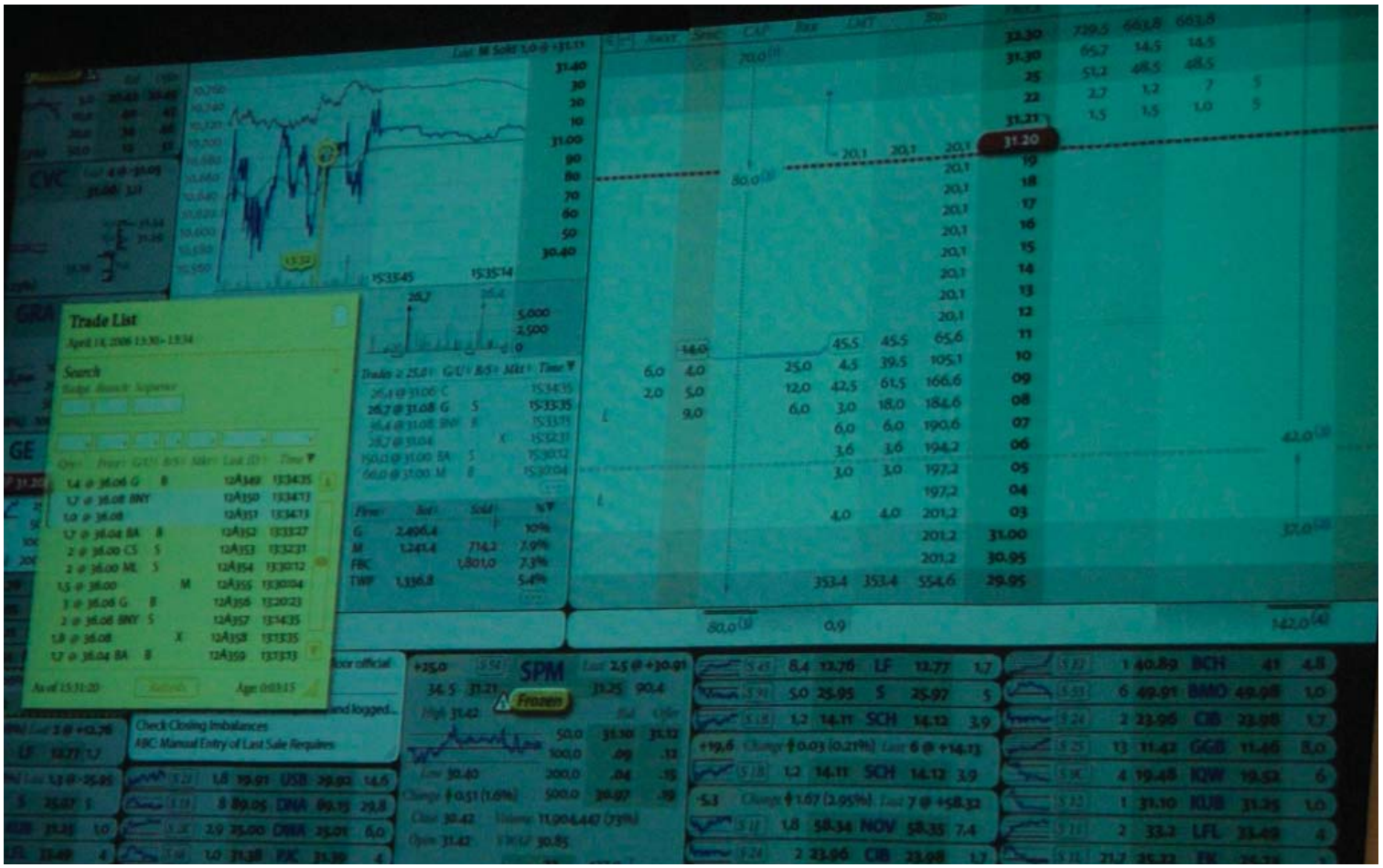
Fredrik Matheson / BEKK / @movito

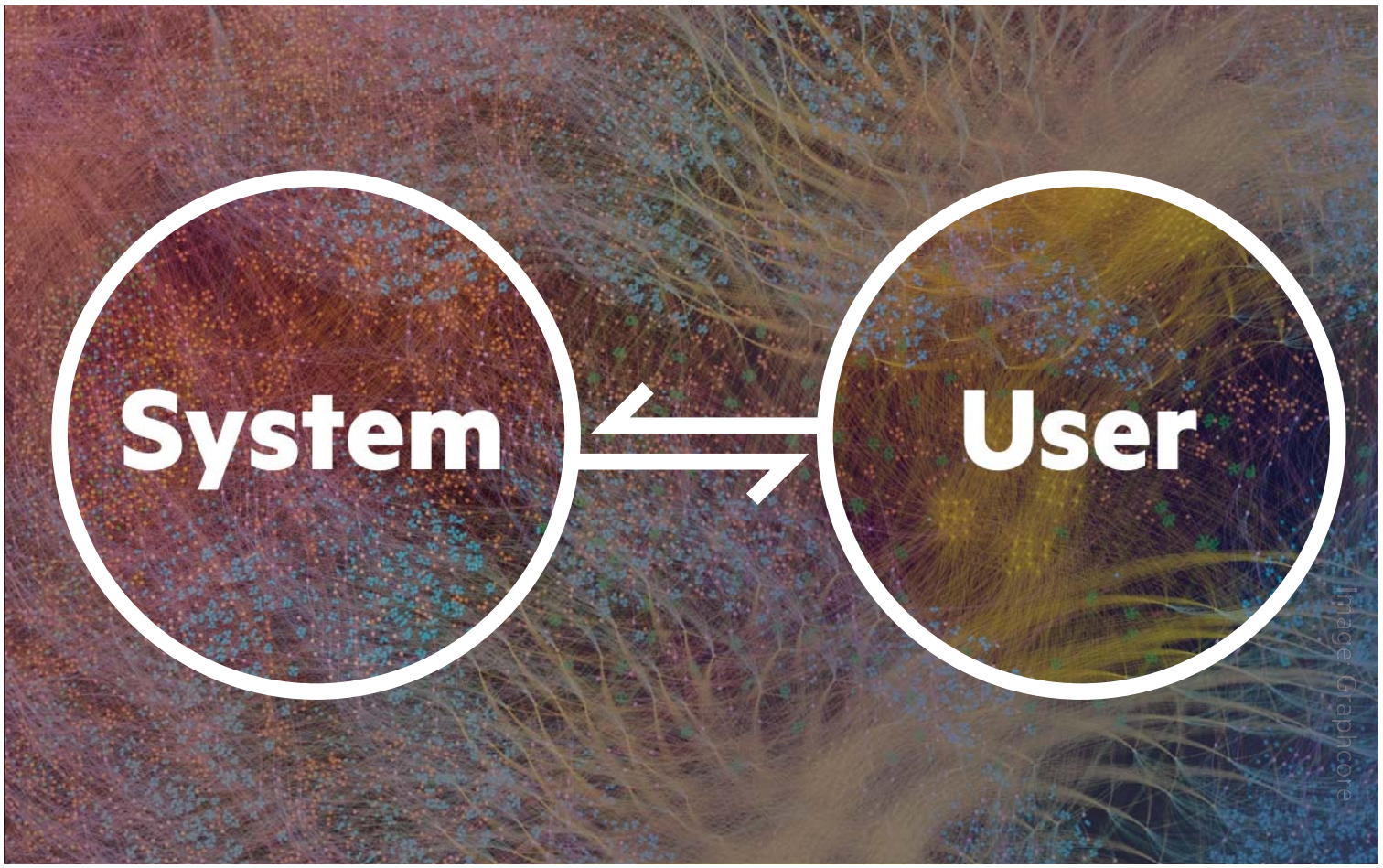
Image: Graphcore

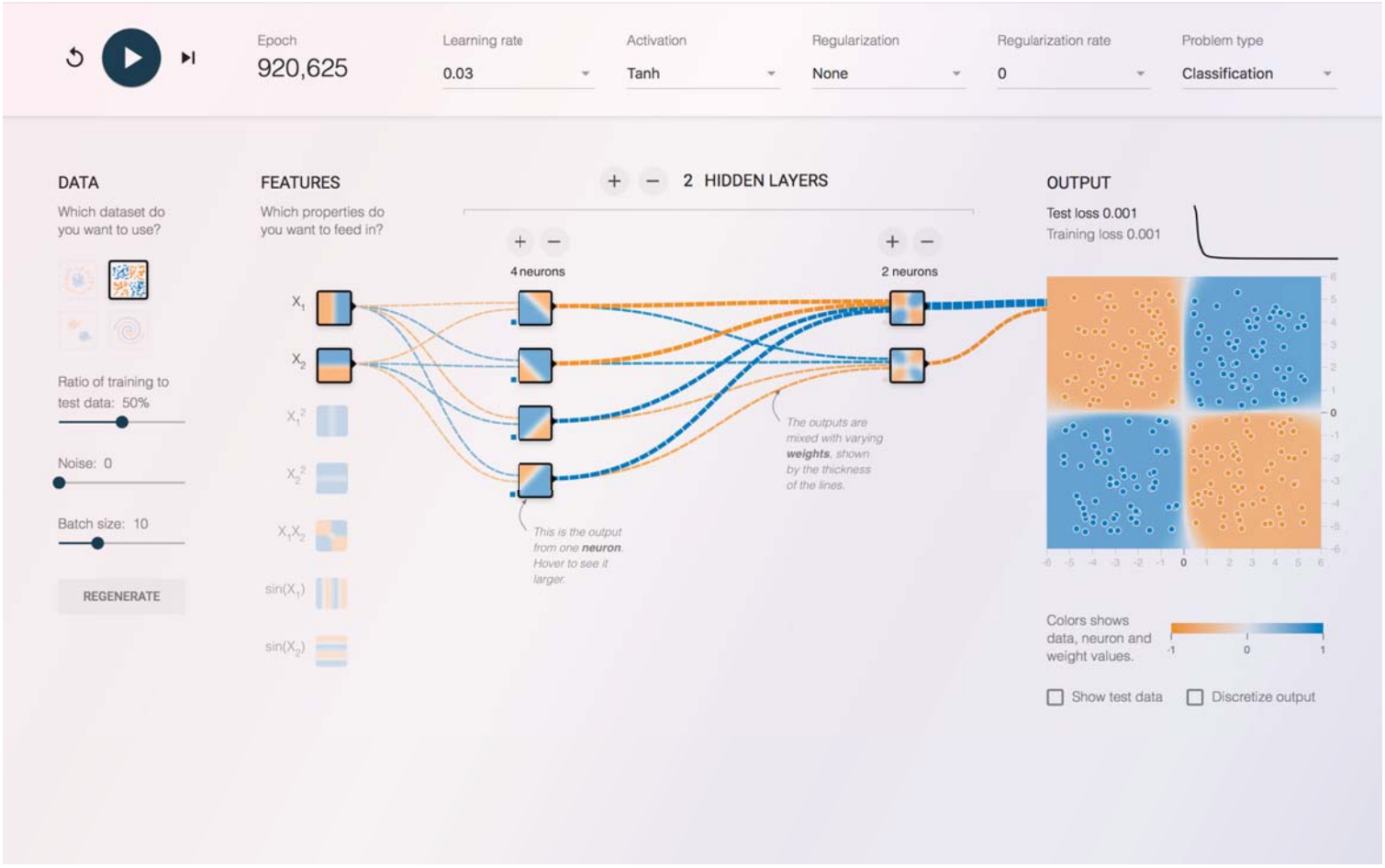


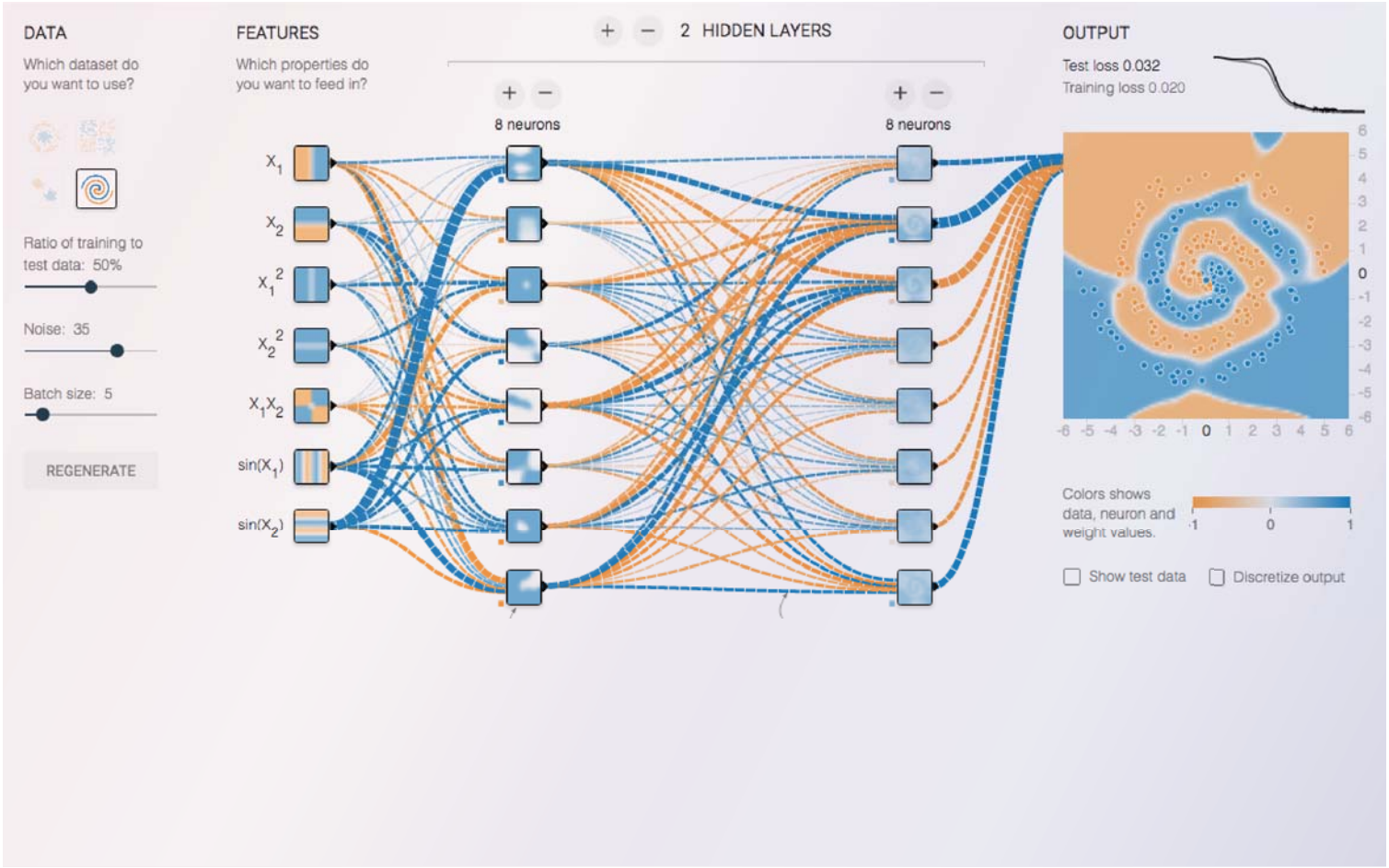

PLAYLIST
The Ones That Got Away
Here's a collection of songs you'll wish you'd discovered earlier in the year.
Created by Spotify • 29 songs, 1 hr 53 min
PLAY
FOLLOWING
FOLLOWER
1
Filter
Download
TITLE
ARTIST
ALBUM
Look At What The Light Did Now
Flo Morrissey and Matthew E. ...
Gentlewoman, Ruby Man
9 hours ago
3:22
If You Need To, Keep Time On Me
Fleet Foxes
Crack-Up
9 hours ago
3:31
Rivers
The Tallest Man On Earth
Rivers
9 hours ago
3:57
What's That Perfume That You Wear?
Jens Lekman
Life Will See You Now
9 hours ago
3:31
California
The Lagoons
California
9 hours ago
4:22
Long Time
Blondie
Pollinator
9 hours ago
4:35
Alaska
Maggie Rogers
Now That The Light Is Fading
9 hours ago
3:09
Narrens tema I & II
Albin Gromer
Presenterar: "Narren"
9 hours ago
2:44
(No One Knows Me) Like the Piano
Sampha
Process
9 hours ago
3:38
Too Late (feat. Paperwhite)
Savoir Adore, Paperwhite
Too Late (feat. Paperwhite)
9 hours ago
4:05

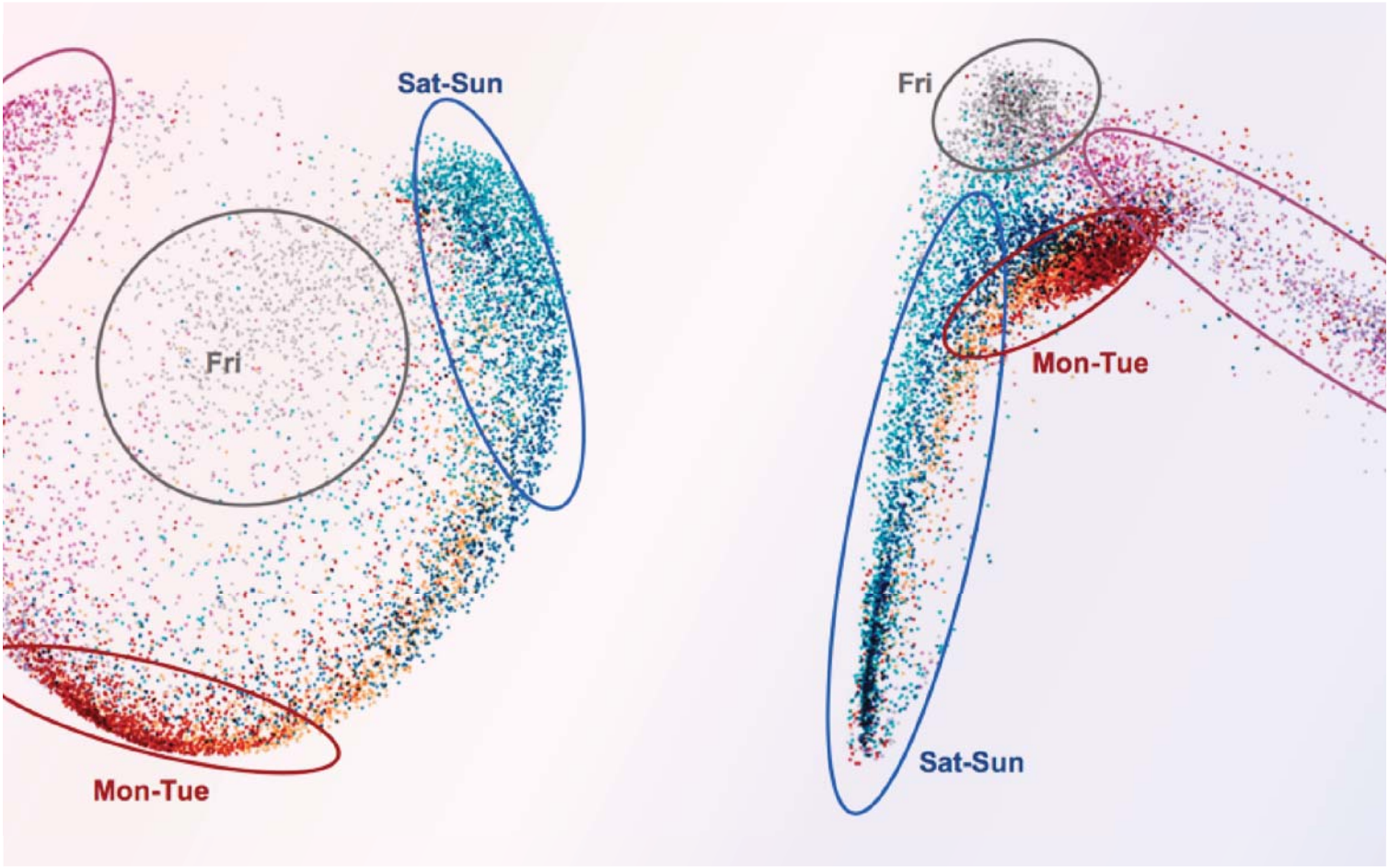

Adobe Photoshop CC 2018
Size: 64
Sample All Layers
Select Subject
2018-04-07 Sony A9 - A9A08210.jpg @ 50% (Layer 0, RGB/8*)
Properties
View Mode
View:
Show Edge (J)
Show Original (P)
High Quality Preview
Transparency:
20%
Edge Detection
Radius:
0 px
Smart Radius
Global Refinements
Smooth:
0
Feather:
0,0 px
Contrast:
0%
Shift Edge:
0%
Clear Selection
Invert
Output Settings
Remember Settings
Cancel
OK
50%
Doc: 68,7M/79,4M

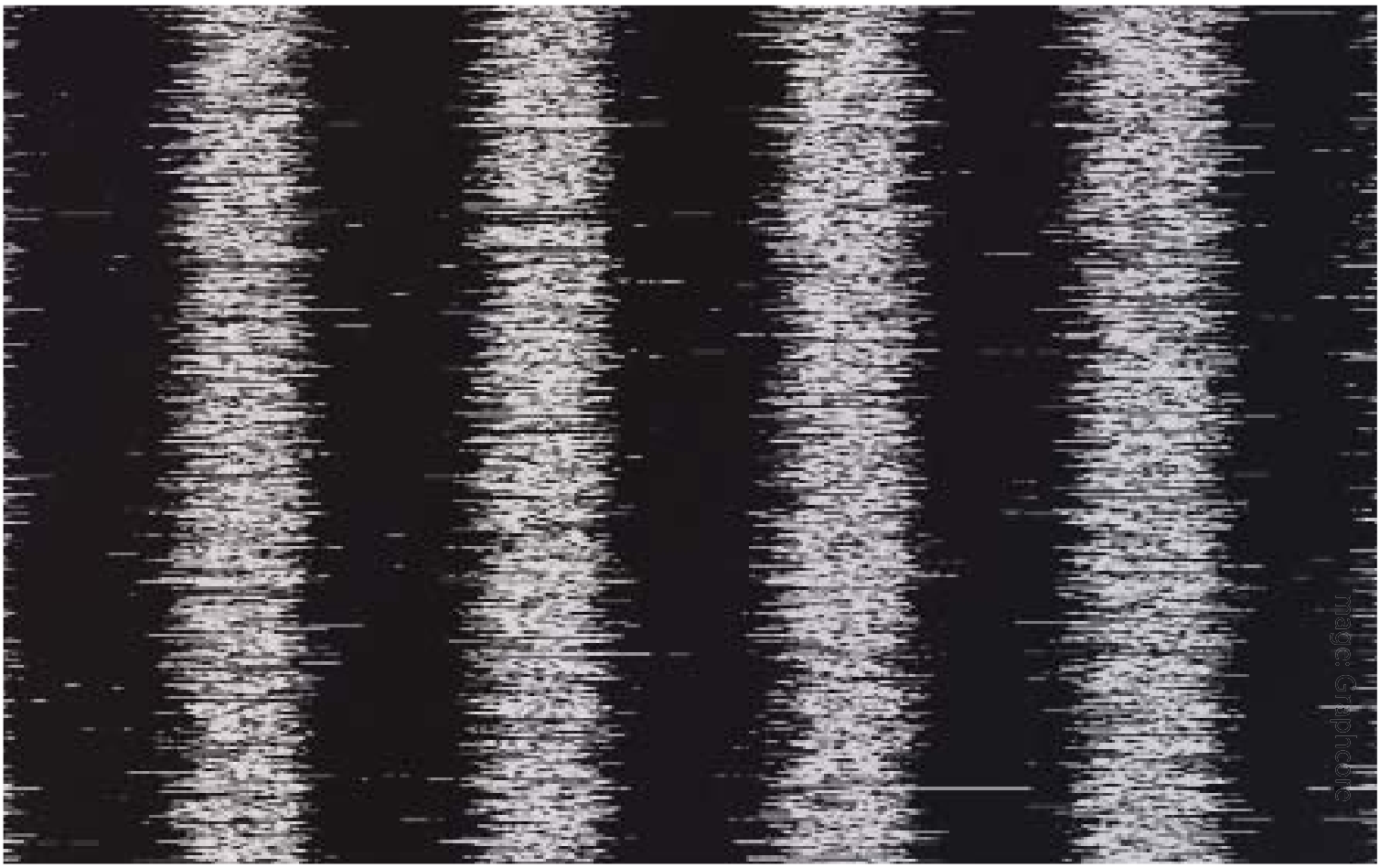

Trade List
Search
Check Closing Imbalances
ABC Manual Entry of Last Sale Requires
SPM
Frozen

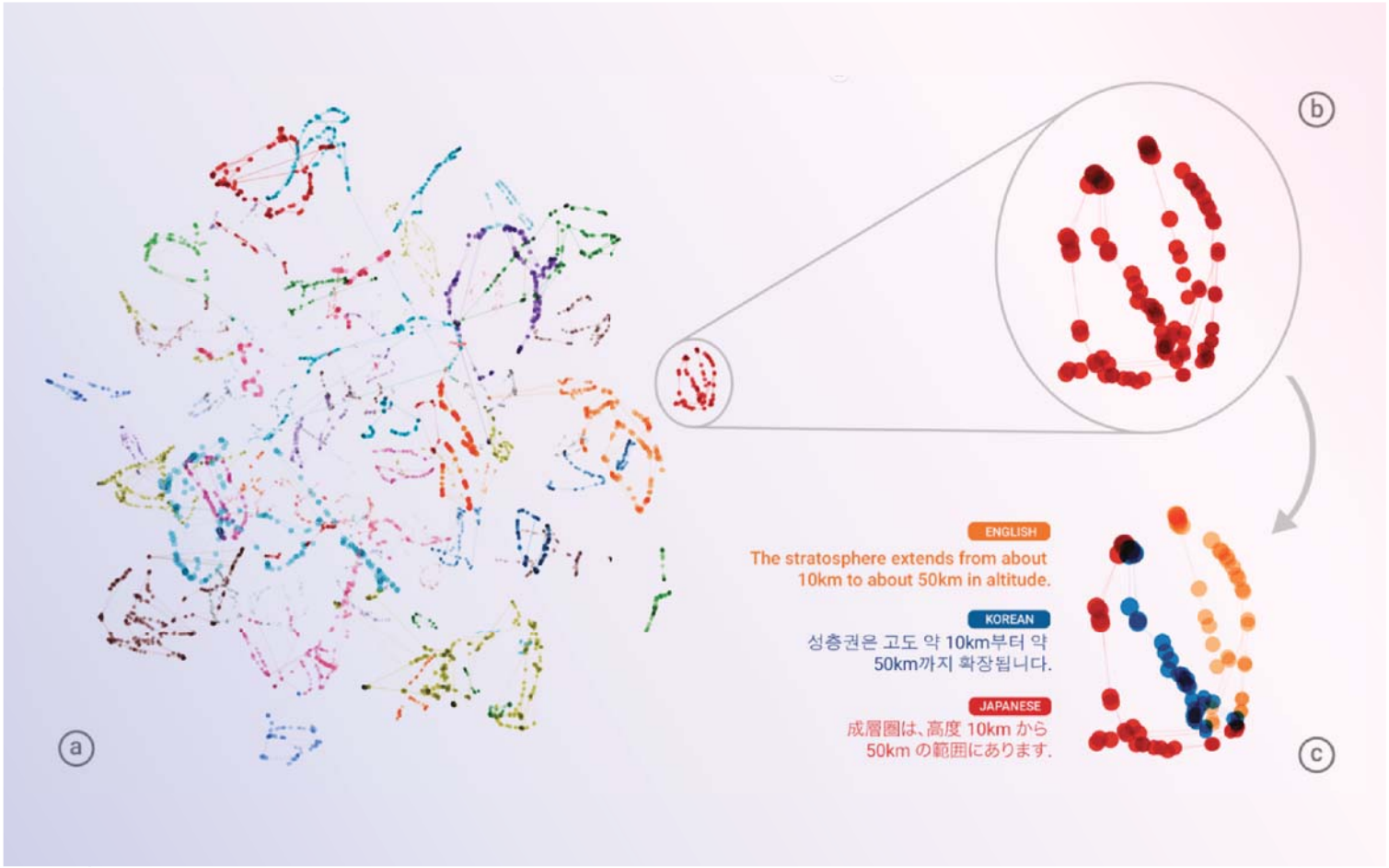

System
User
Image: Graphcore


Epoch
920,625
Learning rate
0.03
Activation
Tanh
Regularization
None
Regularization rate
0
Problem type
Classification
DATA
Which dataset do you want to use?
Ratio of training to test data: 50%
Noise: 0
Batch size: 10
REGENERATE
FEATURES
Which properties do you want to feed in?
2 HIDDEN LAYERS
4 neurons
2 neurons
X1
X2
X1²
X2²
X1X2
sin(X1)
sin(X2)
This is the output from one neuron. Hover to see it larger.
The outputs are mixed with varying weights, shown by the thickness of the lines.
OUTPUT
Test loss 0.001
Training loss 0.001
Colors shows data, neuron and weight values.
Show test data
Discretize output

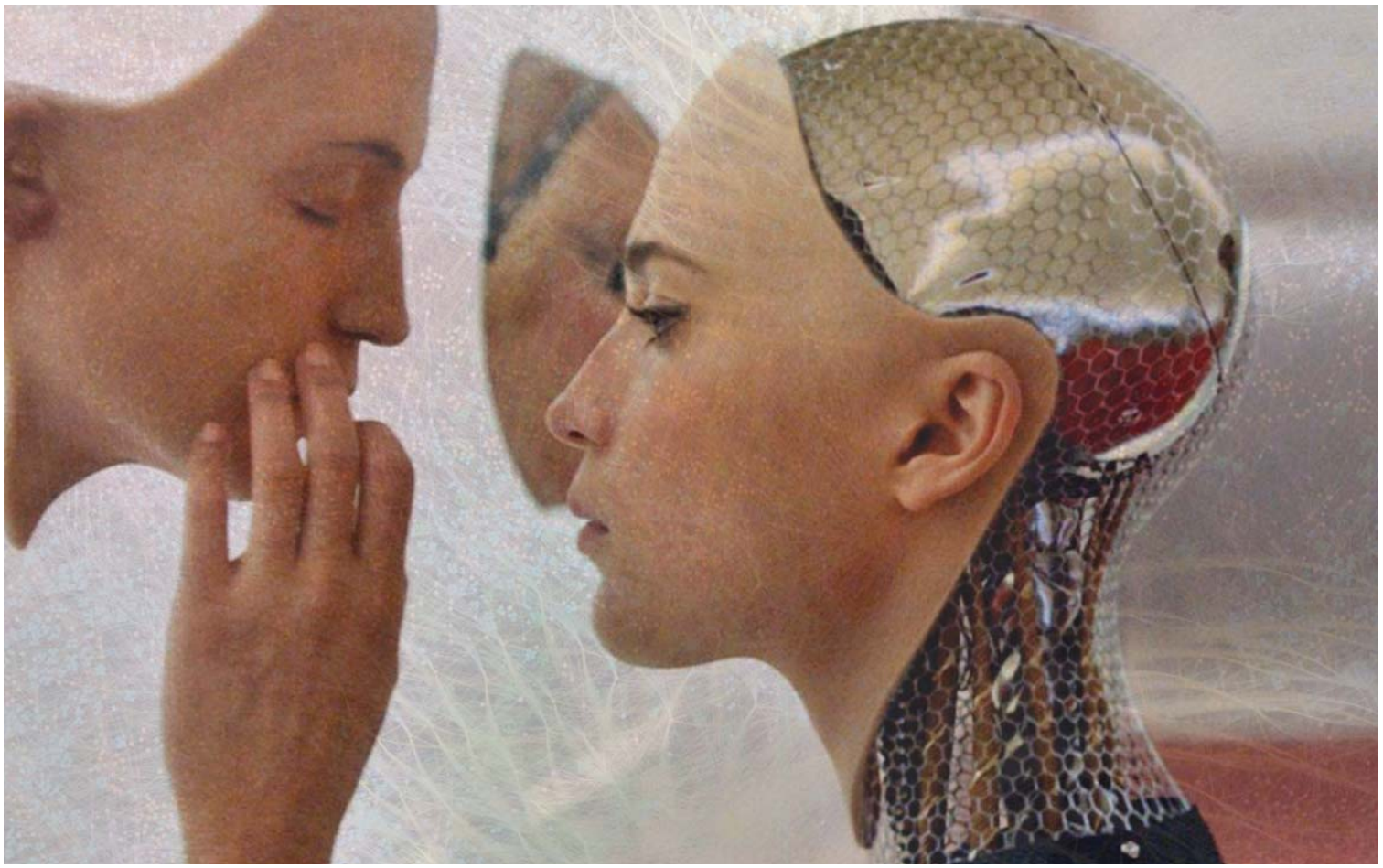

DATA
Which dataset do you want to use?
Ratio of training to test data: 50%
Noise: 35
Batch size: 5
REGENERATE
FEATURES
Which properties do you want to feed in?
2 HIDDEN LAYERS
8 neurons
8 neurons
X1
X2
X1²
X2²
X1X2
sin(X1)
sin(X2)
OUTPUT
Test loss 0.032
Training loss 0.020
Colors shows data, neuron and weight values.
Show test data
Discretize output


Sat-Sun
Fri
Mon-Tue
Fri
Mon-Tue
Sat-Sun




a
b
c
ENGLISH
The stratosphere extends from about 10km to about 50km in altitude.
KOREAN
성층권은 고도 약 10km부터 약 50km까지 확장됩니다.
JAPANESE
成層圏は、高度 10km から 50km の範囲にあります。


KBA
Korea Baduk Association
Google DeepMind
Challenge Match
8 - 15 March 2016
AlphaGo
ALPHAGO
00:12:30
LEE SEDOL
00:34:31
AlphaGo
Lee Sedol




CAUTION
EXPLOSIVE


LAUNCH DETECTION

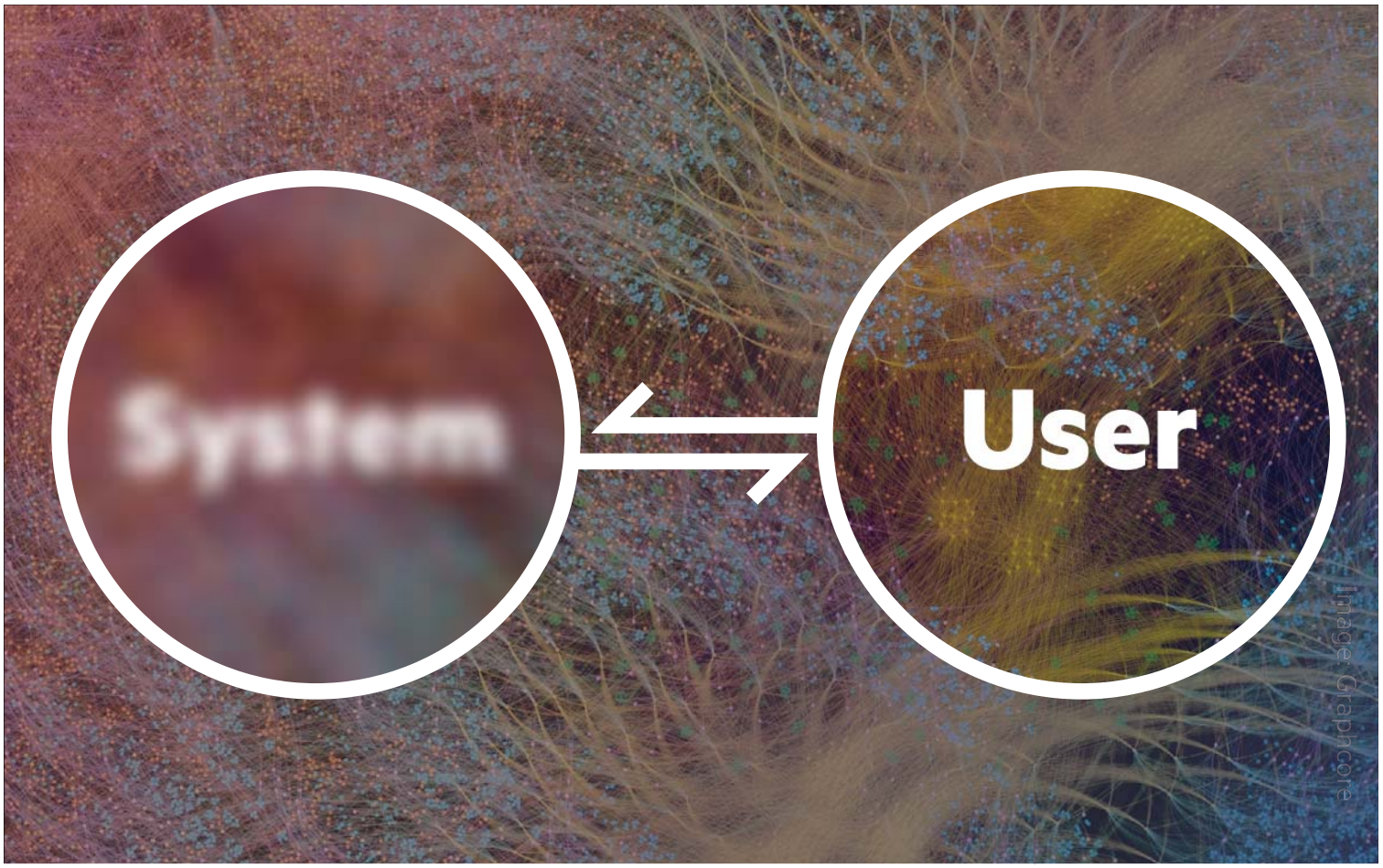
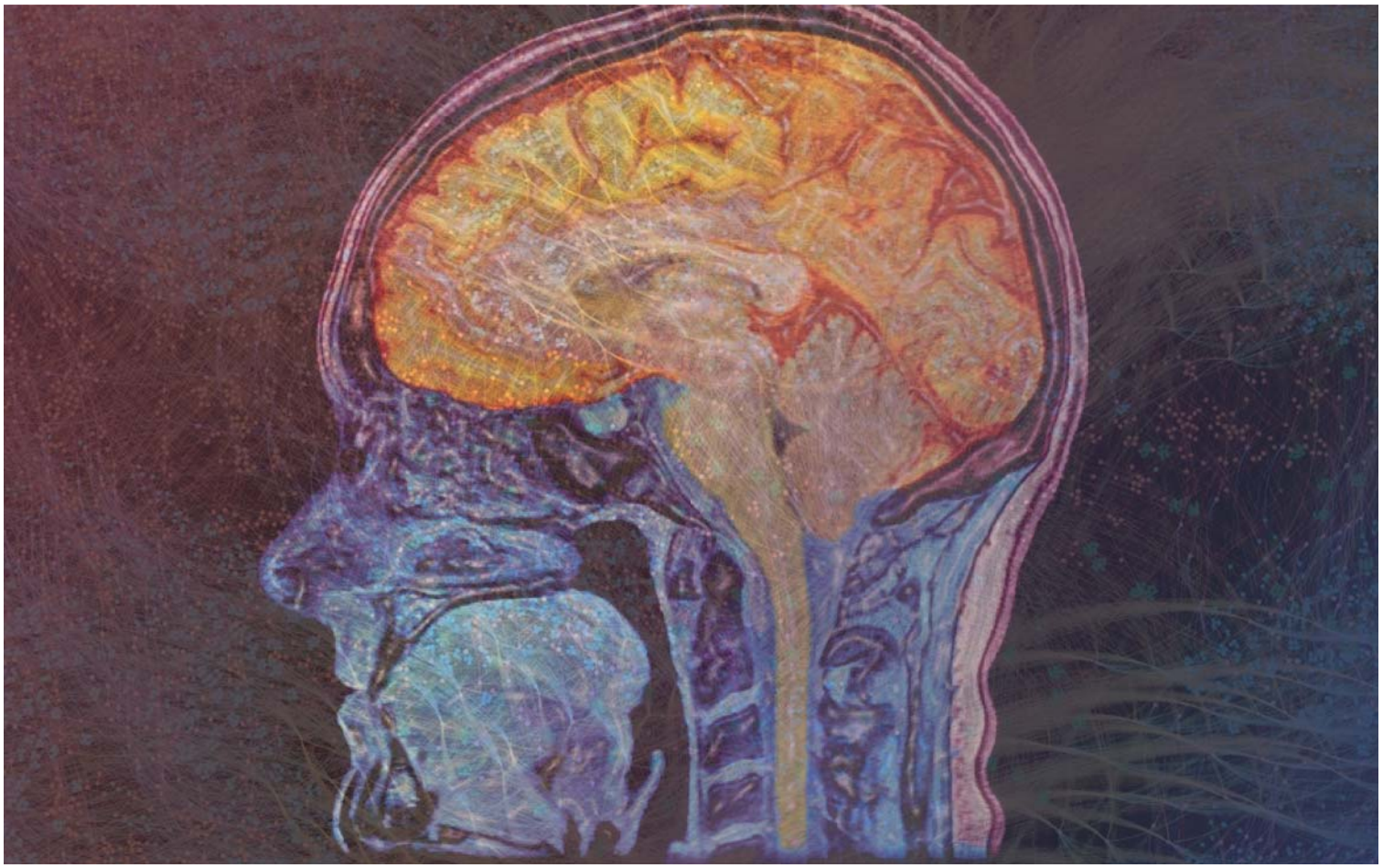


Image: Graphcore



Man-Computer Symbiosis*

J. C. R. LICKLIDER†

Summary—Man-computer symbiosis is an expected development in cooperative interaction between men and electronic computers. It will involve very close coupling between the human and the electronic members of the partnership. The main aims are 1) to let computers facilitate formulative thinking as they now facilitate the solution of formulated problems, and 2) to enable men and computers to cooperate in making decisions and controlling complex situations without inflexible dependence on predetermined programs. In the anticipated symbiotic partnership, men will set the goals, formulate the hypotheses, determine the criteria, and perform the evaluations. Computing machines will do the routinizable work that must be done to prepare the way for insights and decisions in technical and scientific thinking. Preliminary analyses indicate that the symbiotic partnership will perform intellectual operations much more effectively than man alone can perform them. Prerequisites for the achievement of the effective, cooperative association include developments in computer time sharing, in memory components, in memory organization, in programming languages, and in input and output equipment.

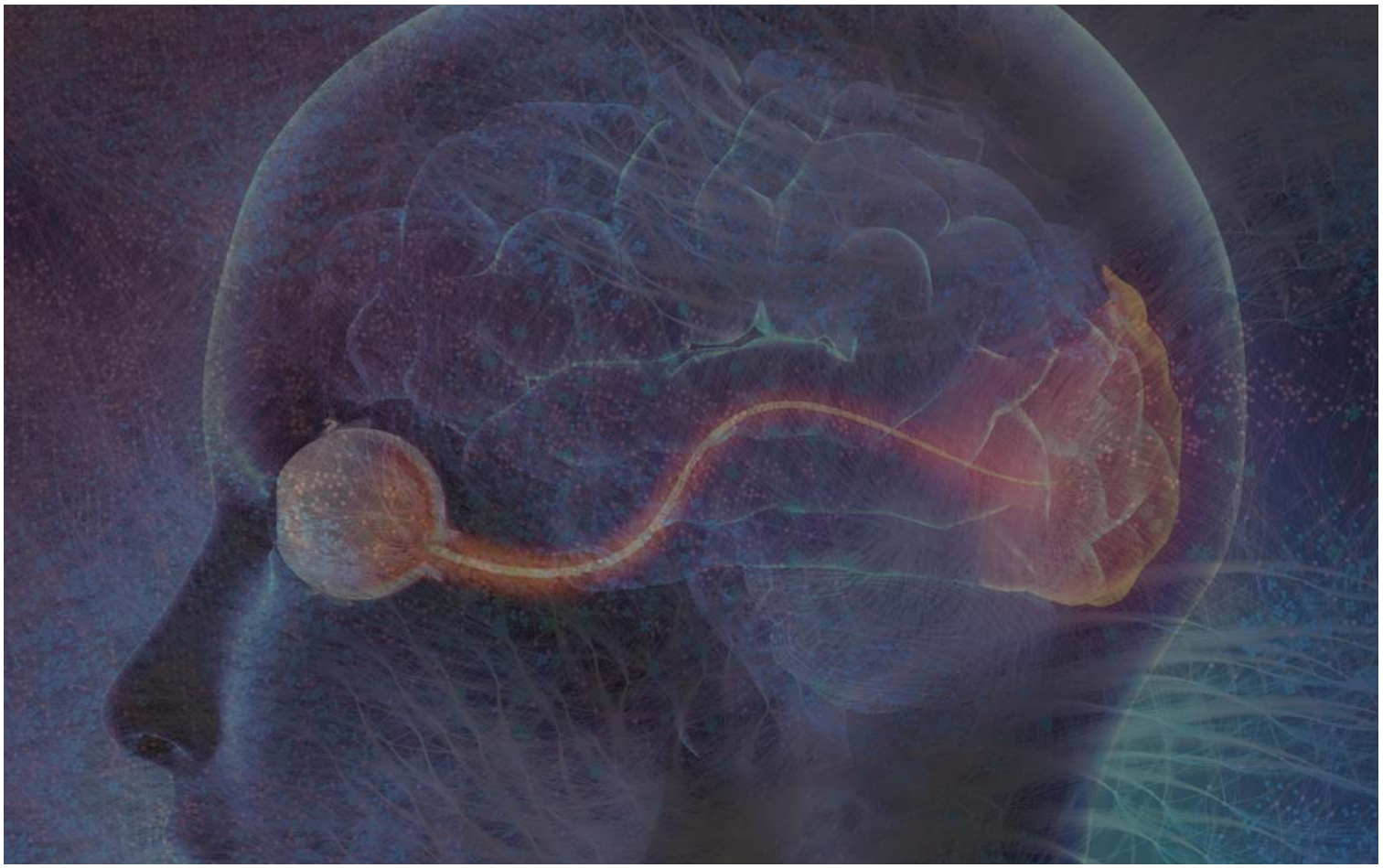
I. Introduction

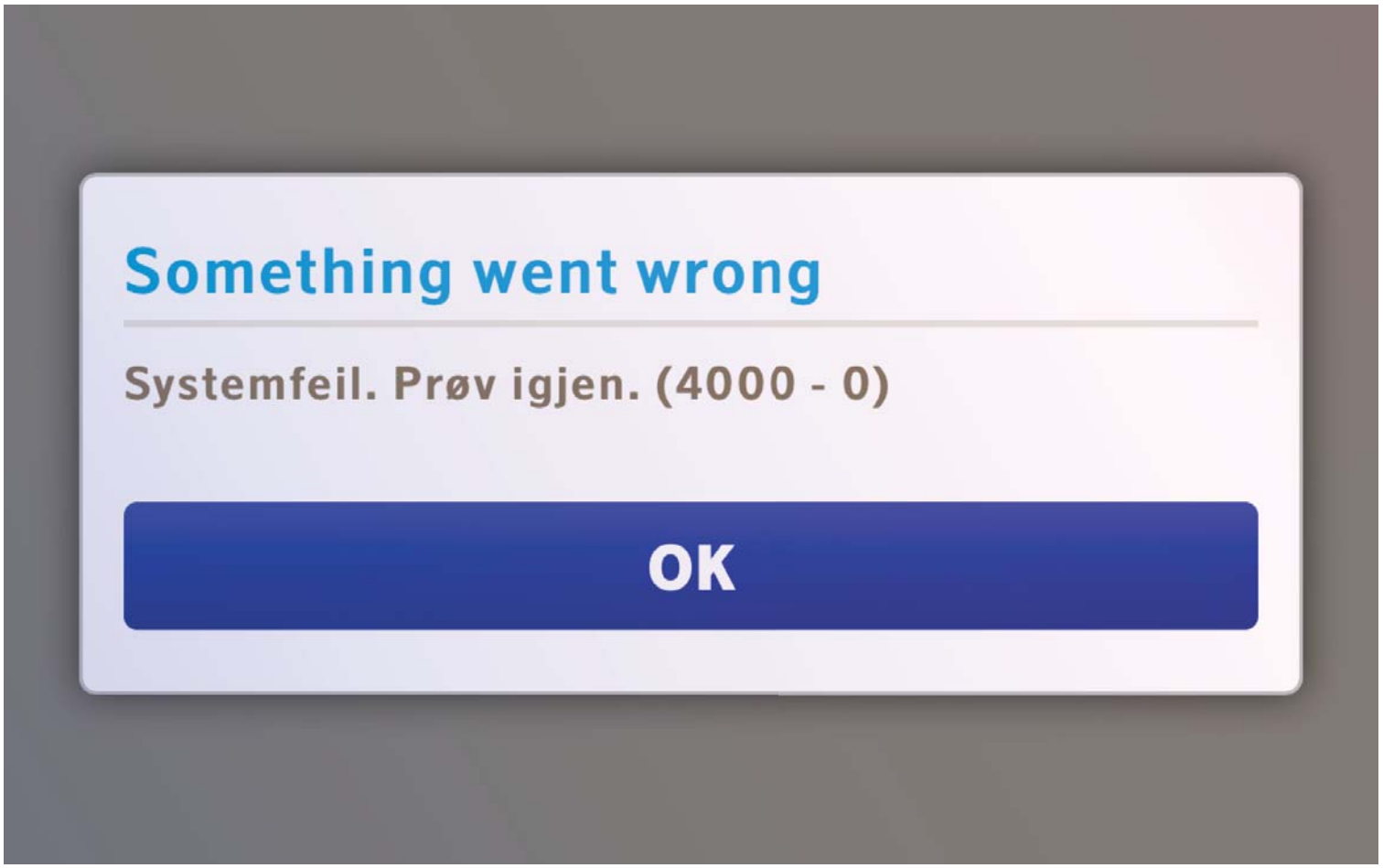
will be coupled together very tightly, and that the resulting partnership will think as no human brain has ever thought and process data in a way not approached by the information-handling machines we know today.

B. Between "Mechanically Extended Man" and "Artificial Intelligence"

As a concept, man-computer symbiosis is different in an important way from what North[2] has called "mechanically extended man." In the man-machine systems of the past, the human operator supplied the initiative, the direction, the integration, and the criterion. The mechanical parts of the systems were mere extensions, first of the human arm, then of the human eye. These systems certainly did not consist of "dissimilar organisms living together . . ." There was only one kind of organism—man—and the rest was there only to help him.

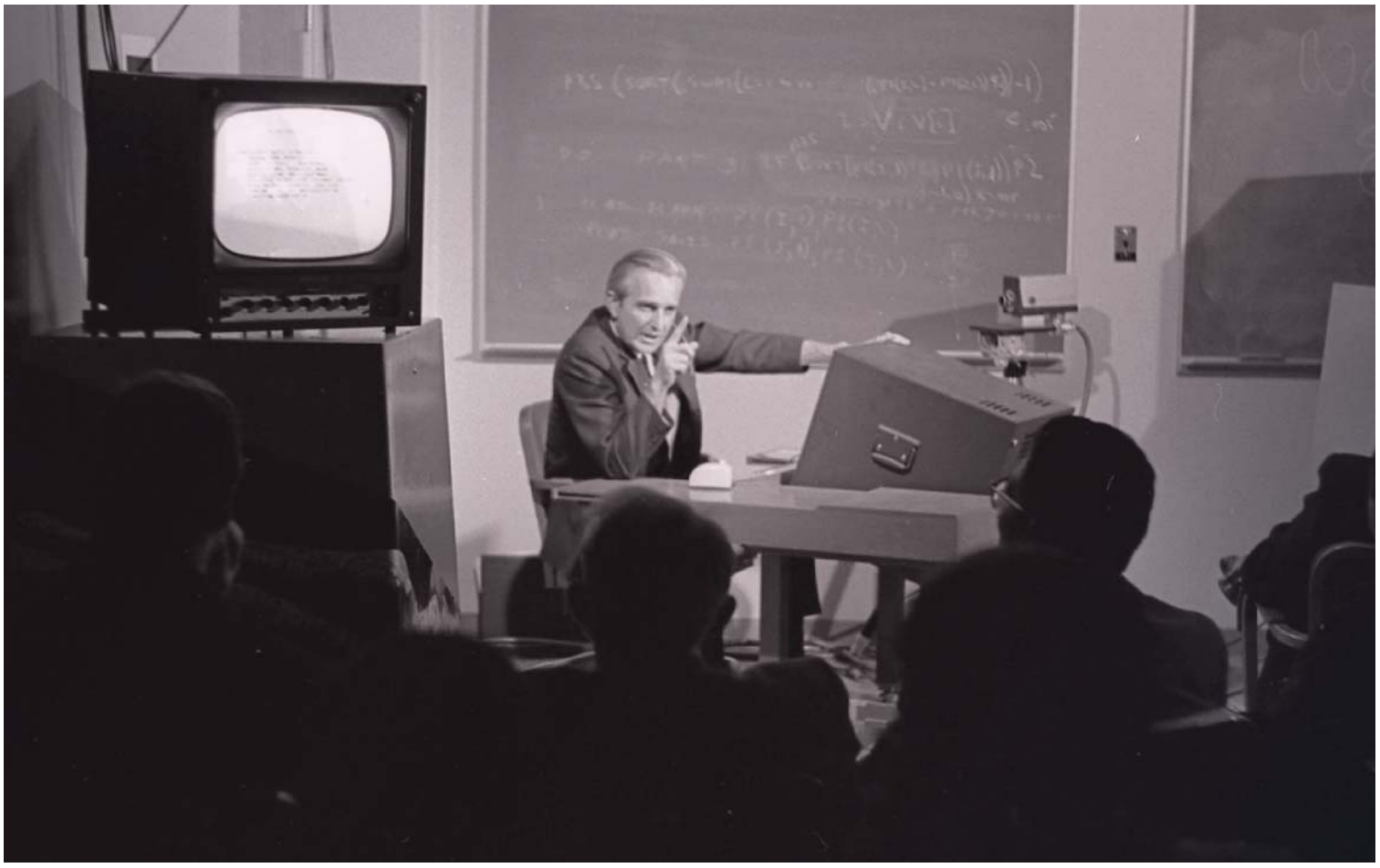
Summary—Man-computer symbiosis is an expected development in cooperative interaction between men and electronic computers. It will involve very close coupling between the human and the electronic members of the partnership. The main aims are 1) to let computers facilitate formulative thinking as they now facilitate the solution of formulated problems, and 2) to enable men and computers to cooperate in making decisions and controlling complex situations without inflexible dependence on predetermined programs. In the anticipated symbiotic partnership, men will set the goals, formulate the hypotheses, determine the criteria, and perform the evaluations. Computing machines will do the routinizable work that must be done to prepare the way for insights and decisions in technical and scientific thinking. Preliminary analyses indicate that the symbiotic partnership will perform intellectual operations much more effectively than man alone can perform them. Prerequisites

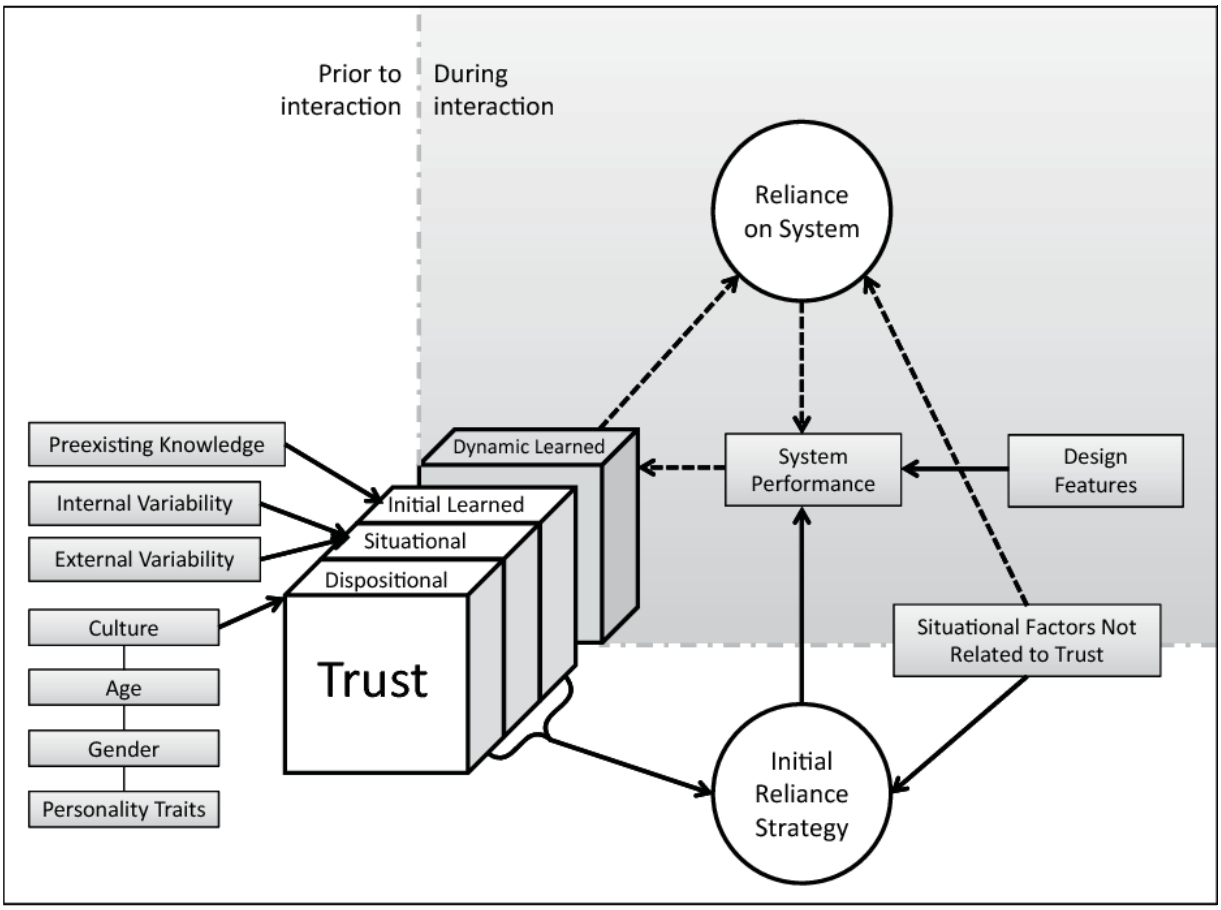



Something went wrong
Systemfeil. Prøv igjen. (4000 - 0)
OK

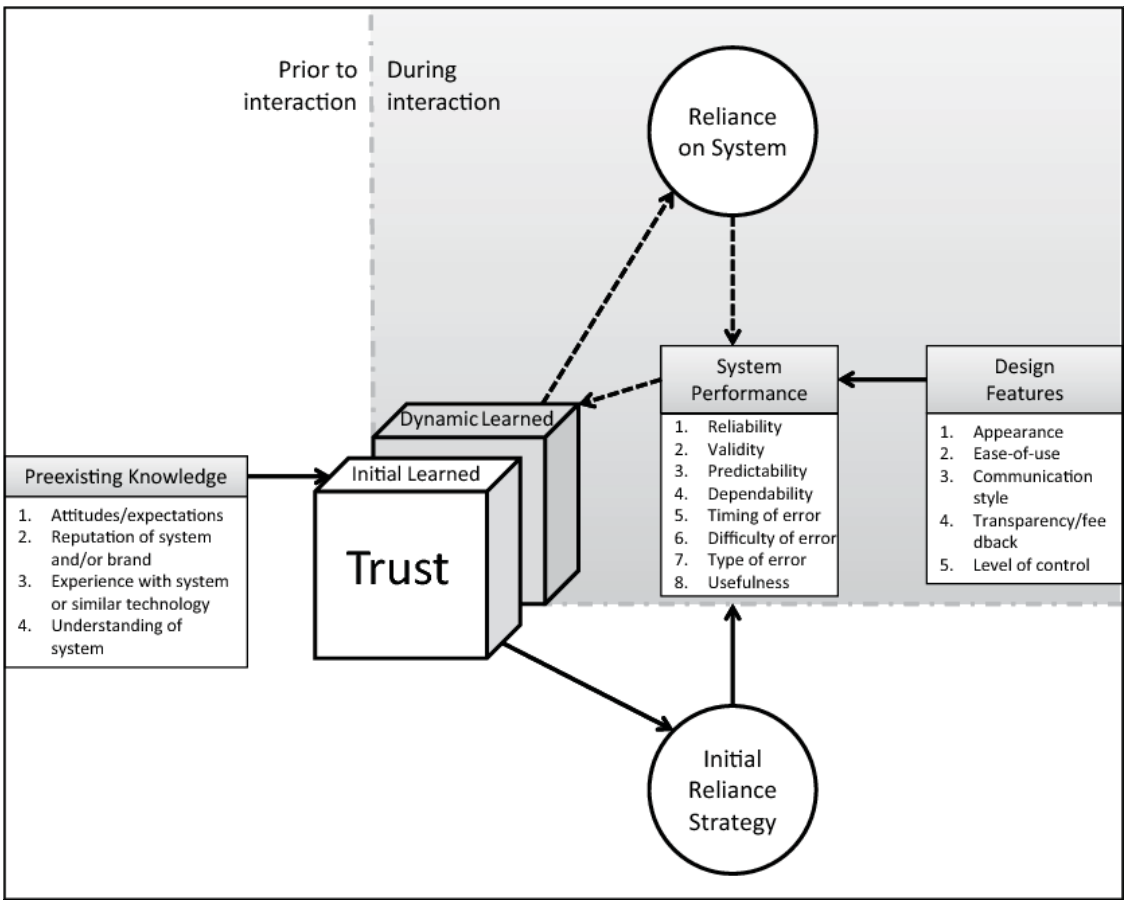

Hovedmeny
15:34
Multimedia
Radio
Telefon
Navigasjon
Office
ConnectedDrive
Kjøretøyinformasjon
Innstillinger
17:59
MODE
A/C
1
2
3
4
5
24°
AUTO


11:45
Navigation
ETA: 2:39 pm Åvägen 37
Next: Industrigatan
300 m
Set Dest.
Pause
Mute
Repeat
Avoid
Maximize
Media
Bluetooth
Arizona Rain / Color Me
Color Me
Phone
Telenor
Daniel's Phone
22°
AUTO
22°
Volvo





Kevin Hoff and Masooda Bashir (2015) Trust in Automation: Integrating Empirical Evidence on Factors That Influence Trust



Kevin Hoff and Masooda Bashir (2015) Trust in Automation: Integrating Empirical Evidence on Factors That Influence Trust

Factors shaping the user's approach to the system **before interacting** with it

Situational trust, external variability

1. Type of system
2. System complexity
3. Task difficulty
4. Workload
5. Perceived risks
6. Perceived benefits
7. Organizational setting
8. Framing of task

Situational trust, varying by / in user

1. Self-confidence
2. Subject matter expertise
3. Mood
4. Attentional capacity

Initial learned trust

1. Attitudes and expectations
2. Reputation of system/brand
3. Experience with system/similar
4. Understanding of system

Dispositional trust

(A plethora of factors)

Factors shaping the user's approach to the system **while interacting** with it

System performance

1. Reliability
2. Validity
3. Predictability
4. Dependability
5. Timing of error
6. Difficulty of error
7. Type of error
8. Usefulness

Design features

1. Appearance
2. Ease of use
3. Communication style
4. Transparency / feedback
5. Level of control

(Learnability?)

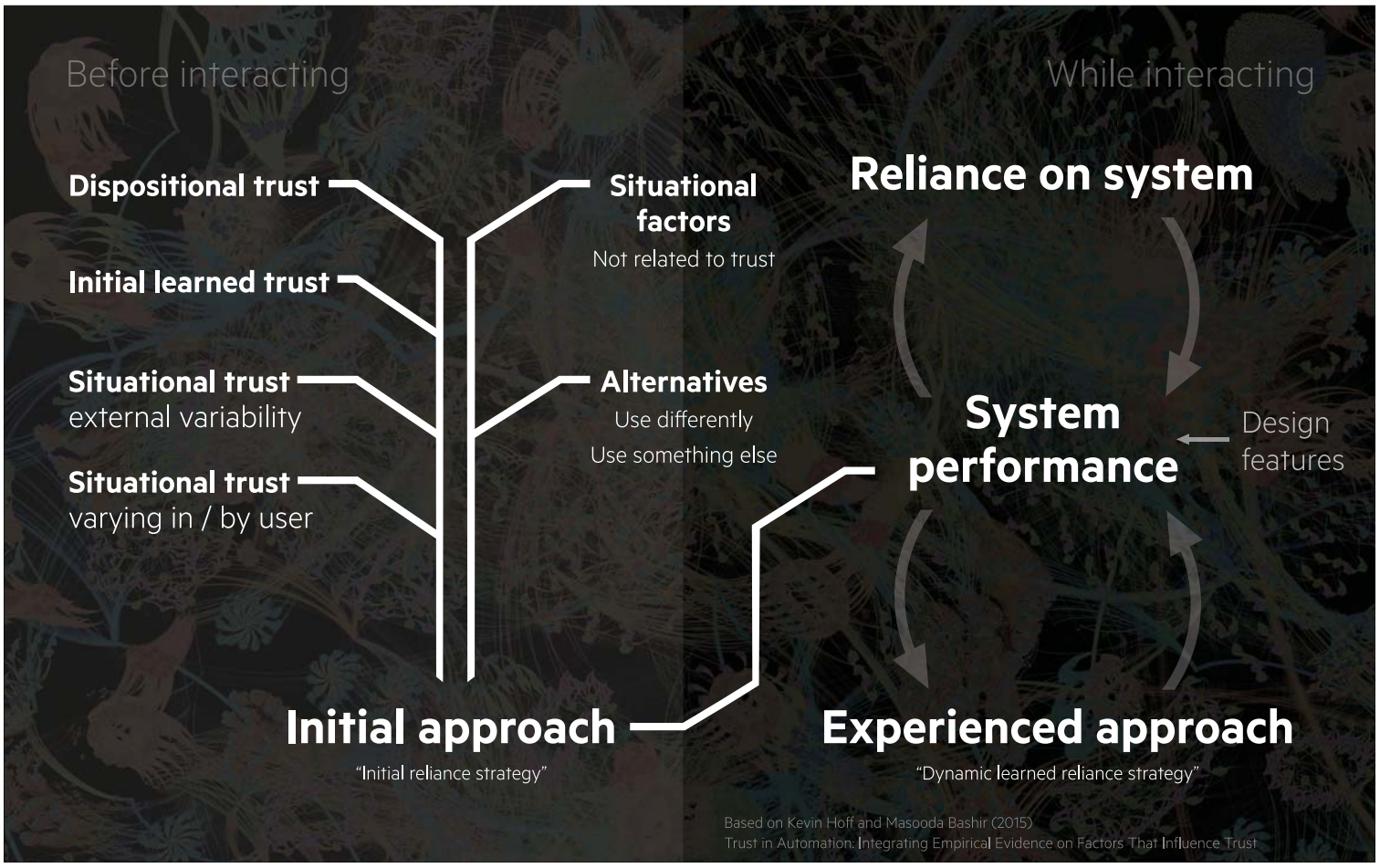
(Ease vs power?)

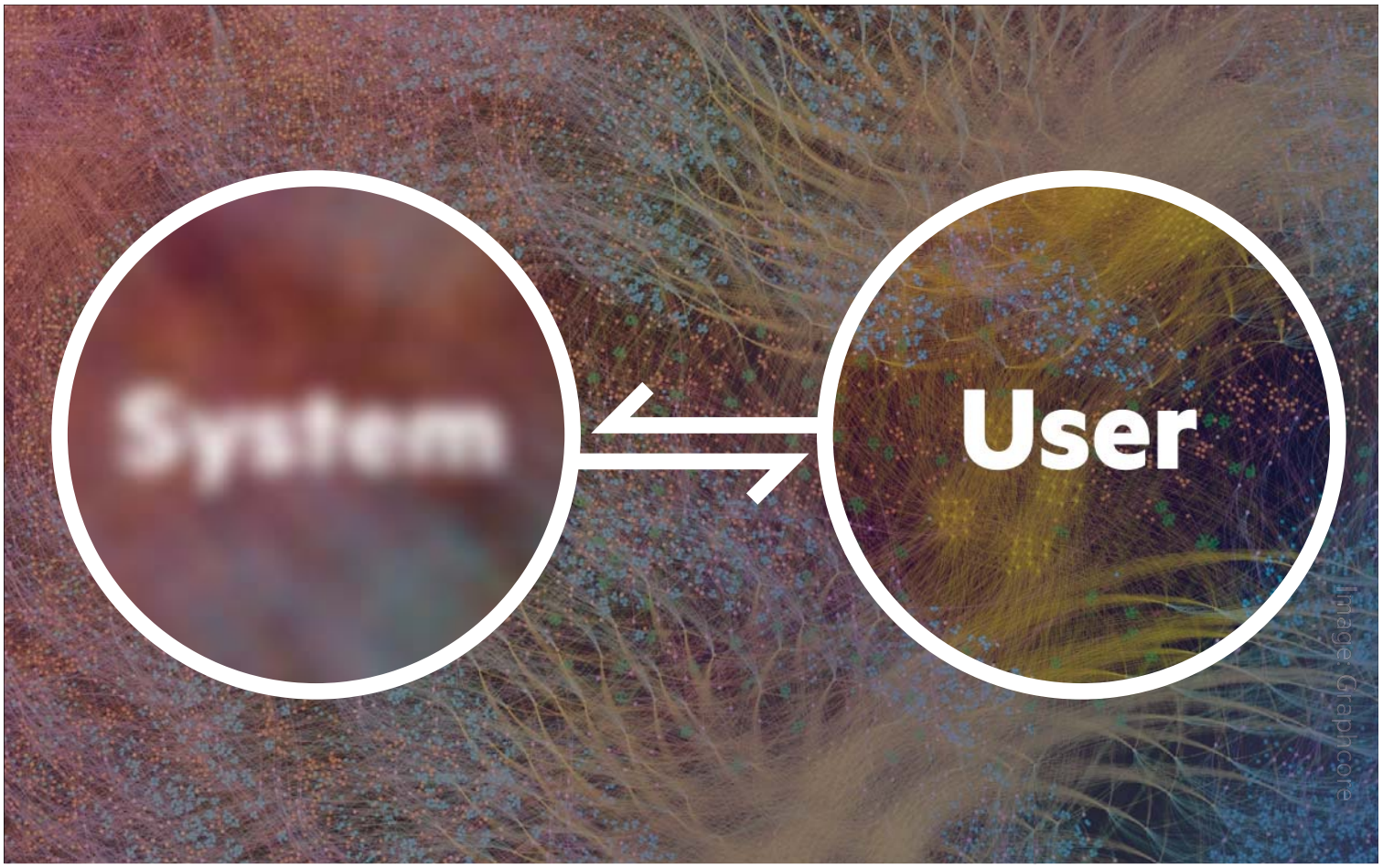
(Context sensitivity?)

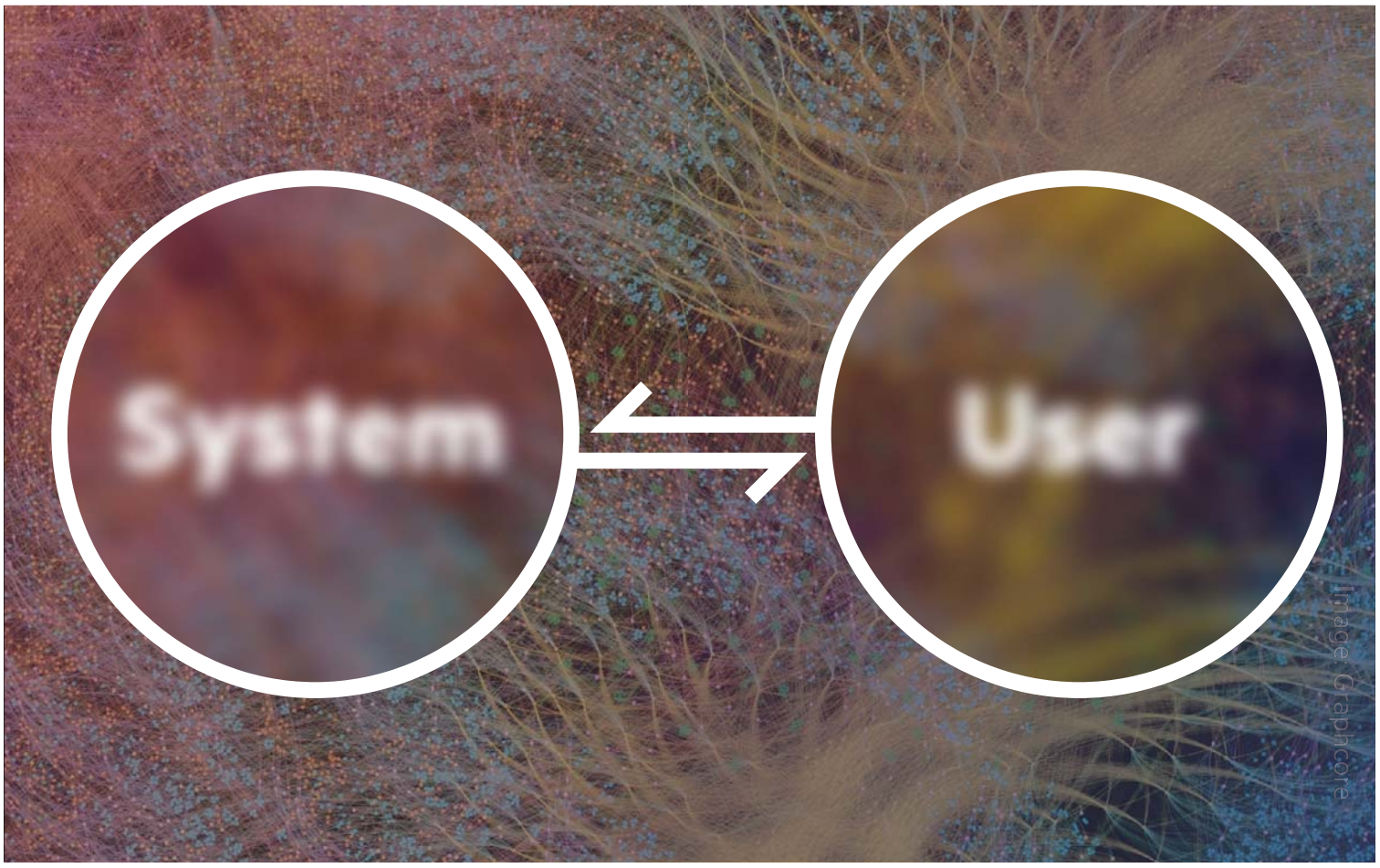
(Locus of control?)

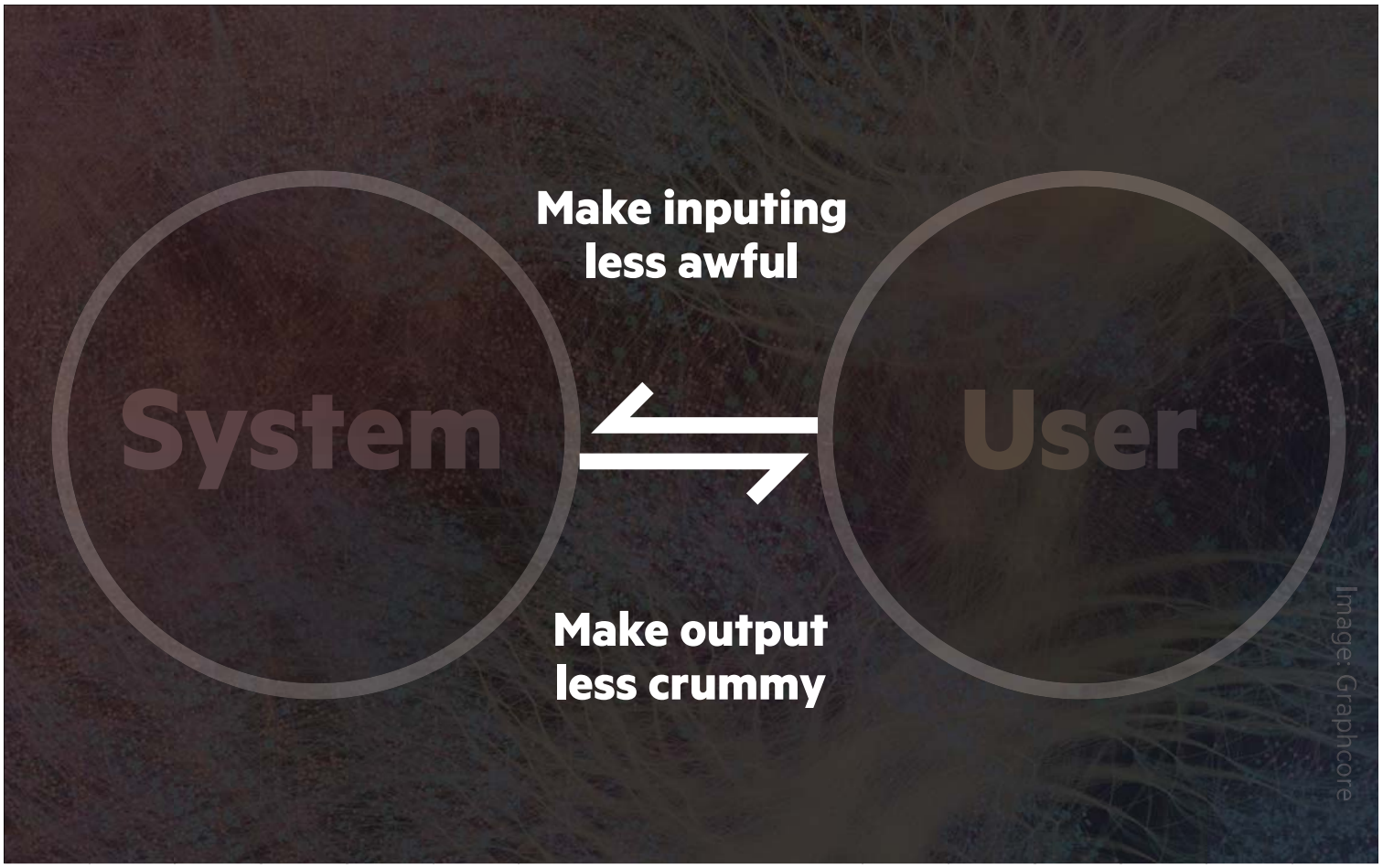
Experience ("Dynamic learned")

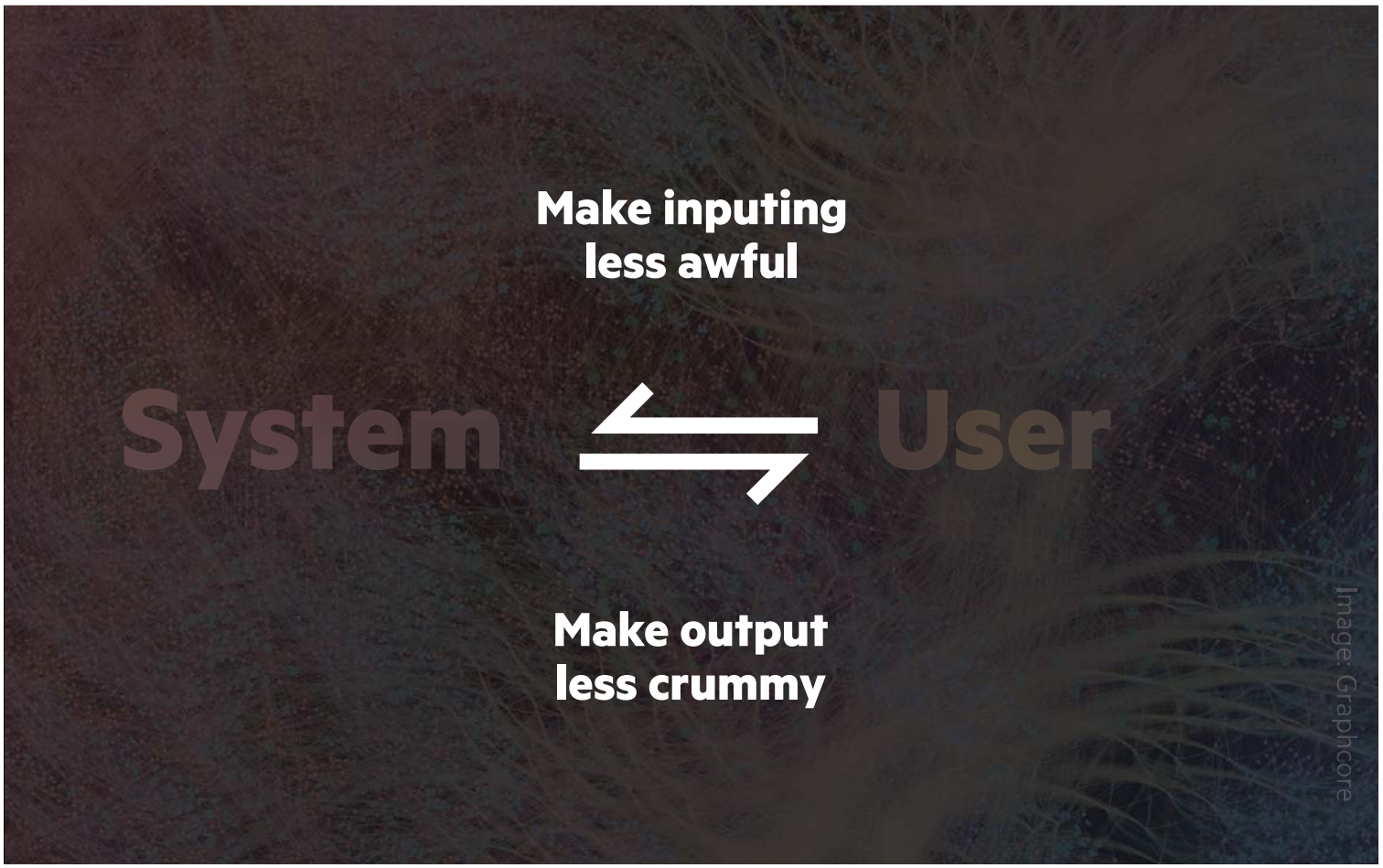
Based on Kevin Hoff and Masooda Bashir (2015)
Trust in Automation: Integrating Empirical Evidence on Factors That Influence Trust




System
User
Image: Graphcore


System
User
Image: Graphcore


Make inputing
less awful
System
User
Make output
less crummy
Image: Graphcore


Make inputing
less awful
System
User
Make output
less crummy
Image: Graphcore

Make inputing
less awful

Make output
less crummy

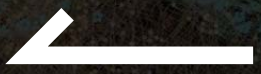


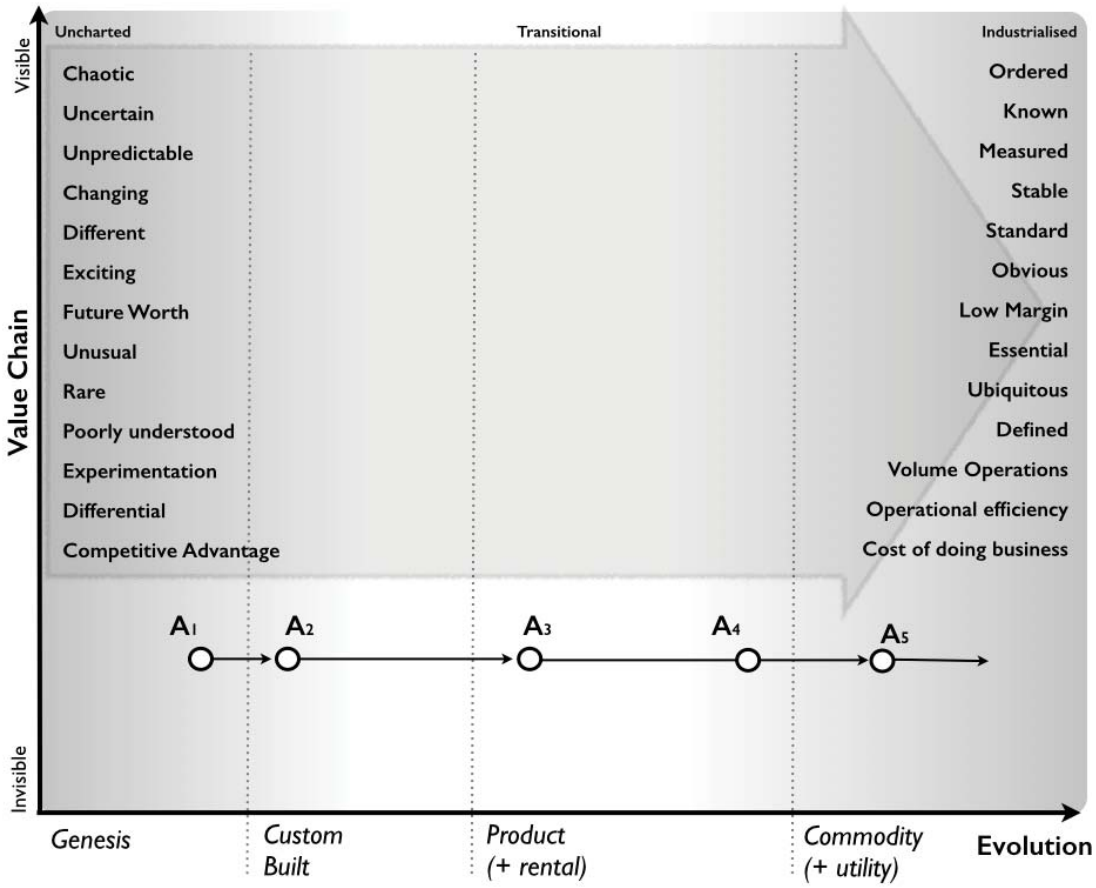
Image: Graphcore

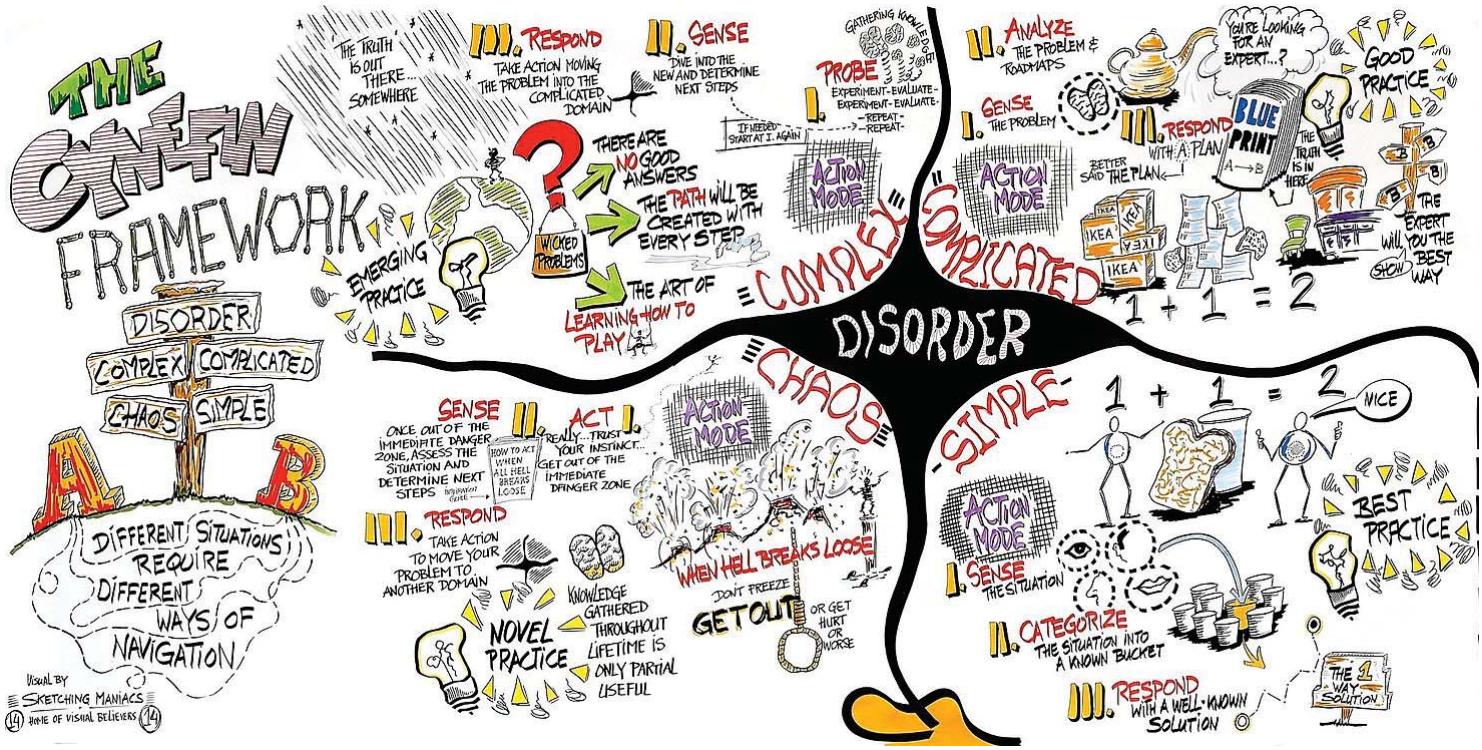
"Technology
is stuff

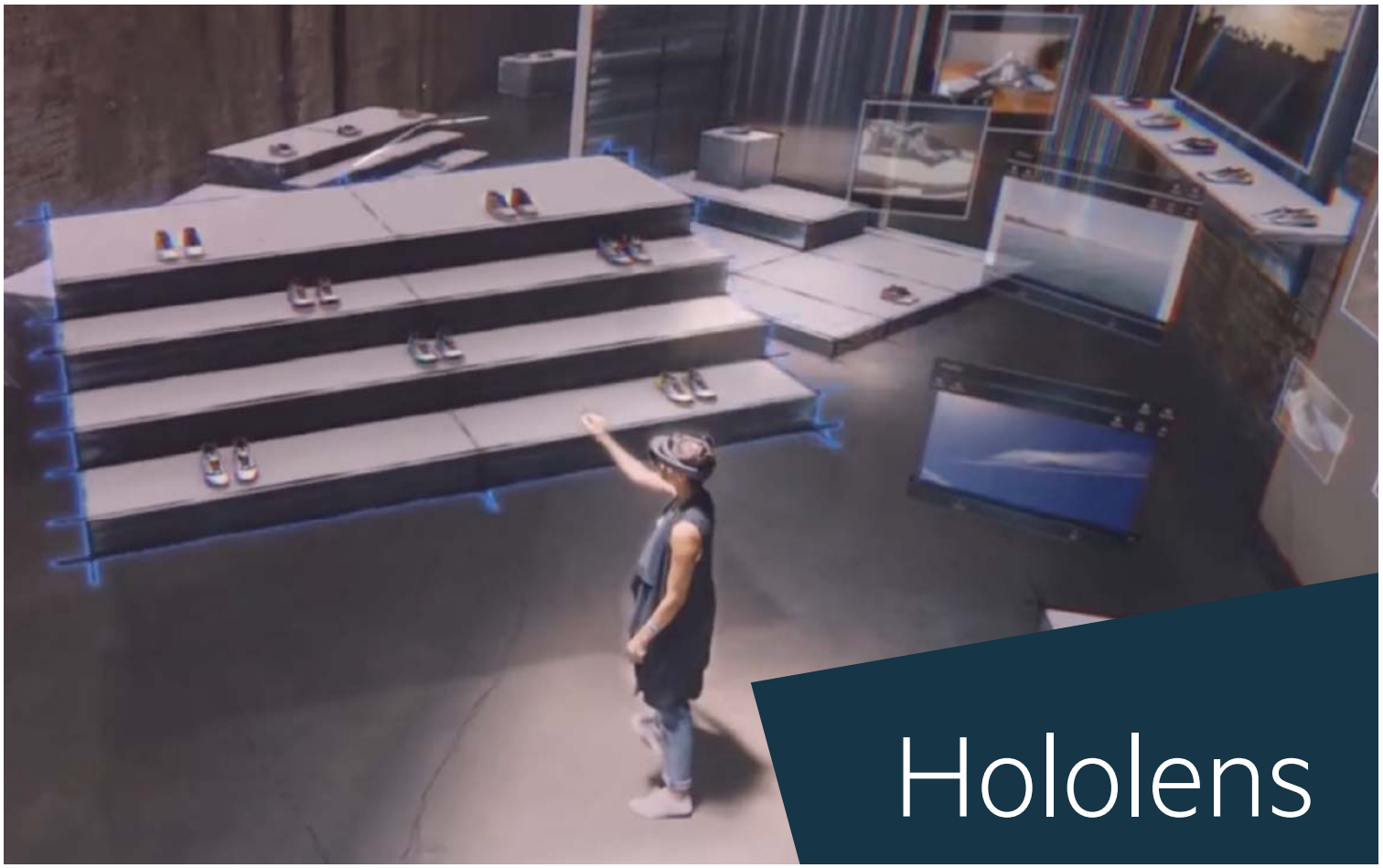
That doesn't
work yet"

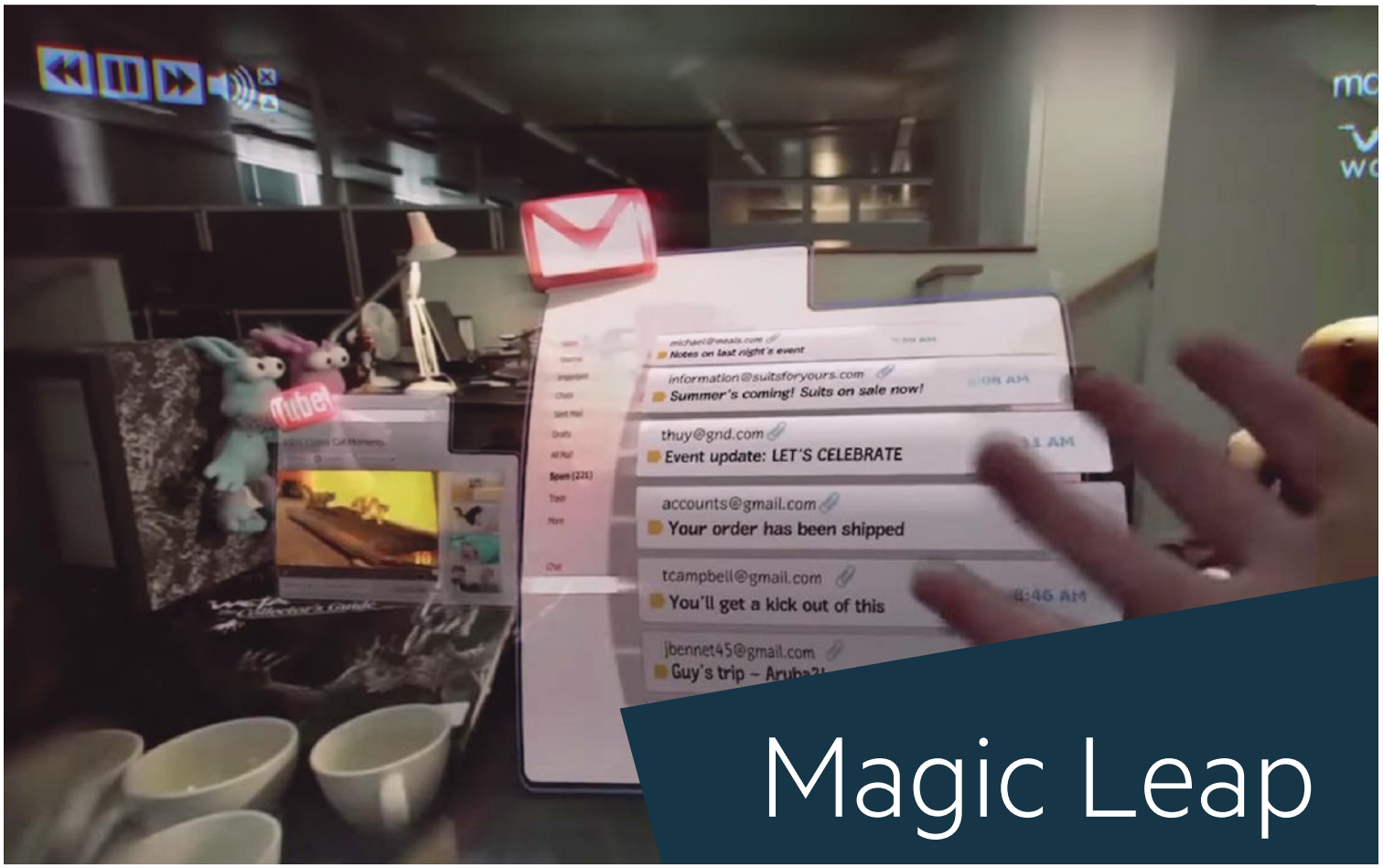
– Danny Hillis

Image: Graphcore


Uncharted
Transitional
Industrialised
Visible
Invisible
Value Chain
Chaotic
Uncertain
Unpredictable
Changing
Different
Exciting
Future Worth
Unusual
Rare
Poorly understood
Experimentation
Differential
Competitive Advantage
Ordered
Known
Measured
Stable
Standard
Obvious
Low Margin
Essential
Ubiquitous
Defined
Volume Operations
Operational efficiency
Cost of doing business
A1
A2
A3
A4
A5
Genesis
Custom Built
Product (+ rental)
Commodity (+ utility)
Evolution


THE CYNEFIN FRAMEWORK
DISORDER
COMPLEX
COMPLICATED
CHAOS
SIMPLE
DIFFERENT SITUATIONS REQUIRE DIFFERENT WAYS OF NAVIGATION
VISUAL BY SKETCHING MANIACS
HOME OF VISUAL BELIEVERS
THE TRUTH IS OUT THERE... SOMEWHERE
RESPOND
TAKE ACTION MOVING THE PROBLEM INTO THE COMPLICATED DOMAIN
SENSE
DIVE INTO THE NEW AND DETERMINE NEXT STEPS
PROBE
EXPERIMENT - EVALUATE - EXPERIMENT - EVALUATE - REPEAT - REPEAT
IF NEEDED START AT 1. AGAIN
GATHERING KNOWLEDGE
ACTION MODE
WICKED PROBLEMS
THERE ARE NO GOOD ANSWERS
THE PATH WILL BE CREATED WITH EVERY STEP
THE ART OF LEARNING HOW TO PLAY
EMERGING PRACTICE
COMPLEX
COMPLICATED
DISORDER
ANALYZE
THE PROBLEM & ROADMAPS
SENSE
THE PROBLEM
ACTION MODE
RESPOND
WITH A PLAN
BLUE PRINT
YOU'RE LOOKING FOR AN EXPERT...?
GOOD PRACTICE
BETTER SAID THE PLAN
THE TRUTH IS IN HERE
IKEA
THE EXPERT WILL SHOW YOU THE BEST WAY
1 + 1 = 2
CHAOS
SENSE
ONCE OUT OF THE IMMEDIATE DANGER ZONE, ASSESS THE SITUATION AND DETERMINE NEXT STEPS
HOW TO ACT WHEN ALL HELL BREAKS LOOSE
ACT
REALLY... TRUST YOUR INSTINCT... GET OUT OF THE IMMEDIATE DANGER ZONE
ACTION MODE
RESPOND
TAKE ACTION TO MOVE YOUR PROBLEM TO ANOTHER DOMAIN
KNOWLEDGE GATHERED THROUGHOUT LIFETIME IS ONLY PARTIAL USEFUL
NOVEL PRACTICE
WHEN HELL BREAKS LOOSE
DON'T FREEZE
GET OUT
OR GET HURT OR WORSE
SIMPLE
1 + 1 = 2
NICE
ACTION MODE
SENSE
THE SITUATION
CATEGORIZE
THE SITUATION INTO A KNOWN BUCKET
RESPOND
WITH A WELL-KNOWN SOLUTION
THE 1 WAY SOLUTION
BEST PRACTICE


Hololens


Notes on last night's event
information@suitsforyours.com
Summer's coming! Suits on sale now!
thuy@gnd.com
Event update: LET'S CELEBRATE
accounts@gmail.com
Your order has been shipped
tcampbell@gmail.com
You'll get a kick out of this
jbennet45@gmail.com
Guy's trip – Aruba?!
Magic Leap

Magic Leap

The Expanse


Magic Leap


"I will crush you
like a worm."
ARKit

Hololens

Make inputing less awful

Make output less crummy

Image: Graphcore

Questions?

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