

Human-Computer Interaction

↳ back to the future and... forward to the past

Stéphane HUOT | **Loki**

-technology & knowledge for interaction

↳ stephane.huot@inria.fr | loki.lille.inria.fr/~huot/

journée “Regards sur le FUTUR de l’Informatique”

Laboratoire d’Informatique de Grenoble

Grenoble - 5 avril 2018



What is Human-Computer **Interaction?**

interaction paradigms

computer as tool

'first person' interface

↳ augmenting the capabilities of users



**Human-
Computer
Interaction**

computer as servant

'second person' interface

↳ delegate tasks



**Artificial
Intelligence**

computer as media

'third person' interface

↳ communication, entertainment



**Mediated
Communication
& Multimedia**

[Verplank & Moggridge], [Beaudouin-Lafon & Mackay]

understand the phenomenon

↳ describe, explain, evaluate

propose new forms of interaction

↳ technologies, modalities, contexts

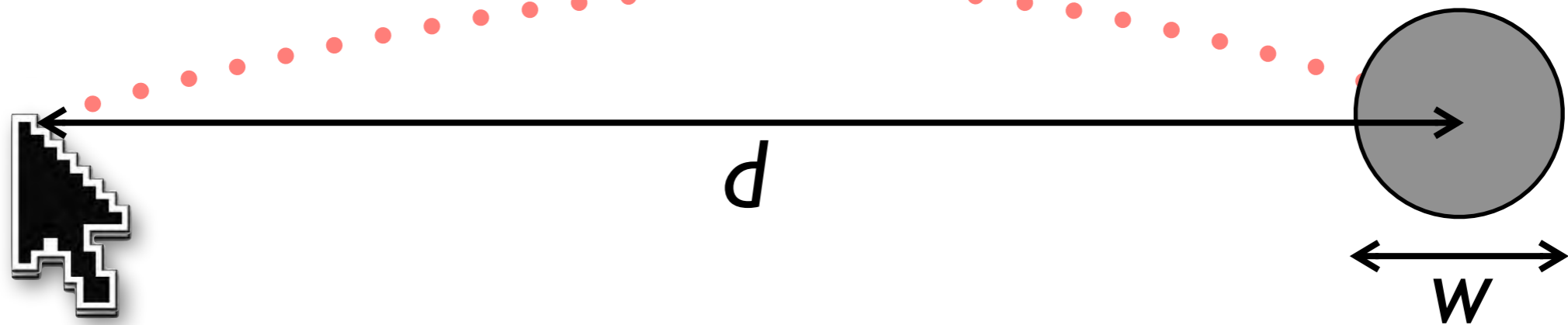
integrate knowledge and expertise

↳ theories, methods, tools

pointing with a mouse

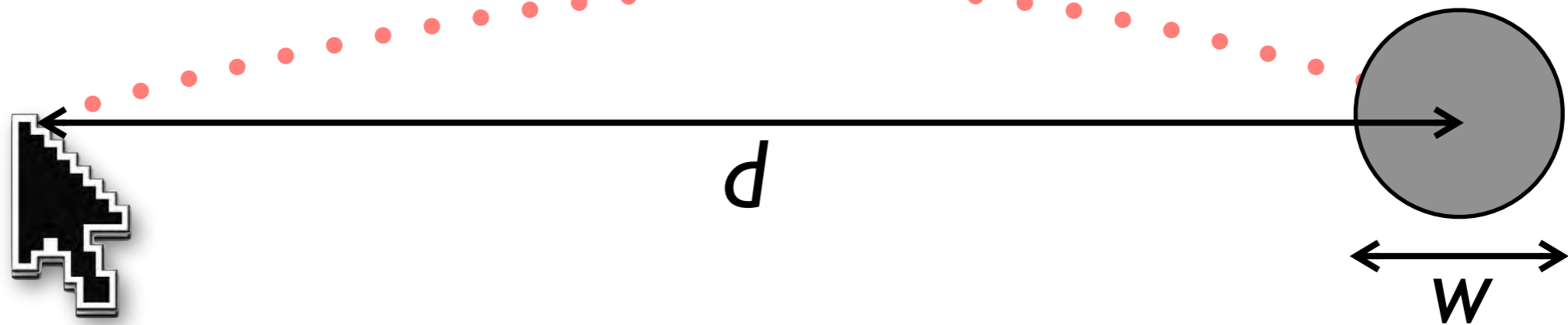


pointing with a mouse



M_{ovement} **T**_{ime} = ?

Fitts' Law (1954)



$$MT = a + b \text{Log}_2(1 + d/w)$$

ease pointing with expanding targets



why is HCI important?

always **at least one user**

↳ interactive systems

systems should be **accessibles and usable**

↳ the promises of the digital world

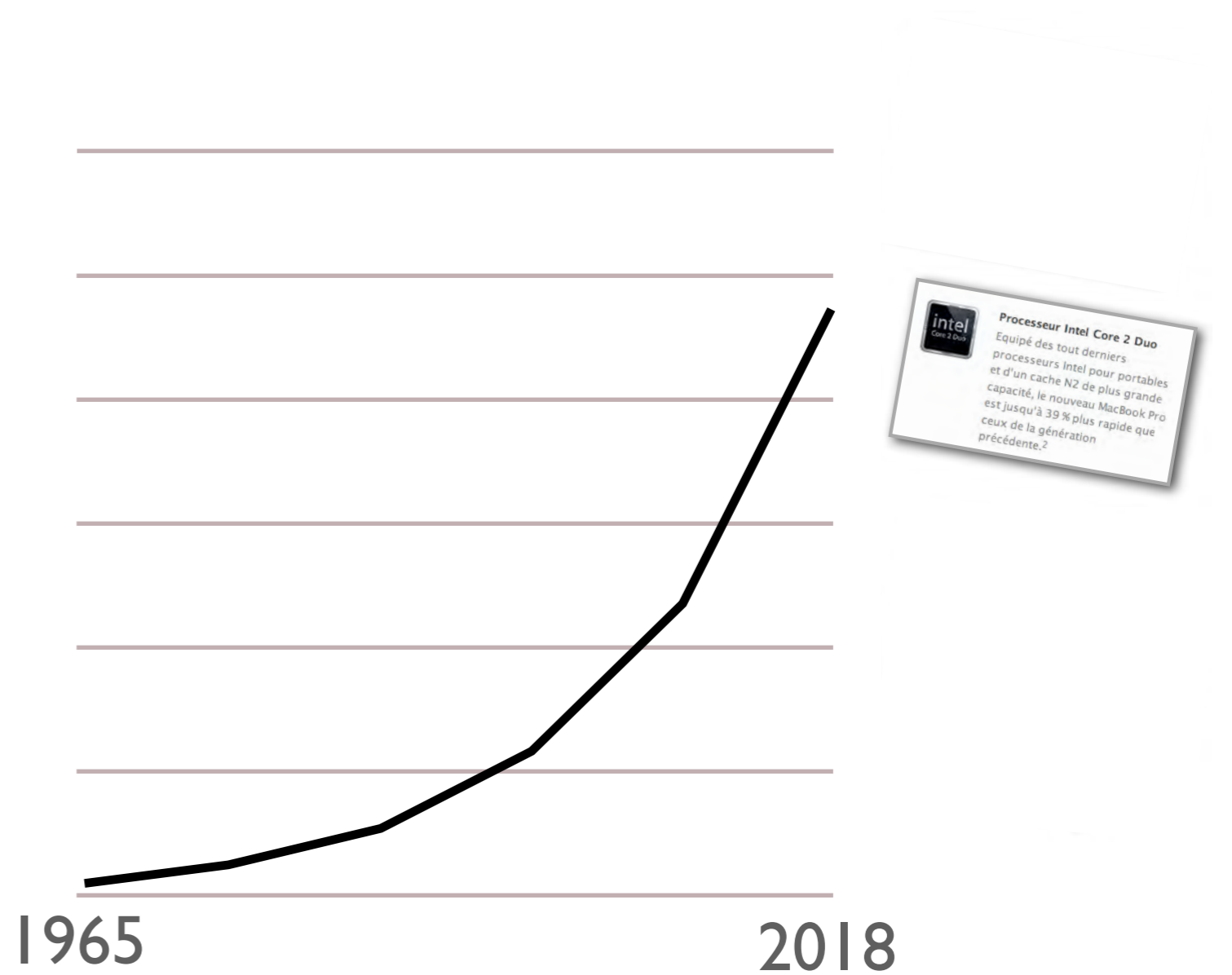
interaction should be **transparent** (figuratively)

↳ technology is a mean, a tool



ina.f

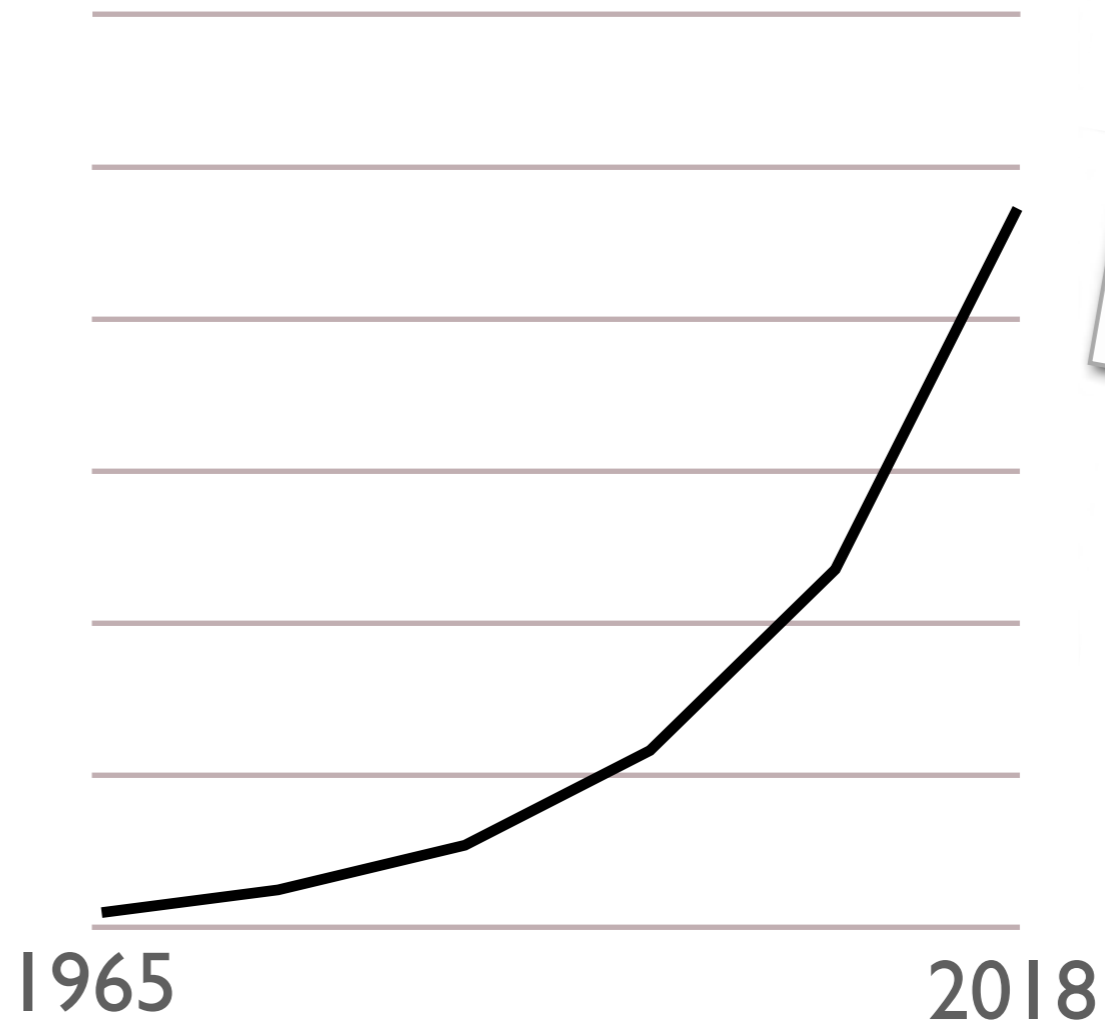
the hard fact



'less is more (more or less)'
[W. Buxton]

the hard fact

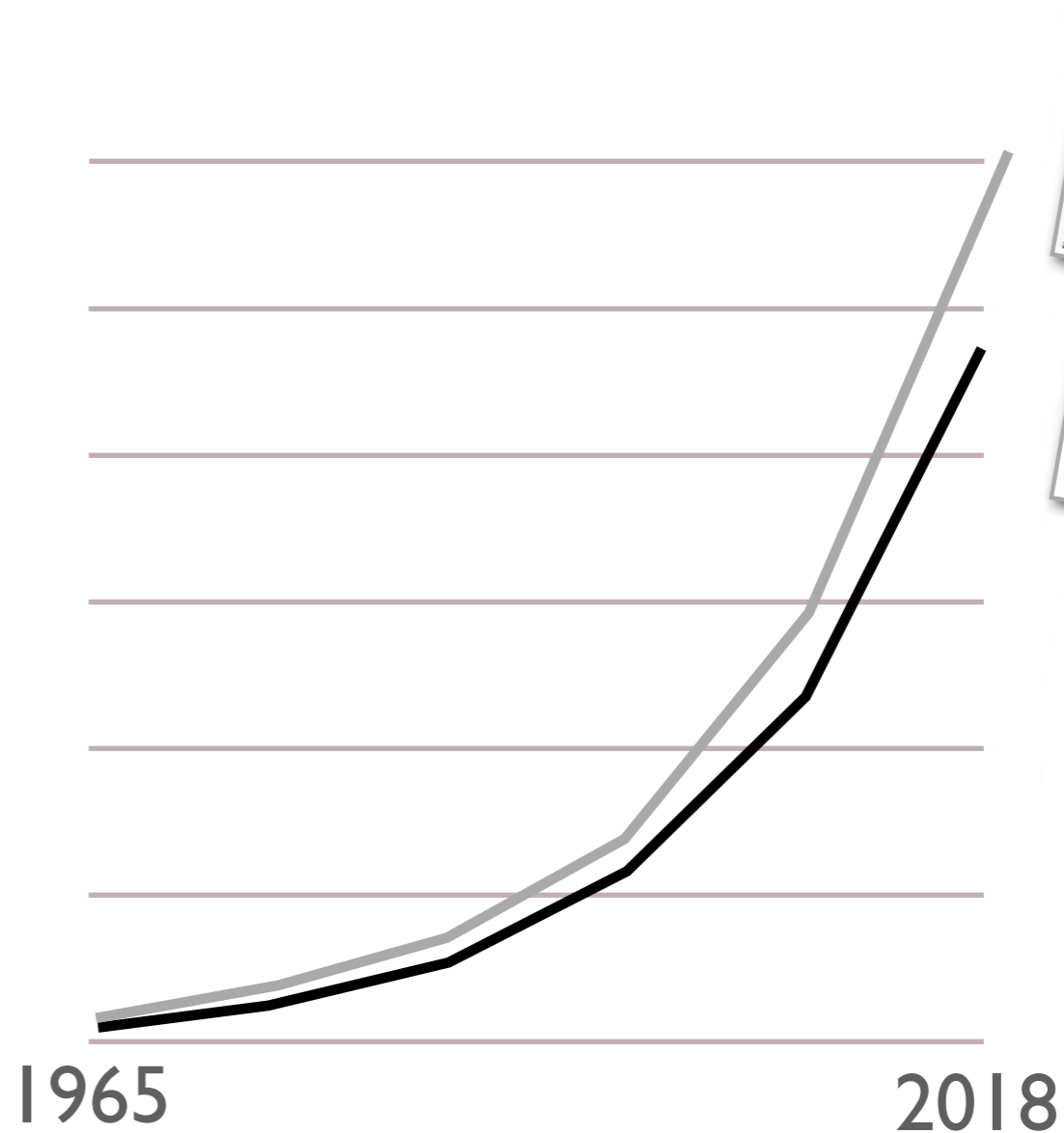
MOORE'S LAW



'less is more (more or less)'
[W. Buxton]

the hard fact

MOORE'S LAW BUXTON'S LAW



La productivité n'attend plus que vous

En plus des processeurs Core™ 2 Duo ou Celeron M, les portables C200 bénéficient de composants intégrés évolués, grâce au circuit graphique intégré des chipsets 945GM et 945GM. Les C200 offrent d'excellentes performances : jusqu'à 2 Go de mémoire DDR2 à 533 Mhz et des capacités multimédias exceptionnelles grâce aux contrôleurs audio et graphique Intel intégrés. Et leur écran large XGA de 15" garantit un confort visuel exceptionnel, aussi bien pour vos loisirs que pour travailler.

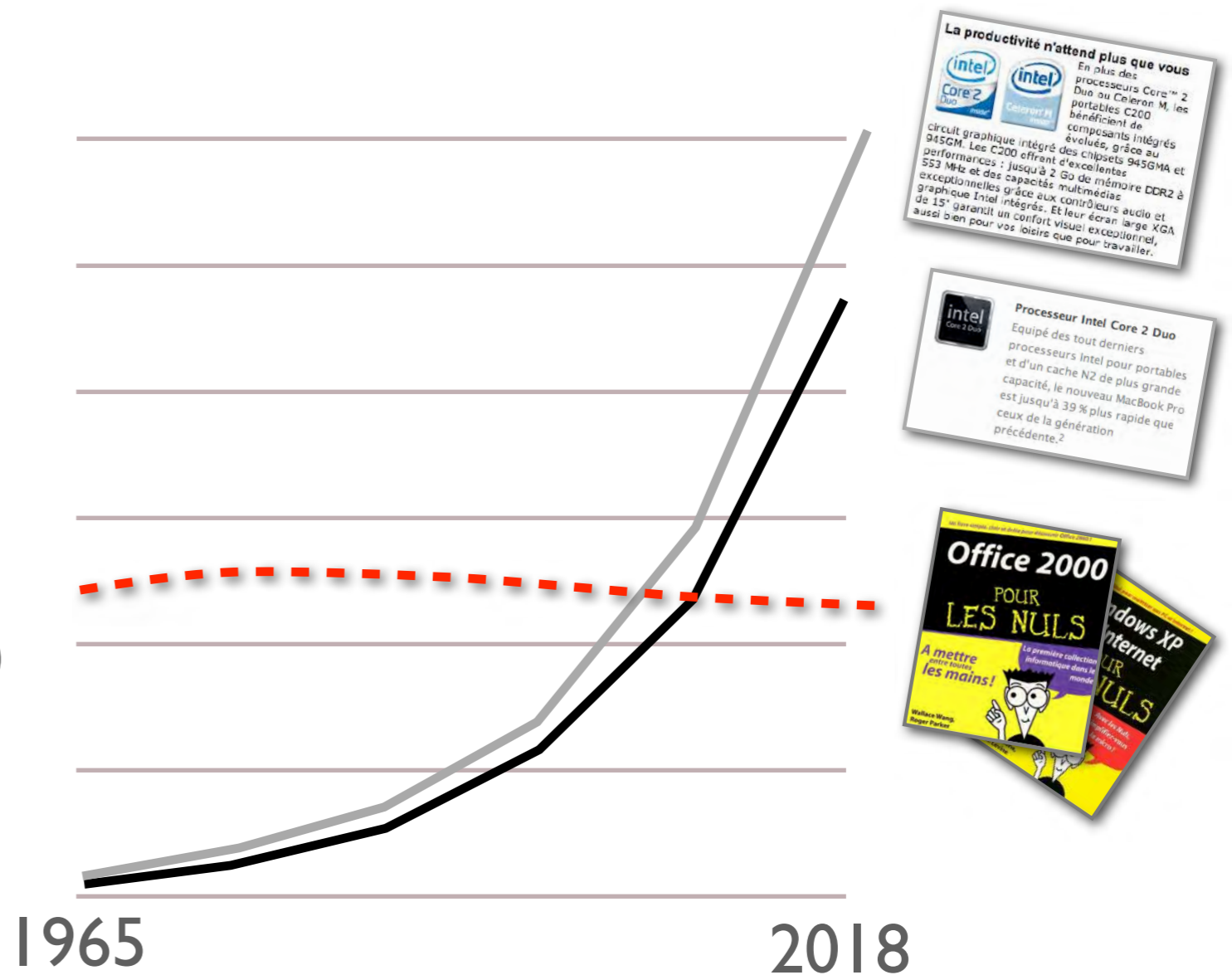
Processeur Intel Core 2 Duo

Equipé des tout derniers processeurs Intel pour portables et d'un cache N2 de plus grande capacité, le nouveau MacBook Pro est jusqu'à 39% plus rapide que ceux de la génération précédente.²

'less is more (more or less)'
[W. Buxton]

the hard fact

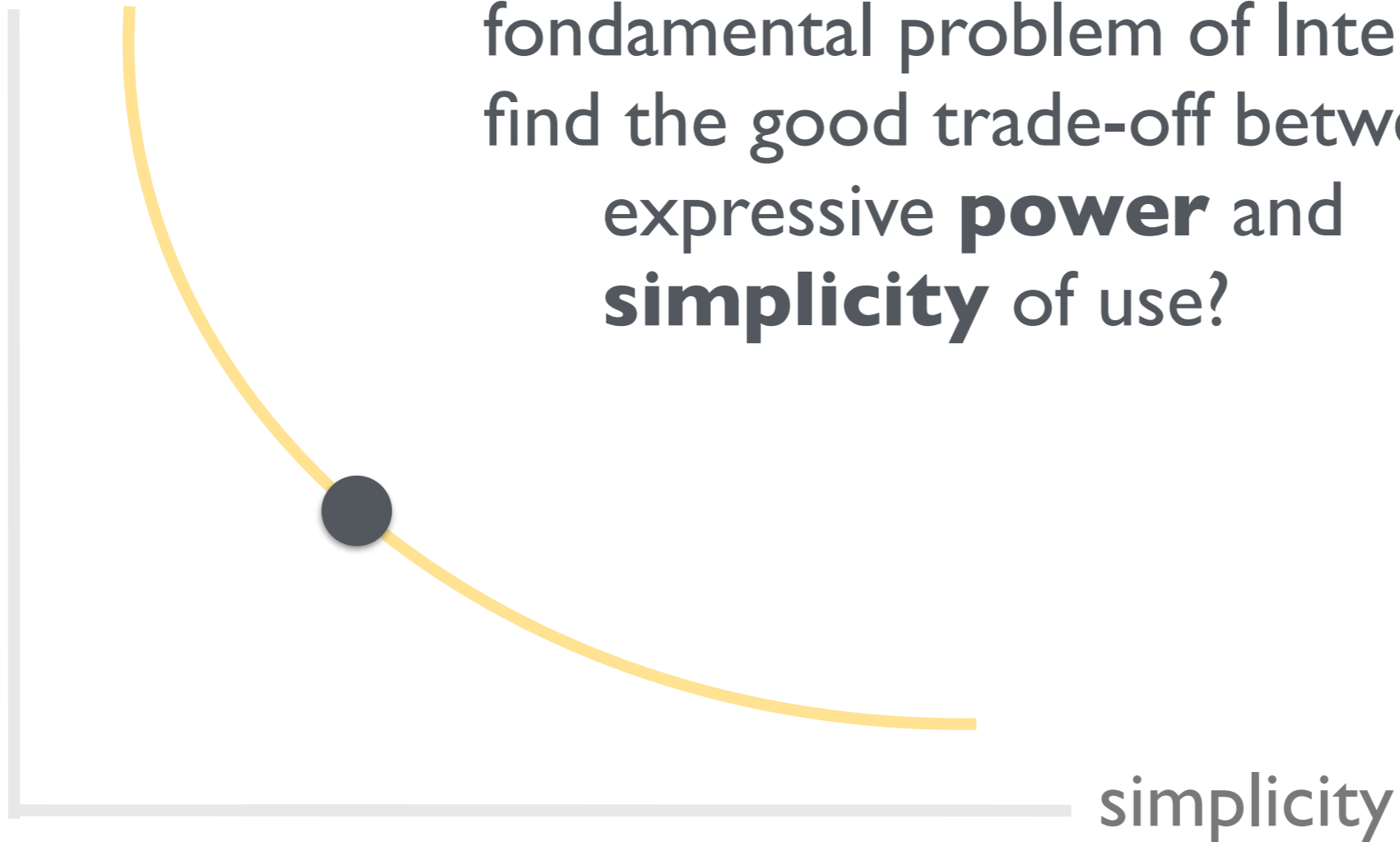
MOORE'S LAW BUXTON'S LAW AND ... GOD'S LAW (NATURE)



'less is more (more or less)'
[W. Buxton]

a matter of compromise...

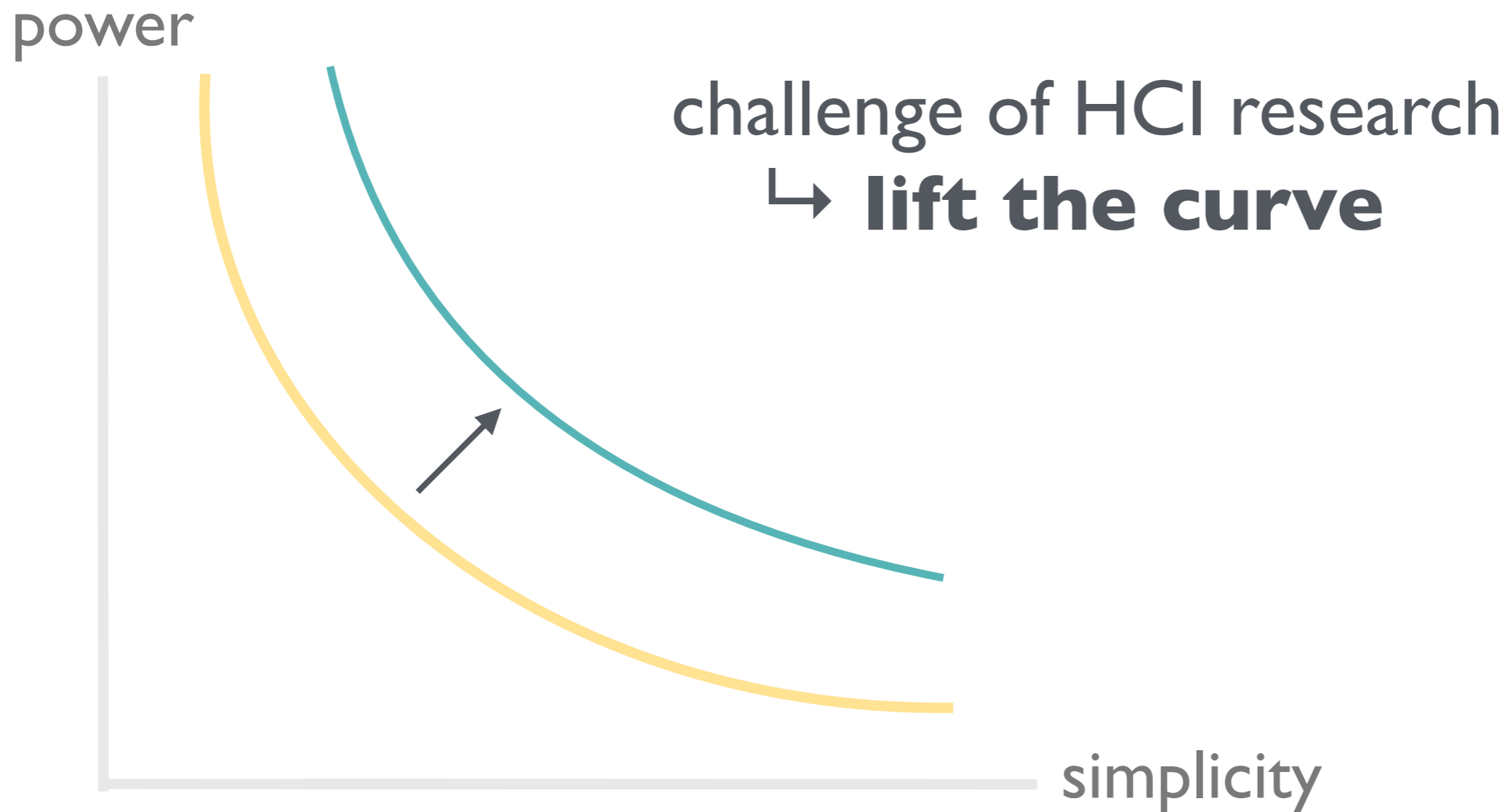
power



“simple things should be simple, complex things should be possible”

[A. Kay]

a matter of compromise...



[W. E. Mackay]

why is it difficult?

model the **user**

↳ motivations, behaviors, expectations

some **theories, models** and empirical **laws**

↳ but no unified framework for Interaction in general (yet)

to study a phenomenon, it has first **to happen**

↳ significant implementation efforts

↳ ecological approach vs reduction

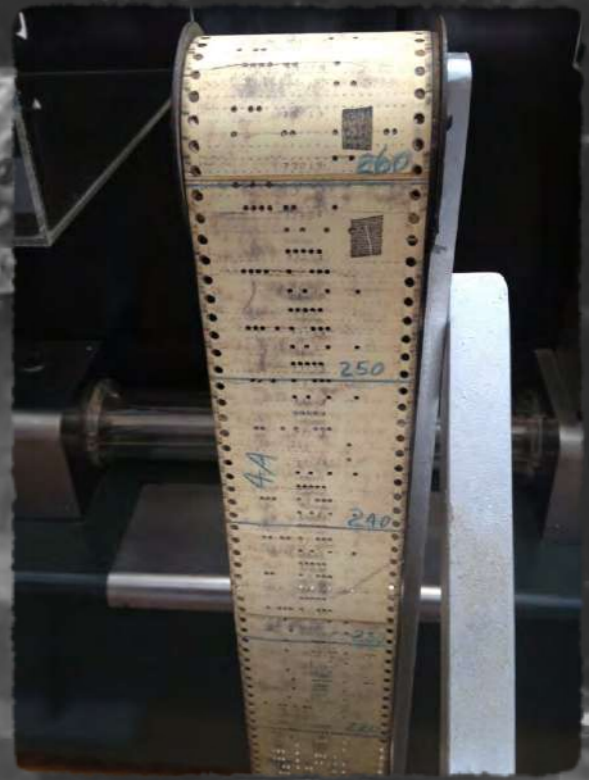
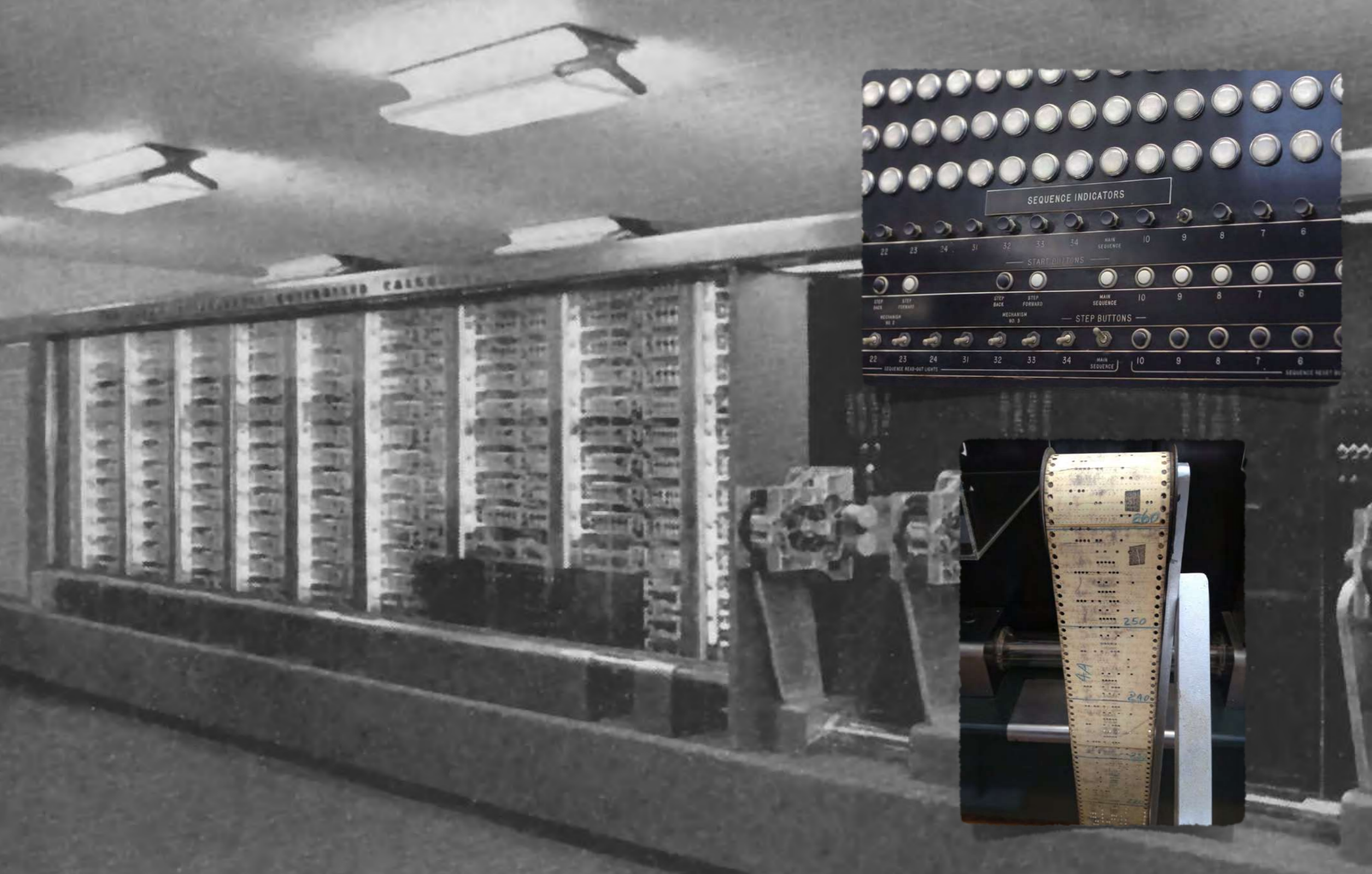
HCI requires **multidisciplinary skills**

design
human factors
computer science
engineering

**once the goal is reached,
these difficulties are often invisible**

back to the future...

↳ a short (subjective and disordered) history of interfaces



Harvard MARK I - 1944
↳ switches and punch cards



terminals - ~60
↳ **text**



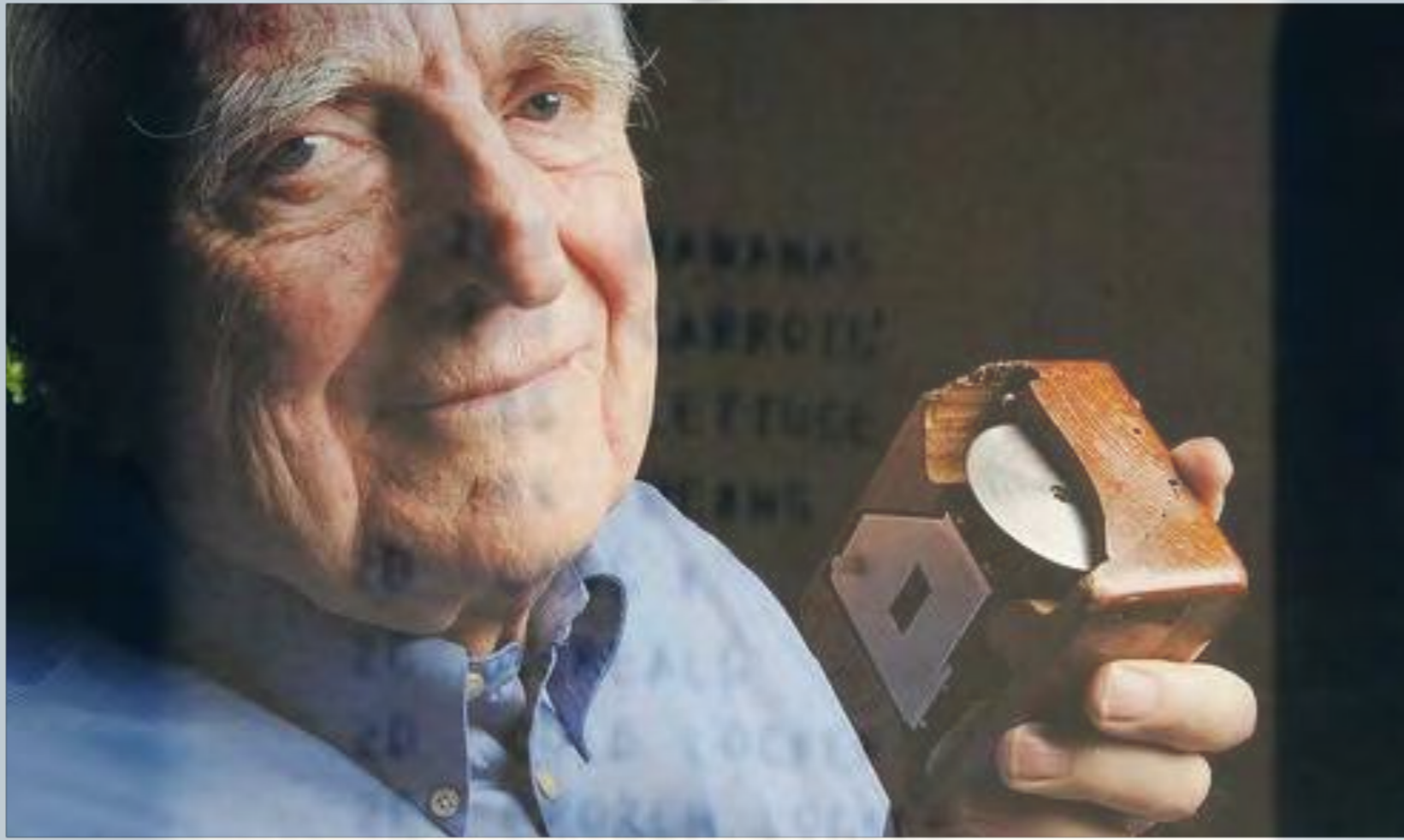
SketchPad - [I. Sutherland, 63]

↳ **1st CAD system**



SketchPad - [I. Sutherland, 63]

↳ **1st CAD system**



2F MISCELLANEOUS
1. GROC STORE
4. HARDWARE
5. ART SUPPLY
6. DRUG STORE
7. LIBRARY



Douglas C. Engelbart

↳ **augmenting human intellect - 60s**

oN-Line System (NLS)

1968, December 9

↳ The Mother of All Demos

among other “new technologies”

↳ mouse

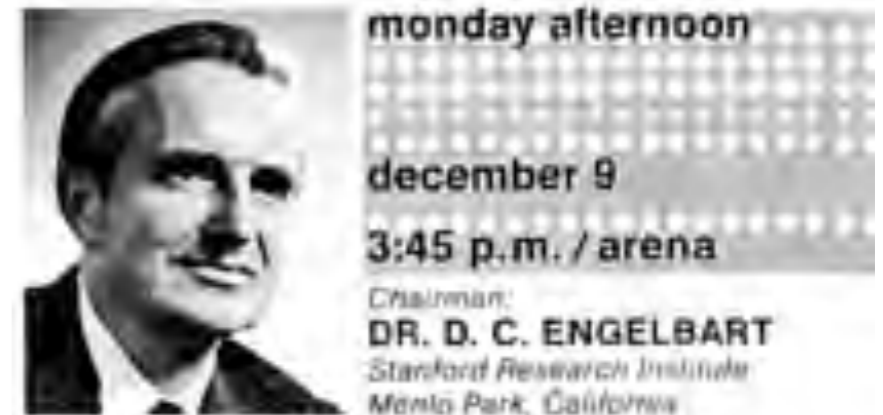
↳ teleconference

↳ distant collaboration

↳ ‘windows’

↳ hypertext

do **better** what we already do,
make **possible** what we do not do **yet**
even if it requires **training**

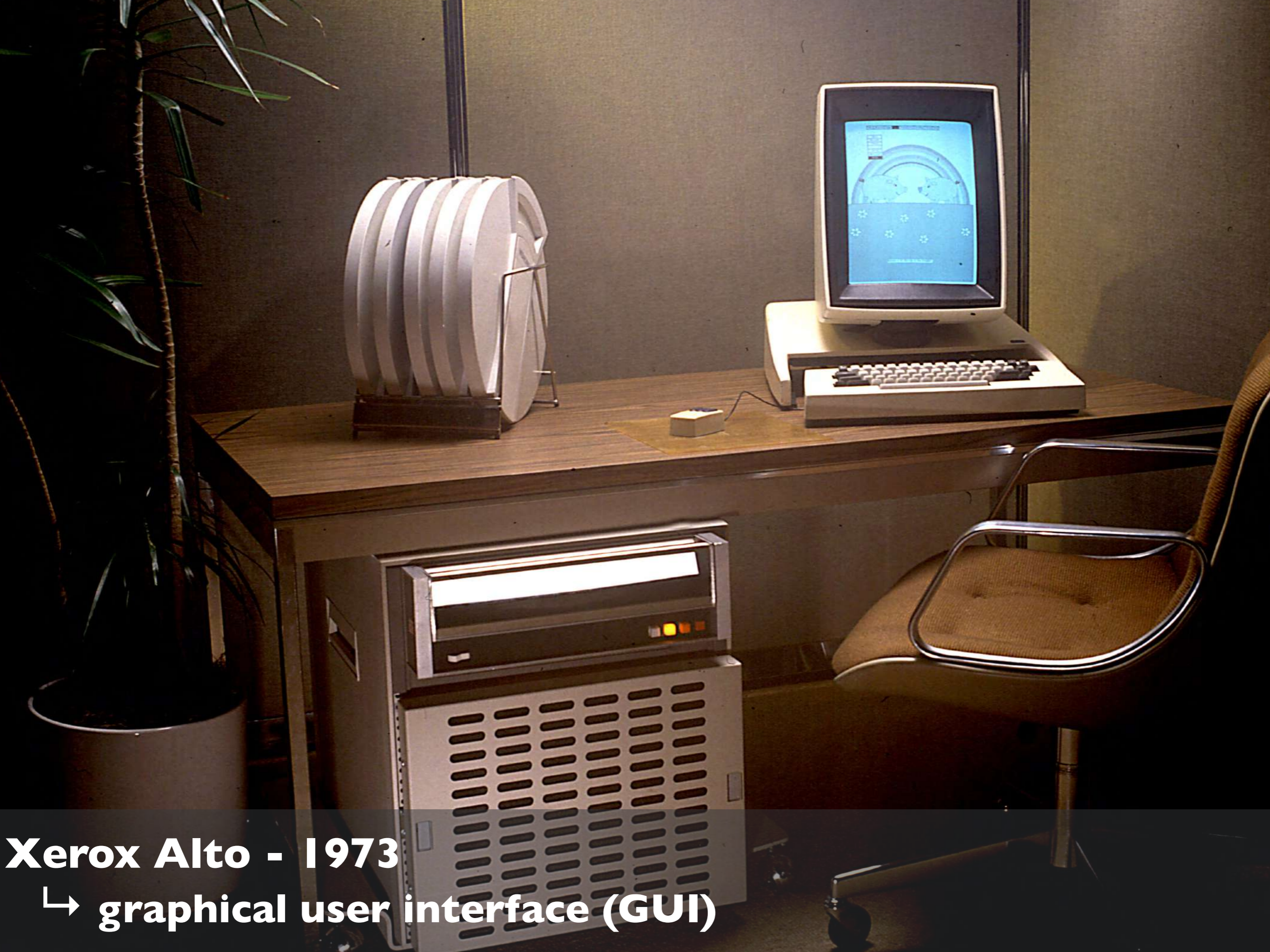


a research center
for augmenting human
intellect

This session is entirely devoted to a presentation by Dr. Engelbart on a computer-based, interactive, multi-console display system which is being developed at Stanford Research Institute under the sponsorship of ARPA, NASA and RADG. The system is being used as an experimental laboratory for investigating principles by which interactive computer aids can augment intellectual capability. The techniques which are being described will, themselves,

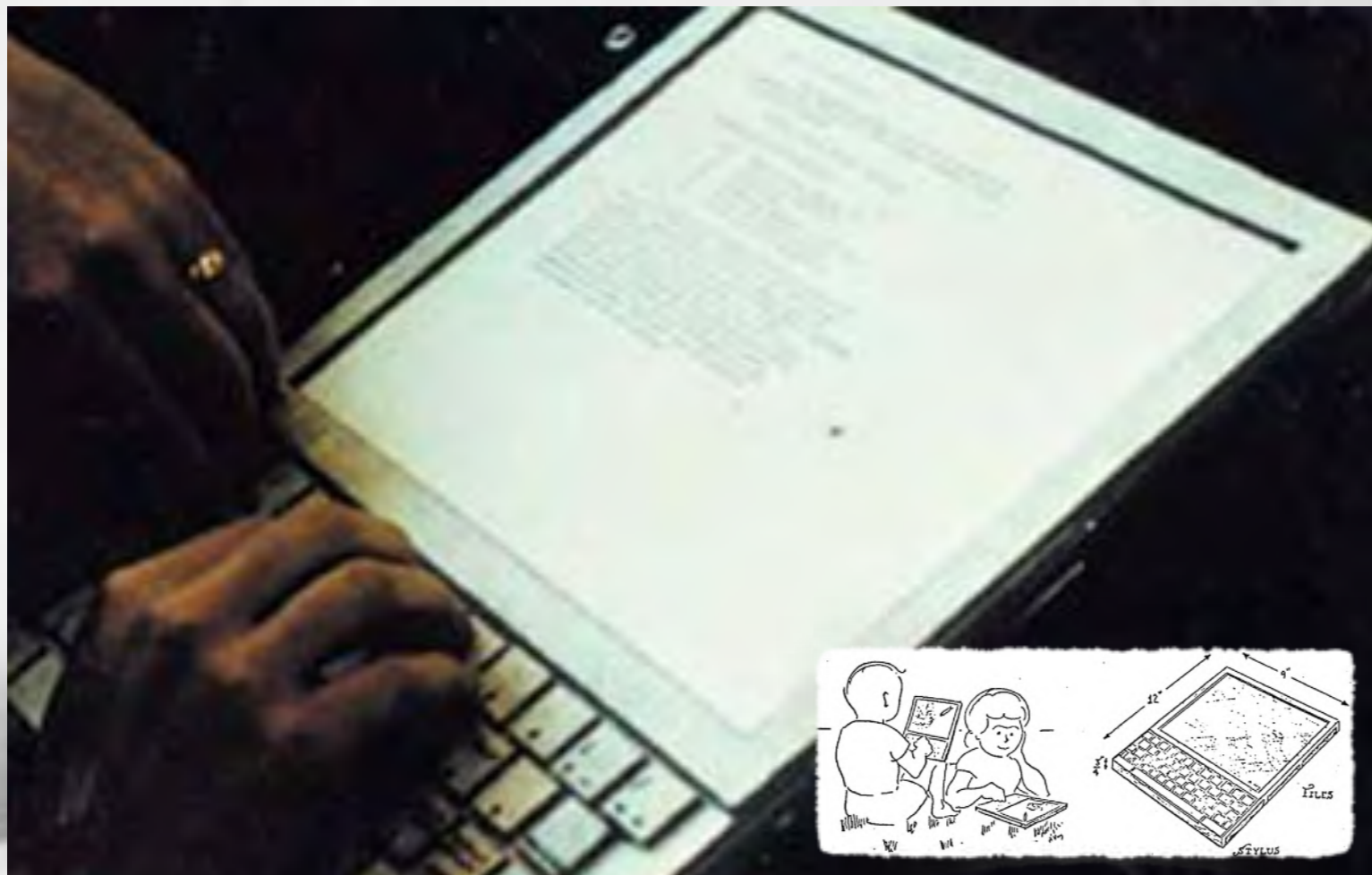
“he sat on stage for an hour and a half dealing lightning with both hands”

Chuck Thacker



Xerox Alto - 1973

↳ **graphical user interface (GUI)**

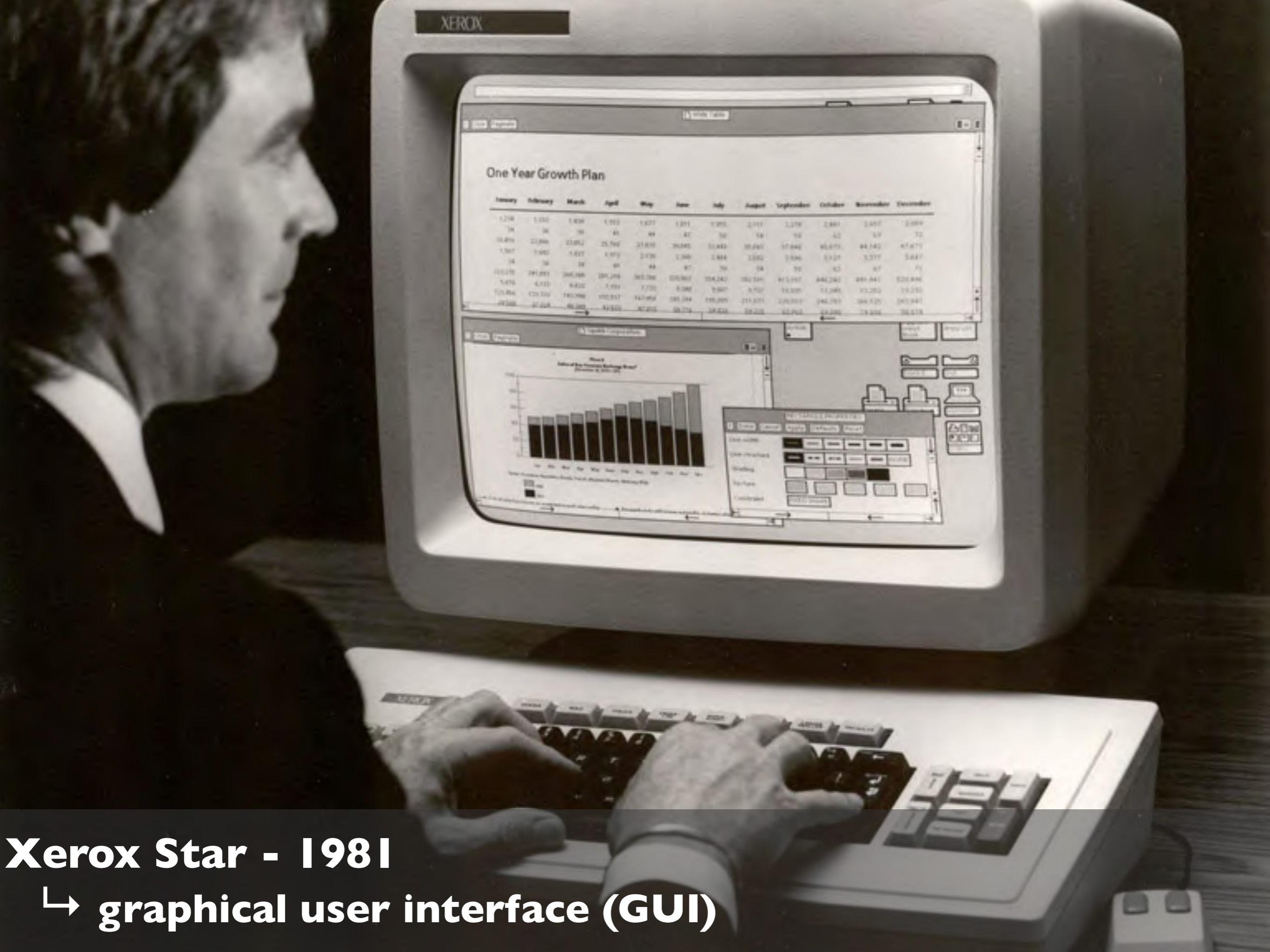


Dynabook

↳ a personal computer for children of all ages - [Kay, 1972]

Alan C. Kay

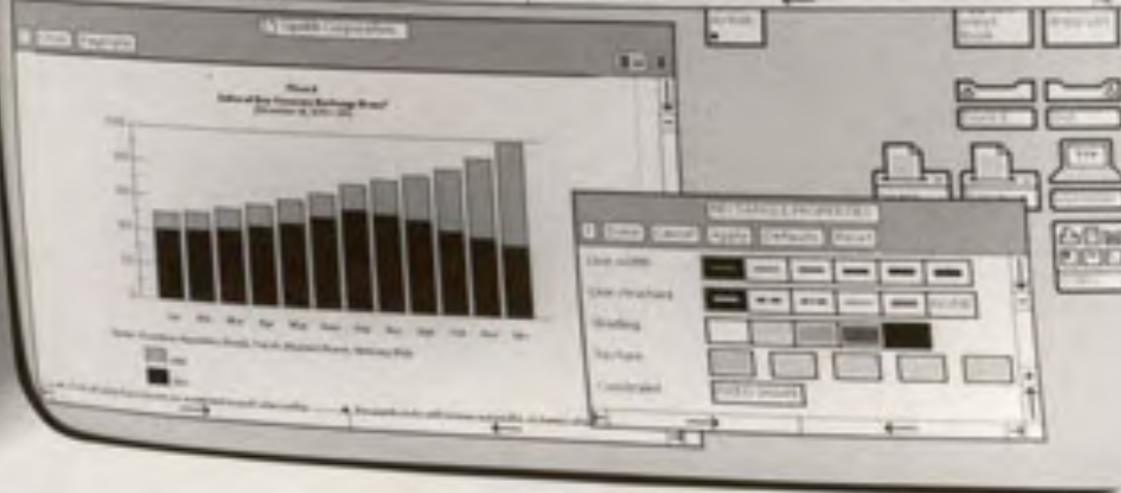
↳ a personal computer for children of all ages - 70s



XEROX

One Year Growth Plan

January	February	March	April	May	June	July	August	September	October	November	December
1,234	1,350	1,450	1,550	1,625	1,711	1,805	1,911	2,019	2,131	2,247	2,369
34	36	38	41	44	47	50	54	58	62	67	72
10,876	11,234	11,612	12,012	12,435	12,884	13,361	13,868	14,407	14,979	15,587	16,234
5,678	5,890	6,123	6,378	6,657	6,961	7,292	7,651	8,039	8,457	8,907	9,391
14	15	16	17	18	19	20	21	22	23	24	25
100,123	101,234	102,345	103,456	104,567	105,678	106,789	107,901	109,012	110,123	111,234	112,345
5,432	5,543	5,654	5,765	5,876	5,987	6,098	6,209	6,320	6,431	6,542	6,653
700,890	701,901	702,912	703,923	704,934	705,945	706,956	707,967	708,978	709,989	710,000	711,011
10,000	10,100	10,200	10,300	10,400	10,500	10,600	10,700	10,800	10,900	11,000	11,100



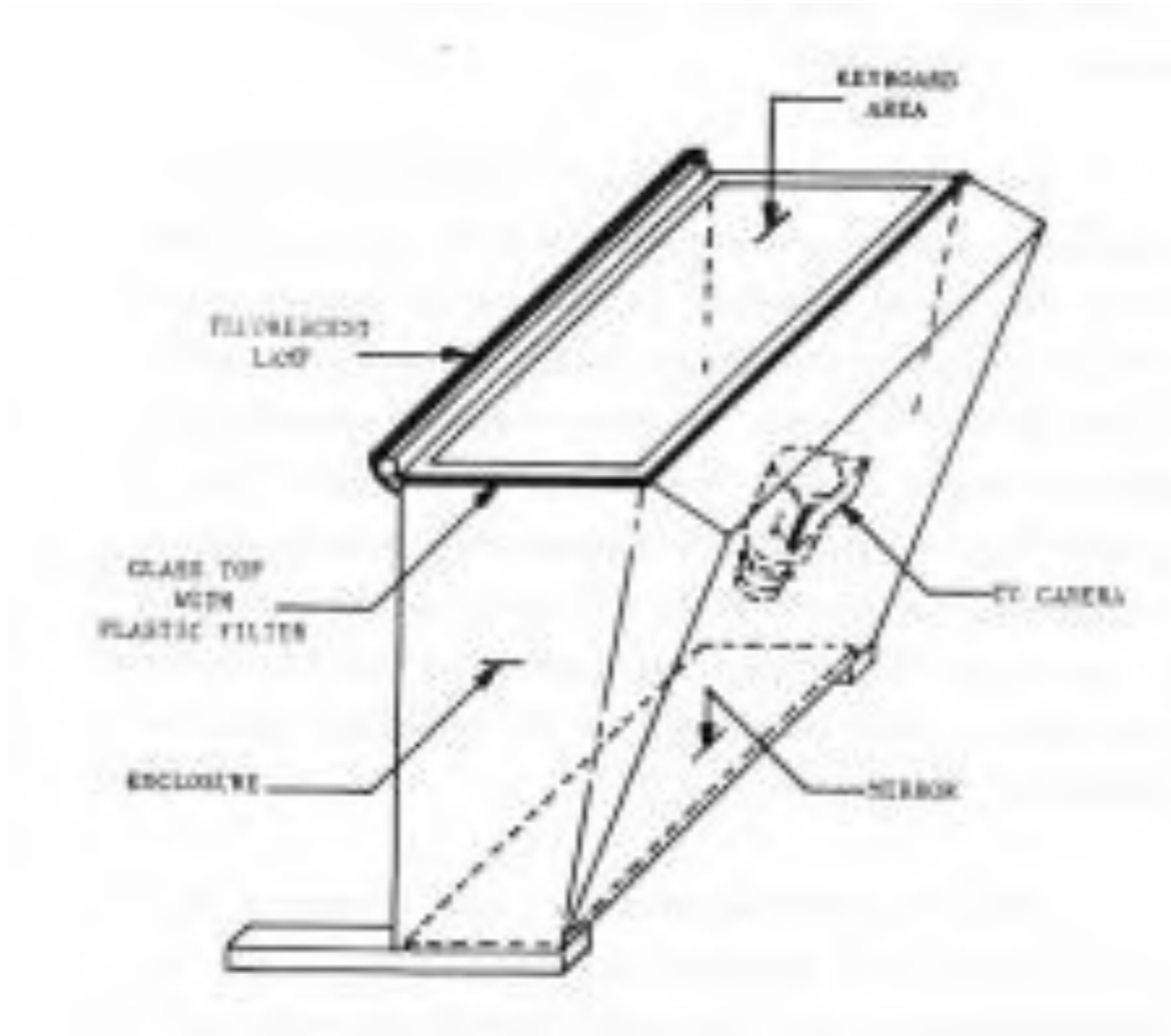
Xerox Star - 1981

↳ graphical user interface (GUI)



Apple iMac - 2012

↳ **(the same) graphical user interface (GUI)**



‘multi-touch’ - [N. Mehta] 1982
↳ **A Flexible Machine Interface**



Simon - IBM & Bell South, 1992

↳ **1st touch 'smartphone'**



interactive tables - ~2000

↳ **MERL Diamond Touch, Microsoft Surface 1st Gen.**



iPhone - Apple, 2007

↳ **begins the era of popular multi-touch smartphones**



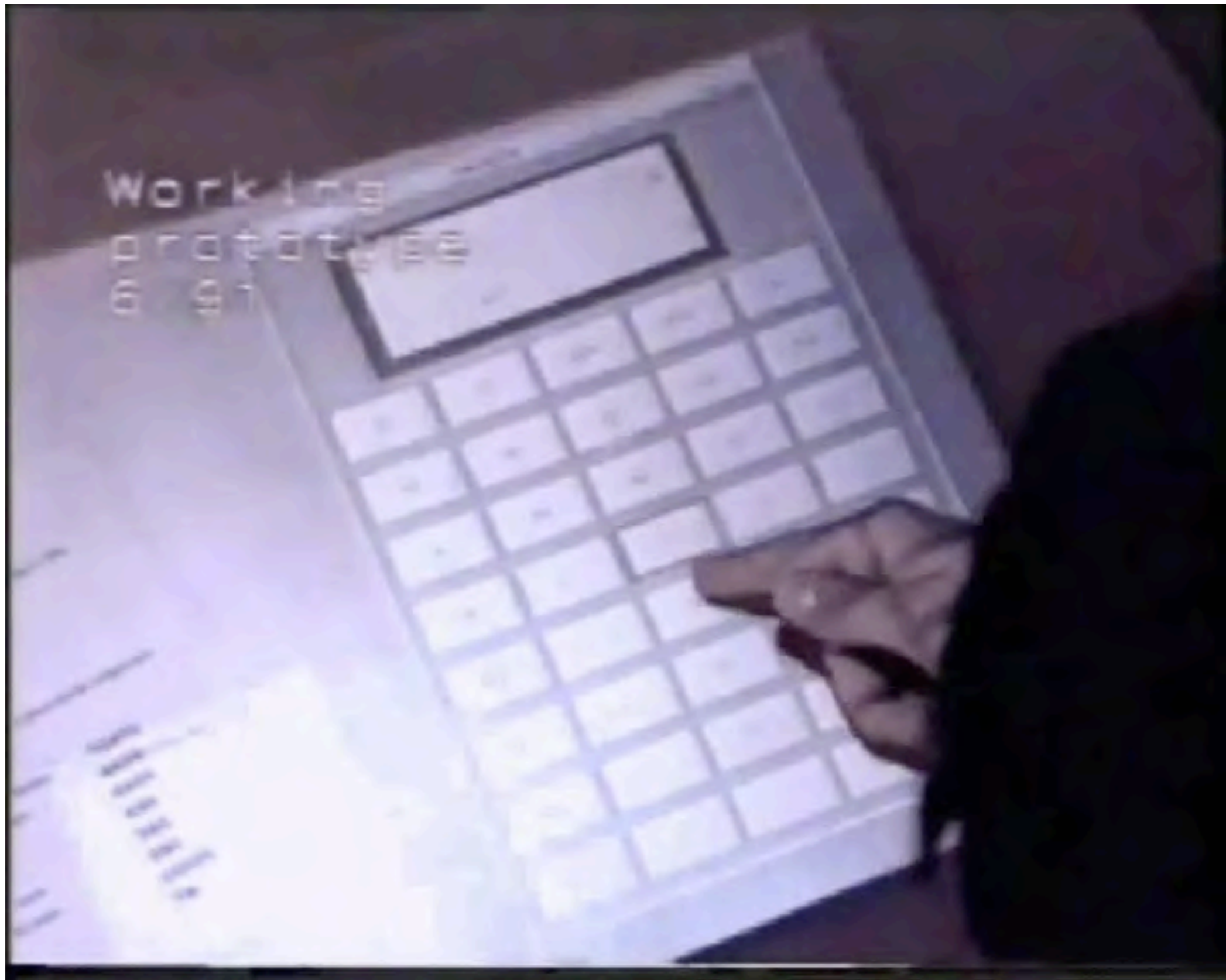
Video Place / Video Desk - [M. Krueger, 1983]

↳ gestural interaction



Kinect - Microsoft, 2010

↳ gestural interaction



Digital Desk - [P. Wellner, 1991]

↳ **augmented reality and tactile/tangible interaction**



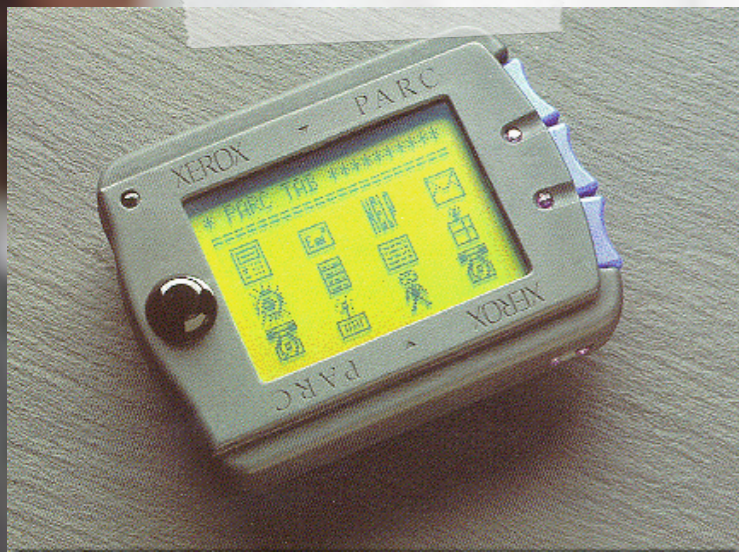
Augmented Surfaces - [J. Rekimoto, 1999]

↳ **mixed reality and tactile/tangible interaction**



‘Embodied Interaction’ - ~2000

↳ **tactile, gestural, tangible, ... interaction**



'Ubiquitous Interaction' - ~2000

↳ **tactile, gestural, tangible, ... interaction**



Mark D. Weiser

↳ **integrating computers seamlessly into the world - ~90s**

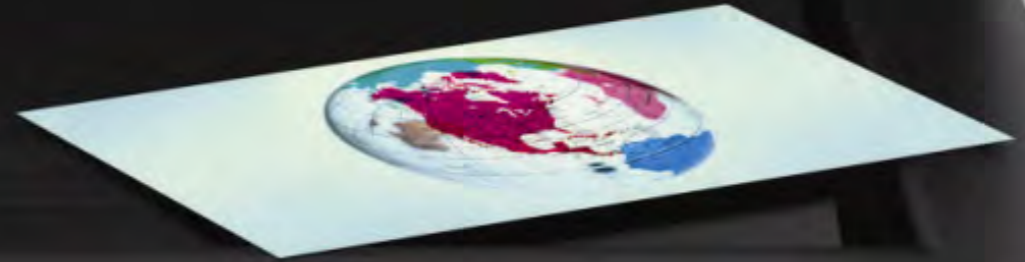
“Ubiquitous computing names the third wave in computing, just now beginning. First were mainframes, each shared by lots of people. Now we are in the personal computing era, person and machine staring uneasily at each other across the desktop. Next comes ubiquitous computing, or the age of calm technology, when technology recedes into the background of our lives.”



Mark D. Weiser

↳ **integrating computers seamlessly into the world - ~90s**

EPSON



On Display/Crop Copies Stop/Clear Settings

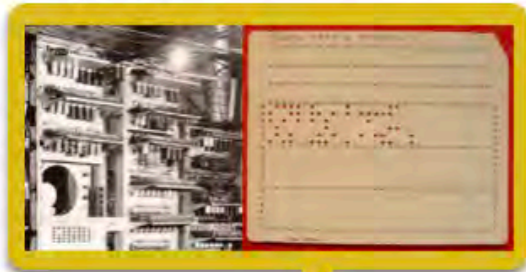
Home View Auto Correct Menu Back

1 symb	2 ABC	3 DEF	Auto	Auto Answer/ Space
4 GHI	5 JKL	6 MNO	Speed Dial/ Group Dial/ Backspace	Start
7 PQRS	8 TUV	9 WXYZ	Redial/Pause	
* 0 #				

WorkForce 600



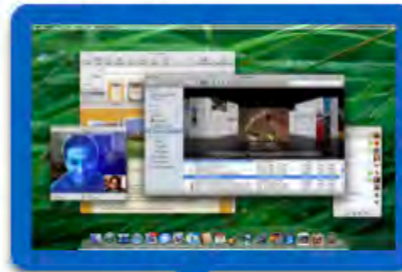
switches
punch cards



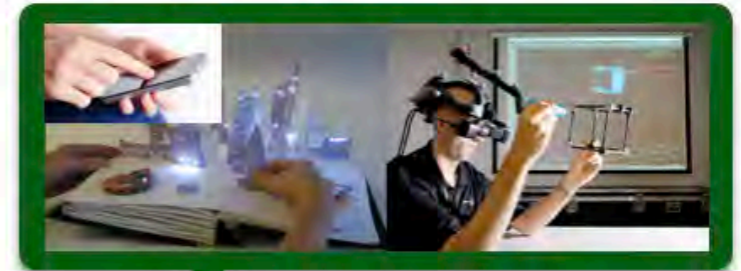
text



graphical



'embodied'
& pervasive



n:1

1:1

1:n

n:n



adapted from [ToCHI special Issue, 2011, ed. [Dourish](#)]

1940

1960

1980

2000

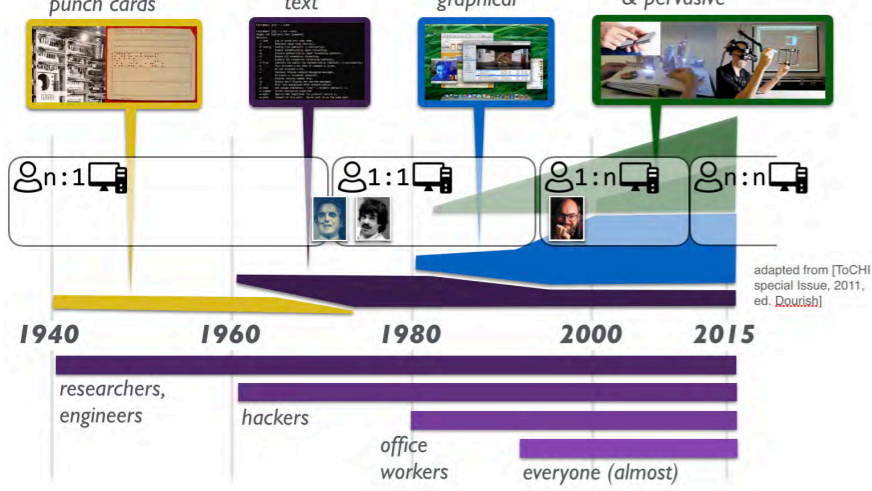
2015

researchers,
engineers

hackers

office
workers

everyone (almost)



back to the future...

↳ a short (subjective and disordered) history of interfaces

... forward to the past?

↳ challenges for research in HCI (and Computer Science ?)



the world is complex

↳ get rid of the myth of “walk-up and use”

what is complexity?

COMPLEX, *Adj.* - Involving a lot of different but related parts: a complex molecule; a complex procedure. Difficult to understand or find an answer to because of having many different parts: a very complex issue; the film's plot was so complex that I couldn't follow it. [Cambridge Dictionary]

Living with Complexity
Donald A. Norman

COMPLEX : state of the world

COMPLICATED : mental / psychological state
leading to confusion

“Modern technology can be complex, but complexity by itself is neither good nor bad: it is confusion that is bad.”

“The major cause of complicated, confusing, frustrating systems is not complexity: It is poor design.”

Bulk Rename Utility

File Actions Display Options Renaming Options Special Help

Bulk Rename Utility

C:\Temp\BRUTEST\new

Name	New Name	Size	Modified
images	images		11/01/2016 12:24:35 PM
Buy.php	Buy.php	3.61 KB	11/01/2016 2:21:25 PM
buynownew.gif	buynownew.gif	771 B	24/01/2014 3:08:54 PM
ccss.gif	ccss.gif	438 B	24/01/2014 3:57:26 PM
Common.php	Common.php	1.21 KB	11/01/2016 12:58:28 PM
Donate.php	Donate.php	2.09 KB	11/01/2016 1:42:43 PM
Download.php	Download.php	7.04 KB	11/01/2016 2:50:00 PM

RegEx (1) **Replace (3)** **Remove (5)** **Add (7)** **Auto Date (8)** **Numbering (10)**

Match Replace First n Last n Prefix Mode at

Include Ext. Match Case From to Insert Type Start Incr.

Name (2) **Case (4)** Digits High Trim D/S Accents Chars Sym. Lead Dots Suffix Word Space Sep. Seg. Break Folder

Move/Copy Parts (6) **Append Folder Name (9)** **Extension (11)**

Name Sep. Levels

Filters (12) **Copy/Move to Location (13)**

Mask Folders Hidden Name Len Min Max Files Subfolders Path Len Min Max

Match Case RegEx Condition Path Copy not Move

Special (14)

Change File Attributes Change File Timestamps Character Translations Javascript Renaming

Status: Not Set Status: Not Set Status: Not Set Status: Not Set

Reset Revert **Rename**

Bulk Rename Utility is **free for personal, non-commercial, home use**. For use in a commercial environment, a commercial license is required. [More Info](#)

18 Objects (1 Selected)

Advanced Renamer 3.78

Refresh Test Batch Auto Test Import Program Folder Panel Help Metadata Undo Previous Batch

Renaming method list

Batch mode: Rename

Start batch

Presets: [dropdown]

1: New Name

New Name: Auto show - - <GPS City> - <GPS>

Default Tags

- <Inc Nr> - Incrementing numbers
- <Inc NrDir> - Incrementing numbers per dir
- <Inc Alpha> - Incrementing letters
- <Name> - File name without extension
- <Ext> - Extension
- <DirName> - Name of the directory
- <Num Files> - Total number of files in the dir
- <Num Dirs> - Total number of subdirs in the dir
- <Num Items> - Total number of items in this list
- <Word> Indexed word of the file name

Apply to: Name


Add batch method

New Name New Case Move Remove Remove pattern
 Renumber Replace Add List List replace Swap Trim
 Attributes Timestamp Script

Filename	New Filename	Error	Path	Dimensions	Date Taken
IMG_0278.JPG	Auto show 2015-12 - Copenhagen - Denmark 001.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	29-12-2015 12
IMG_0279.JPG	Auto show 2015-12 - Copenhagen - Denmark 002.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	29-12-2015 12
IMG_0280.JPG	Auto show 2015-12 - Copenhagen - Denmark 003.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	29-12-2015 12
IMG_0281.JPG	Auto show 2015-12 - Copenhagen - Denmark 004.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	29-12-2015 12
IMG_0282.JPG	Auto show 2015-12 - Copenhagen - Denmark 005.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	29-12-2015 12
IMG_0296.JPG	Auto show 2016-03 - Berlin - Germany 001.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	21-03-2016 15
IMG_0297.JPG	Auto show 2016-03 - Berlin - Germany 002.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	21-03-2016 15
IMG_0643.JPG	Auto show 2017-03 - Geneva - Switzerland 001.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	15-03-2017 12
IMG_0644.JPG	Auto show 2017-03 - Geneva - Switzerland 002.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	15-03-2017 12
IMG_0645.JPG	Auto show 2017-03 - Geneva - Switzerland 003.JPG	OK	C:\Users\kj\Pictures\iCloud Photos\Downloads\	3264x2448	15-03-2017 12

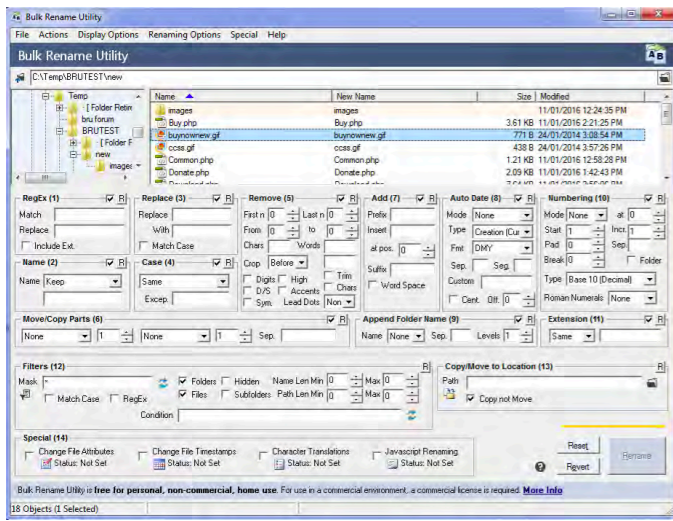
Filename: IMG_0297.JPG
 Directory: C:\Users\kj\Pictures\...\Downloads
 Filetype: JPG File
 Size: 1,8 mb
 Date Created: 26-03-2016 19:50:48
 Date Modified: 26-03-2016 19:51:16
 Date Accessed: 26-03-2016 19:51:08
 Attributes: A---

Dimensions: 3264x2448
 Date Taken: 21-03-2016 15:46:05
 Author:
 Copyright:
 GPS Location: 52.5167, 13.3890
 GPS Accuracy: Unknown



ExifTool...

10 Items 0 Errors Status: OK Registered to Kim Jensen (Personal use)



[© Francisco Inchauste from <http://uxmag.com/articles/the-dirtiest-word-in-ux-complexity>]

where does complexity come from?

where does complexity come from?

FUNCTIONALITIES

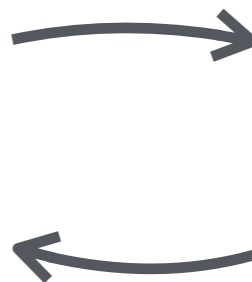
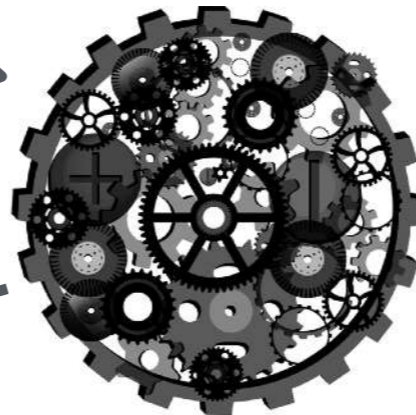


where does complexity come from?

FUNCTIONALITIES



PROCESSES

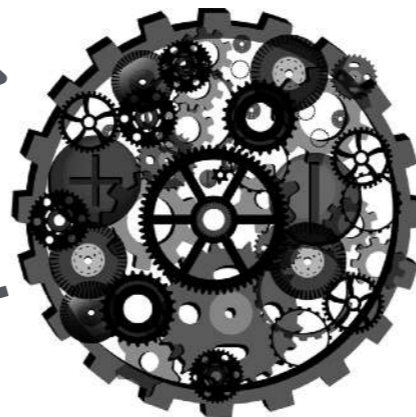


where does complexity come from?

FUNCTIONALITIES



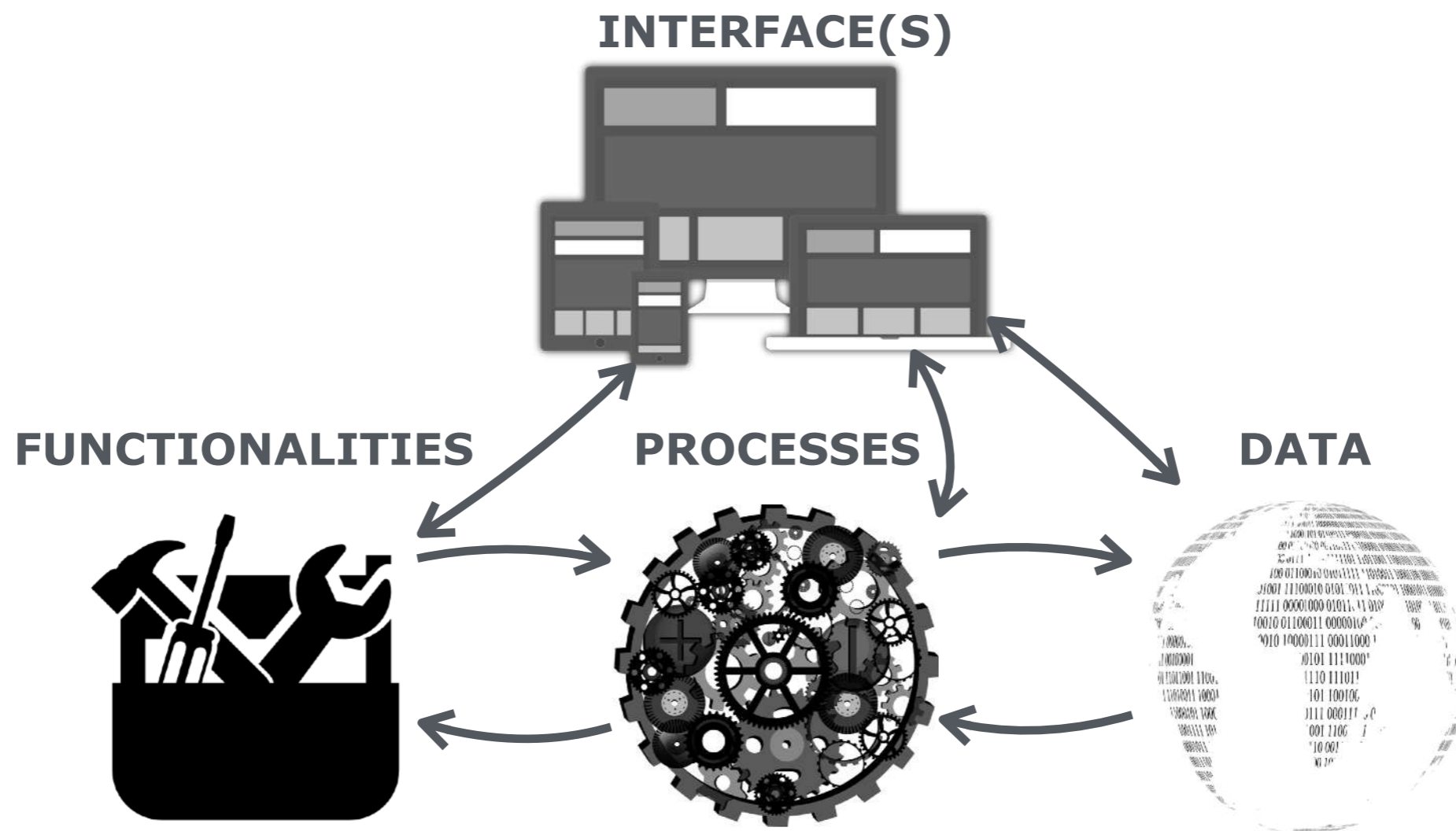
PROCESSES



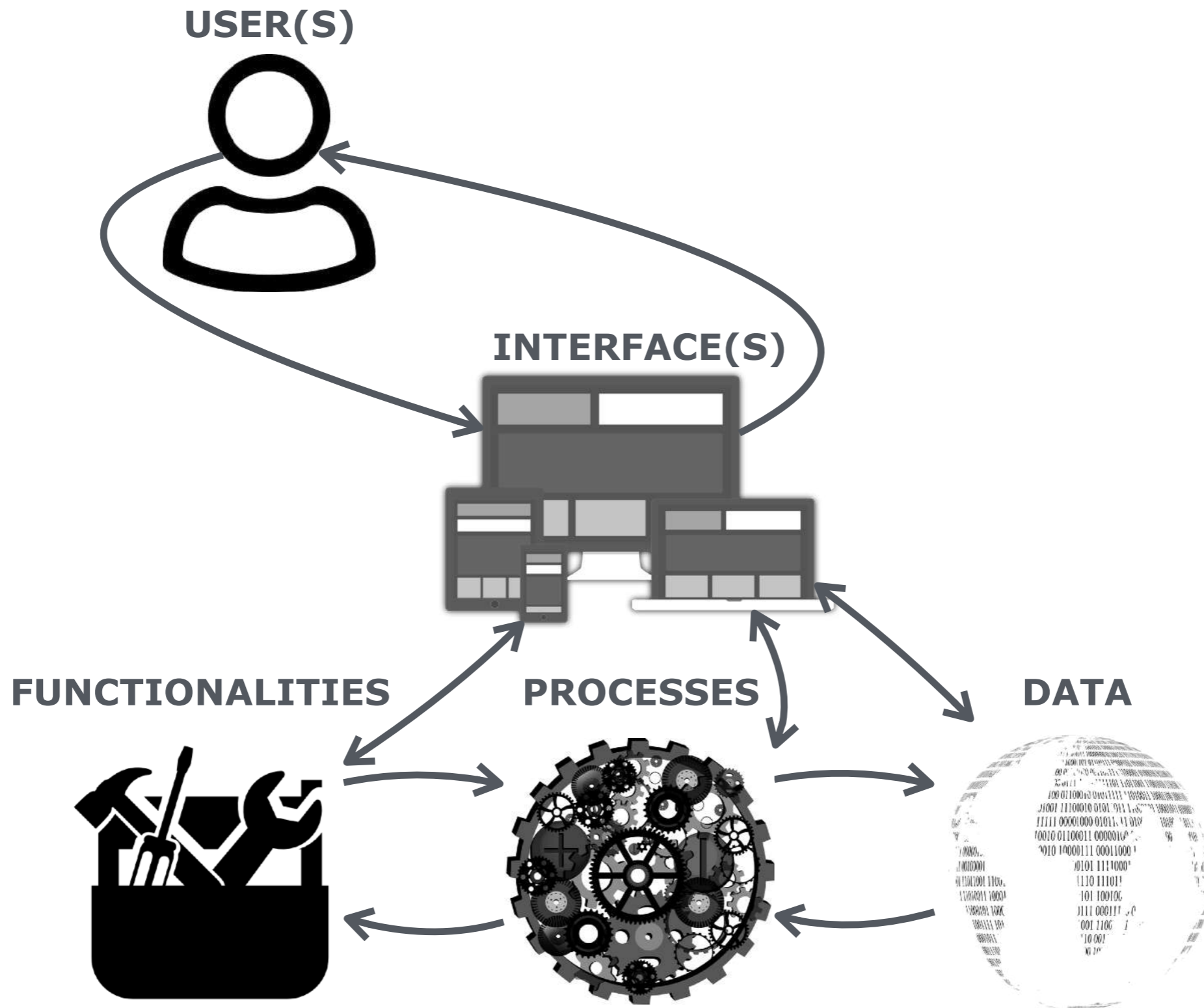
DATA



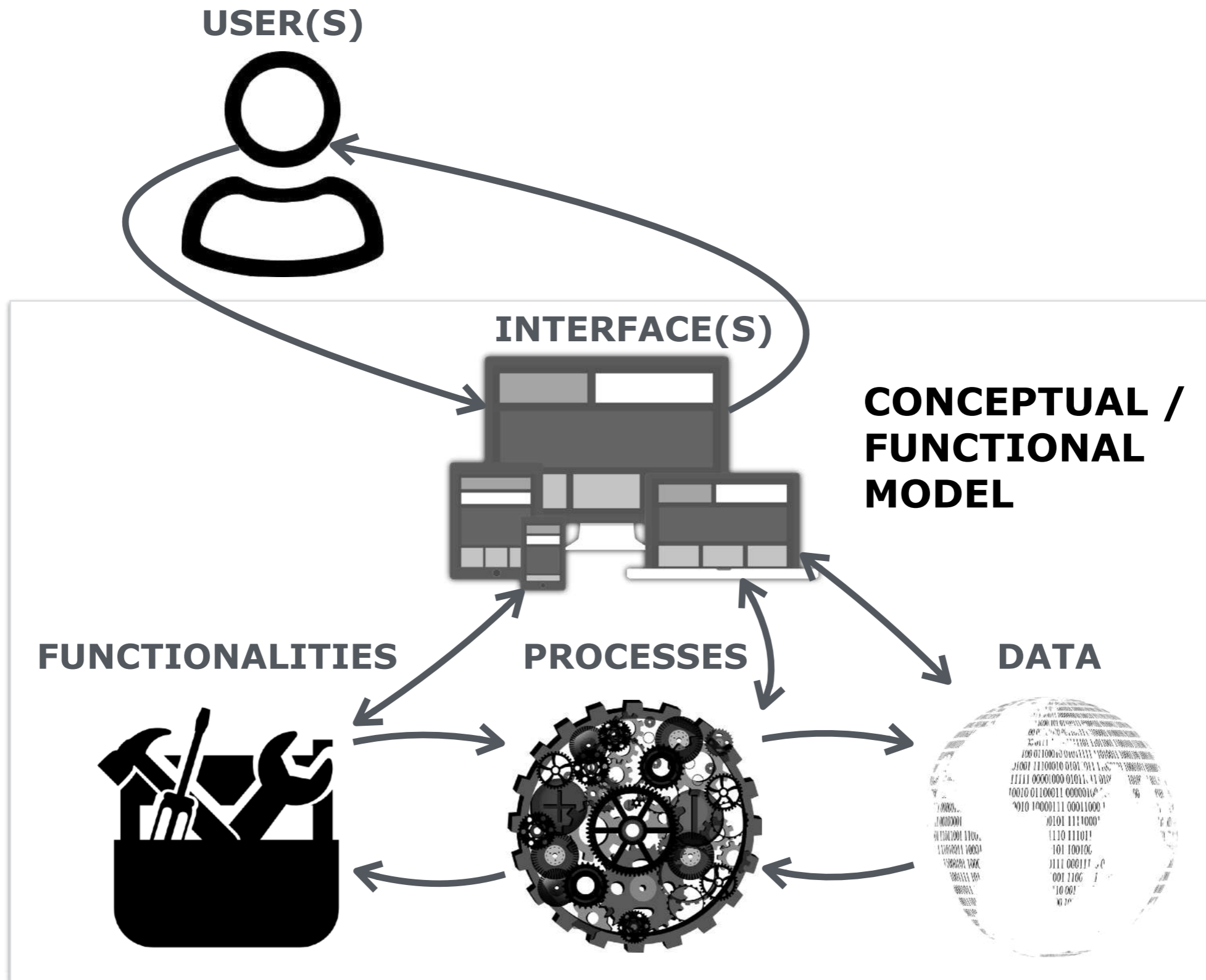
where does complexity come from?



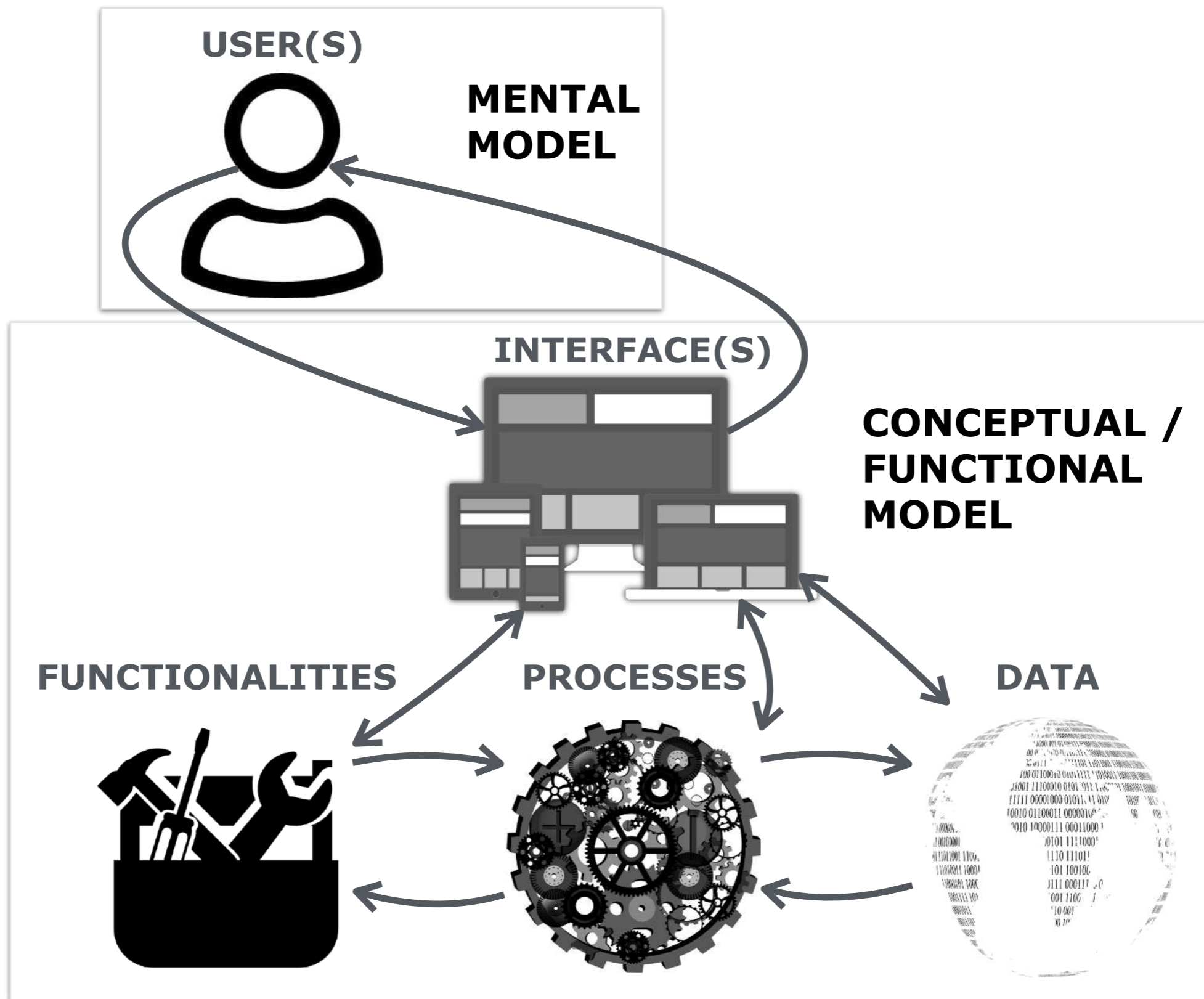
where does complexity come from?



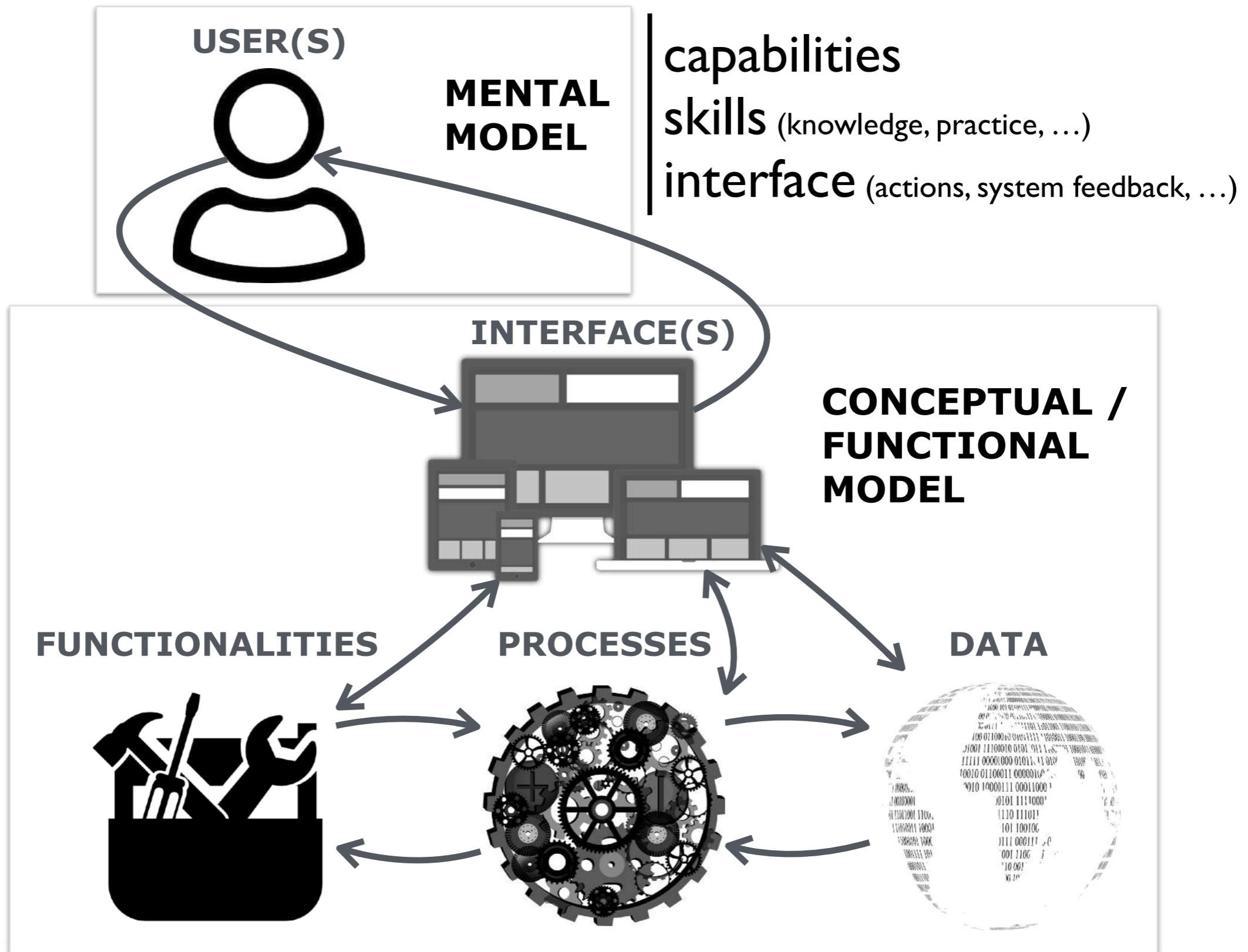
where does complexity come from?

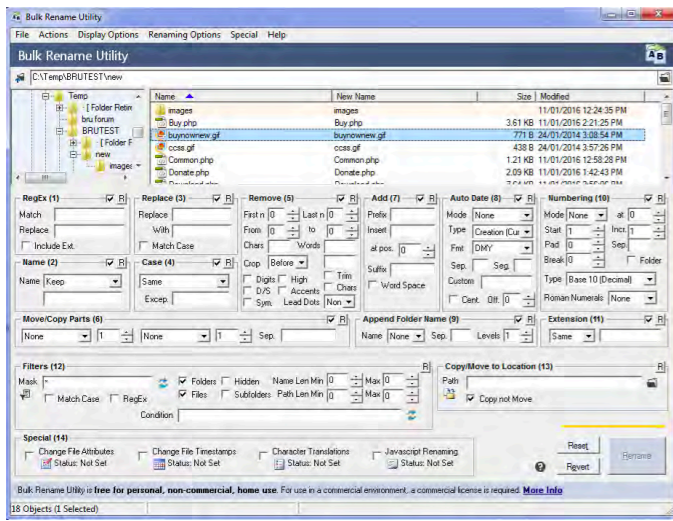


where does complexity come from?



where does complexity come from?





for renaming files



[© Francisco Inchauste from <http://uxmag.com/articles/the-dirtiest-word-in-ux-complexity>]

reduce the complexity

by **design**

↳ avoid Swiss army knives



otherwise, focus on what is needed when it is needed

↳ known and proven design rules & guidelines

reduce the complexity







discovery and mastery of **functionalities**

↳ *what do I want to do? what can I do?*

discovery and mastery of **interactions**

↳ *how can I do it?*

improving **skills**

↳ *would it be profitable to do it another way?*

OctoPocus

A Dynamic Guide for Learning
Gesture-Based Command Sets

Olivier Bau & Wendy E. Mackay
In Situ, INRIA Saclay - LRI

UIST 2008

Skillometers:

Reflective Widgets that Motivate and Help Users to Improve Performance

S. Malacria¹, J. Scarr¹, A. Cockburn¹, C. Gutwin², T. Grossman³

¹*University of Canterbury, Christchurch, New Zealand*

²*University of Saskatchewan, Saskatoon, Canada*

³*Autodesk Research, Toronto, Canada*

Using Rhythmic patterns as an Input Method

CHI 2012

Emilien Ghomi
Guillaume Faure
Stéphane Huot
Olivier Chapuis
Michel Beaudouin-Lafon

Univ. Paris-Sud (LRI)
CNRS
INRIA

presentation of the design



“If ease of use was the only valid criterion, people would stick to tricycles and never try bicycles.”

↳ D. C. Engelbart





the world is not flat (I hope)

↳ some physicality in interaction



HANDS
FEEL THINGS



HANDS
MANIPULATE
THINGS



from [B. Victor, 11]

<http://worrydream.com/ABriefRantOnTheFutureOfInteractionDesign/>



Power grip, fingers vs palm



Precision grip, fingers vs thumb



Hook grip, between phalanges



Scissor grip, between fingers



Power grip to loosen the lid



Precision grip to unscrew it

from [B. Victor, 11]

<http://worrydream.com/ABriefRantOnTheFutureOfInteractionDesign/>

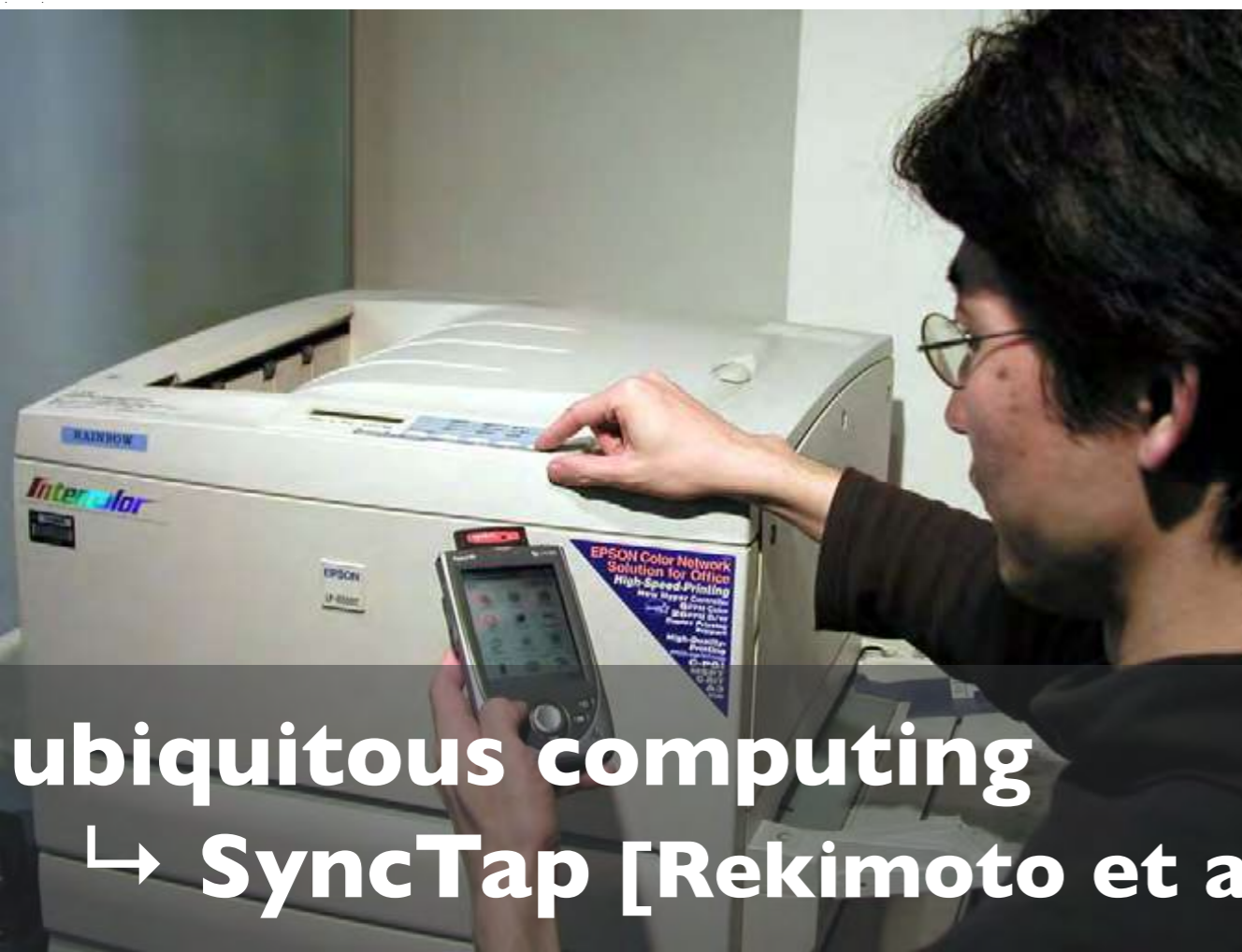


REVEL


Programming the sense of touch

inFORM

Interacting with a dynamic shape display



ubiquitous computing
↳ **SyncTap [Rekimoto et al., 03]**



“There is more information available at our fingertips during a walk in the woods than in any computer system, yet people find a walk among trees relaxing and computers frustrating. Machines that fit the human environment, instead of forcing humans to enter theirs, will make using a computer as refreshing as taking a walk in the woods.”

↳ M. D. Weiser





the world is not frozen (yet)

↳ make interactive system truly adaptable 'tools'



K 100 (G.L.) CANE U1333
512008 UNO

Benjamin Moore

RED

Soft

76
77
78
79
80
81
82
83
84
85
86
87
88

Favorite
D
A
ic
A
D
S
A
D
W
P
D
D
G
Devices
Z

le monde n'est pas figé



le monde n'est pas figé

↳ faire des systèmes interactifs de vrais 'outils'

Invita S. HUOT
↳ Gif - 01|2015

↳ 84

Slide Layout

blank
Change Master

Appearance
 Title
 Body
 Slide Number

Background
 Color Fill

Edit Master Slide

Done

Search

Size Kind Colors

RGB Sliders

Red 0
Green 0
Blue 0

Hex Color # 000000

Opacity 100%

sonus
zuist-hal-1.0

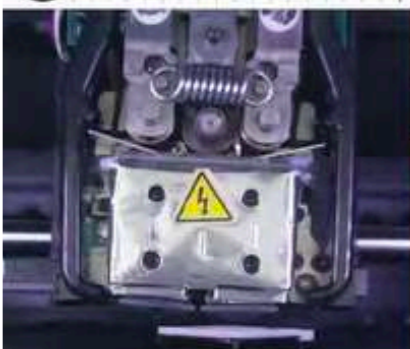
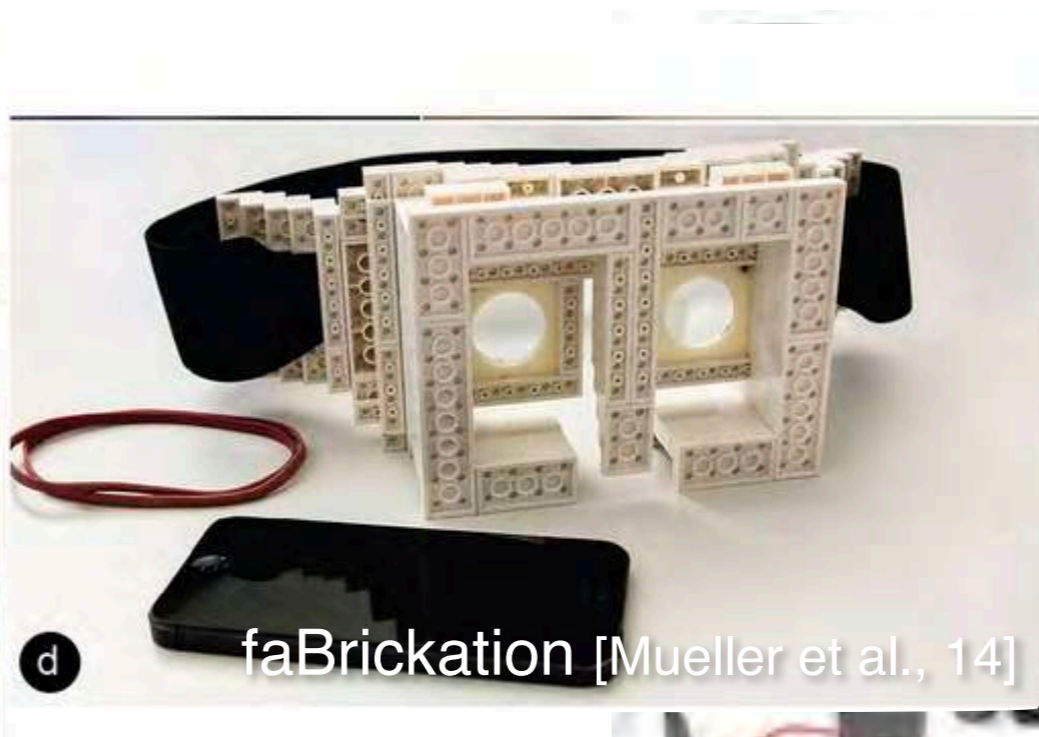
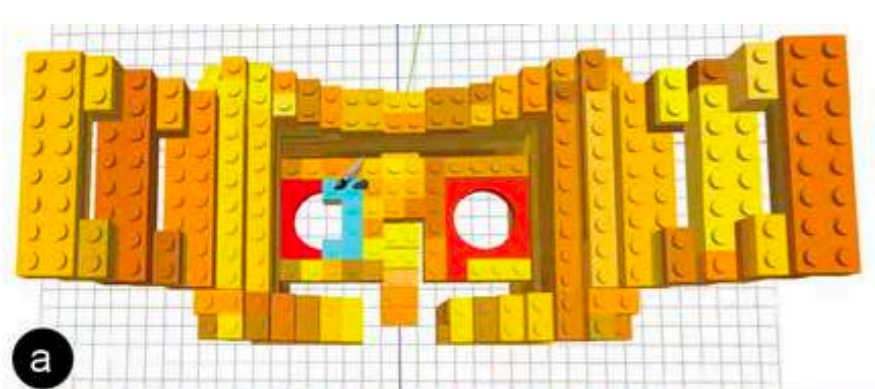
User Interface Façades:

Towards fully adaptable user interfaces

W. Stuerzlinger^{*}, O. Chapuis^{}, D. Philipps^{*} & N. Roussel^{**}**

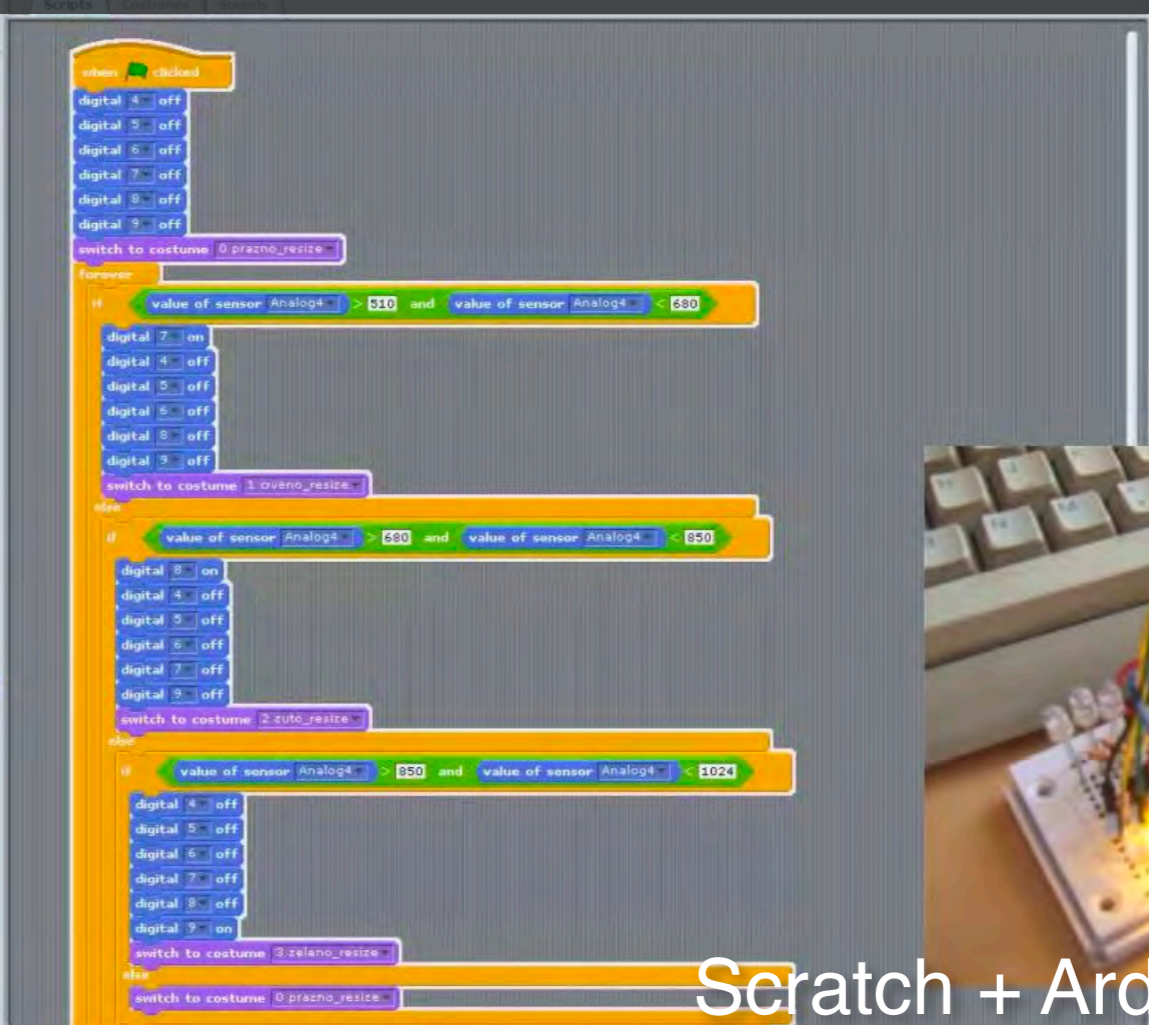
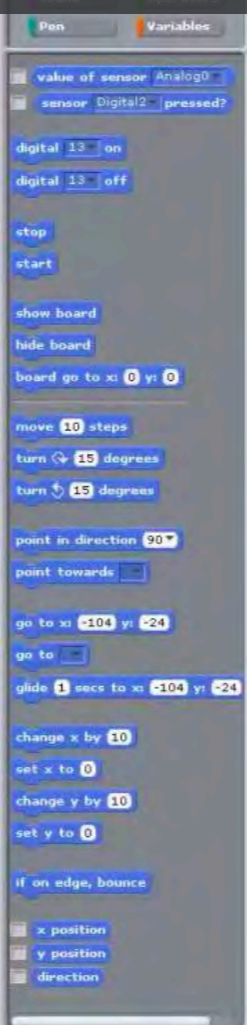
^{*} Interactive Systems Research Group, York University, Canada

^{**} Projet In Situ, CNRS - Université Paris-Sud - INRIA Futurs, France



d faBrickation [Mueller et al., 14]

Digital Fabrication



PrintScreen [Olberding et al., 14]

Scratch + Arduino [S4A]



**“One can imagine one of the first programs
an owner will write is a filter to eliminate advertising!”**

↳ A. C. Kay



the future is not so simple...

↳ transparency and control

“If people don’t understand what these systems are doing, how do we expect people to challenge them?” [dana boyd, 15]
<http://www.danah.org/papers/talks/2015/ParkerLecture.html>

mastering complexity

↳ better understanding and control

physicality

↳ digital objects in the physical world

adaptability

↳ mastering and improving the system

facegle

RechercheFacegle

J'ai de la chance

Facegle disponible en : [English](#)

facegle

gerard berry shad|



gerard berry shadok

RechercheFacegle

J'ai de la chance

[En savoir plus](#)

[Signaler des prédictions inappropriées](#)

facegle gerard berry shadok

Tous Images Vidéos Actualités Shopping Plus Paramètres Outils


Environ 5 800 résultats (0,30 secondes)

science et conscience chez les shadoks par gérard berry
<https://www.franceculture.fr/sciences> ▾
29 sept. 2014 - Le nom des **Shadoks** est connu de toute la France, mais pas les détails de leur étrange existence. Après avoir balayé des racontars sur leur naissance et leur présence dans l'univers, nous étudierons les immenses progrès de leur science, des probabilités élémentaires à la compréhension fine du ...

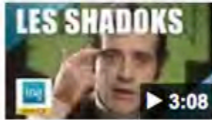
[PDF] Les Shadoks sont ils décervelables?
www-sop.inria.fr/members/Gerard.Berry/Pataphysique/BerryDecervelageShadoks.pdf ▾
Gérard Berry. Déformaticien au Collège de 'Pataphysique. Version 2, 28 septembre 2008. 1. Introduction. L'étrange peuple des **Shadoks** (Image 1) a vécu dans une époque très ancienne, bien avant que les humains ne peuplent la terre, et bien avant même que le Cosmos ne soit convenablement formé et n'ait stabilisé ses ...

Conférence > Science et conscience chez les Shadoks ! | L'aire d'u
<https://www.lairedu.fr/media/video/science-conscience-chez-les-shadoks/> ▾
3 juin 2014 - Le nom des **Shadoks** est connu de toute la France, mais pas les détails de leur étrange existence. Après avoir balayé des racontars ... si nous la regardons de plus près. **Gérard Berry**, Informaticien, Institut National de Recherche en Informatique et Automatique (INRIA), membre de l'Académie des sciences ...


GERARD BERRY - YouTube

 <https://www.youtube.com/watch?v=CBvARhmPIH8> ▾
30 déc. 2014 - Ajouté par Laurence Honnorat
TEMPS INFORMATIQUE, TEMPS MUSICAL - L'influence des théories scientifiques sur le renouvellement des ...

Les Shadoks sont-ils pour les attardés mentaux ? | Archive INA ...

 <https://www.youtube.com/watch?v=C0vTzS068qY> ▾
23 juin 2016 - Ajouté par Shadok Tube (pompé par ina.fr et aaa production)
Abonnez-vous, pompez ici <http://bit.ly/ShadokTube> Les **Shadoks** en DVD <http://boutique.ina.fr/dvd> ...

IF Luxembourg - conférence Gérard Berry - YouTube

 <https://www.youtube.com/watch?v=6QJBCwUalqE> ▾
30 oct. 2015 - Ajouté par Institut français du Luxembourg
Conférence **Gérard Berry**- professeur au collège de France, récompensé en 2014 par la médaille d'or du CNRS.

- ACTUALITÉ
- ENQUÊTES
- SPORTS
- OLYMPIQUES
- MONDE
- SPECTACLES
- ARGENT
- LE SAC DE CHIPS
- AUTO
- JM
- EN 5 MINUTES
- VOYAGES
- OPINIONS
- BLOGUES
- 24 HEURES

ACTUALITÉ SOCIÉTÉ

Un adolescent découvre une cité maya

Le Québécois de 15 ans a fait le lien entre la forme des constellations et la position des villes mayas

f 149,3K PARTAGEZ SUR FACEBOOK PARTAGEZ SUR TWITTER AUTRES



PHOTO LE JOURNAL DE MONTRÉAL, MARTIN CHEVALIER

William Gadoury étudie en 4e secondaire à l'académie Antoine-Manseau de Joliette. Il sera porte-parole de l'Expo-Science pancanadienne à l'Université McGill à Montréal le 18 mai.

MICHEL HARNOIS
Samedi, 7 mai 2016 07:30
MISE à JOUR Samedi, 7 mai 2016 07:30

SAINT-JEAN-DE-MATHA | Un Québécois de 15 ans a découvert une nouvelle cité maya jusque-là méconnue grâce à sa théorie selon laquelle cette civilisation choisissait l'emplacement de ses villes selon la forme des constellations d'étoiles.

LES PLUS POPULAIRES

- SANTÉ**
66\$ pour chaque patient en isolement
- RICHARD MARTINEAU**
Vingt-deux semaines avant l'apocalypse
- ENVIRONNEMENT**
De plus en plus extrêmes
- VIE DE QUARTIER**
Près de 45 000 clients privés d'électricité
- ESSAIS**
Ford F-150: la question à 100 piastres
- FAITS DIVERS**
Une adolescente de 15 ans en fugue à Sherbrooke
- FAITS DIVERS**
Opération policière liée aux Hells Angels en cours
- EN 5 MINUTES**
Les camions électriques du futur
- FAITS DIVERS**
Un parachutiste québécois perd la vie
- FAITS DIVERS**
La famille de la victime est sous le choc
- CANADIEN**



Yves Coppens Notre-Dame-des-Landes Recherche pour le développement 70 ans du magazine
Agriculture



1 SHARES



SCIENCES ET AVENIR > ARCHÉO & PALÉO > ARCHÉOLOGIE

🏠 ARCHÉOLOGIE

Non, un adolescent n'a pas découvert une cité maya

Par Morgane Kergoat le 11.05.2016 à 19h09, mis à jour le 11.05.2016 à 19h09

Un adolescent canadien aurait découvert une nouvelle grande cité maya en établissant un lien avec les constellations. Une jolie histoire... pourtant totalement fausse selon les scientifiques.



Le temple du grand Jaguar à Tikal (cité maya située au Guatemala) est érigé sur un socle pyramidal de 47 m de hauteur. © SUPERSTOCK/SUPERSTOCK/SIPA

SUR LE MÊME SUJET

• **TEOTIHUACAN.**
Le mystère du mercure sous la pyramide du

CANULAR. Un Québécois de 15 ans a découvert une cité maya après avoir élaboré une théorie selon laquelle l'emplacement géographique des cités de cette civilisation précolombienne correspond aux constellations. Il a ainsi

+ LUS + COMMENTÉS + PARTAGÉS



Donner de la viande crue à votre chien ou chat est une mauvaise idée



Première cartographie d'un microcircuit cérébral



Nanoparticules non signalées : l'UFC-Que-Choisir porte plainte



Les nouveaux télescopes chasseurs de planètes mis en service à l'observatoire de La Silla



Les prix du bitcoin ont-ils été manipulés en 2013 ?

NEWSLETTER SCIENCES ET AVENIR

Entrez votre E-mail

JE M'ABONNE



About 5,430,000 results (0.71 seconds)

- ✓
Teen Discovers Lost Maya City Using Ancient Star Maps [Updated]
<https://gizmodo.com/teen-discovers-lost-maya-city-using-ancient-star-maps-17757359...>
 May 10, 2016 - Using an unprecedented technique of matching stars to the locations of temples on Earth, a 15-year-old Canadian student says he's discovered a forgotten Maya city in Mexico. ... Here's how he discovered the lost city: After studying 22 different constellations, Gadoury noticed ...
- ✓
Canadian Teen Who 'Discovered' Lost Maya City Speaks Out
<https://news.nationalgeographic.com/.../lost-maya-city-mexico-william-gadoury-satelli...>
 Jun 2, 2016 - According to the initial report, William Gadoury of Québec was able to align more than 100 Maya cities to maps of modern constellations. When one constellation appeared to be missing its corresponding city, Gadoury turned to specialists to interpret satellite images of the area in an attempt to find the "lost" ...
- ✗
Experts: Teen's 'Discovery' of Maya City is a Very Western Mistake
<https://news.nationalgeographic.com/.../20160511-Maya-Lost-City-Canadian-Teen-Di...>
 May 11, 2016 - For gee-whiz value, the announcement has been hard to beat: A Canadian teenager discovers a lost Maya city without even stepping foot in the Central American jungle. Unfortunately, this "discovery" appears to be the well-intentioned, albeit faulty, result of modern Western education colliding with an ...
- ✗
That Long-Lost Mayan City a Teen Found Isn't Lost ... or a City | WIRED
<https://www.wired.com/2016/05/long-lost-mayan-city-teen-found-isnt-lost-city/>
 May 10, 2016 - How can you resist a headline like "Quebec teen may have discovered long lost Mayan city"? Alas, the story going viral today is too good to be true, according to archaeological experts. The supposed lost pyramid? More likely an abandoned field. This much is true: William Gadoury, now 15, won a contest ...
- ✓
A 15-year-old might have just discovered a lost Maya city in the ...
<https://www.sciencealert.com/a-15-year-old-just-discovered-a-lost-maya-city-in-centra...>
 May 10, 2016 - William Gadoury, a 15-year-old school student from Quebec, Canada, has found something that's been hidden from archaeologists for centuries - what appears to be a lost city of the Maya civilisation, buried deep in the Yucatan jungle of southeastern Mexico. He didn't do it by hiring a bunch of expensive ...
- ✗
Did a teen discover a lost Maya city? Not exactly. - The Washington Post
<https://www.washingtonpost.com/.../did-a-teen-discover-a-lost-mayan-city-not-exactly...>
 May 11, 2016 - It's no fun when a feel-good story has to get debunked, especially when it's a story about a smart, science-loving kid. But, unfortunately, it seems obvious that reports of a Quebec teen "discovering" a lost Maya city have been overblown. William Gadoury, a 15-year-old from Saint-Jean-de-Matha, ...
- ✗
Breaking down the mythical 'Maya city' discovery - CNN
www.cnn.com/2016/05/11/americas/mayan-city-debunk/index.html
 May 11, 2016 - (CNN) We're all suckers for a great story, and "Teen finds lost Maya city" definitely sounds promising. Throw in some ancient cosmology, a little help from the Canadian Space Agency and some satellite sleuthing, and the movie offers practically write themselves. Sadly, the reality may not be as cinematic as ...
- ✓
Forgotten Mayan city: A hidden wonder discovered by a brilliant boy ...
www.independent.co.uk > News > World > Americas
 May 11, 2016 - It seemed almost too good to be true. Using Google Earth and a home computer, a 15-year-old schoolboy discovered the remains of a long-lost Mayan City. William Gadoury, from Quebec, Canada, compared maps of 22 star constellations known to the ancient Maya with Google Earth images of Mexico's ...
- ✓
Forgotten Mayan city 'discovered' in Central America by 15-year-old ...
www.independent.co.uk > News > World > Americas
 May 9, 2016 - A 15-year-old boy believes he has discovered a forgotten Mayan city using satellite photos and Mayan astronomy. William Gadoury, from ... False! A Canadian teen's improbable discovery of a lost Mayan city led to breathless reporting — and an eventual scholarly opinion that the find was not credible.
- Two Ancient Maya Cities Unearthed In Mexican Jungle | IFLScience**
www.iflscience.com/environment/two-ancient-maya-cities-unearthed-mexican-jungle/
 When the researchers compared the façade with Von Euw's illustrations it was clear that the city discovered was indeed the long lost Lagunita. According to Sprajc, the façade represents a Maya earth deity associated with fertility. "These doorways symbolize the entrance to a cave and, in general, to the watery underworld," ...

Showing 20 different perspectives

Who 'Discovered' Lost Maya City Speaks Out
<http://www.nationalgeographic.com/.../lost-maya-city-mexico-william-gadoury-satellite>
 According to the initial report, William Gadoury of Québec was able to sign more than 100 ancient Maya cities to maps of modern constellations. When one constellation appeared to be missing in the region, Gadoury turned to specialists to interpret satellite images of the area in an attempt to find the "leaf" ...

Experts: Lost Maya City is a Western Mistake
<https://news.11-Maya-City-Canadian-Teen-Discovers-Lost-City-in-Central-Mexico>
 May 11, 2016
 A Canadian teenager discovers a lost Maya city in the American jungle. Unfortunately, this discovery is a result of modern Western education colliding with a ...

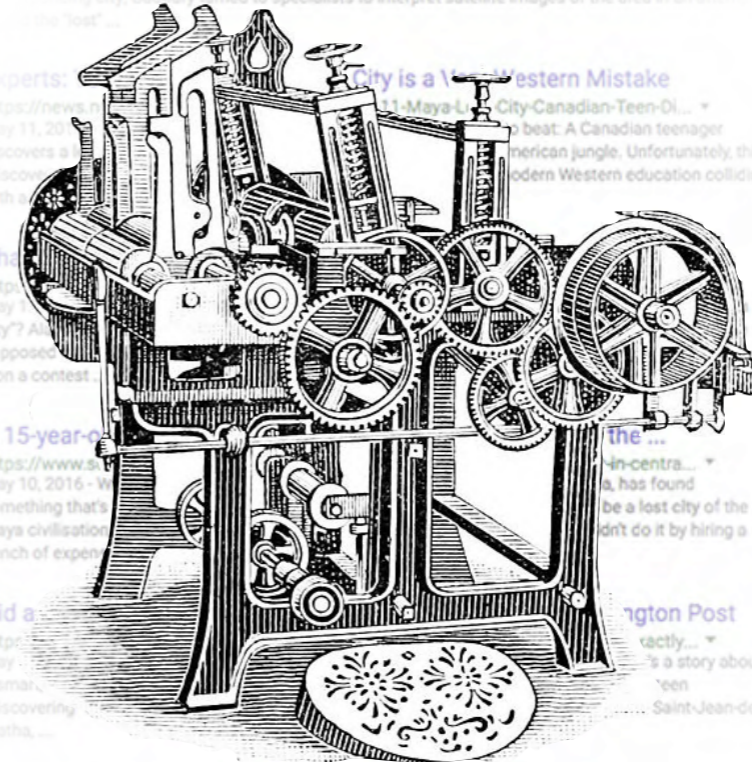
The 'Lost Maya City' is a Western Mistake
<http://www.fox.com/2016/05/11/lost-maya-city/>
 May 11, 2016
 A Canadian teenager discovers a lost Maya city? All supposed to be a Western mistake won a contest ...

A 15-year-old Canadian teenager discovers a lost Maya city
<https://www.southcoasttoday.com/d/16-05/16-0511may16a.html>
 May 10, 2016 - William Gadoury, 15, has found something that's been lost for centuries. He discovered a bunch of expert ...

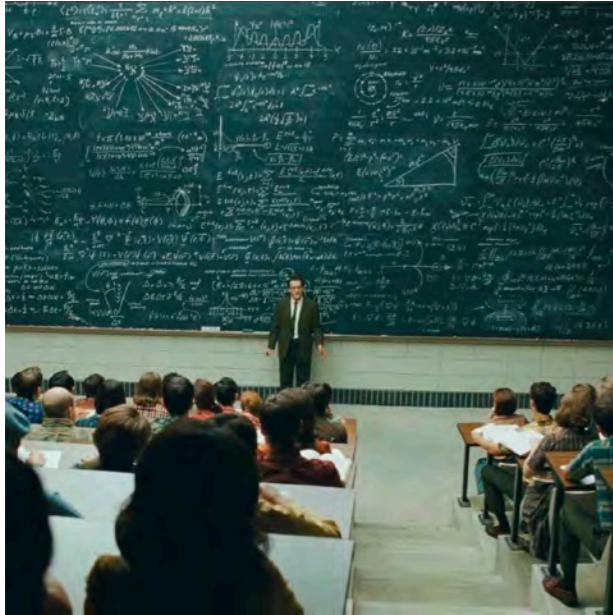
Did a 15-year-old Canadian teenager discover a lost Maya city?
<http://www.fox.com/2016/05/11/lost-maya-city/>
 May 11, 2016
 A Canadian teenager discovers a lost Maya city? All supposed to be a Western mistake won a contest ...

Breaking down the mythical 'Maya city' discovery - CNN
<http://www.cnn.com/2016/05/11/americas/mayan-city-debunk/index.html>
 May 11, 2016 - (CNN) We're all suckers for a great story, and "Teen finds lost Maya city" definitely is one. It's promising. Throw in some ancient cosmology, a little help from the Canadian Space Agency and some amateur sleuthing, and the movie offers practically write themselves. Sadly, the reality may not be ...

Maya city: A hidden wonder discovered by a brilliant teen
<http://www.fox.com/2016/05/11/lost-maya-city/>
 May 11, 2016
 A Canadian teenager discovers a lost Maya city? All supposed to be a Western mistake won a contest ...



explanations



facegle lost maya city

All News Maps Images Videos More Settings Tools

About 5,430,000 results (0.71 seconds)

Who 'Discovered' Lost Maya City Speaks Out

City is a Western Mistake

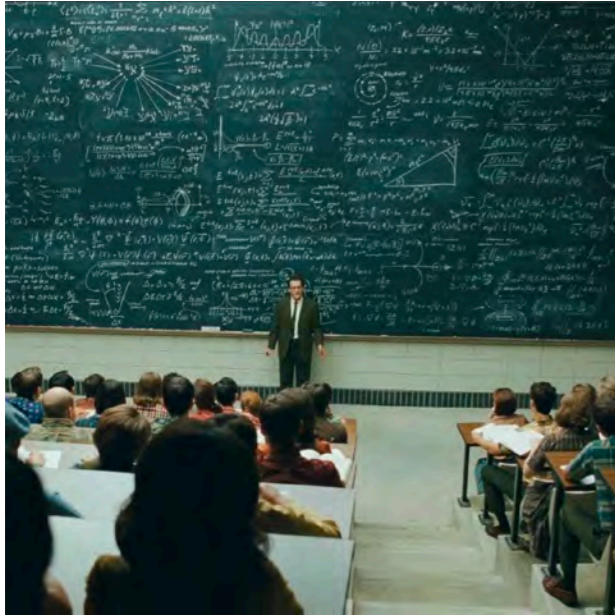
A 15-year-old

Did a

Breaking down the mythical 'Maya city' discovery - CNN

Mayan city: A hidden wonder discovered by a brilliant

explanations



comprehension



facegle lost maya city

All News Maps Images Videos More Settings Tools

About 5,430,000 results (0.71 seconds)

Who 'Discovered' Lost Maya City Speaks Out

City is a Western Mistake

A 15-year-old

Breaking down the mythical 'Maya city' discovery - CNN

Maya city: A hidden wonder discovered by a brilliant



Profile

- 5775 words
- 85 contributors ?

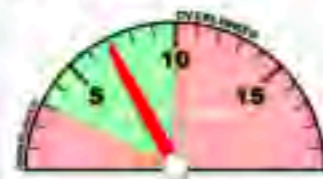


- History ?



25/01/03 02/04/06

- 198 Wiki links ?



- 4150 words in the discussion ?

Survey

Help

Navigation

- article**
- discussion
- edit
- history
- protect
- delete
- move
- watch

The Beatles

From Wikipedia, the free encyclopedia

(Redirected from [The beatles](#))

*This article is about the band. For their self-titled album also known as *The White Album*, see [The Beatles \(album\)](#).*

The Beatles were an [English](#) musical group from [Liverpool](#) whose members were [John Lennon](#), [Paul McCartney](#), [George Harrison](#), and [Ringo Starr](#). They are one of the most commercially successful and critically acclaimed bands in the world.

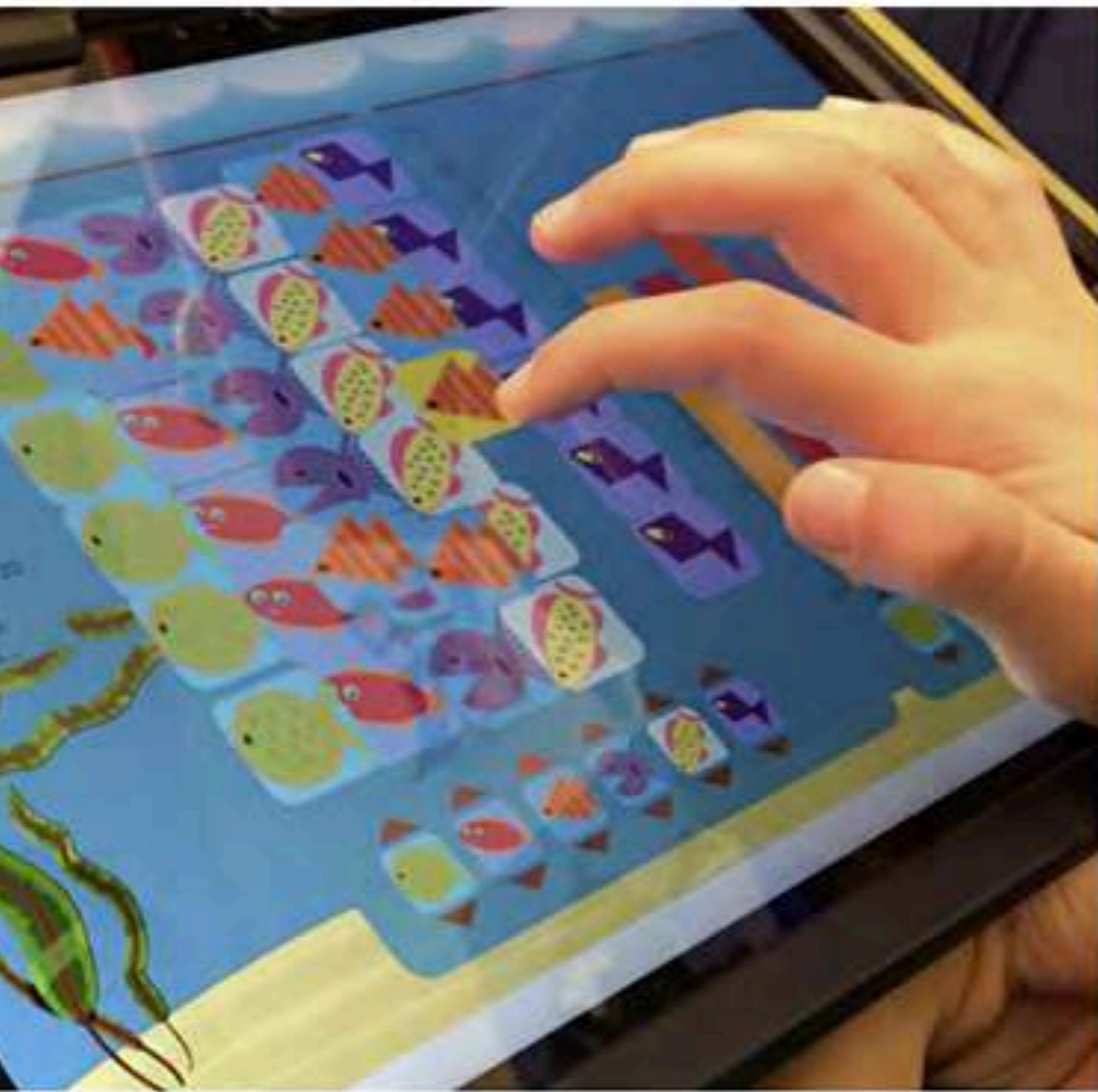
The Beatles are the best-selling [musical act](#) of all time in the [United States of America](#), according to [RIAA](#), which certified them as the highest selling band of all time based on [American](#) sales of single and album. In the [United Kingdom](#), The Beatles released more than 40 different [singles](#), [albums](#), and [EPs](#) that reached number one. They have also been repeated in many other countries: their record company, [EMI](#), estimated that by 1985 they had sold 1 billion records worldwide.^[4] In 2004, *Rolling Stone* magazine ranked The Beatles #1 on its list of 100 Greatest Artists of All Time. The same magazine, their innovative music and cultural impact helped define the 1960s,^[2] and their influence is still felt today.

The Beatles led the mid-1960s musical "[British Invasion](#)" into the United States. Although their initial [rock and roll](#) and homegrown [skiffle](#), the group explored [genres](#) ranging from [Tin Pan Alley](#) to [psychedelic rock](#). Their statements made them trend-setters, while their growing social awareness saw their influence extend beyond music throughout the 1960s. Many people today still see them as the "best band there ever was."

Contents [hide]

- 1957–1960: Formation
- Musical influences
- 1960–1970: The Beatles
 - 1 Hamburg
 - 2 Record contract
 - 3 America
 - 4 Beatlemania crosses the Atlantic
 - 5 Backlash and controversy

WikipediaViz [Chevalier et al., 10]



C'est la Vis [Alper et al., 17]

control



(semi-)autonomy vs (semi-)control

COMPREHENSION

TAKING OF CONTROL

ACTION

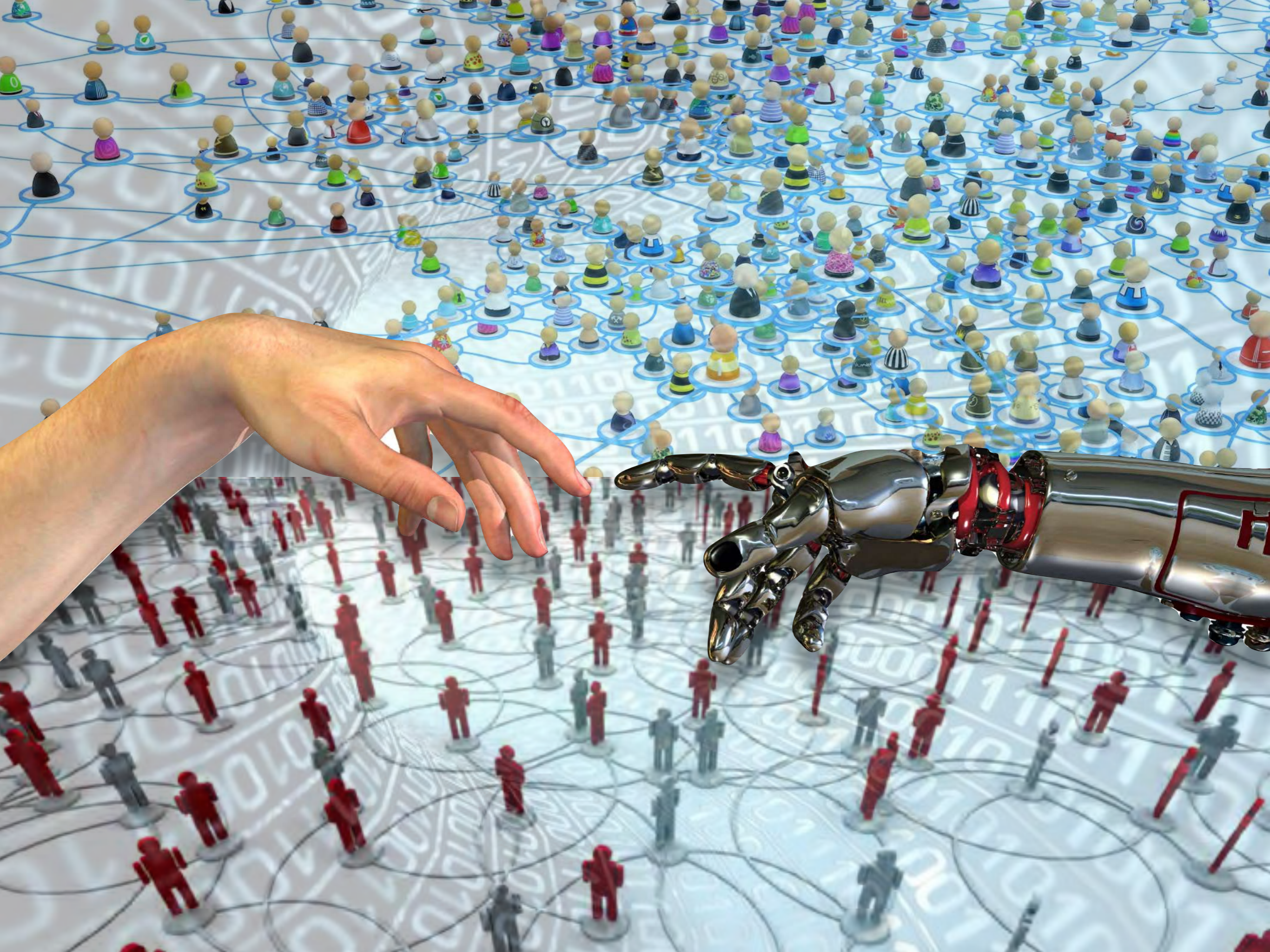


ASSISTANT



TOOL

**PERCEPTION OF CONTROL
(AGENCY)**



remerciements

LIG - E. Gaussier, S.Amer-Yahia, J. David, R. Lachaize

quelques slides et idées inspirés par

Nicolas ROUSSEL

Inria Bordeaux

Wendy MACKAY

Inria Saclay

Michel BEAUDOUIN-LAFON

Université Paris-Sud

l'article

'Douglas ENGELBART, inventeur et visionnaire'

[Jonathan ACEITUNO et Nicolas ROUSSEL, Interstices, 2013]

https://interstices.info/jcms/ni_76304/douglas-engelbart-inventeur-et-visionnaire

les membres de l'équipe **Loki**@Inria Lille Nord-Europe

<http://loki.lille.inria.fr/>



Loki
-technology & knowledge for interaction

@Inria Lille Nord-Europe

