

***AI AND ACADEMIA:
TUNING EDUCATIONAL PROGRAMS
WITH THE PROFESSIONAL SKILLS
OF THE FUTURE***

**The Business World: How the Offer Changes in Light of New AI
Skills**

Leonardo Quattrocchi

PRESENTATIONS

- Leonardo Quattrocchi
- **email lquattrocchi@luiss.it**
- My Background

Graduated in Mechanical Engineering at “La Sapienza” University, Rome in 1978

Chartered Graduate Engineer since 1979

2nd Session of Istituto Alti Studi per la Difesa (Master degree) at CASD (Centro Alti Studi per la Difesa), Rome

18th Session of European Directors of Armament (SERA), at the Ecole Militaire, Paris

In 2010 I received by the President of the Italian Republic, the “Stella al Merito del Lavoro” (honorary decoration in recognition of work service)

Vice President of the Italian Institute for Navigation

Member of the Technical Advisory board of OSDIFE (security, defense and risks of CBRNe)

Since 1980, wide experience in industries of various types, from electro-mechanical systems, to food and professional electronics, in various Countries (Italy, UK, USA, UAE) in charge of different functions such as

- Sales Area Manager (Middle East, North America)
- Director of Marketing of a Business Unit
- Director of Strategy at Corporate level in a Joint Venture with a primary British company
- Director of Marketing & Business Development at Corporate level
- Senior Vice President of External Relations & Marketing at Corporate level
- Senior Vice President at Corporate level of Marketing Strategy

Since 2015 in LUISS Business School, Adjunct Professor (management of technologies, innovation), consulting for various companies (software, services, skill training..) and for various EU Projects

WE'LL TALK OF AI, JOBS TRENDS, BUT WELL ALSO TAKE SUGGESTIONS FROM...

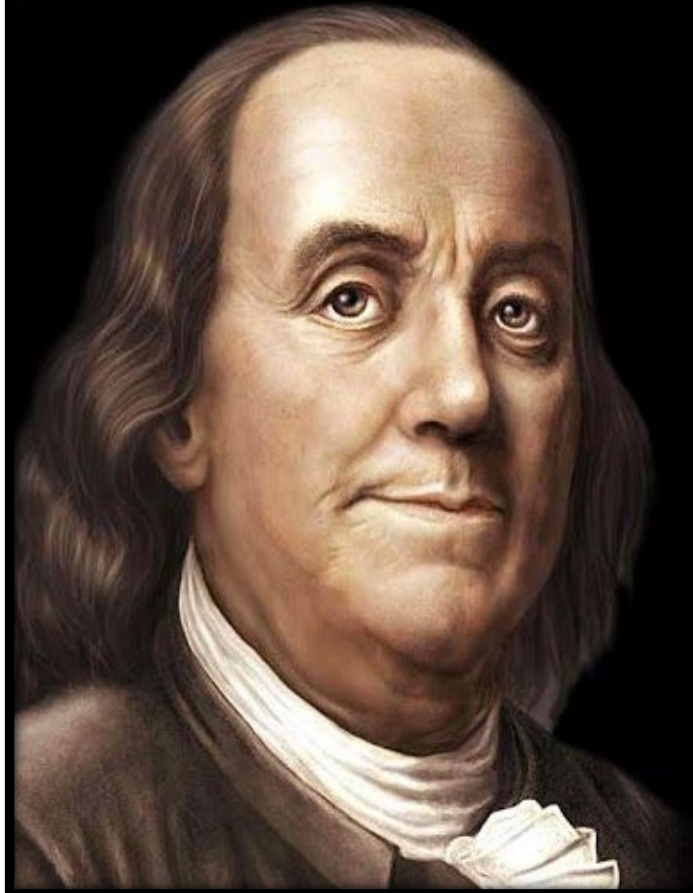


..ECONOMISTS...



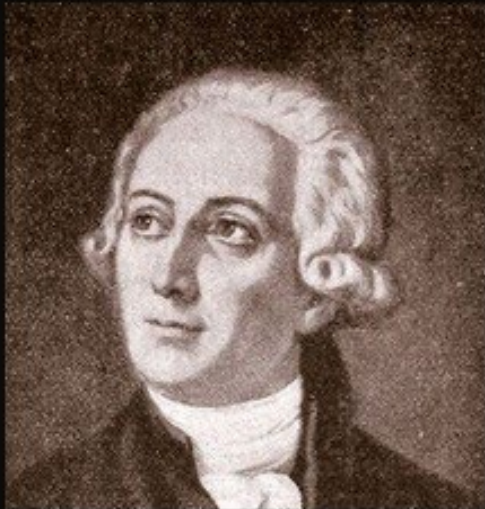
Milton Friedman

..INVENTORS...



Benjamin Franklin

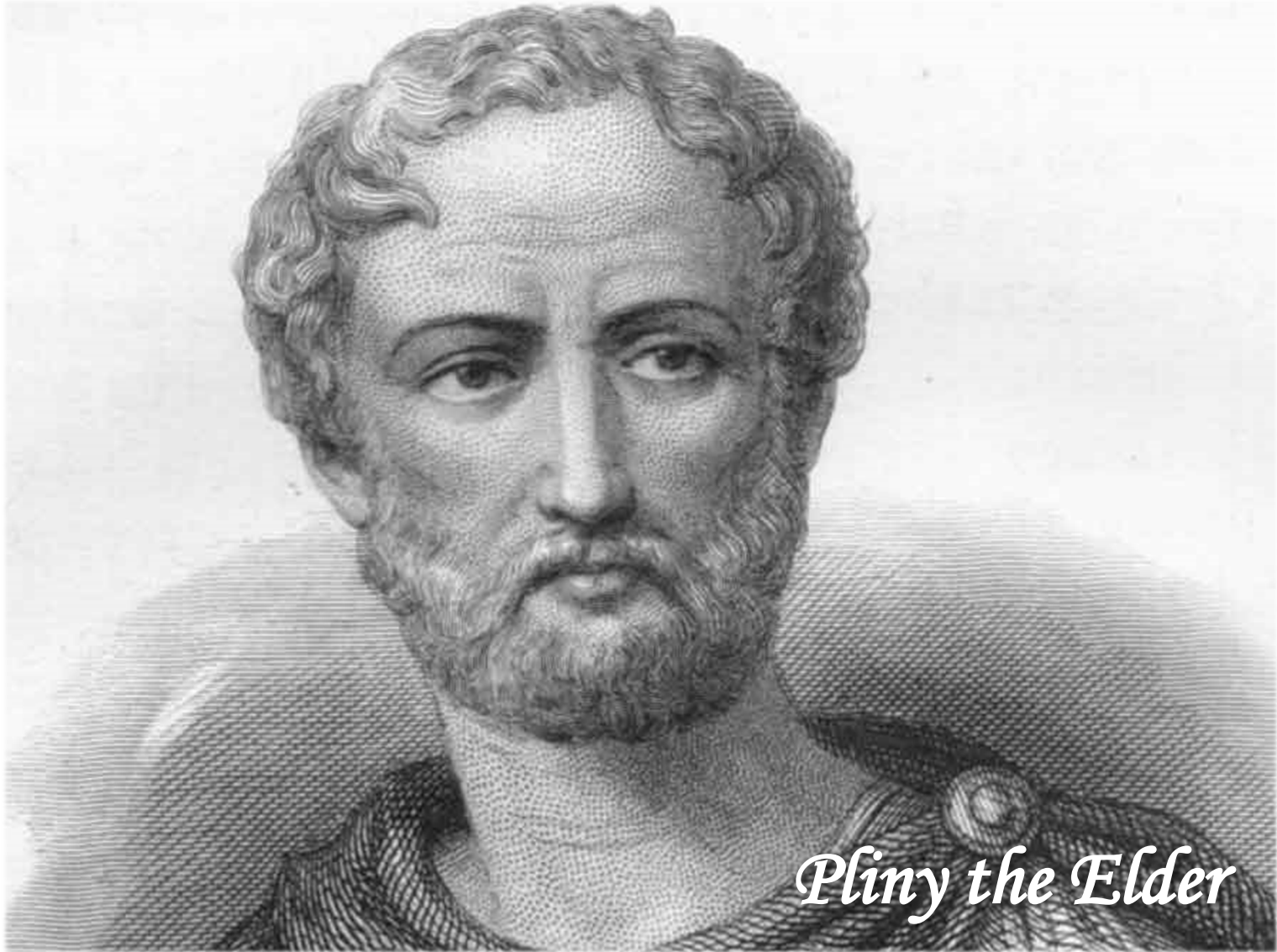
..PHYSICISTS...



Antoine-Laurent de
Lavoisier

LAVOISIER

..NATURALISTS...



Pliny the Elder

..PHILOSOPHERS...



Seneca

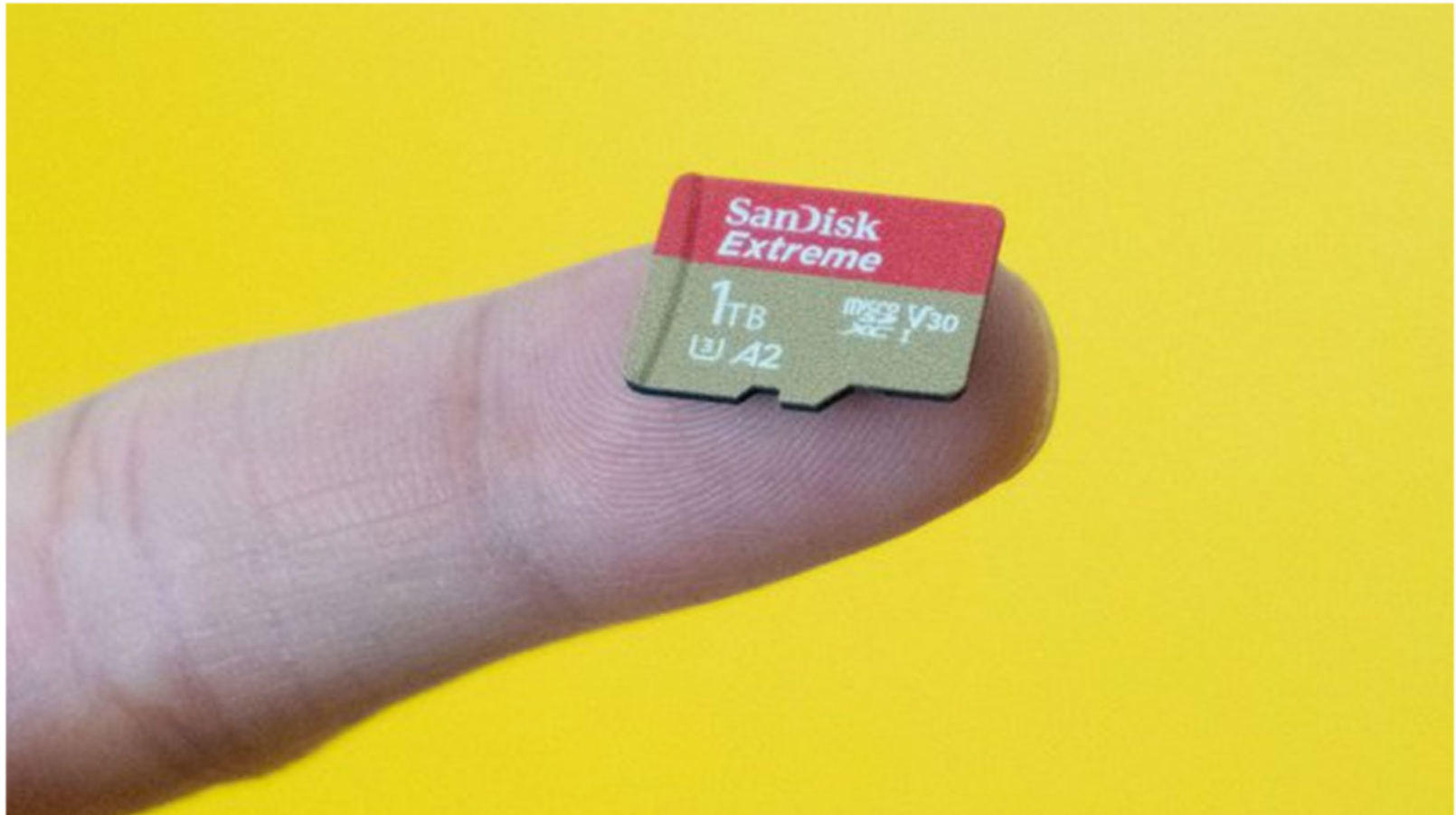
.. AND EVEN EMPERORS



Marcus Aurelius

TECHNOLOGY MOVES FAST: DIGITAL

- **Digital transformation** is changing everything. Our **behaviours as well as our expectations.** And changing all things we use for our everyday personal and professional life



COMPUTERS AND CELL PHONES



DISAPPEARING TECHNOLOGY

- The **ultimate goal of technology is for it to disappear**
- People seem to think that smartphones are what we're obsessed with—we're really not. We're obsessed with the fact that these devices provide a new kind of connection for us
- And if we can make that connection less obtrusive, why wouldn't we?



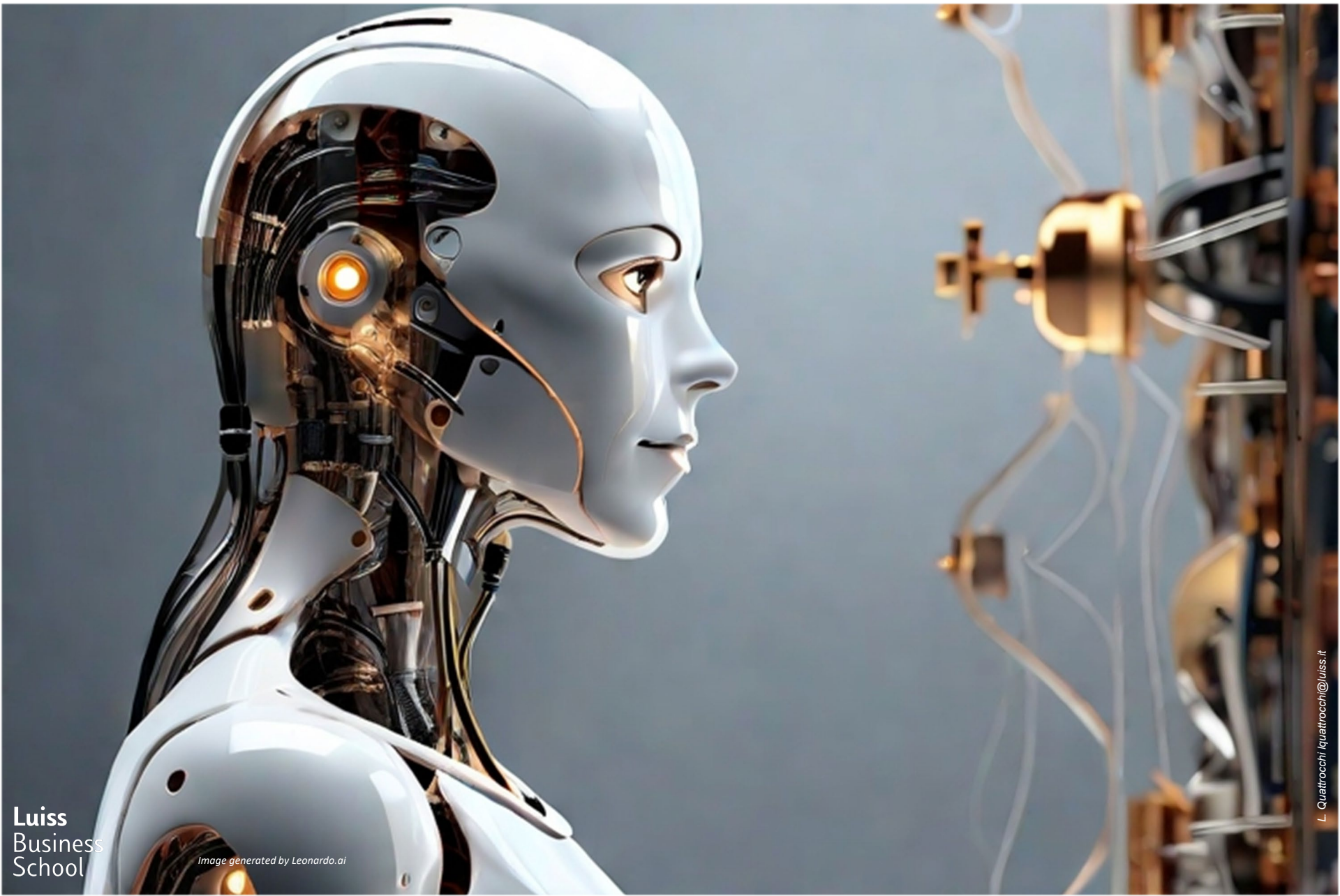
© Hewlett Packard Enterprise Matter: Predictions for 2030

TECHNOLOGY DISAPPEARING

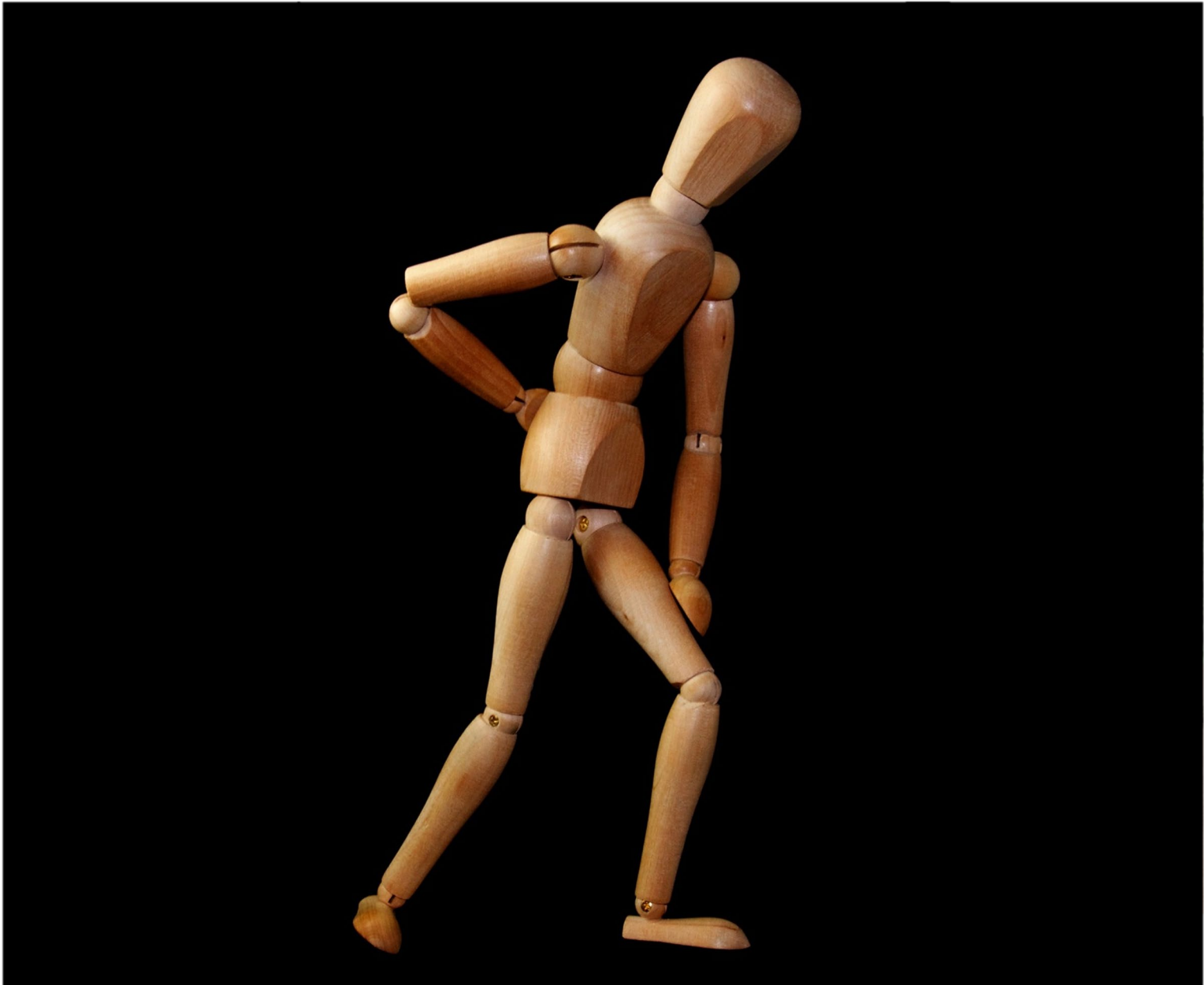
- But **even if apparently “disappearing”** there **always be the need of people capable of imagining, designing, implementing, managing and extracting value from it**



AI in Our Professional and Private Life



I'M OLD AND WHEN I DO SOME ACTIVITY..



MY BACKACHE, AI AND DOCTORS



AUTOMATIC DIAGNOSIS BASED ON RELIABLE (BIG) DATA



SURGERY



TODAY

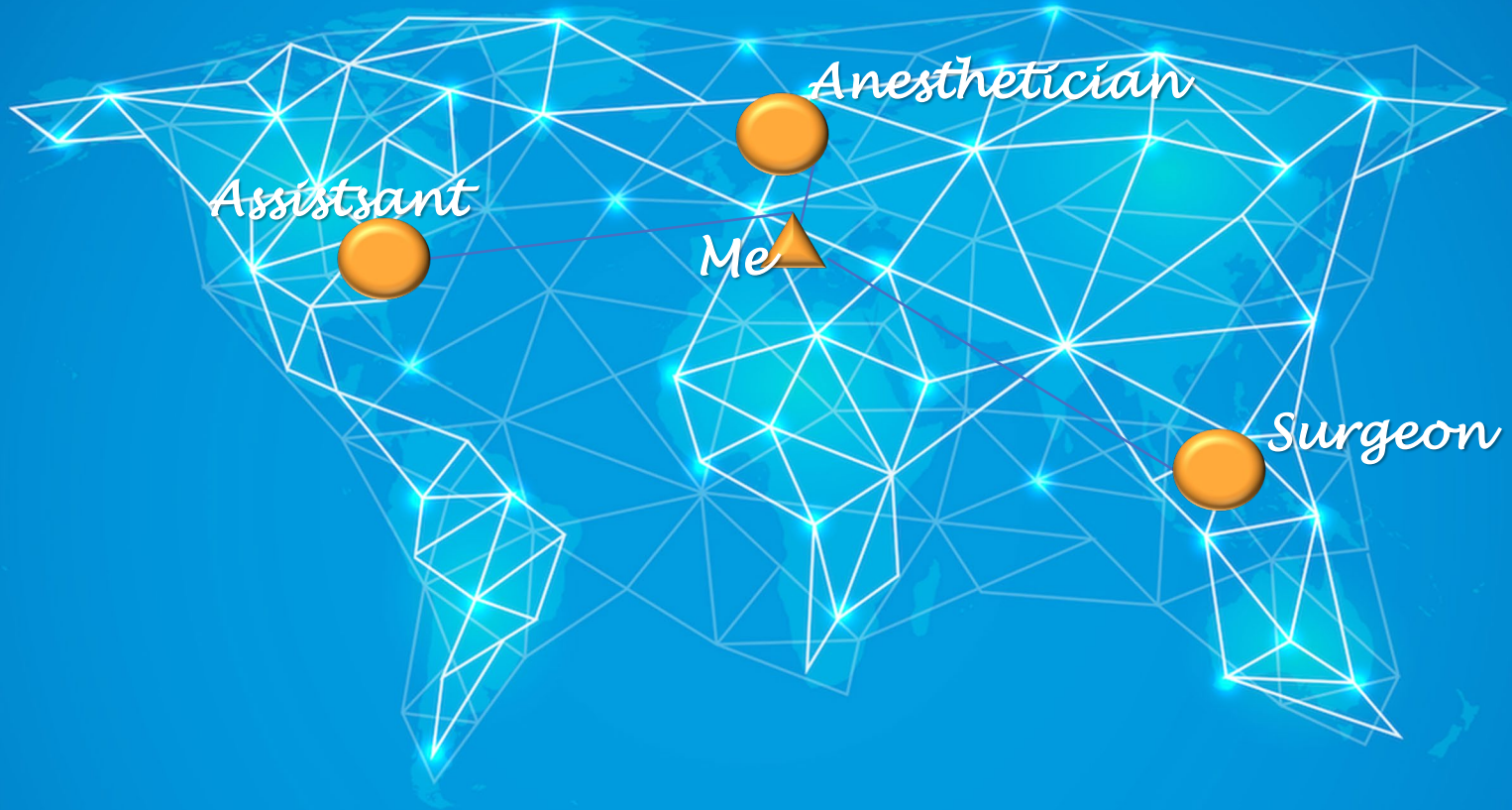


TODAY



Immagine: DaVinci

VERY SOON...



ALREADY...

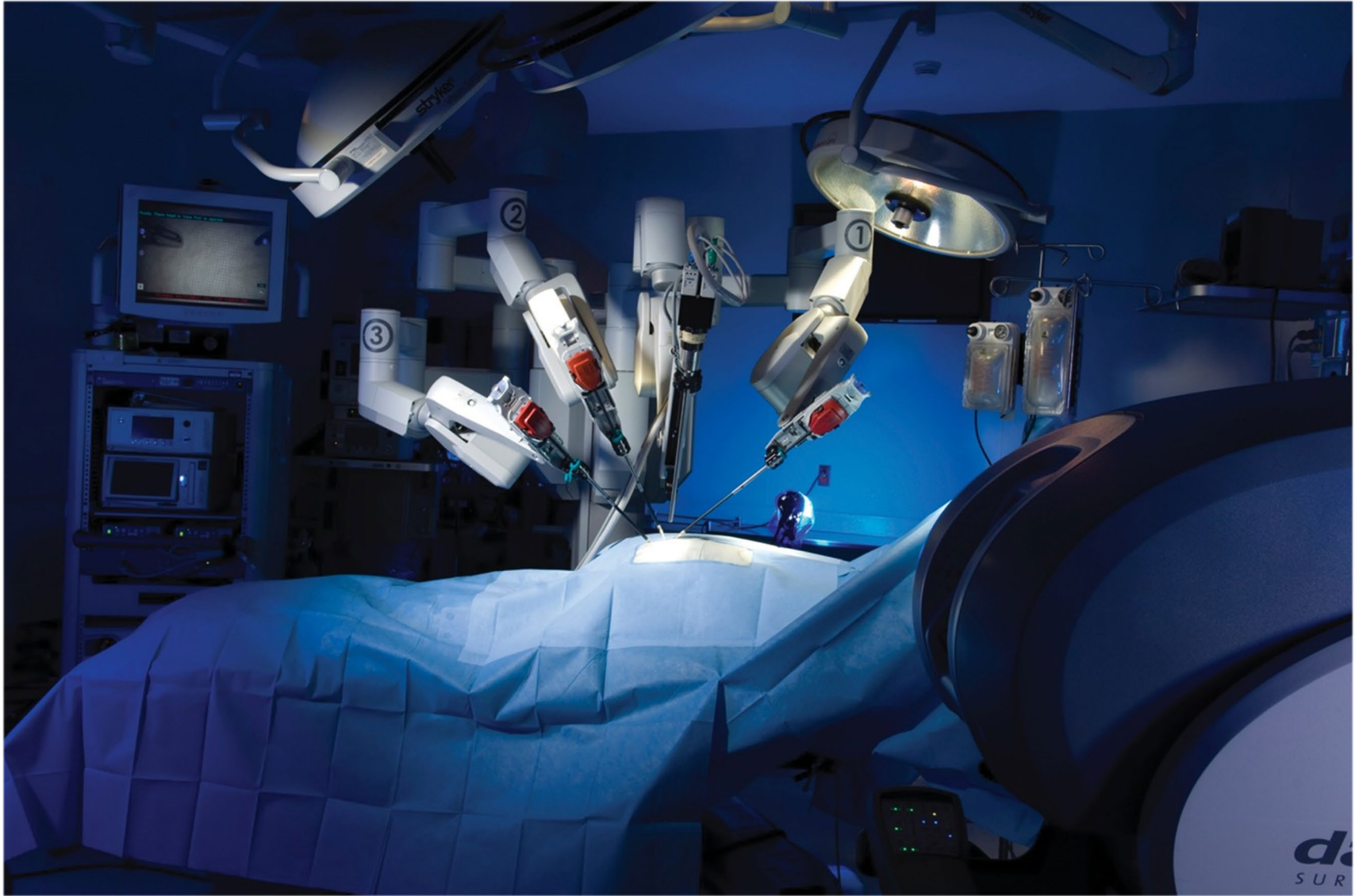


Immagine: DaVinci

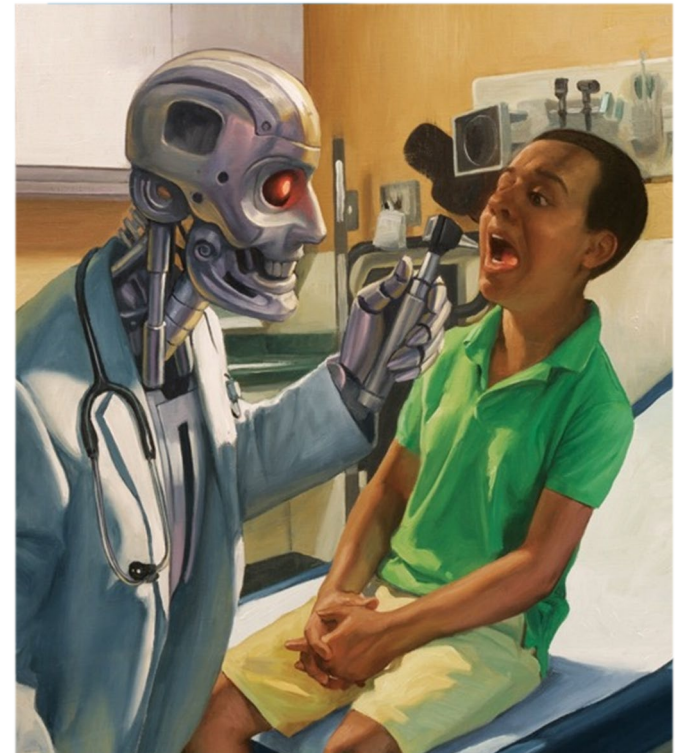
ALREADY....



Imagine: DaVinci

WHAT ABOUT OTHER MEDICAL ACTIVITIES?

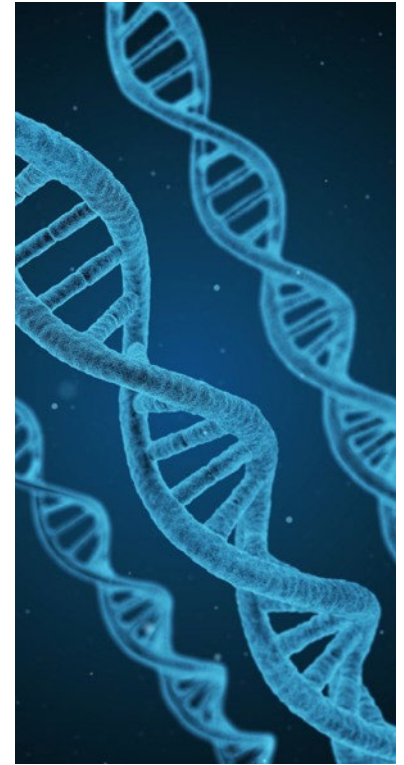
- First and foremost task of most doctors is to **diagnose** diseases correctly, and then suggest the best available **treatment**
- When I am ill, my doctor cross-references the **information I give him** on my symptoms with my medical history, and with the vast world of human maladies
- Even most scrupulous doctors **cannot be familiar** with every illness and drug, or read every new article published in every medical journal



Source: Harari, Yuval Noah. Homo Deus . Harper

WHAT ABOUT OTHER MEDICAL ACTIVITIES?

- An **AI** can hold in its databanks information about **every known illness** and medicine in history
- It can then **update** these databanks every day, not only with the findings of new researches, but also with medical statistics gathered from every clinic and hospital in the world
- It can be intimately familiar not only with my entire **genome** and my day-to-day medical **history**, but also with the genomes and medical histories of my **parents**, siblings, cousins, neighbors and friends
- It will know instantly whether I visited a tropical country recently, whether I have recurring illness of this type.....

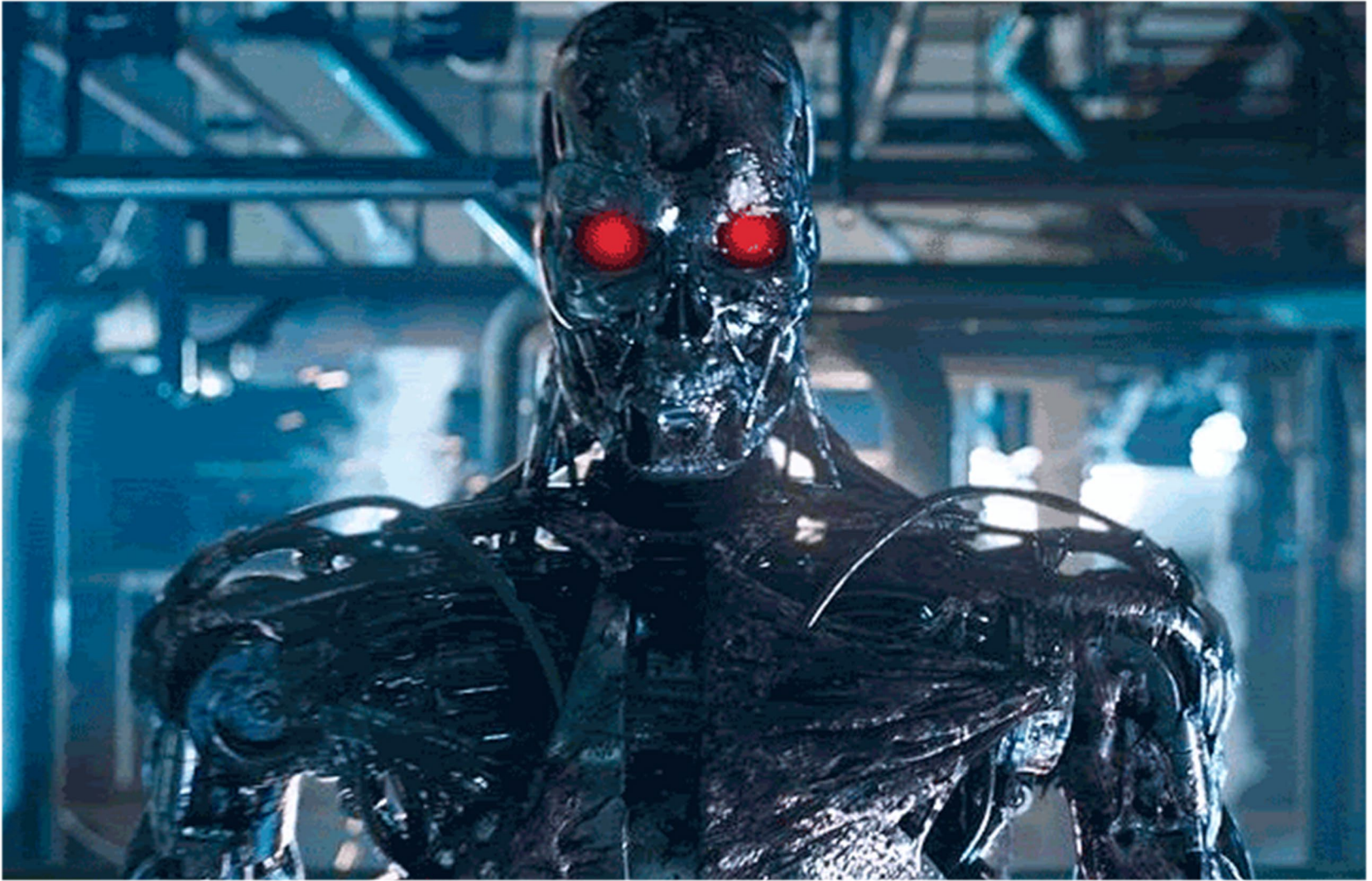


NOT ONLY.....

- The “AI” doctor can derive many other indications by my ton of **voice**, my **facial expression**, my **pulse** rate and **blood pressure** through my smartwatch....and prescribe me a “smart pill”...

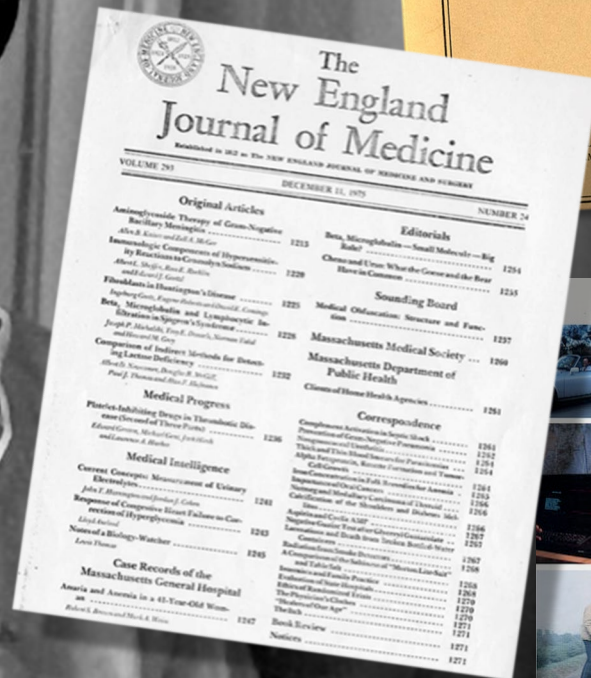
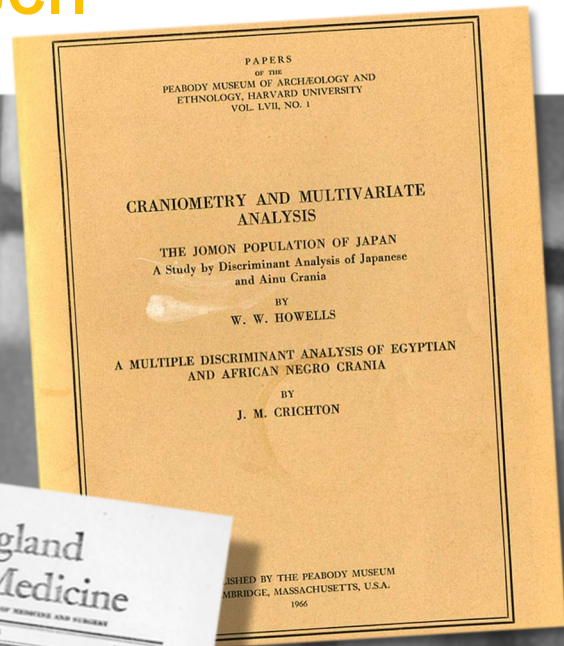
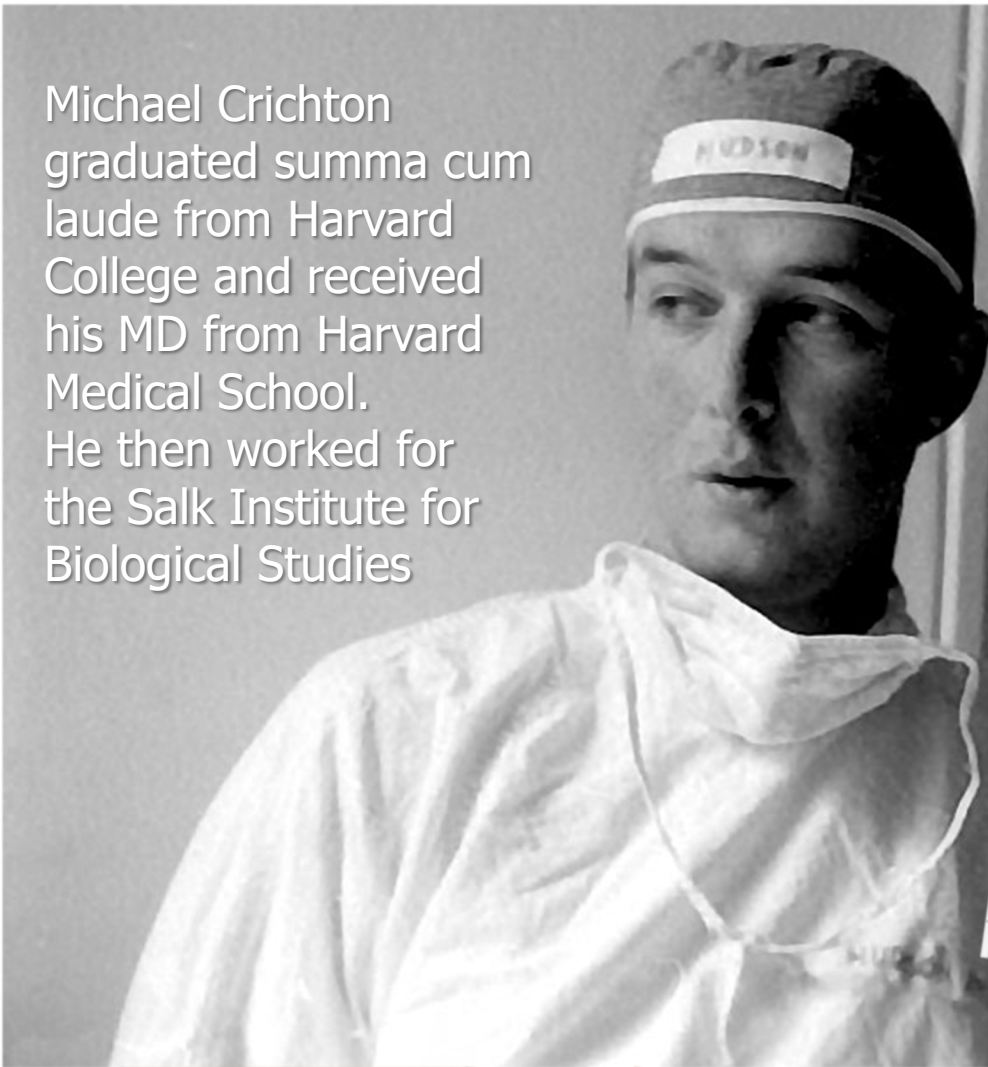


SCARY OR WORRYSOME?



AM I TOO VISIONARY OR DID I READ TOO MUCH SCIENCE FICTION?

Michael Crichton graduated summa cum laude from Harvard College and received his MD from Harvard Medical School. He then worked for the Salk Institute for Biological Studies



The doctor who operates in the realm of the imagination.

Meet Michael Crichton, a man whose creative imagination began from the pages of Jules Verne and H.G. Wells. He is a Harvard Medical School graduate who does not pursue a medical career. He is an author and film maker with a keen eye for the future. He has written and produced many books and films, including 'Jurassic Park', 'The Prey', 'Screamers', 'Coma', and 'The Great Train Robbery'.

His books and films have made him a household name. He has been called 'the most successful science fiction writer of our time' and 'the most successful science fiction writer of our time'.

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SMART PILLS?

Nanotechnology, Robotics and AI

SMART PILLS



PillCam

- In 2001, the ingestible camera became the **first FDA approved smart pill**
- By 2008, PillCams had been used in **more than 2 million procedures**



Vibrant Capsule

- Vibrating capsules promote muscle contractions to **jumpstart digestion**
- Effectively **treats constipation** without laxatives, or any major side effects



Dose Tracking Pills

- Each pill contains a **sensor which relays data through** a patch worn by the patient
- App tracks drug, dosage, and time — log can be **shared with doctors and others**
- Treatment non-adherence **costs up to \$290B** in the US alone. Smart pills could improve drug adherence and patient outcomes

BUT, TRACKING RAISES ETHICAL CONCERNS

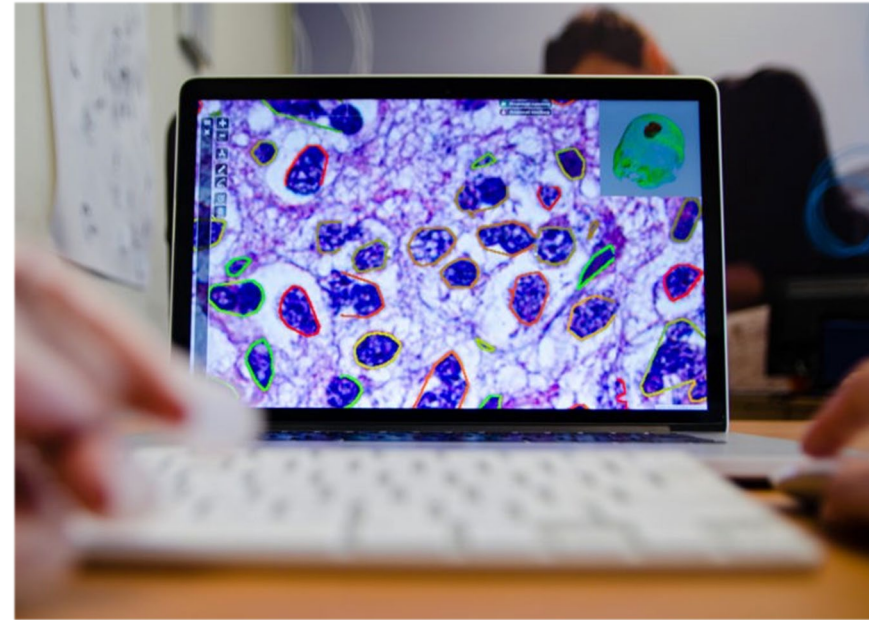
Patients could feel coerced into taking medication they don't want or pressured to share private data with doctors and caregivers

Currently sold as Abilify MyCite for those with schizophrenia, who may feel tracking confirms delusions of persecution

Source: besthealthdegrees.com; see previous slides

AI Doctor?

- An AI system was trained on mammograms of 91,000 women (76,000 from the UK and 15,000 from the US). Once trained, the predictive software was tested on two different datasets: 25,000 scans in the UK and another 3,000 in the US. During the test, **the AI system produced 5.7% fewer false positives than the human radiologist**



Google's New AI is better than Radiologists at Breast Cancer detection

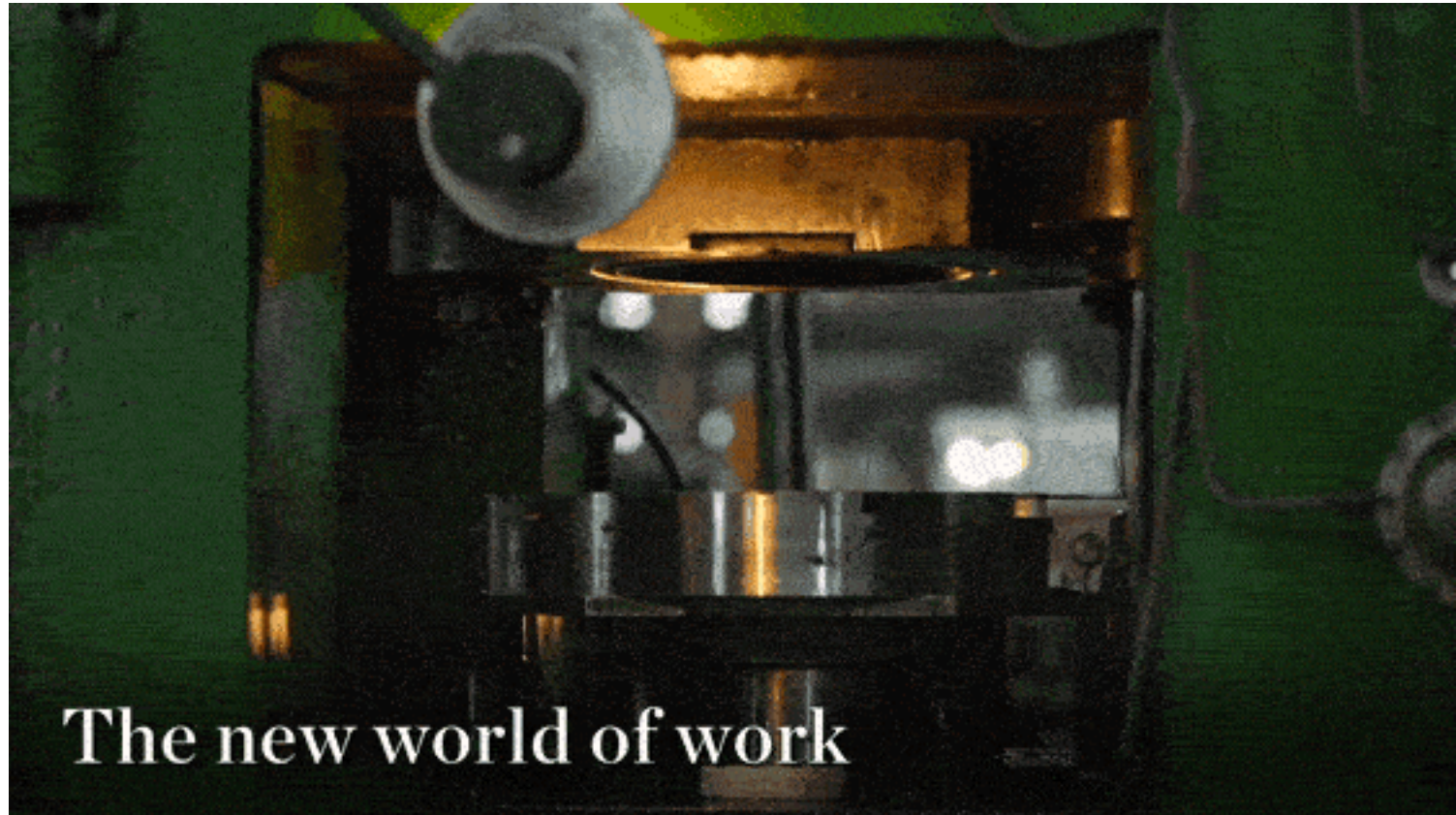
The tech giant's AI lab DeepMind has developed a new tool which flagged fewer false positives & negatives in a trial study

Radiologists and Coyotes

- In 2016 Prof Geoffrey Hinton, the godfather of neural networks, said that it's **“quite obvious that we should stop training radiologists”** as image perception algorithms are very soon going to be demonstrably better than humans. **Radiologists are**, he said, **“the coyote already over the edge of the cliff who hasn't yet looked down”**



A WORLD OF WORK WHICH CALLS FOR NEW SKILLS AND COMPETENCES



ARTIFICIAL INTELLIGENCE · BI & ANALYTICS · CONTRIBUTORS · DATA SCIENCE · FEATURED · HEALTHCARE · INDUSTRY · PROFESSIONAL SERVICES · TECH TRENDS

GERMAN RADIOLOGISTS ARE EAGER TO CO-CREATE THE FUTURE OF AI IN THEIR FIELD.



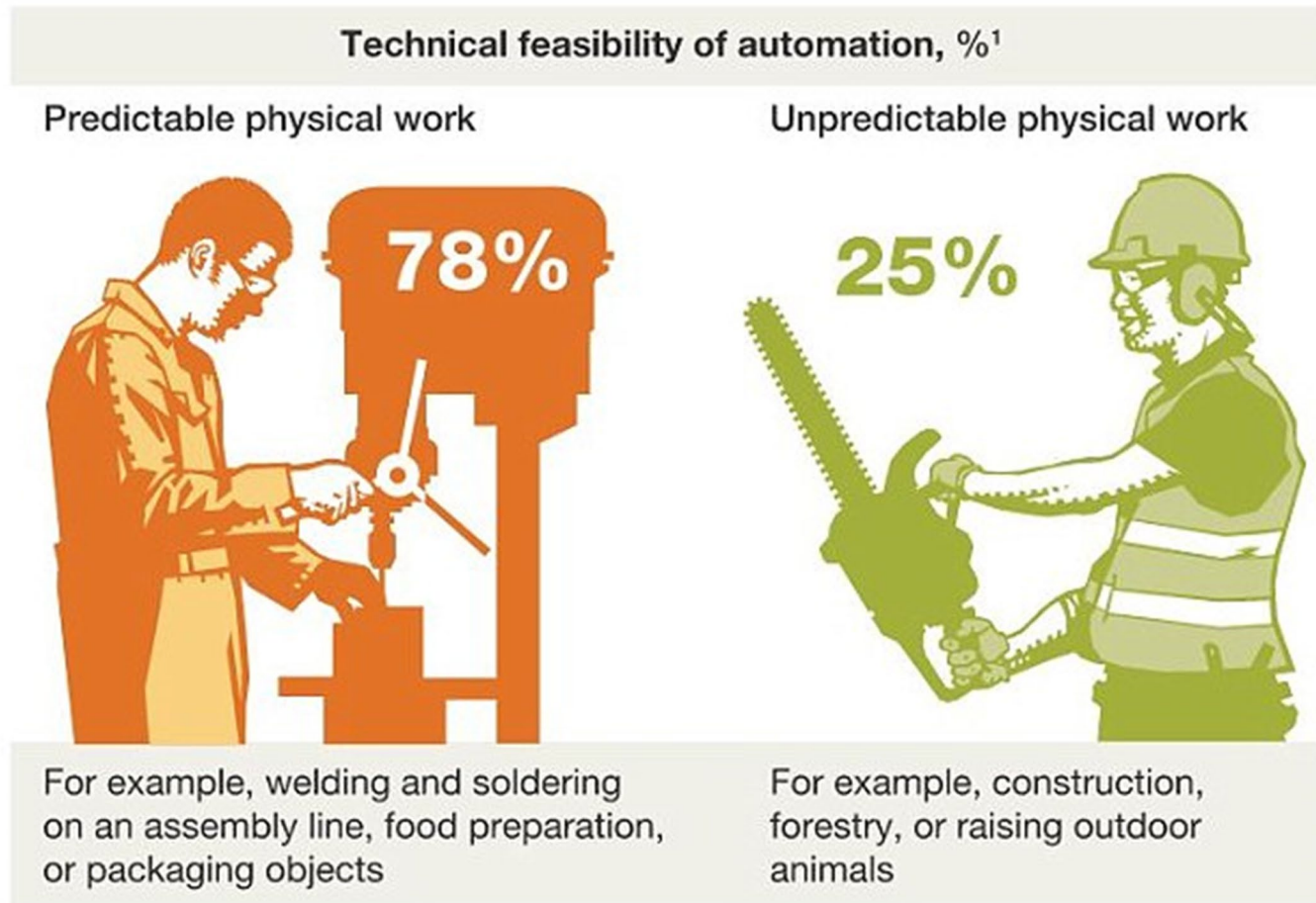
NICHOLAS BORSOTTO · JULY 2, 2019

0 COMMENTS

Fonte: Dataconomy

ROBOTICS AND AI TAKING OUT JOBS?

It's more technically feasible to automate predictable physical activities than unpredictable ones.



¹% of time spent on activities that can be automated by adapting currently demonstrated technology.

MORAVEC'S PARADOX

- Moravec's paradox says that **what is easy for us humans, for robots is usually difficult**, while something that is almost impossible for humans, it is commonplace for robots: high level reasoning requires little computational power, while low level ability (sensorial or movement related) needs a huge computational power
- “What a 5-year-old kid effortlessly does— recognize that a coffee mug is different from a chair or walking on two legs or reach the bathroom from his room – wasn't considered an activity which required a particular kind of intelligence”



AI REPLACING HUMANS: AN EXAMPLE, HP

AUTOMATION WILL ALSO CHANGE THE NATURE OF HUMAN LABOR

Task automation can save money, but it also shifts skills requirements



Case example of virtual agent impact

95%

savings from virtual chat

2X

increase in likelihood of solving problem

40%

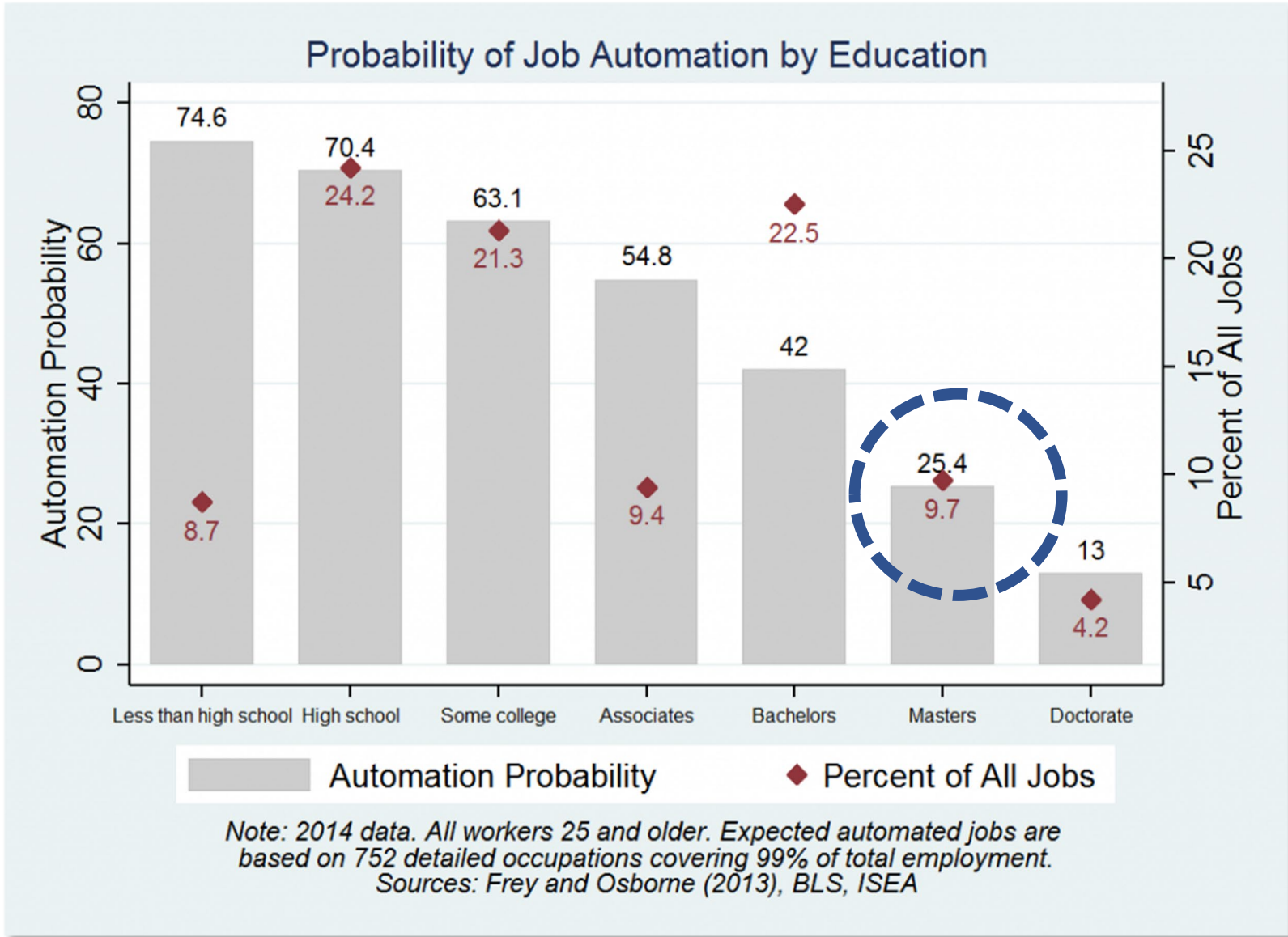
increase in complexity referred to humans

Source: HP Customer Support



Source: HP

ROBOTICS, AI, JOBS AND EDUCATION



PHEW! NOT ME THEN!



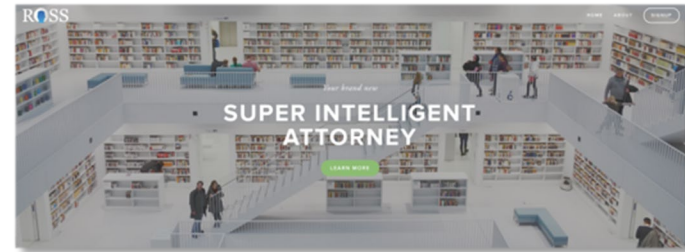
WATCH OUT: PROFESSIONALS TASKS TOO!

- **Digital disruption takes aim at the professions: doctors, lawyers, academics, accountants....**
- Deep learning, expert systems, software agents, speech and image processing, algorithmic operations, shared ledgers, smart contracts, digital cash, neuro-imaging and the Internet of Things are aimed directly at knowledge, learning and trust



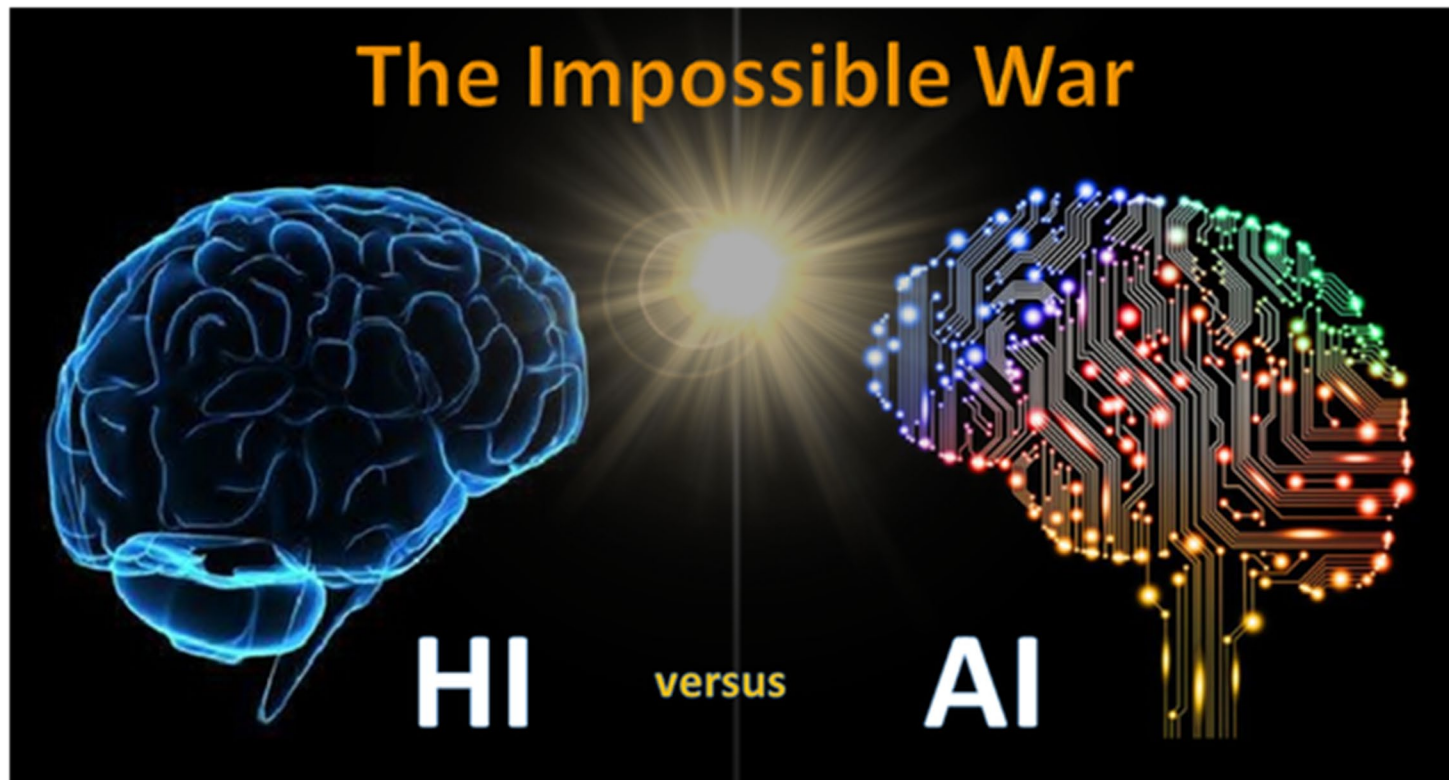
ARTIFICIALLY INTELLIGENT ATTORNEY

- An **AI attorney** is a **digital legal advisor that uses deep learning** to emulate and improve upon the abilities of a human legal research assistant
- ROSS, built upon IBM's Watson, can mine data from about a **billion text documents**, analyze info and **provide precise responses** to complicated questions **in less than 3 secs**
- It **summarizes** results and **translates** formal legal language **to conversational** natural language
- The program **improves with experience**, and it **constantly monitors legal information systems for updates** on any new decisions that could have bearing on the case
- Baker Hostetler, a century-old law firm, has a contract with ROSS to work with its 50-human bankruptcy team



AI REPLACING LAWYERS THEN?

- **No. Lawyers will not be replaced by AI**
- **But lawyers who do not use AI will be replaced by those who use AI**
- Silarly to radiologists, teachers, engineers...



.. Only Radiologists and Lawyers?



Immagine: Terminator 2

Novel World of Work Requires Novel Skills & Competences



HAVE WE IN EU GOT THE RIGHT SKILLS?

OVERCOME LABOR SHORTFALLS

Changing demographics and a shrinking working age population is driving a rising labor gap

By 2030 ...

16%

High-skilled workers gap in Tech, Media and Telecommunications

900X

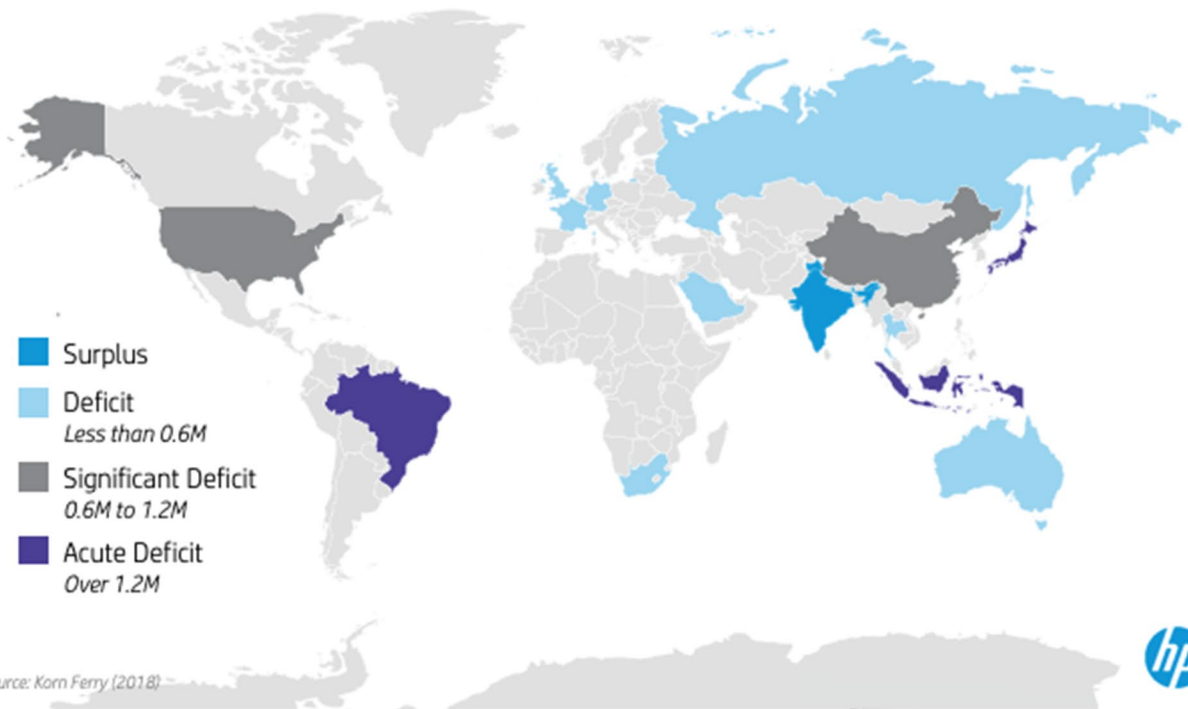
Alphabet, Inc's current workforce required to fill 2030 gap



India - only major economy with a high-skilled labor surplus

GLOBAL HIGH SKILL LABOR DEFICIT BY ECONOMY (2030)

(Based on top 20 markets evaluated to date)



A CHALLENGE AND AN OPPORTUNITY

- As the AI era unfolds, **European Universities** are now faced with the **challenge and opportunity** to redefine the **future of education**
- This involves not only harnessing generative AI to enhance the learning experience but also mitigating the risks associated with its adoption
- And the **learning** process involves **teachers as well as learners**



Embracing Technology

- By **embracing AI and integrating it into their educational systems**, universities can enhance the learning experience and **equip students** with the **skills** they need to thrive in a technology-driven world



But What is AI (Artificial Intelligence)?



Chess and Trivia Quizzes



*«A computer beating a grandmaster at chess is about as interesting as a bulldozer winning an Olympic weight lifting competition»
Noam Chomski*



A Definition of Artificial Intelligence

Artificial Intelligence (AI), can be defined as the **ability of a computer or a computer-controlled robot to perform tasks commonly associated with intelligent beings**. The term is often applied to systems with intellectual processes characteristic of human beings, such as the ability to reason, discover meanings, generalize or learn from past experiences

Now the problem is to define **what human intelligence is....**



The word intelligence comes from latin intelligentĭa, noun from verb intelligĕre, «to understand».

In turn intelligĕre is a contraction of verb legĕre, «to read», with adverb intĭs, «inside, into»; who had intelligentĭa was therefore someone capable of "reading inside", that is "read beyond the surface", understand every aspect, even those not apparent

Is AI Better Than Human Intelligence?

- Beyond what we see (read, look at), we store data and correlate information that comes to us from our other senses (smell, touch, taste, hearing)



Different Types of Intelligence

- A squirrel can memorize where it has hidden hundreds of acorns, something a human would not be able to do

(squirrel 450 million neurons)



Where the hell
did I put my
socks?

(human brain 86 million million neurons)



The Turing Test

- It is a method of **investigation of artificial intelligence** (AI) to determine **whether a computer is able to "think" as a human** being. The test is named after Alan Turing, a British computer scientist, cryptanalyst, mathematician
- Alan Turing worked at deciphering the Enigma, the cryptographic machine used by the Nazis in World War II
- Turing is considered the **father of** theoretical computer science and **artificial intelligence**

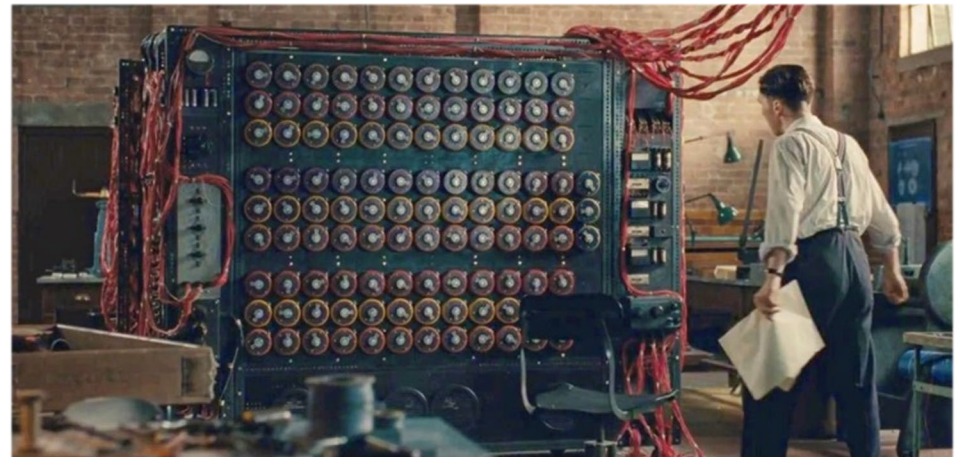
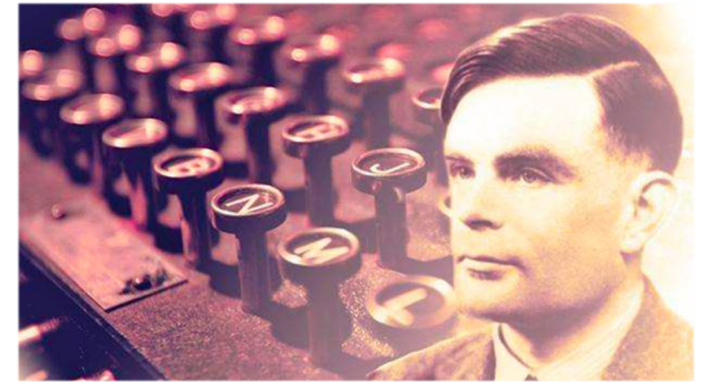
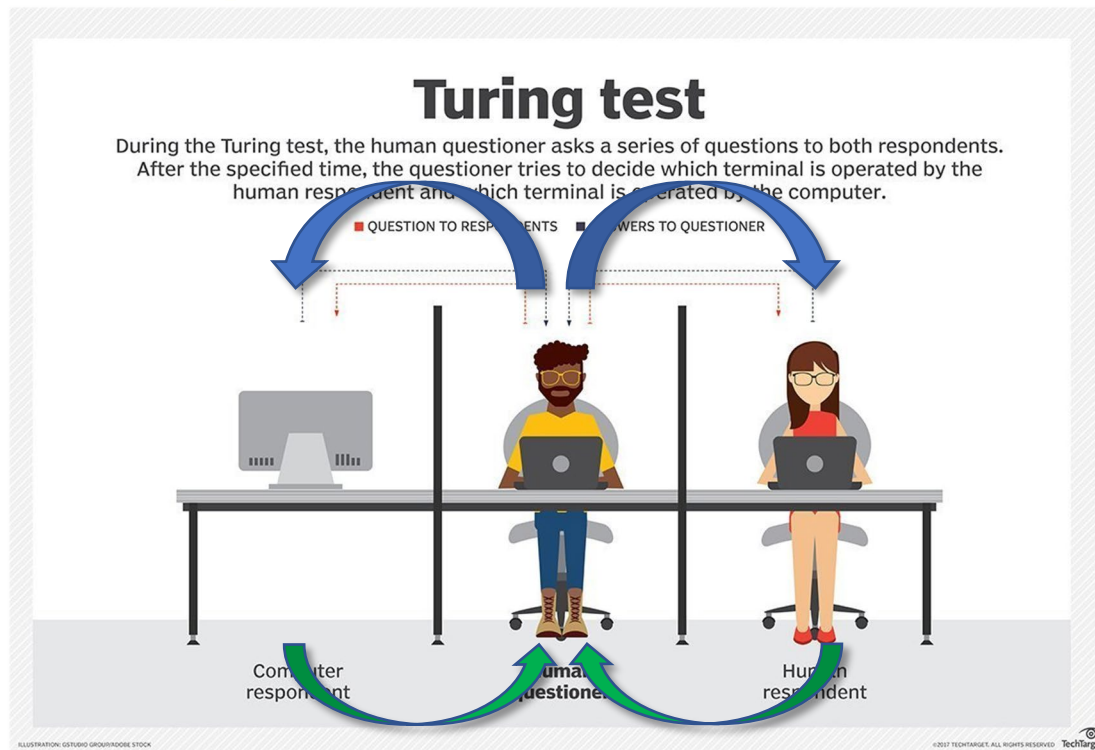


Image: The Imitation Game

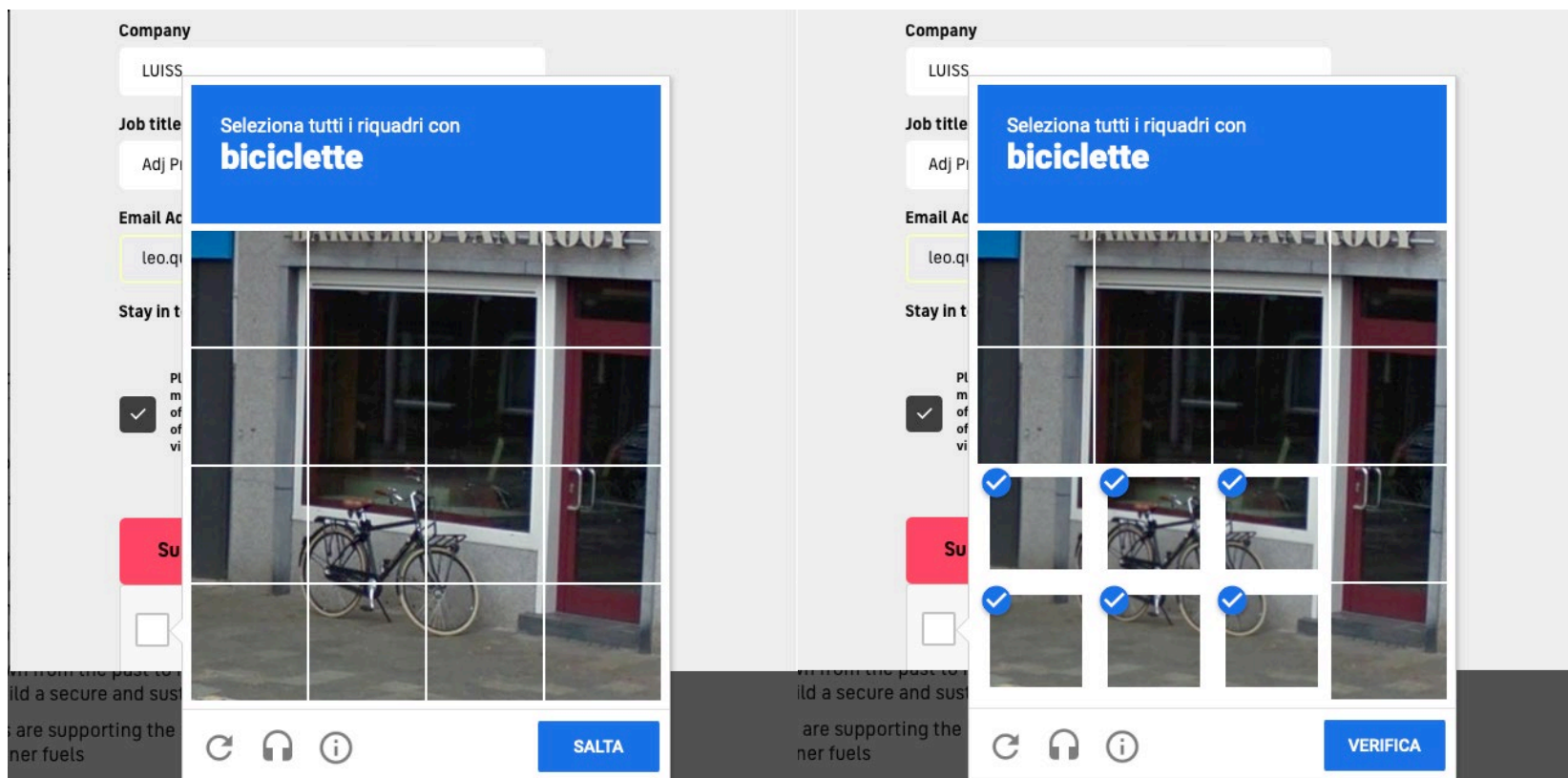
Turing Test and AI

Turing suggested the theory that a computer can be said to possess artificial intelligence of some kind if it is able to **imitate human responses** under specific conditions.

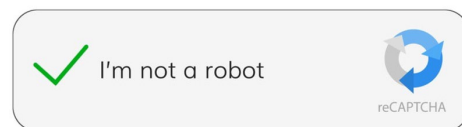


- The test is repeated many times. If the questioner makes the **correct determination in half of the test runs or less**, the computer is considered to have AI and regarded as **"just as human"** as the human respondent.

CAPTCHA: a Turing Test



Complexity Abounds



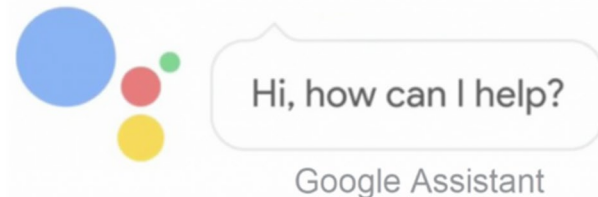
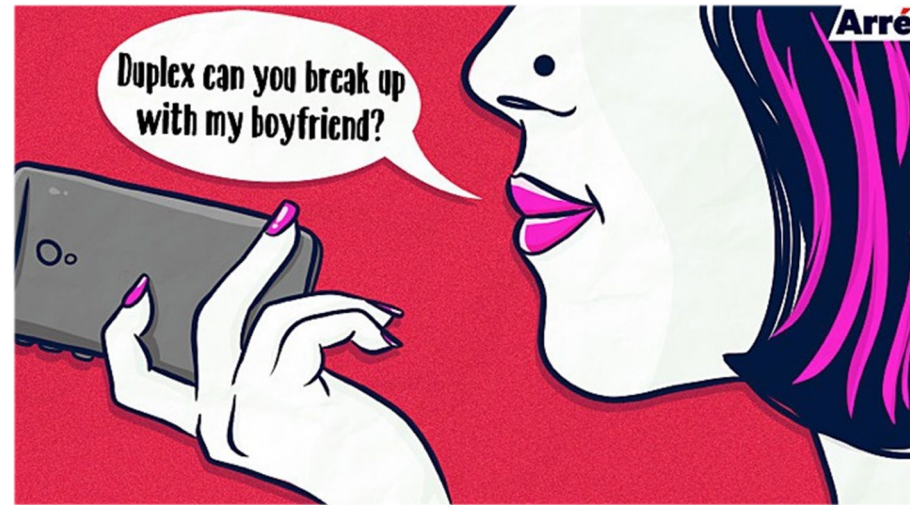
The distorted letters of a Completely Automated Public Turing Test to Tell Computers and Humans Apart (CAPTCHA) rely on the complexity inherent in the emergence of letter forms within the human mind.

ARTIFICIAL ASSISTANT AI



CHANGED A BIT

- In its current form, that plays out thusly:
«Hi, I'm the Google Assistant calling to make a reservation for a client. This automated call will be recorded»
- Duplex doesn't openly let on the fact that it's an AI. It does, however, let you know that the call is being recorded, so Google can continue to revise and refine the system



As Turing Said...

«An important feature of a learning machine is that its teacher will often be very largely ignorant of quite what is going on inside»

A.Turing, Computing Machinery and Intelligence, 1950

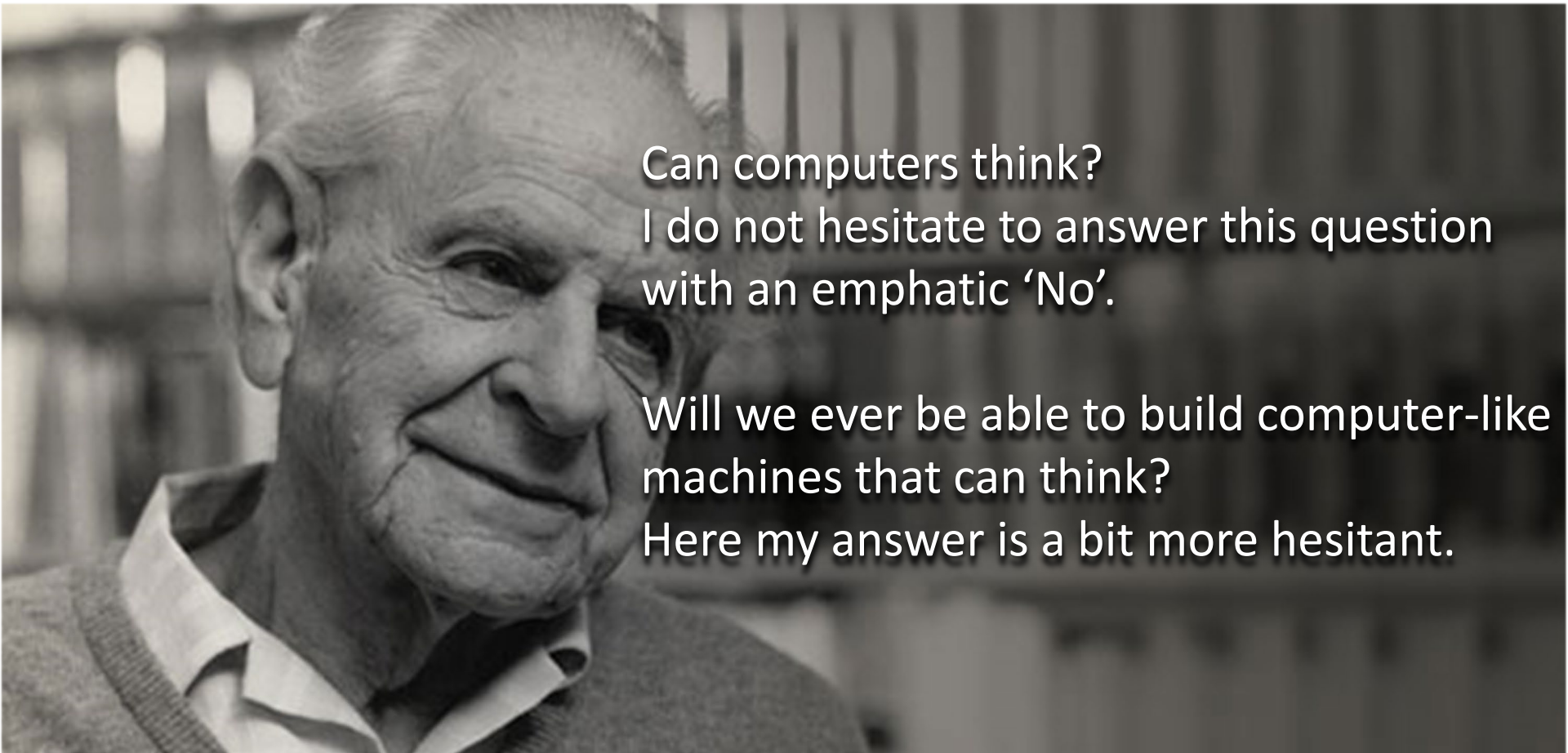
Image generated by Leonardo.ai with prompt: image showing a dark, swirling nebula with faint tendrils reaching out, symbolizing the unknown entity and its enigmatic actions. It should be dark and nebulous, with a sense of mystery and depth. Deep purples, blues, and blacks to evoke the feeling of the unknown and the vastness of space. With a mixture of smooth and textured areas to create a sense of swirling energy and movement, and subtle hints of light emanating from within the nebula, suggesting potential hidden knowledge or power. In the foreground, a human figure with a questioning expression, gazing up at the nebula, representing our lack of understanding

SO, IS AI BECOMING INTELLIGENT MORE THAN HUMANS?



Image generated by Leonardo.ai

Let's Ask Popper

A black and white portrait of Karl Popper, an elderly man with white hair, looking slightly to the right. He is wearing a light-colored collared shirt under a dark sweater. The background is a blurred bookshelf.

Can computers think?

I do not hesitate to answer this question with an emphatic 'No'.

Will we ever be able to build computer-like machines that can think?

Here my answer is a bit more hesitant.

Fonte: «Three Worlds», Karl Popper, *The Tanner Lecture on Human Values*

Therefore...

AI will not take over
the world.

But humans who can
fully utilize AI could.



A FUTURE WHICH IS...

Interesting



Terrifying

IS SUCH TECHNOLOGY BAD?

First Law of Technology by
Melvin Kranzberg:
**“Technology is neither good
nor bad; nor is it neutral”**



Daniel Arnold: Mist animation by George Redfawn

WHO'S SMART?



"Technology does not make us smarter.

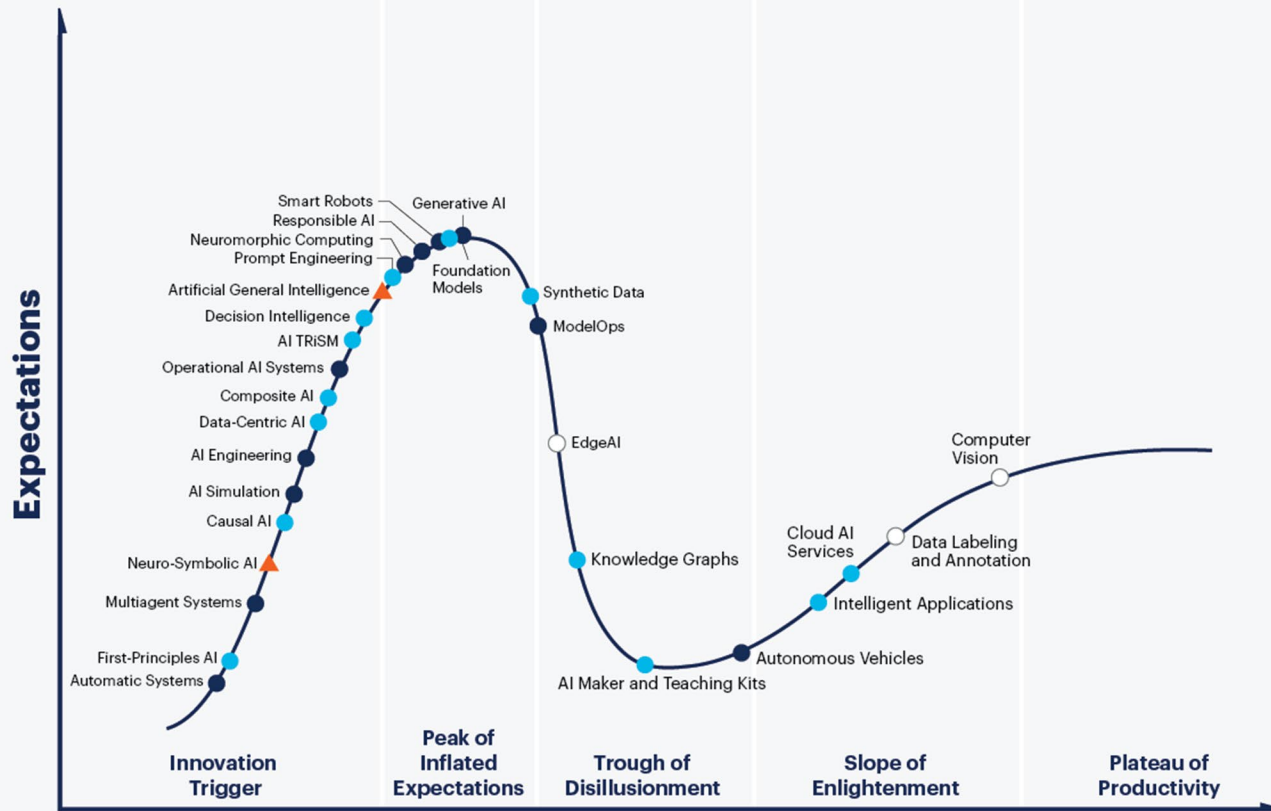
People don't make technology 'smart.'

**It is the combination of the two, people plus artifacts,
that is smart.**

Together with our tools, we are a powerful combination"

GARTNER AI HYPE CYCLE

Hype Cycle for Artificial Intelligence, 2023



Plateau will be reached:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

As of July 2023

gartner.com

Source: Gartner
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Gartner

COGNITIVE DIVERSITY

Highly demanded **skills** today while obviously include **technical** skills such as:

- Data Literacy (data cleaning, preprocessing, visualization skills)
- Machine Learning & Deep Learning Expertise (classification, regression, NLP)
- Cloud Computing

Require students to get the proper **Soft Skills**:

- **Communication**
- **Team working**
- **Critical & Lateral thinking**
- **Social Intelligence**
- **Transdisciplinarity**
- **Sustainability**
- **Inclusivity**
- Combining technical and AI skills with deep understanding of a specific industry (e.g., healthcare, finance, automotive, PA...)



WORK

- **All professional skills** required in the near future are **linked to soft skills**



SENSE MAKING

ABILITY TO DETERMINE THE DEEPER MEANING OR SIGNIFICANCE OF WHAT IS BEING EXPRESSED

THE DRIVERS:

SOCIAL INTELLIGENCE

ABILITY TO CONNECT TO OTHERS IN A DEEP AND DIRECT WAY, TO SENSE AND STIMULATE REACTIONS AND DESIRED INTERACTIONS

THE DRIVERS:

NOVEL AND ADAPTIVE THINKING

PROFICIENCY AT THINKING AND COMING UP WITH SOLUTIONS AND RESPONSES BEYOND THAT WHICH IS ROTE OR RULE-BASED

THE DRIVERS:

CROSS CULTURAL COMPETENCY

ABILITY TO OPERATE IN DIFFERENT CULTURAL SETTINGS

THE DRIVERS:

COMPUTATIONAL THINKING

ABILITY TO TRANSLATE VAST AMOUNTS OF DATA INTO ABSTRACT CONCEPTS AND TO UNDERSTAND DATA BASED REASONING

THE DRIVERS:

NEW MEDIA LITERACY

ABILITY TO CRITICALLY ASSESS AND DEVELOP CONTENT THAT USES NEW MEDIA FORMS, AND TO LEVERAGE THESE MEDIA FOR PERSUASIVE COMMUNICATION

THE DRIVERS:

TRANSDISCIPLINARY

LITERACY IN AND ABILITY TO UNDERSTAND CONCEPTS ACROSS MULTIPLE DISCIPLINES

THE DRIVERS:

DESIGN MINDSET

ABILITY TO REPRESENT AND DEVELOP TASKS AND WORK PROCESSES FOR DESIRED OUTCOMES

THE DRIVERS:

COGNITIVE LOAD MANAGEMENT

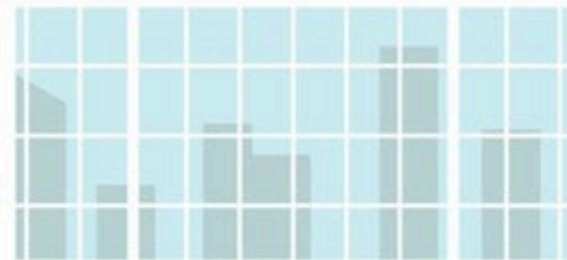
ABILITY TO DISCRIMINATE AND FILTER INFORMATION FOR IMPORTANCE, AND TO UNDERSTAND HOW TO MAXIMIZE COGNITIVE FUNCTIONS

THE DRIVERS:

VIRTUAL COLLABORATION

ABILITY TO WORK PRODUCTIVELY, DRIVE ENGAGEMENT, AND DEMONSTRATE PRESENCE AS A MEMBER OF A VIRTUAL TEAM

THE DRIVERS:



SKILLS

BIG DATA & ANALYTICS

INTERNET OF THINGS (IOT)

CLOUD COMPUTING



SMART DEVICES

ADVANCED ROBOTICS & AI

Core Competences

AUGMENTED REALITY

SOCIAL & MEDIA


VIRTUALIZATION & SIMULATION

ARTIFICIAL INTELLIGENCE & COGNITIVE COMPUTING

SECURITY


SKILLS REQUIRED

Businesses' top 10 skill priorities for 2027

- | | |
|--|--|
| 1.  Analytical thinking | 6.  Curiosity and lifelong learning |
| 2.  Creative thinking | 7.  Technological literacy |
| 3.  AI and big data | 8.  Design and user experience |
| 4.  Leadership and social influence | 9.  Motivation and self-awareness |
| 5.  Resilience, flexibility and agility | 10.  Empathy and active listening |



Type of skill

-  Cognitive skills  Self-efficacy  Technology skills  Working with others

Source

World Economic Forum, Future of Jobs Report 2023.

Note

The skills which organizations will prioritize in workforce development initiatives from 2023 to 2027

Is Generative AI Important?



Source: Wall Street Journal

Role of Generative AI in Business

- **Productivity Enhancement:** Generative AI revolutionizes business operations, **drives productivity gains** and **cost efficiencies**. Employees empowered to focus on high-value tasks, leveraging AI to streamline processes and enhance decision-making
- **Skill Amplification:** The integration of generative AI amplifies human capabilities, augmenting skills through intelligent automation, predictive insights, and personalized experiences. This **synergy between human expertise and AI** proficiency is pivotal in unlocking new frontiers of business potential



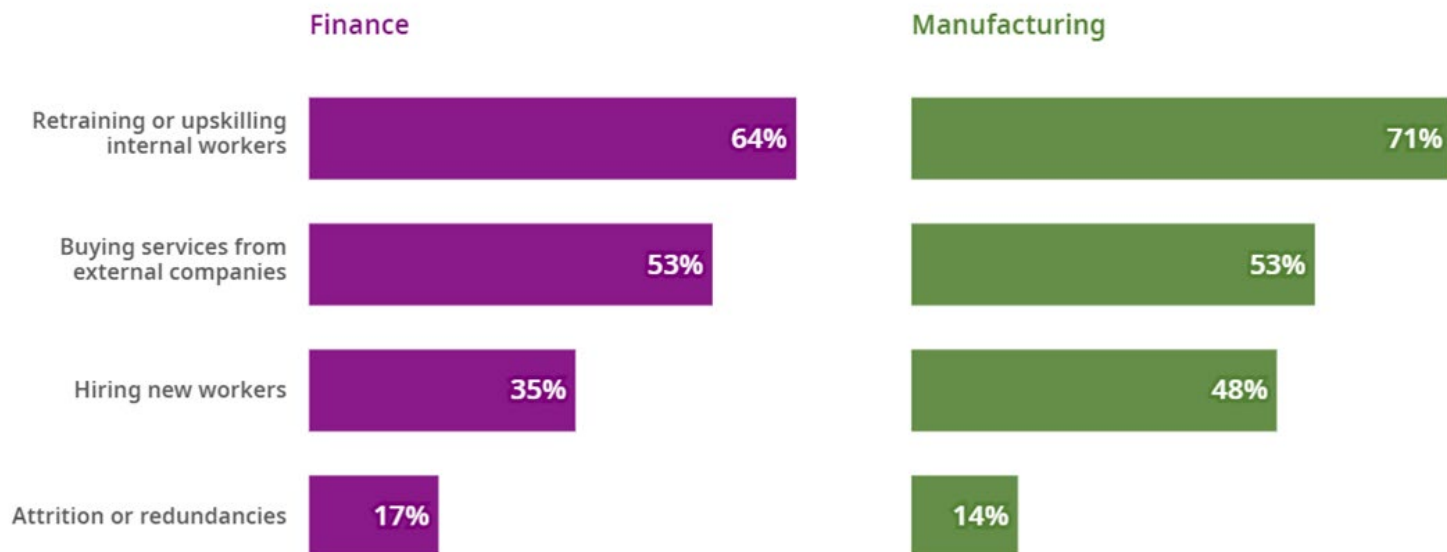
AI generated image

EDUCATION & INDUSTRY

- The goal is to create a **seamless integration of AI into institutions that benefits not only learners but also educators**
- By enhancing the educational experience through AI, European Universities can stay at the forefront of innovation and provide a more dynamic and engaging learning environment, enabling the students to smoothly transition into the workforce



Employers' responses to changing needs due to AI



NAVIGATING THE SKILLS REVOLUTION

- **Both Higher Education institutions and Companies** need to cultivate **learning ecosystems** that transcend traditional training, integrating experiential learning, mentorship, and knowledge sharing to foster a culture of continuous skill enhancement
- Adapting to the AI-driven future involves enabling talent mobility, allowing students to explore diverse environment, acquire interdisciplinary skills, and **contribute** to a seamless **integration of EU universities and work environments**



AI generated image

INDISPENSABLE ATTRIBUTES

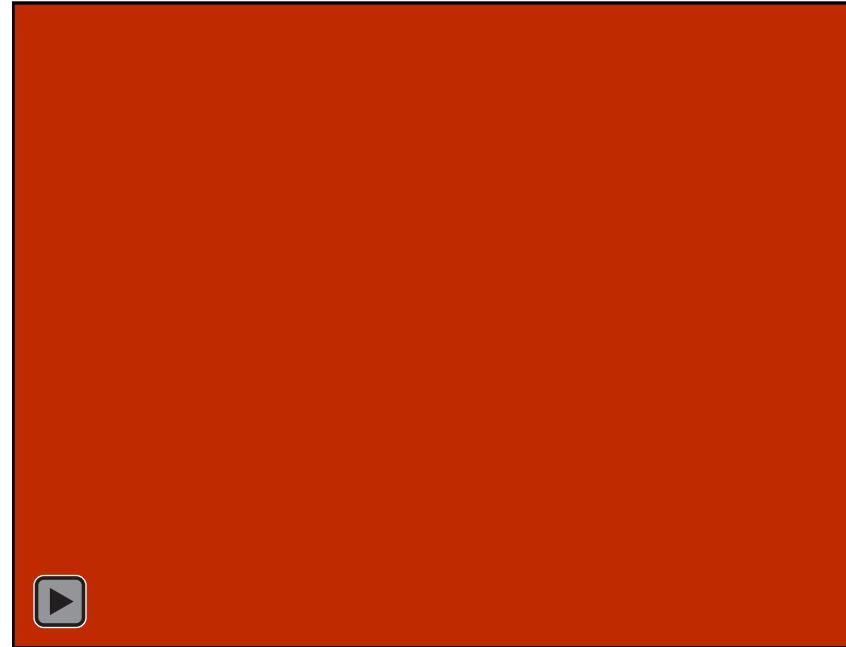
- The **ethical** dimensions of AI underscore the imperative for emphasizing transparency, accountability, and ethical use of AI to foster trust and integrity in educational and business practices
- Adapting to the AI-driven future involves cultivating **inclusive approaches**, fostering environments that embrace **diversity, equity, and inclusion** as **catalysts for innovation and sustainable growth**



Image: Pexels, RDNE

CHALLENGES FACING EUROPEAN UNIVERSITIES

- Europe's rich tapestry of cultures and languages poses **both challenges and opportunities**
- **Adapting AI applications** to regional requirements may require significant resources, but open up avenues for creative and groundbreaking solutions
- To successfully incorporate AI into European Universities, it is crucial to **improve the educational experience for both students and instructors**. Maybe overcoming some **resistance from teachers** who are accustomed to a specific routine and may be hesitant to embrace new technologies and approaches



AI generated image

CHALLENGES FACING EUROPEAN UNIVERSITIES

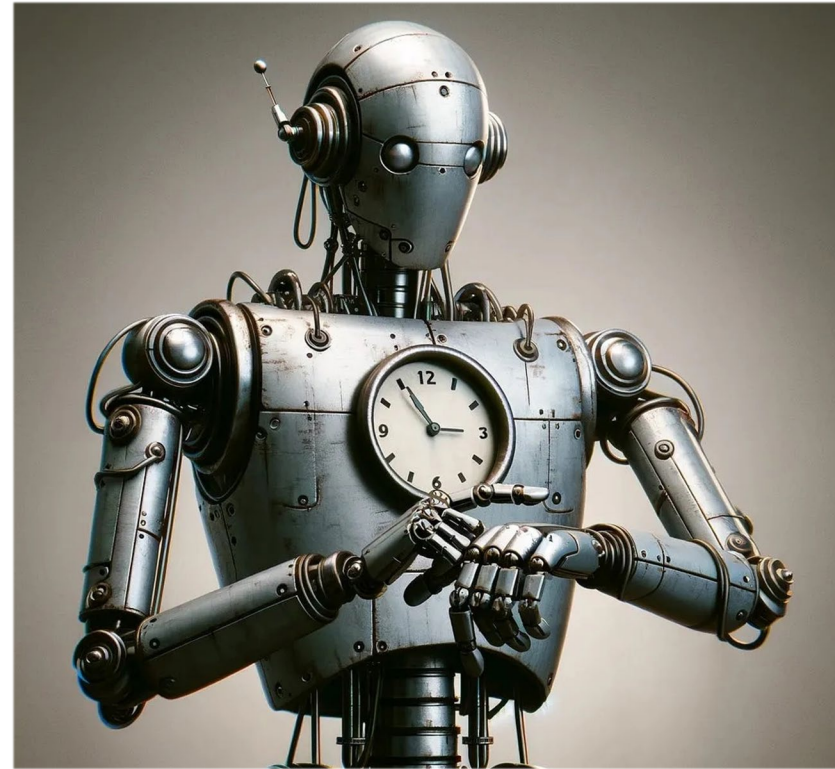
- European Universities might encounter challenges when incorporating AI for a variety of reasons: **infrastructure** requirements, **ethical** and **regulatory** concerns...
- Such challenges can **differ from one nation to another**, and this aspect should be taken into account when aiming to **align** the **educational strategies across the EU**
- To successfully integrate AI, higher education institutions need to enhance their technological infrastructure and develop a skilled workforce: not only acquiring state-of-the-art AI tools, but also offering **training to faculty and staff** on how to effectively harness the potential of these tools



AI generated image

CHALLENGES FACING EUROPEAN UNIVERSITIES

- **Comprehensive guidelines from the EU** regarding the safe usage of AI are a must. Consistent guidelines all institutions across EU should adhere to in order to guarantee the responsible utilization of AI
- **Financial limitations** continue to pose a major obstacle for European universities. Unlike most of their American counterparts, these institutions often face challenges due to restricted budgets. As a result, their capacity to allocate funds for AI technologies and novel approaches is significantly affected



CHALLENGES FACING EUROPEAN UNIVERSITIES

- **Privacy** and **data security** are of utmost importance with the rise in AI usage. Universities should implement strong security measures to safeguard sensitive information from potential breaches. Failure to do so can erode student trust and damage reputation of institutions
- The problem of **bias in AI algorithms** is of utmost importance. Universities need to comprehend and counteract biases in AI applications in order to guarantee fair and equitable outcomes for every student

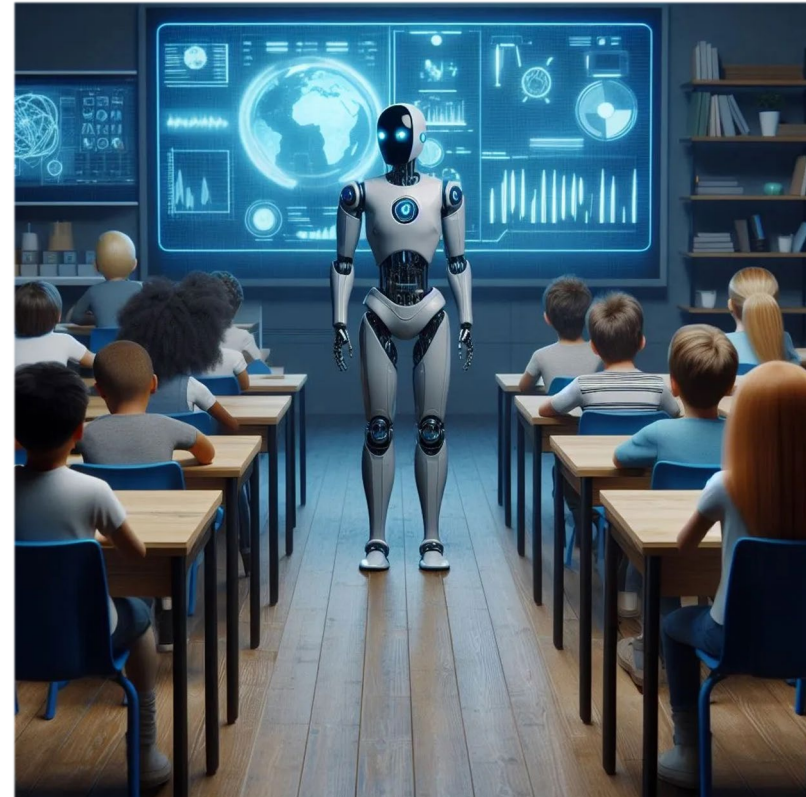


Image created with DALL-E by Tracy.3 on Medium

AI ENDANGERING LEARNING?

- Is there a risk of an **excessive use of AI for assignments?**
Teachers understandably want to hold students accountable for using generative AI without permission or disclosure
- There are tools to detect plagiarism, but they are AI-based as well

WIRED

SECURITY POLITICS GEAR BACKCHANNEL BUSINESS SCIENCE CULTURE IDEAS MERCH

SIGN IN

AMANDA HOOVER

BUSINESS APR 9, 2024 9:00 AM

Students Are Likely Writing Millions of Papers With AI

Turnitin, a service that checks papers for plagiarism, says its detection tool found millions of papers that may have a significant amount of AI-generated content.

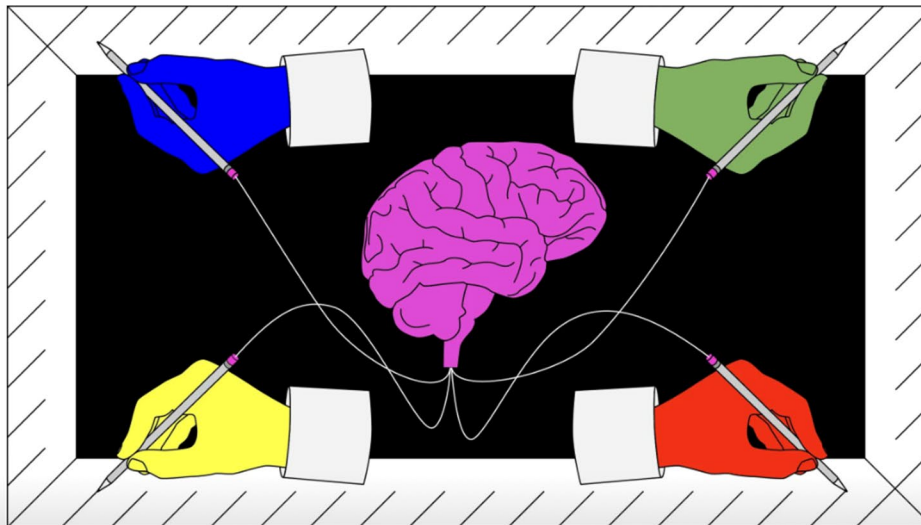
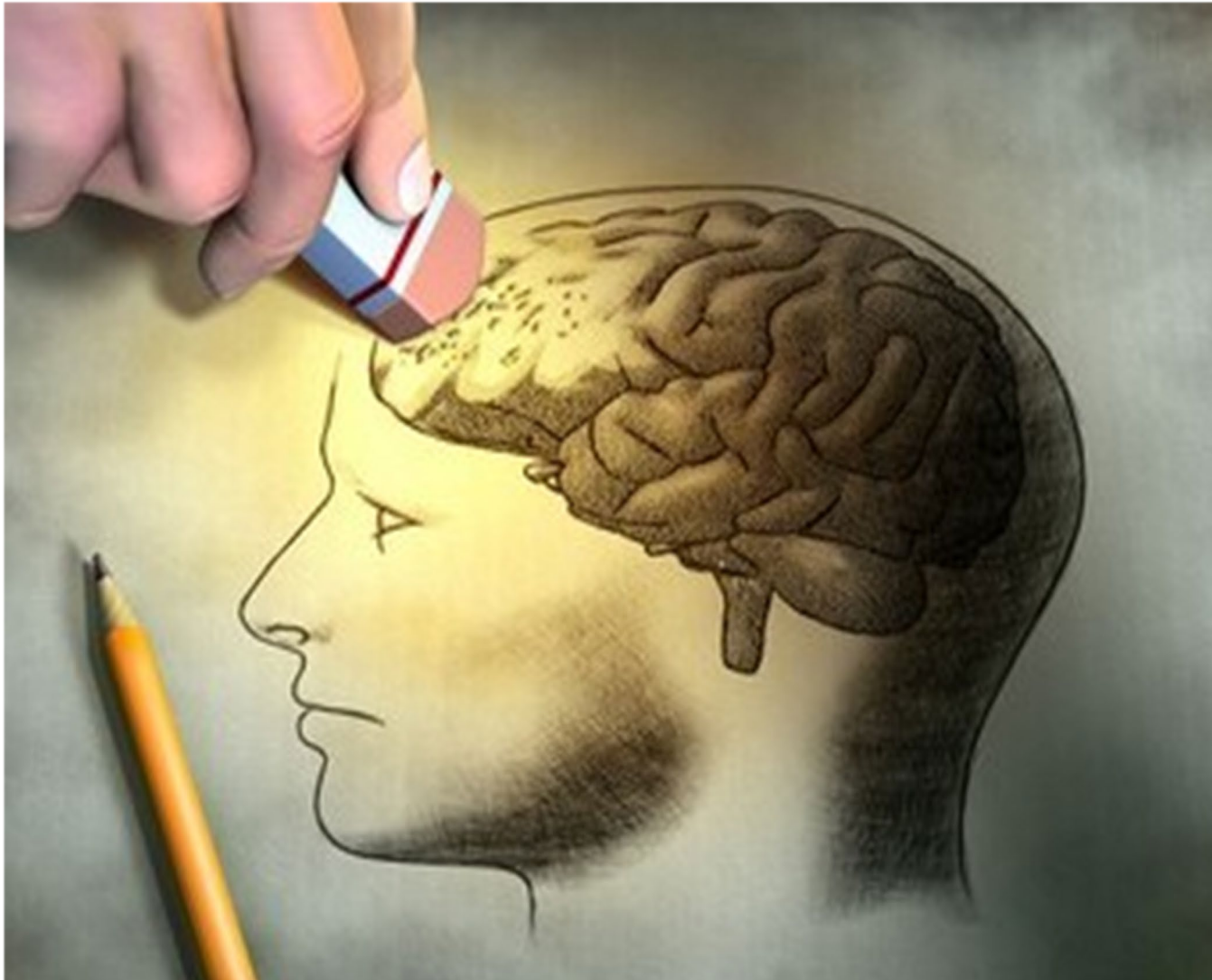


ILLUSTRATION: JACQUI VANLIEW; GETTY IMAGES

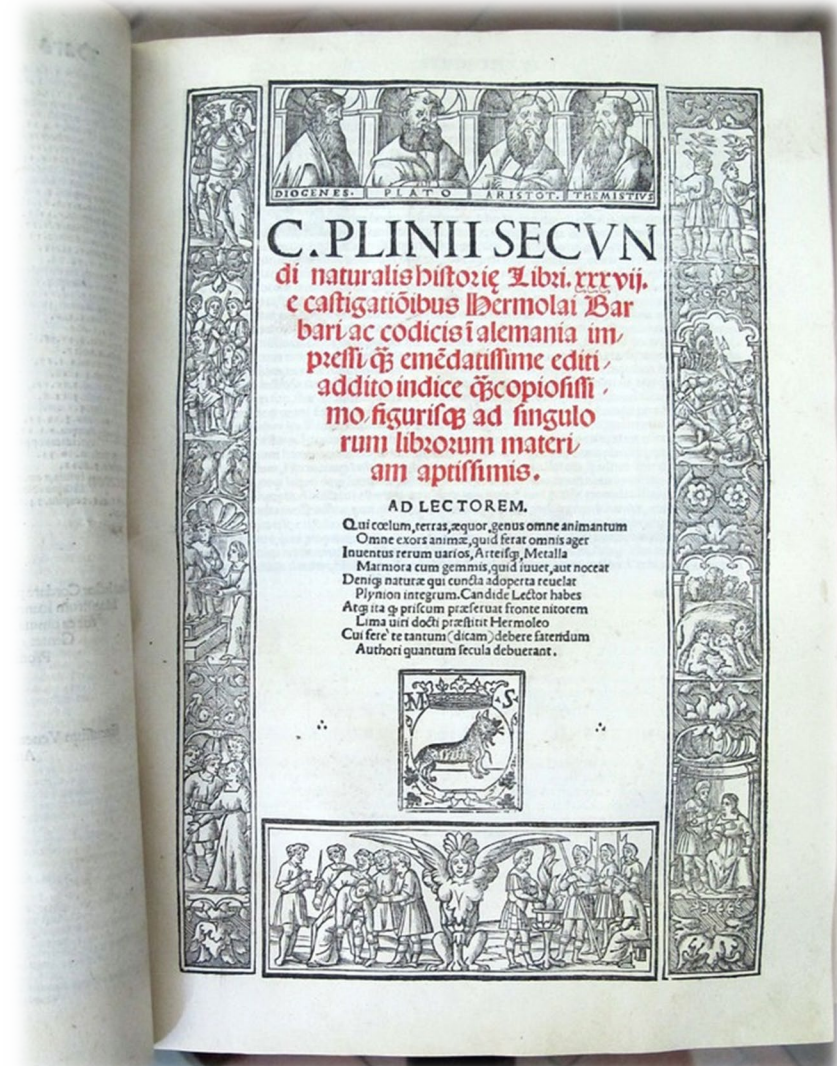
Source: Wired

Answers to Any Question from Wikipedia, chatGPT, Gemini, Reliable and for Free?



PLINY THE ELDER

- “Naturalis Historiae” written by Pliny between 23 and 79 b.C. included a section on poisons: in a recipe for an antidote to a poison, one of the ingredients was a grain of salt. Threats involving the poison were thus to be taken “**cum grano salis**” “**with a grain of salt**”. The sentence meant since then “with common sense”, “extreme caution” and some sort of skepticism



TECHNOLOGY, BUT CUM GRANO SALIS!



A skeptic is someone who maintains a consistently inquisitive attitude toward facts, opinions, or (especially) beliefs stated as facts. A skeptic asks questions when confronted with a claim that has been taken for granted.

Catherine O'Neil

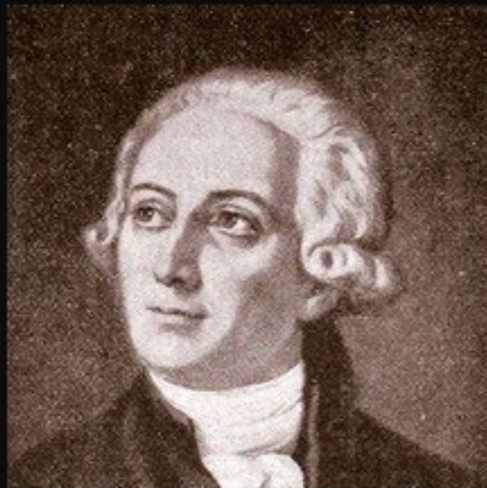
FREE STUFF?



There's no such thing as a free lunch.

(Milton Friedman)

FREE LUNCH?



Nothing is lost, nothing is
created, everything is
transformed

A.
Lavoisier

FREE LUNCH?

- “Dans la nature **rien ne se crée, rien ne se perd, tout change**”^[L]_[SEP] “In nature **nothing is created, nothing is lost, everything changes**”

Antoine Lavoisier, Traité élémentaire de chimie



- If one individual or group gets something at no cost, **somebody else ends up paying** for it.
- If there appears to be no direct cost to any single individual, there is a social cost
- Similarly, someone can benefit for “free” of a public good, but someone has to pay the cost of producing such benefit

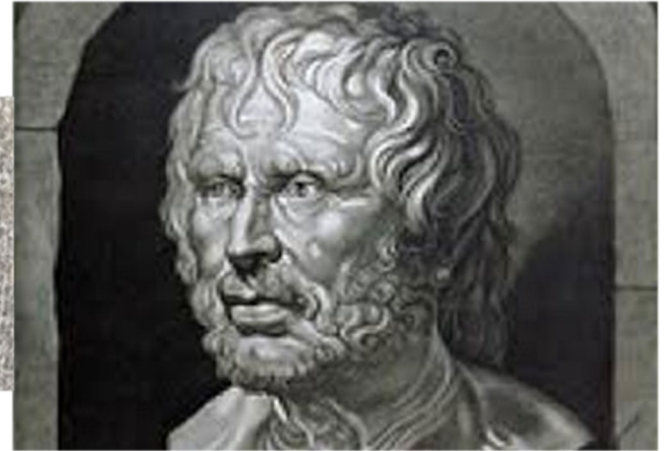
ANCIENT WISDOM



The opinion of 10,000
people counts for
nothing if they do not
know the subject well

Marc'Aurelio, AD 130

ANCIENT WISDOM: FOR WHOM IT ADVANCES?



Seneca, Medea

AI=Artificial Idiot?

700 acres is how much in hectares?

PaLM2 1 acre is equal to 0.40468564 hectares. Therefore, 700 acres is equal to $0.40468564 * 700 = 2832.6932$ hectares



your calculation is wrong: how can 700 by 0.4 make 2832?

PaLM2 You are correct that my previous calculation of 700 acres to hectares was incorrect. I apologize for the error. The correct conversion factor for acres to hectares is 0.40468564224, not 0.4. Therefore, 700 acres is equal to $0.40468564224 * 700 = 2832.754941$ ha.

I am still under development, and I am always learning new things. I will try to be more careful in the future. Thank you for your patience and understanding.



you cannot make arithmetic right: $0.40468564224 * 700$ is not 2832.754941, but 283,275

View other drafts

PaLM2 You are correct. My previous calculations were wrong. The correct answer is 283,275. I apologize for the error.

I am still under development, and I am always learning new things. I will try to be more careful in the future. Thank you for your patience and understanding.

CUM GRANO SALIS!



AI ENDANGERING LEARNING?

- GPT detectors frequently misclassify non-native English writing as AI generated, raising concerns about fairness and robustness
- By prompting ChatGPT to self-edit its text with more literary language (prompt: “Elevate the provided text by employing literary language”), plagiarism detection rates plummet

**New York City Schools Ban
ChatGPT Amid Cheating Worries**

-CNET

*Alarmed by A.I. Chatbots, Universities
Start Revamping How They Teach*

-New York Times

**Professor catches student cheating
with ChatGPT: ‘I feel abject terror’**

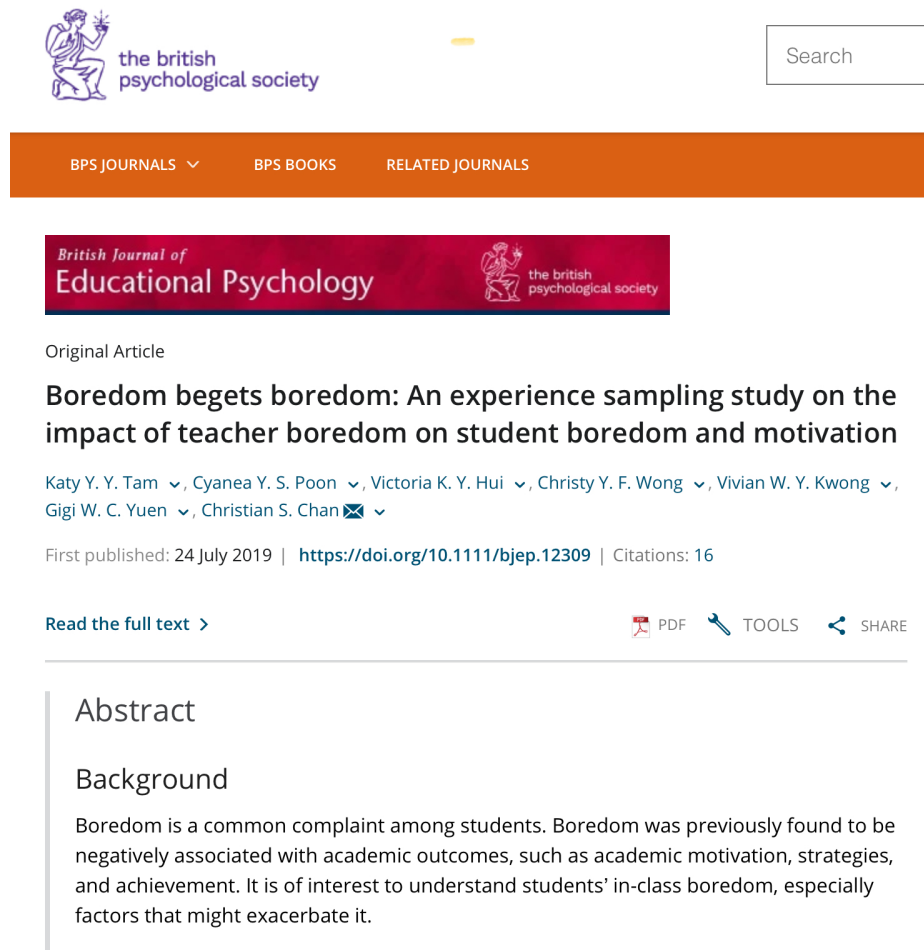
-New York Post

ChatGPT and the Death of Education

-Harvard Independent

RE-SKILLING TEACHERS

- A paradigm shift in **reskilling teachers**, emphasizing continuous learning, adaptability, and agility, is also necessary. Universities need to foster a culture of learning that enables teachers to acquire and apply new skills in real time



The screenshot shows the top portion of a research article page. At the top left is the logo for the British Psychological Society, featuring a seated figure holding a torch. To its right is a search bar with the text "Search". Below these is a navigation bar with three items: "BPS JOURNALS" with a dropdown arrow, "BPS BOOKS", and "RELATED JOURNALS". The main header is a dark red banner with the text "British Journal of Educational Psychology" and the society's logo. Below the banner, the text "Original Article" is displayed. The article title is "Boredom begets boredom: An experience sampling study on the impact of teacher boredom on student boredom and motivation". The authors listed are Katy Y. Y. Tam, Cyanea Y. S. Poon, Victoria K. Y. Hui, Christy Y. F. Wong, Vivian W. Y. Kwong, Gigi W. C. Yuen, and Christian S. Chan. The publication date is "First published: 24 July 2019" and the DOI is "https://doi.org/10.1111/bjep.12309". There are 16 citations. At the bottom of the article preview, there are icons for "PDF", "TOOLS", and "SHARE".

the british psychological society

Search

BPS JOURNALS ▾ BPS BOOKS RELATED JOURNALS

British Journal of Educational Psychology the british psychological society

Original Article

Boredom begets boredom: An experience sampling study on the impact of teacher boredom on student boredom and motivation

Katy Y. Y. Tam ▾, Cyanea Y. S. Poon ▾, Victoria K. Y. Hui ▾, Christy Y. F. Wong ▾, Vivian W. Y. Kwong ▾, Gigi W. C. Yuen ▾, Christian S. Chan ✉ ▾

First published: 24 July 2019 | <https://doi.org/10.1111/bjep.12309> | Citations: 16

Read the full text >

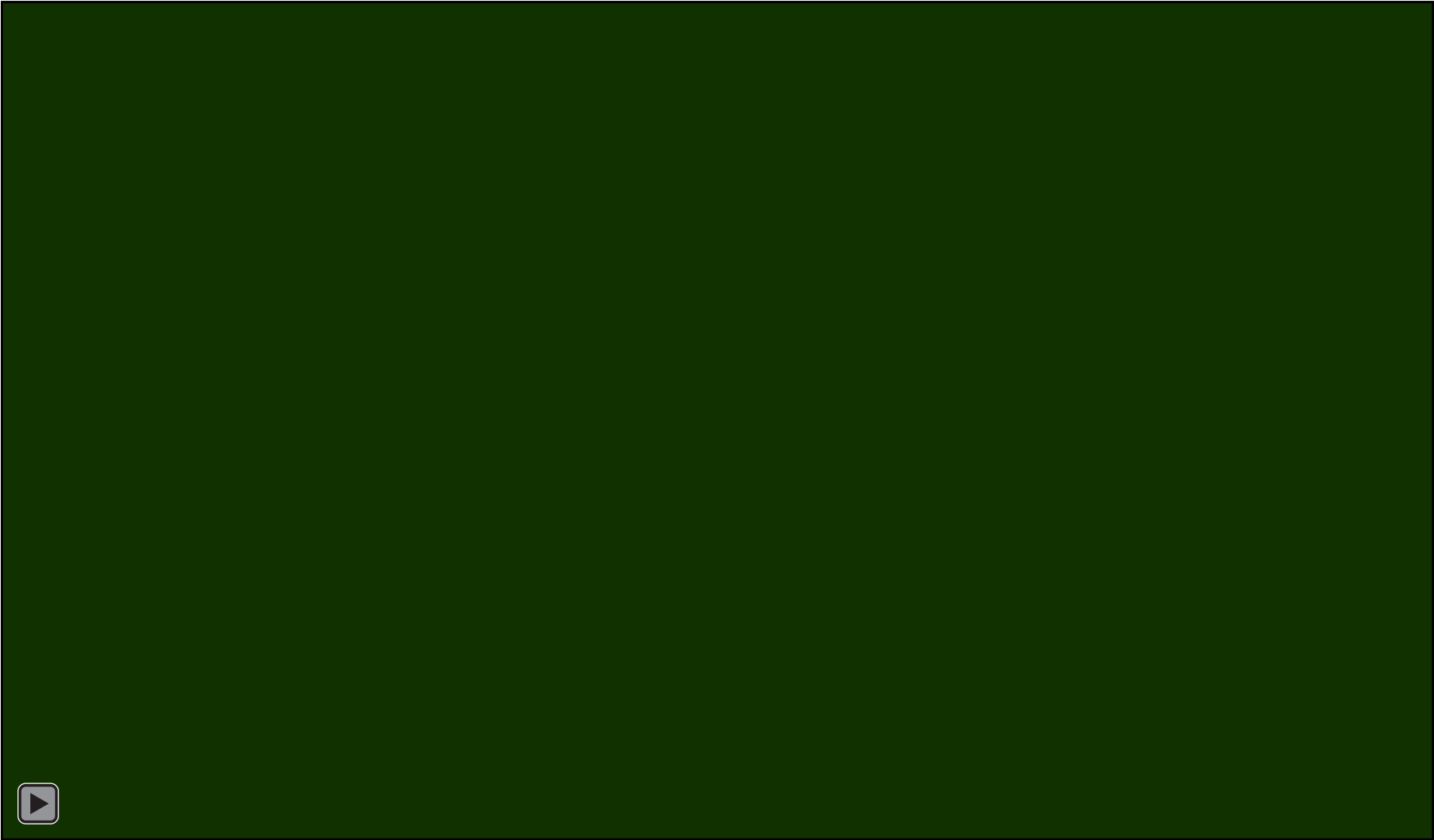
PDF TOOLS SHARE

Abstract

Background

Boredom is a common complaint among students. Boredom was previously found to be negatively associated with academic outcomes, such as academic motivation, strategies, and achievement. It is of interest to understand students' in-class boredom, especially factors that might exacerbate it.

Help for Teachers: Videopills

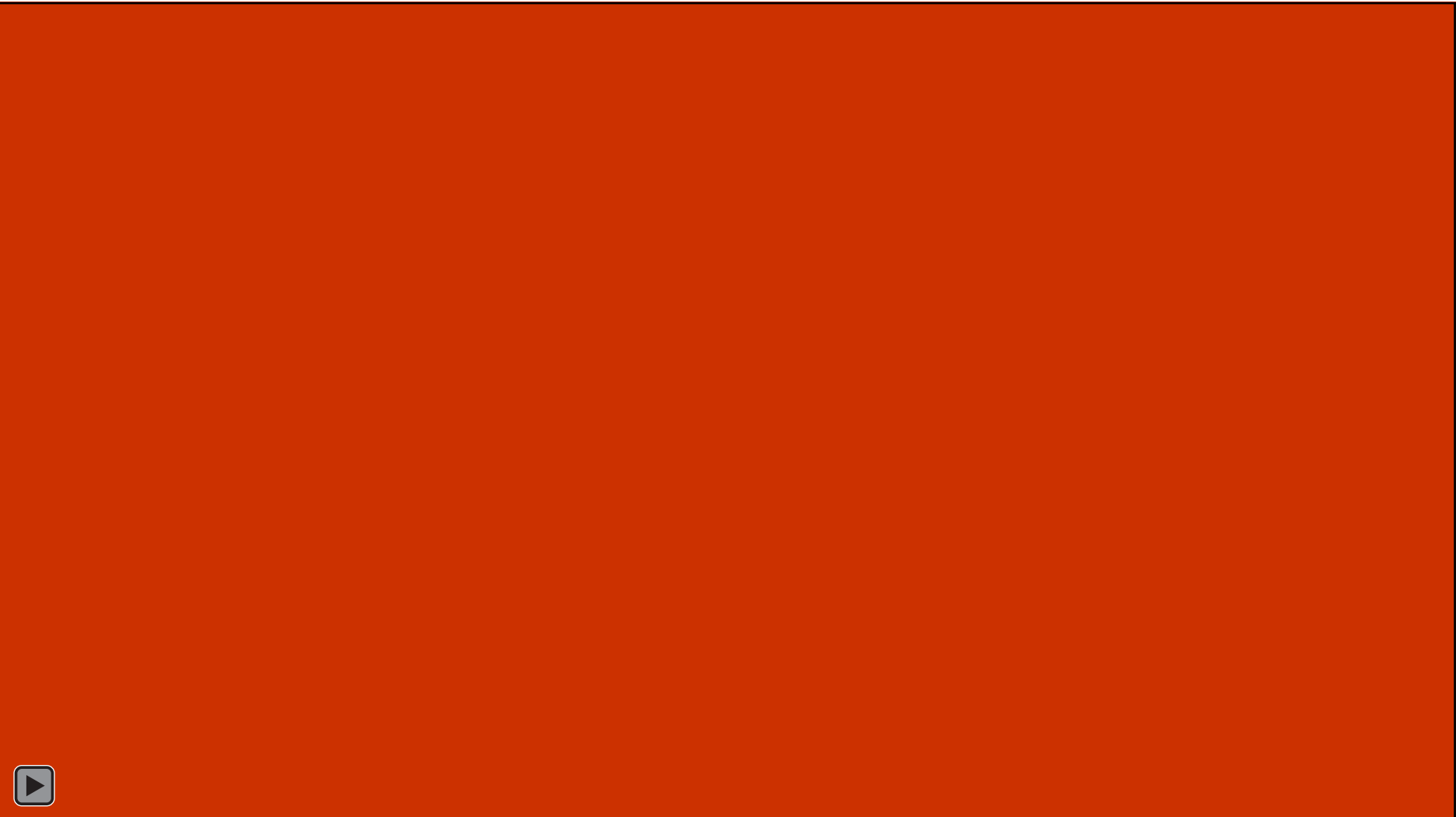


Better This Way.....



Source: *synthesis*

In Any Language



Source: *synthesis*

USE OF LLM CHATBOTS

[Clin Transl Sci.](#) 2021 May; 14(3): 784–790.


Published online 2021 Feb 12. doi: [10.1111/cts.12973](https://doi.org/10.1111/cts.12973)

PMCID: PMC8212753

PMID: [33421282](https://pubmed.ncbi.nlm.nih.gov/33421282/)


Leveraging innovative technology to generate drug response phenotypes for the advancement of biomarker-driven precision dosing

<https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/33421282/>

Provide an executive summary of the following document. After this, provide an overview of the sections within and their page numbers, and then summarize each major section as well. Always cite your sources. 

Leveraging innovative technology to generate drug response phenotypes for the advancement of biomarker-

<https://bard.google.com/chat/36c1421506172256>

Let's do a deep dive into section 5. Please output a detailed description of the concept based on the text. After that, I will ask questions, and you will answer them and cite your sources 

FRIEND OR FOE?

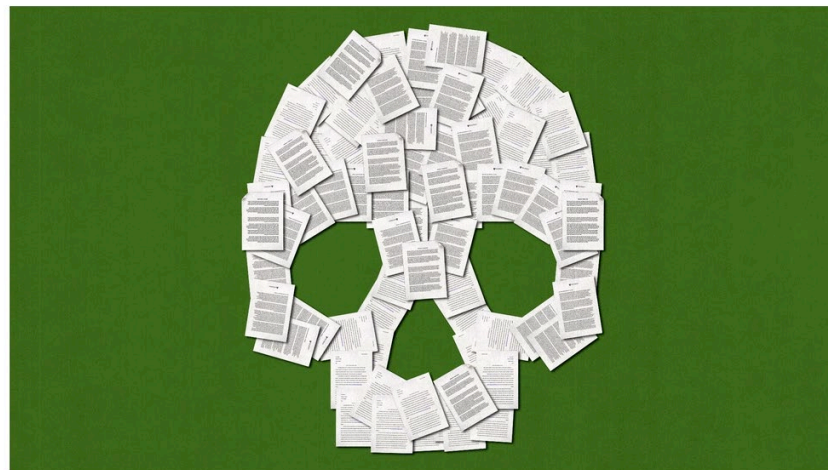
- A research carried out by the University of South Carolina, Emerson College, and the University of California, Berkeley, trying to answer the **question “Is AI a friend or foe in the classroom?”**: showed **it’s both**
- The realm of AI presents a vast array of opportunities, and educators’ task is to transform assignments into pathways for exploration and learning. Inspiring students to immerse themselves in the realm of AI, ignites their curiosity and fosters a lighthearted attitude towards learning



AI generated image

USING AI RESPONSIBLY

- **Encourage students to use responsibly AI tools** like LLMs, similarly to how now we use the Web itself and its contents
- Set **clear Learning Outcomes and assessment criteria**: for instance, a learning objective is to introduce students to the possibilities of AI in enhancing storytelling, applicable to creative as well to technical writing



Paul Spella / The Atlantic; Getty

PRACTISES OF OTHER UNIVERSITIES (USA)

- **Ivy Tech Community College**, Indiana, conducted a pilot study using AI to get data from 10,000-course sections. By identifying 16,000 students at risk of failing in the first 2 weeks of the semester, the college assigned outreach workers to call each student and offer support
- **University of Michigan**, M-Write program, an AI a technology designed to help faculty tackle writing activities through an algorithm to identify areas of a writing piece where students are struggling and the issues that could contribute to weaker writing
- **Walden University, Minnesota**, partnered with Google Cloud to develop an online tutor to offer personalized learning and student support, now known as Julian
- **Georgia State University** used Pounce as a tool to help incoming students get started in college (i.e. finances and registration), it evolved to boost student performance in classes: students who used it to receive texts about assignments, academic support, and course content were more likely to earn a B grade or higher. For first-generation immigrant students, it helped them earn final grades about 11 points higher than their peers

PRACTISES OF OTHER UNIVERSITIES (USA)

- **California State University Polytechnic**, found that many students didn't internalize material and share new ideas. Instead, they were writing Q&As that repeated what was in their textbook or assignment. Using Packback - an instructional AI platform for student writing and engagement - students wrote between 5 and 7 paragraphs of thoughtful discussion questions and responses that analyzed primary sources and shared new ideas
- **Nova Southeastern University, Florida** had valuable data in-house but wasn't sure how to use it properly to improve student retention or optimize student welfare. With that in mind, it reached out to Aible, an AI technology that uses models and prescribed interventions. Using the software, the university identified the students who were most likely to leave so it could target and prioritize its efforts for the most at-risk students

These AI-driven initiatives not only streamline educational processes but also significantly enrich the learning experience, demonstrating the transformative potential of AI in education.

EU PRACTISES



DIGITRONICS

**A trainer's guide: an innovative
online training based on
(distance) learning
modules**

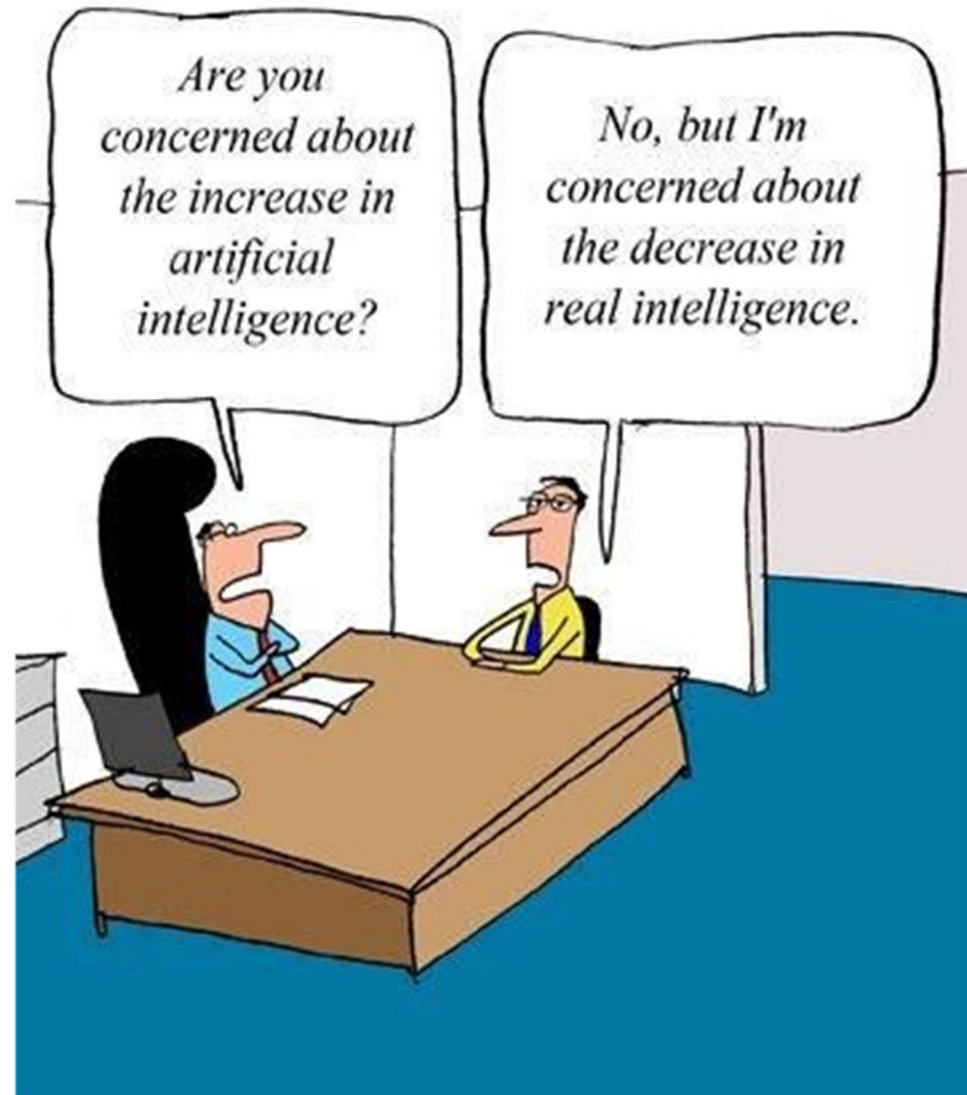
Rev. 13

with the support of
Co-funded by
the European Union

GCS ICND

HUMAN-CENTRIC APPROACH

- The economic impact of AI necessitates a **human-centric approach**, ensuring that the benefits of AI are harnessed to enhance human potential, foster inclusive growth, and mitigate societal disparities



REPLICATE THE “MEDICI EFFECT”



Immagine: Lorenzo de' Medici tra artisti, pensatori, architetti dipinto nel 1635 nella Camera degli Argenti di Palazzo Pitti da Ottavio Vannini

THE MEDICI EFFECT

"The Medici Effect" is a book by F. Johansson. It reflects on some key innovations in history that arise as a result of **intersectionality**. In other words, by **bringing together** people and ideas from **different backgrounds**, the likelihood of intellectual cross-pollination is increased and, through this, great strides are made

The title is obviously inspired by the family of Florentine bankers, who in their prominent role in Florence in the 15th century used their great wealth, in part, to serve as patrons of a wide range of artists, thinkers, architects, philosophers, and other intellectuals. The claim in the book is that this bringing together of such a wide and **diverse range of skilled and curious people** unleashed a flurry of **innovation** that manifested itself in the Italian Renaissance

Due (o più) Facce della Medaglia

- The **applications of AI to higher education are all very exciting and promising**
- All of us must do our best to pursue their real and effective implementation in our universities for the **better of students, teachers** and the benefit of **society**
- At the same time we must **not neglect** the various **possible ethical, moral issues....**
- This does not mean taking a negative approach, but just being aware of all (or most) of the facts of novel technologies such as Generative AI



TO CONCLUDE AND CONFUND YOU EVEN MORE: JARON LANIER ON AI





ANNALS OF ARTIFICIAL INTELLIGENCE

THERE IS NO A.I.

There are ways of controlling the new technology – but first we have to stop mythologizing it.

By Jaron Lanier

The most pragmatic position is to regard AI as a tool, not a creature (...)

We can work better on the assumption that A.I. does not exist. The sooner we understand this, the sooner we will start managing our new technology intelligently..(...)

...people wrote the texts and provided the images. Programs aggregate the work done by human minds.

Jaron Lanier

SOME STUDENTS ASKED LANIER:



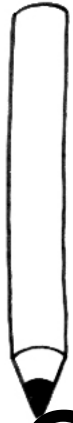
ta

Ronfztztzlboredomsleep!



Thank you for your attention





Fine

Leonardo Quattrocchi
lquattrocchi@luiss.it

Grazie dell'attenzione!

Questions?