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Artificial Intelligence and the cyber utopianism of justice. Why AI is not intelligence and man's struggle to survive himself

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Abstract

Objective: to show the ontological differences between human and artificial intelligence and address structural divergences at the definitional level.

Methods: dialectical approach to cognition of social phenomena, allowing to analyze them in historical development and functioning in the context of the totality of objective and subjective factors, which predetermined the following research methods: formal-logical and sociological.

Results: a cross-cutting analysis was applied to the phenomenon of AI between cyber utopianism and cyber realism. Starting from a quote by Max Tegmark, the theory of artificial intelligence is reconstructed by the theorists who founded the discipline (Turing, Minsky, Bernstein, von Neumann) and it is discussed why – in light of the discoveries and assumptions of neuroscience – it is not possible to define it as intelligence according to human criteria. Three short notes are included in the appendix that complete the discussion: 1. on the consciousness of machines 2. on the theory of utopian cyber employment and remuneration 3. "The hungry judge is more cruel" (discussion on an Israeli study).

Scientific novelty: through the examination of multiple types of intelligence (Gardner) and social intelligence (Thorndike, Goleman), a more complex definition of intelligence is proposed than that which can be replicated by artificial neural networks, especially in relation to the interaction between animal and environment. Three short messages highlight the uncertainty and risks that may arise from the rampant use of artificial intelligence as judges.

Practical significance: starting from a correct definition of human intelligence, the author comes to the definition of artificial intelligence. Beyond the myth of AI, we discover its limits and the objective limitations we must provide for in order to save the most precious asset we have: mankind.

Keywords:

artificial intelligence, justice, criminal law, neuroscience, computational theory

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Научная статья

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Искусственный интеллект и киберутопизм в правосудии. Почему ИИ – не интеллект; борьба человека за собственное выживание

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Аннотация

Цель: рассмотрение онтологических различий между человеческим и искусственным интеллектом и структурных расхождений на уровне дефиниций.

Методы: диалектический подход к познанию социальных явлений, позволяющий анализировать их в историческом развитии и функционировании в контексте совокупности объективных и субъективных факторов, что предопределило следующие методы исследования: формально-логический и социологический.

Результаты: феномен ИИ подвергнут всестороннему анализу в контексте киберутопизма и киберреализма, начиная от основателей теории искусственного интеллекта (Тьюринга, Минского, Бернштейна, фон Неймана) и заканчивая недавними работами Макса Тегмарка. Показано, что открытия и гипотезы нейробиологии не позволяют определить ИИ в качестве интеллекта по человеческим критериям. В приложение включены три короткие заметки, подводящие итог обсуждению: 1. О сознании машин; 2. О теории утопической кибернетической занятости и системы вознаграждения; 3. Обсуждение израильского исследования «Голодный судья судит строже».

Научная новизна: на основе теорий множественного интеллекта (Гарднер) и социального интеллекта (Торндайк, Гоулман) автор предлагает определение интеллекта как более сложной системы, чем та, которая может быть воспроизведена искусственными нейронными сетями, особенно в отношении взаимодействия животного и окружающей среды. Короткие заметки в приложении показывают неопределенность и риски, которые могут возникнуть в связи с широким использованием искусственного интеллекта в роли судей.

Практическая значимость: через корректное определение человеческого интеллекта автор приходит к определению искусственного интеллекта. За мифом об искусственном интеллекте обнаруживаются его пределы и объективные ограничения, которые необходимо предусмотреть, чтобы спасти самое ценное, что есть у человечества, – его человеческую сущность.

Ключевые слова:

искусственный интеллект, правосудие, уголовное право, нейробиология, теория вычислений

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Introduction. The theme, the provocation, the suggestion

In a conceptually essential passage of his book "Life 3.0 – Being human in the era of artificial intelligence", Max Tegmark (2018) proposed a scenario of the application of AI to law. He states:

> "*What are the first associations that come to your mind when you think about the court system in your country? If it's lengthy delays, high costs and occasional injustice, then you're not alone. Wouldn't it be wonderful if your first thoughts were instead "efficiency" and "fairness"?"* (Tegmark, 2018, p. 136).

This is the premise, but let us delve deeper into the underlying method:

> *"Since the legal process can be abstractly viewed as a computation, inputting information about evidence and laws and outputting a decision, some scholars dream of fully automating it with robojudges: AI systems that tirelessly apply the same high legal standards to every judgment without succumbing to human errors such as bias, fatigue or lack of the latest knowledge"* (Tegmark, 2018, p. 136).

It would be enough to reread the chapter "Logic and thought" in "Rationality: What it is, why it seems scarce, why it matters" by Steven Pinker (2022) to use this statement as a real compendium if not a real manual of what Pinker defines as "formal and informal fallacies".

The consequence is worse than the premise:

> *"Robojudges could in principle ensure that, for the first time in history, everyone becomes truly equal under the law. …they could be programmed to all be identical and to treat everyone equally, transparently applying the law in a truly unbiased fashion…Robojudges could also eliminate human biases that are accidental rather than intentional. Another shortcoming of human judges is that they may lack sufficient time to explore all details of a case. In contrast, robojudges can easily be copied, since they consist of little more than software, allowing all pending cases to be processed in parallel rather than in series, each case getting its own robojudge for as long as it takes. Finally, although it's impossible for human judges to master all technical knowledge required for every possible case, from thorny patent disputes to murder mysteries hinging on the latest forensic science, future robojudges may have essentially unlimited memory and learning capacity"* (Tegmark, 2018, p. 137).

The manifesto of cyber-utopianism

The sum of cyber-utopianism (Morozov, 2012) is almost completely expressed in this reconstruction. An emotionally argued premise is appealed to: the undoubted defects of costly, often imperfect and not always speedy justice. A fast, economical and "certain" solution of a machine is proposed to the human fallacy.

It appeals to the common perception considering a completely incomplete premise and introduces a very dangerous assumption: "legal processes can be seen in the abstract as a computation, with evidence and laws as inputs and a decision as output".

Here lies the first error, which, if it has a certain effect on a common man, can hardly enchant and replace a complete and profound analysis of the theme.

Legal processes are not computation, but pondering. They concern people and facts that are never identical to each other. And mathematical rules cannot be applied to individual cases. Mathematical algorithms are created precisely to abstract, generalize, use a single formula to a variety of data.

Furthermore, almost trivially, we should remember that if "the law" does not change, jurisprudence certainly evolves, while "the algorithm" does not. Upon closer inspection, there is a fundamental error – now historical – generated by the similarity between neuronal networks and computational networks. The error is generated by the comparison between a human (animal) brain and a computer, which was refuted by the theory of computation. The founders of computational theory and in some way the fathers of so-called artificial intelligence understood this intuitively and conceptually.

Thus, before resuming the reasoning between a presumed (aberrant) application of AI and robot judges to law and trials, it is good to revisit some considerations on the brain-computer similarity. It is significant that cyber utopianism, which also affirms the founding value of "substantially unlimited memory and learning capacity", wishing to push the growth of computational capacity and to spread AI applications, knowingly selects and retains and partially and covertly disseminates only some of the assumptions of the computation founders.

It is not a gratuitous accusation. If this is what the "programmers" and designers of the new artificial intelligence do, how can we believe in the impartiality, neutrality, and "omni-comprehension" of the information of their creations? Let us think about this the next time they sell us an AI "that contains everything" because in "too much" it is easy to lose something quantitatively negligible but content-wise and conceptually essential.

Research results

The short memory of cyber-utopians on the theory of computation and AI

Alan Turing stated in "Proposed electronic calculator" (1946)[1]:

"*It will be almost our most serious problem to make sure that the calculator is doing what it should. We may perhaps distinguish between three kinds of error.*
(1) Permanent faults' that have developed in the wiring or components, e, g. condensers that have become open circuit.
(2) Temporary errors due to interference, noise reaching unexpected levels, unusual combinations of voltages at some point in the circuit, etc.
(3) Errors due to the use of incorrect instruction tables, or even due to mistaken views as to what the circuit should do".
It will be our intention to install monitoring circuits to detect errors of form (l) fairly soon.
Errors of type (2) should not occur when the apparatus is in proper working order, however when a component is beginning to ago its deficiencies will often how themselves first in this sort of way. Incorrect instruction tables (3) will often be shown up by the checks which have been put into these same instruction tables." (Turing, 1946, p. 16) *"There are three chief functions to be performed by the checking. It must eliminate the possibility of error, help to diagnose faults, and inspire confidence. … In order to inspire confidence the checking must have some visible manifestations. Certainly whenever a check fails to work out the matter oust be reported by the machine"* (Turing, 1946, p. 17).

The founder of computation is confident in his exemplification of the three types of error. Among them, perhaps, the third denotes a certain technocratic utopianism in man: the idea that one does what one must do almost as if it were a scientific need, which he does not take into account (consistent with Alan Turing's approach and vision) of economic interest. But of the verification tasks there is only one that the cyber utopians have really cared about: inspiring trust (the rest is negligible and often overlooked).

Turing wrote in "Intelligent machinery: a report" (1948):

"I propose to investigate the question as to whether it is possible for machinery to show intelligent behaviour.
"(a) An unwillingness to admit the possibility that mankind can have any rivals in intellectual power".
"(b) A religious belief that any attempt to construct such machines is a sort of Promethean irreverence".
"(c) The very limited character of the machinery which has been used until recent times (e.g. up to 1940). This encouraged the belief that machinery was necessarily limited to extremely straightforward, possibly even to repetitive, jobs".
"(d) Recently the theorem of Godel and related results ... have shown that if one tries to use machines for such purposes as determining the truth or falsity of mathematical theorems and one is not willing to tolerate an occasional wrong result, then any given machine will in some cases be unable to give an answer at all".
If and to the extent that "a machine can show intelligence this is to be regarded as nothing but a reflection of the intelligence of its creator" (Copeland, 2004, p. 410; Turing, 1948, p. 2).

To these apparently schematic and simplified statements, however, Turing adds two considerations, very relevant for the purposes of our analysis:

"*The argument from Gödel's and other theorems (objection (d)) rests essentially on the condition that the machine must not make mistakes. But this is not a requirement for intelligence. …The view (e) that intelligence in machinery is merely a reflection of that of its creator is rather similar to the view that the credit for the discoveries of a pupil should be given to his teacher"* (Copeland, 2004, p. 411; Turing, 1948, p. 3).

[1] Turing, A. M. et al. (1946). Proposed electronic calculator. Report, National. https://www.alanturing.net/turing_archive/archive/p/p01/P01-001.html

So already seventy years ago, thinking well beyond the technological aspect and going to the foundations of computation, Turing warned against two gross misunderstandings – which today appear completely forgotten axiomatically (as if technological progress by increasing the computing capacity evaded the fundamental flaw): that the machine must not make errors is not a requirement for intelligence (let alone artificial intelligence) and that intelligence in machines is only a reflection of that of their creator (the idea used for reassuring purposes).

Finally, the overall topic on which it is necessary to think (with human intelligence) is:

"The extent to which we regard something as behaving in an intelligent manner is determined as much by our own state of mind and training as by the properties of the object under consideration" (Copeland, 2004, p. 431; Turing, 1948, p. 19).

In this context too, the point that has in fact become the provocative challenge (and was not intended to be at all!) of the "test" of machine intelligence also deserves due space. Alan Turing foresees many of the most serious objections that can be raised against artificial intelligence. In his fundamental article "Computing machinery and intelligence" (Turing, 1950) he lists nine of them and quotes a passage from a speech given by Geoffrey Jefferson (1949):

"Until a machine can write a sonnet or compose a concerto because of thoughts and emotions felt, and not by the chance fall of symbols, could we agree that machine equals brain-that is, not only write it but know that it had written it. No mechanism could feel (and not merely artificially signal, an easy contrivance) pleasure at its successes, grief when its valves fuse, be warmed by flattery, be made miserable by its mistakes, be charmed by sex, be angry or depressed when it cannot get what it wants" (Jefferson, 1949, p. 1110).

We all know the fundamental rules and conditions of the "Turing game" that he invented and described in the article cited above. Less known is a variant that Turing proposed for his game and which can be useful in trying to define the question on a purely logical or almost logical basis. In this variant the machine part must be supported for example by a human being. The two participants are locked as usual in separate rooms and must conceal their sex while the interrogator tries to discover it based on the typed answers provided to a series of questions. In the contexts of Turing's games it is relevant to remember that no rule requires X to tell the truth.

It is essential to remember that Turing never promised us a machine that was absolutely indistinguishable from us from every point of view (this is the challenge that the companies interested in the relative profits have taken up believing they can do so). His concern was rather to demystify the question of whether machines can think. He accepted as a fact that people think and as a criterion for whether the machine can think he proposed to actually build a machine such that a person cannot distinguish its outputs from the mental products of another person.

Another "sacred monster" of reference for computation is Jeremy Bernstein (Bernstein, 1978; Bernstein 1990), whose fundamental text (in terms of recapitulation) is "Science Observed" (Bernstein, 1982). Bernstein's text is very relevant for two reasons: first, because in some way it "orders and summarizes" much of the elaborations of about thirty years of reasoning at the basis (founding) of computation and AI, secondly because it focuses on and addresses the question of the similarity between brain-mind (human and animal intelligence) and computational machine (artificial intelligence), showing the enormous conceptual inconsistencies well before the notable discoveries of neuroscience.

One of the fathers of computation, Marvin Minsky (1965, p. 4; also mentioned in Bernstein, 1990, p. 16) wrote:

"If one thoroughly understands a machine or a program, he finds no urge to attribute "volition" to it. If one does not understand it so well, he must supply an incomplete model for explanation. Our everyday intuitive models of higher human activity are quite incomplete, and many notions in our informal explanations do not tolerate close examination. Free will or volition is one such notion: people are incapable of explaining how it differs from stochastic caprice but feel strongly that it does" (Minsky, 1965, p. 4).

Bernstein (Bernstein, 1982, p. 12) continues:

"When intelligent machines are built we should not be surprised to find them as stubborn and confused as man in their beliefs relating to the problem of the mind-matter relationship to free will consciousness and the like. In fact, all these problems aim to explain the complicated interactions between the various parts of the self-model".

He also wrote about the machine built in 1951:

"The random connections gave it a sort of protection against failures if even one of the neurons didn't work the consequences weren't that serious... I don't think we'll ever be able to discover how to eliminate all the bugs in our machine … but it didn't matter because of those crazy random connections it was almost certain to work no matter how it was built" (Translation from Italian (Bernstein, 1990, p. 17)).

According to Minsky's description the machine built at Harvard was fundamentally Skinnerian. Its unrewarded behavior was more or less random and this limited its learning capabilities; it never managed to formulate a plan.

Here we return to computational network/neural network parallelism. The question that McCulloch and Pitts (1943) sought to answer is what a neural network of this kind can do. The list of their axioms is as follows:

1) the activity of a neuron is an all or nothing process (a neuron is either active or not);

2) at any instant for a neuron to be excited it is necessary that a well-determined number of synapses are excited during the latent addition period;

3) the only significant delay within the nervous system is synaptic delay;

4) if any inhibitory synapse is active, the excitation of the neuron at that moment is absolutely prevented (now we know that they are added to the rest of the synaptic input);

5) the structure of the network does not change over time (this requires a strong re-elaboration).

The last axiom presumably means that the behaviors of this ideal network are considered immortal.

The end of brain-computer equality

A few years after the appearance of the above article, von Neumann (von Neumann, 1958) – the father of at least the first three super "computers" in history – inspired by their results wrote:

> *"Everything that can be described in an exhaustive and unambiguous way, everything that can be expressed in words in a complete and unambiguous way is ipso facto feasible through an appropriate finite neural network"* (translation from Italian (Bernstein, 1990, p. 92)).
>
> *"The vast majority of contemporary AI researchers believe they need to build increasingly complex programs. In light of what has been achieved so far, this activity is justifiable, fruitful but can also be misleading"* (translation from Italian (Von Neumann, 2014, p. 135)).

The following observation was made by Francis Crick (1955) in an article appearing in *Scientific American*:

> *"The advent of larger, faster and cheaper computers has given us an idea of the results that can be obtained with fast computing. Unfortunately, the analogy between the computer and the brain, although useful in some respects, can be misleading. In a computer, information is processed very quickly in a serial manner. In the brain the processing speed is much slower but the information can be processed in parallel on millions of channels. The behaviors of a modern calculator are very reliable but by eliminating one or two of them you can upset an entire process. In comparison, the brain's neurons are much less reliable, but excluding some of them is unlikely to make an appreciable difference in behavior. A calculator works on the basis of a strict binary code. It seems that the brain instead relies on less precise communication methods but on the other hand it is likely that it regulates the number and performance of synapses in complex ways to adapt their functioning to experience. It is not surprising, therefore, that although a computer can accurately and rapidly perform long and abstruse arithmetic calculations, tasks at which humans are poorly successful, humans themselves are able to recognize shapes in ways that no computer today can remotely imitate"* (translation from Italian (F. H. C. Crick, 1979)).

In 1966 von Neumann:

> *"…discussed the general design of a self-reproducing automaton. He said that it is in principle possible to set up a machine shop which can make a copy of any machine, given enough time and raw materials. This shop would contain a machine tool B with the following powers. Given a pattern or object X, it would search over X and list its parts and their connections, thereby obtaining a description of X. Using this description, the tool B would then make a copy of X. "This is quite close to self-reproduction, because you can furnish B with itself"* (Neumann, 1966, pp. 82–83).

In a Vanuxem conference (Freeman, 1970), a physicist Freeman Dyson correlated the elements of von Neumann's machine to their biological counterparts. A factory corresponds to ribosomes, a photocopy machine to RNA polymerase and DNA polymerase enzymes, a supervisor is made up of the control molecules, repressor and inducer, and a project corresponds to RNA and DNA: von Neumann understood it first.

How can one design a system that is reliable even though the operations on which it is based are not entirely reliable? Von Neumann understood that the key lies in redundancy the presence of many identical devices with the same function.

He hypothesized that the central nervous system must have a redundant organization in order to function with an acceptable error rate. He also understood that if the universal machine created by Turing could be made to reproduce itself, it could evolve. If a program were modified by a mutation and if despite this modification the machine could continue to reproduce, then a modified descendant would be generated.

According to researchers (F. J. Dyson, 1985; G. Dyson, 2012), von Neumann was convinced that the very possibility of a universal automaton ultimately made unlimited biological evolution conceivable. In the process in which simple organisms evolve into more complex organisms it is not necessary to redesign the fundamental biochemical mechanism every time, it is enough just to modify and extend the genetic instructions.

Von Neumann made this explicit in "The Computer and the Brain" (von Neumann, 1958) but with a declination that definitively should have – and did not – archive the symmetry and suppose similarity between brain (intelligence) and machine (artificial intelligence):

> *"The nervous system is a computing machine which manages to do its exceedingly complicated work on a rather low level of precision…no known computing machine can operate reliably and significantly on such a low precision level"* (von Neumann, 1958, pp. 75–76).

Cyber-utopians and the "who is smarter" challenge

The passage "...no known computing machine could work..." determined the "arms race" of artificial intelligence: the challenge to beat the reasoning of von Neumann, one of the most brilliant minds in history, in intelligence: one had to make an "unknown" machine that could also work. It had to be called artificial intelligence, it had to (as Turing had prescribed) "instill trust" and for this reason the parallel – forced and falsifying scientific reality – with the human brain was called "harmless", to "familiarize" the new creature.

Another of the greatest intelligences of the 20th century also was to be defeated in one blow: Alan Turing playing his game (the first, not the second, which would have been too difficult).

The challenge of cyber utopianism was open.

Cyber-law-utopianism: how robot judges will judge man

There are many points of view regarding the relationship between AI and criminal justice. This law branch causes the most debates and comparison; it also requires essential regulatory and rights protection skills, which do not strictly belong to the competence and attention of other branches of knowledge. The debate is strongly focused on the issues of privacy and increasingly subtle rights, such as the protection of neural rights, copyright, the protection of privacy of personal data and biological metadata up to the discipline of emotional AI.

Leaving aside these aspects for the moment, which are nevertheless relevant, we can thus highlight some of the most important positions on the subject of criminal justice.

According to P. M. Morhat, artificial intelligence may perform such functions in the administration of justice as routine work of a judge, including controlling the activities in court, processing information and documents, providing expert-analytical, linguistic and organizational support for legal proceedings (Morhat, 2018, pp. 25–27). Moreover, the existing practice of using AI in court proceedings showed that it is impossible to separate a human judge from an AI, especially in complex cases; on the contrary, they must cooperate so that a human judge may control AI. The key issue is to analyze the algorithm for communication between artificial intelligence and humans (Buocz, 2018).

Researchers (Andreev et al., 2020, p. 31) pointed out that AI performance cannot be isolated from the actions of a human judge in legal proceedings. It is still impossible to obtain autonomous "machine decisions" (judicial acts). An evaluation by a human judge is required in such issues as legal qualification and others. The judge's decision is made during the actual trial. However, the machine determines the sentence without taking into account the defendant's interaction with the judge (court). It does not evaluate verbal and non-verbal means of communication (tone of voice, facial expression, gestures, posture). These and other observations form a defendant's psychological portrait and help to ensure that the scope of correctional influence is adequate to the criminal case (Alikperov, 2018, p. 21).

These issues are considered in the conceptually essential passage of "Life 3.0" by Max Tegmark in which he introduces the application of AI to law. However, his reasoning should be cautiously applied to other spheres of human activity: medicine, vehicle driving, scientific research, or teaching. Certain defects cannot be easily eliminated using a machine instead of a human being. In the sphere of law and right, the situation is as follows:

"What are the first associations that come to your mind when you think about the court system in your country? If it's lengthy delays, high costs and occasional injustice, then you're not alone. Wouldn't it be wonderful if your first thoughts were instead 'efficiency' and 'fairness'?" (Tegmark, 2018, p. 136).

"Since the legal process can be abstractly viewed as a computation, inputting information about evidence and laws and outputting a decision, some scholars dream of fully automating it with robojudges: AI systems that tirelessly apply the same high legal standards to every judgment without succumbing to human errors such as bias, fatigue or lack of the latest knowledge" (Tegmark, 2018, p. 136).

"Robojudges could in principle ensure that, for the first time in history, everyone becomes truly equal under the law. …they could be programmed to all be identical and to treat everyone equally, transparently applying the law in a truly unbiased fashion… Robojudges could also eliminate human biases that are accidental rather than intentional. Another shortcoming of human judges is that they may lack sufficient time to explore all details of a case. In contrast, robojudges can easily be copied, since they consist of little more than software, allowing all pending cases to be processed in parallel rather than in series, each case getting its own robojudge for as long as it takes. Finally, although it's impossible for human judges to master all technical knowledge required for every possible case, from thorny patent disputes to murder mysteries hinging on the latest forensic science, future robojudges may have essentially unlimited memory and learning capacity" (Tegmark, 2018, p. 137).

What is (human) intelligence and why artificial intelligence is not intelligence

In a speech entitled "Algorithms and artificial intelligence. Men make mistakes but that's what makes them superior to machines", Ginevra Cerrina Feroni (2020), Vice President of the Italian Personal Data Protection Authority, stated:

"*We need to redefine the concept of "intelligence". This is an operation not at all obvious because it can have many different meanings: logical reasoning ability, comprehension, planification, self-awareness, creativity, problems resolutions, learning…*"

However, she added:

"*We can assume a wide definition intelligence like it is suggested by Max Tegmark* [Life 3.0: Being human in the age of artificial intelligence: Vintage]*: the intelligence is the 'ability to realize complex aims', or also 'the ability to acquire and apply acknowledges and competences'*" (Feroni, 2020).

Perhaps it is now time to address the first issue.

The definition of intelligence

A definition, even of a general concept, cannot be chosen randomly or by maximum generalization, nor according to the criterion of "greatest expository effectiveness". The basic point is that the greatest number of those enlisted in the cyber utopian cause are not – as may seem logical – information and mathematician engineers and programmers, but rather thinkers and popularizers, widely financed to generate "appearance of reliability" and make people feel "close and friendly" with an "alien" reality.

In the bestseller "Machine, platform, crowd: Harnessing our digital future" Andrew McAfee and Erik Brynjolfsson (2017) do not use the word 'privacy' once in 350 pages[1]. Yet the back cover text states (translation from Italian):

"The creativity that drives our future in the digital world comes from the peripheries. A new intersection of AI machines is changing the economy and our way of life. Two great luminaries show us how to inhabit the revolution".

The two prominent authors are respectively Director and Chief Researcher of the MIT Center for Digital Business and their research is financed with around 10 million dollars by Elon Musk. It would be appropriate to ask neuroscientists, psychologists and anthropologists what can be defined as intelligence (possibly chosen from among those who are not financed by new economy companies or tycoons).

There are simple definitions of intelligence, such as the ability to adapt to the environment. Some of them are much more effective and overall more comprehensive with more elements of complexity. A good example is the modern concept of environment: it and its impacts are defined not as a passive place in which to live but also as an active element capable of modifying those who live there. Similarly, it is probably impossible to provide a single definition of human intelligence.

We may also discover that there is not a single intelligence in humans.

Howard Gardner, Professor at Harvard University, proposed a theory on multiple intelligences in his authoritative book "Formae mentis. Essay on the plurality of intelligence" (1983, see also comments of Di Salvo, 2024). He delegitimized the concept of intelligence seen as a unitary factor measurable through the Intelligence Quotient (IQ) and updated it with a more dynamic definition, divided into sub-factors differentiated from each other.

In a series of empirical research, based on the vast literature concerning subjects suffering from neuropsychological lesions, he identified (at least) seven different types of intelligence: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, personal, and interpersonal. Gardner also suggested that these forms (or specializations) of human intelligence are not "exclusive", but constitute a unique, personal, subjective and individual mix. In the same person, all the types of intelligence mentioned are present (and as the author also states, others still to be classified with due rigor), but with different degrees of qualitative and quantitative development. This mixture of intelligence types with absolutely variable percentages, unique for every person, determines the life and adaptation both of individuals and a community, as well as a society and a species.

A "trustworthy AI"

The "Ethical guidelines for trustworthy AI" drawn up in April 2019 by the European Commission states that the "processes need to be transparent, the capabilities and purpose of AI systems openly communicated, and decisions – to the extent possible – explainable to those directly and indirectly affected. Without such information, a decision cannot be duly contested" (European Commission, 2019, p. 13).

A well-known researcher G. Cerrina Feroni commented:

> *"Unfortunately, one is forced to recognize that it is not always possible to explain why a model has generated a particular result or decision. This is because, for the most part, algorithms are inscrutable systems, a sort of "black box" to use Frank Pasquale's definition* [(Pasquale, 2015)]. *Black boxes observe the characteristics of the users, profile, frame, judge, suggest the decisions to be taken. All this, however, without explaining how they arrive at that particular conclusion"* (Feroni, 2020).

Understandability presupposes that algorithms – especially predictive ones – are based upon logic; that is, that there is a retraceable and verifiable argumentative sequence. The problem is that most of the new generation algorithms do not limit themselves to deterministically deducing consequences from axioms pre-established by the programmer, but, by virtue of automatic learning systems, they themselves produce criteria which in many cases are not comprehensible even to these programmers (Simoncini, 2019).

G. Cerrina Feroni further clarified:

> *"The legal framework of artificial intelligence calls into question the principle of responsibility, which is inextricably linked to limits and reasonableness in all things human. Who should be legally accountable for the decisions and actions of an artificial intelligence, such as an autonomous car, a robot-surgeon, or an armed drone? The issue of legal responsibility in the case of an artificial intelligence that learns autonomously is enormous and still remains to be addressed. < …>*
> *In the race of machines better and better programmed to reach the objectives according to the logic of maximum efficiency, errors, hindrances, variations are not contemplated. < …>*
> *The perspective must, therefore, be reversed. We must claim a right to make mistakes, aware of our physiological fallibility. Otherwise, the risk is to find ourselves prey to a totalitarianism of efficiency, sustainable, perhaps, from an economic and ecological point of view, but not human. On the contrary, inhuman. An efficiency that could even go so far as to foresee paradoxical scenarios such as self-destruction, where calculated in terms of collective benefit"* (Feroni, 2020).

The presumed technological neutrality

Before returning to the starting hypothesis, i.e. the alleged hyper-efficiency of the robot judge, it is appropriate to consider another assumption that cyber utopians take for granted and loudly declare – always with the aim of selling AI as reliable and safe. This is the presumed "neutrality" of technology.

In his "Artificial intelligence and the risks of a 'disruption' of legal regulation", Giuseppe Mobilio effectively addressed the topic:

> *"The law must deal with a first misunderstanding that fuels an ideological distrust towards legal regulation, i.e. the idea that technology is "neutral", that is, that it has a merely instrumental value and therefore does not need to be regulated, if not in very general terms (Greenberg, Rethinking Technology Neutrality, in Minnesota Law Review, 2016)"* (Translation from Italian (Mobilio, 2020, p. 406)).

Faced with this assumption, however, one may recall Carl Schmitt and his book "The concept of 'political'" (1927). Speaking about "faith in technology" he wrote: "technique is always and only an instrument and a weapon and precisely because it serves everyone it is not neutral… [It is a] weapon that can be bent to any purpose and which remains culturally and morally blind".

Responding to Tegmark's assumption that robot judges "could be programmed to be all identical and to treat everyone equally by applying the law in a transparent and truly prejudice-free manner. They could also eliminate accidental rather than intentional human inclinations", Mobilio specified:

> *"AI is structured on algorithms. And it must be considered that there are no algorithms that simply neutrally reflect reality; rather, in order to obtain the expected results, they propose their own representation of the problems to be solved obtained from the chosen variables, the classifying formulas, the weight attributed to the individual parameters inserted, and the procedures that determine the result. Furthermore, decisions are often made by algorithms intended not only to use data that directly represent a certain phenomenon, but to process above all vicarious or indirect (proxy) data, which can undermine the accuracy of decisions and further distort the presupposed reality.*
> *If this is not enough, there is always the risk that the data with which the algorithms were initially trained repeats inequalities, exclusions or other traces of discrimination present in society. These are the so-called bias, or "distortions" that "systematically and unfairly discriminate against certain individuals or groups in favor of others", and which in turn translate into discrimination against the recipients or interested parties of the algorithmic decisions. Furthermore, each algorithmic model is designed on the basis of objectives chosen by the modelers and, consequently, is ideologically oriented. An orientation that often aims at the efficiency and profitability of those who use these tools, and not towards justice, equity or the good of the community"* (translation from Italian (Mobilio, 2020, pp. 406-407)).

Computational non-intelligence, or artificial deficiency

Returning to Gardner's intelligence model, we can immediately unmask the ambiguity of the term "artificial intelligence" and try to make it a little less "familiar" and therefore acceptable by the human community.

Gardner distinguished (at least) seven different types of intelligence: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, personal and interpersonal. Of these types, the machine and its algorithms certainly cannot have a linguistic and musical creative intelligence, but may have a merely executive one. This is because "artistic" creativity requires an interaction between the intelligence and the environment of, first of all, movement (receptive interaction) and, second, of the value mediation of feelings (which are the qualifiers of an experience).

AI may also have a spatial, bodily-kinesthetic, merely computational intelligence: it can receive input from the environment and compute it, or manage the experience in terms of memory, but it cannot go beyond the input into a value experience.

The machine is totally (ontologically) devoid of personal and interpersonal intelligence, except in purely self-diagnostic (mechanical mathematics for the personal diagnostics) and relativistic (mechanical computational in the interconnection – rather than relationship – with "other") terms. It certainly has a logical-mathematical intelligence, to the extent that its logical and mathematical computation capacity is efficient and optimized, but certainly not creative-imaginative-abstractive one (in simple words, which "invents or discovers" an equation starting from the categorization and abstraction of reality).

The robot judge

A robot judge – very skilled in chess and unbeatable in the solution of an extremely complex equation but devoid of an authentically comparable linguistic, musical, personal and interpersonal intelligence, and barely technically and technologically developed partial spatial, bodily-kinesthetic, personal intelligence, – should judge a human being. That is, a being whose identity is based exactly on a subjective-individual mix of linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, personal and interpersonal intelligence, all present, differently modulated (qualitatively and quantitatively) developed not only in a environment but also from the environment, with which the machine does not have a significant relationship.

It is evident that each judge, in each different judgment, with the facts, environments and circumstances and the human persons before them varying, will judge in (even just slightly) different ways. The judge takes time to consider all the circumstances and decide on the punishment: a person's freedom must not be decided in seconds. Given that the judgment is not "computing" but "pondering" it remains a cornerstone that the judge – at least in terms of

minimum essential biological and neurological requirements, must remain "an equal" of the judged. With all the risks of imprecision and perfectibility of judgment by humans, it remains certainly preferable to any mathematical-mechanistic solutions.

THREE MARGIN NOTES
On "Life 3.0 – Being human in the era of artificial intelligence" by Max Tegmark

1. On the consciousness of machines

"PHI. A Voyage from the Brain to the Soul" is the title of a book by GiulioTononi (2012). PHI gives the theory of consciousness a narrative guise (something ChatGPT will never be able to do).Oliver Sacks provided the best summary of this work, saying: "GiulioTononi gave body and soul to the latest frontiers of neuroscientific research, and made them become a wonderful novel".

Tononi wrote:

"Science had given us great power, power to move fast, to generate vast amounts of heat, to create new crystals and new metals, and to send words and images over the earth in little time. But there was no escaping what these discoveries told us: that we are confined forever in a faraway province of the universe; and to that universe our lives are rounded with an instant, drowned inside a point" (Tononi, 2012).

At the end of his book Tegmark introduced the element of consciousness into computational machines through the development of AI, launching himself into an examination of the theories on consciousness; however, he did not mention some of them and wrote about others without essential details, to be more informative.

The topic is very delicate and deserves more attention.

This sentence by Tononi seems like an adequate reply:

"It seems that at times one ought to be careful before concluding that little response means little consciousness. Or, conversely, that many clever responses necessarily imply much consciousness". < …>
thinks that a machine may be good at producing clever responses but bad at producing consciousness because it is made of separate modules… So while it may occasionally fool us with its answers, it lacks the context and understanding that only consciousness can provide..."
"There are powerful machines inside the brain, and consciousness is wise to use them all. Some are for reading the features of the world, others for acting upon it. Most delicate are machines that calculate, and plan and counsel, and then machines that store the memory of events – though they are all just tools, not parts of consciousness itself" (Tononi, 2012).

As we have said, and as Giulio Tononi also reconstructs, Turing, a pioneer in the debate on artificial intelligence, proposed the test that today bears his name to establish whether the machine can think and perhaps be conscious.

The experiment is this: an intelligent machine and a human being are placed in a room and establish a conversation via teletype with a human interlocutor located in another room. After a certain amount of time, if the human interlocutor cannot distinguish which of the two is the machine and which is the human being, then the machine has passed the test and can be defined as intelligent.

A philosopher John Searle took up the topic again and proposed the Chinese room experiment in "Minds, brains, and programs" (Searle, 1980). He argued that a machine that follows the set of instructions neither thinks nor is conscious nor enjoys understanding what things mean like we do, even if it were capable of answering all kinds of questions appropriately enough to pass the test of Turing.

He demonstrated this by imagining himself inside the machine and following the instructions without understanding a single word of Chinese: *you are locked in a room with an assortment of Chinese symbols on cards and you have a program that tells me how to return them through a slot in the wall as a response to other incoming cards and yet you don't understand Chinese.* The argument is used to support the thesis that it is not possible to derive meaning (semantics) from mechanisms (syntax) but it can also be used to state that consciousness cannot be derived from computation.

Information was defined as "a difference that makes a difference" by Gregory Bateson in "Steps to an ecology of mind" (Bateson, 1972). Cloud Shannon (1950), electrical engineer and mathematician, is the father of information

theory. In his work he suggests that information is a number and that it is separate from meaning. Just as science flourished after Galileo removed the observer from nature, so communication and data storage exploded after Shannon eliminated the meaning of information.

A long tradition of atomism maintains that everything can be explained starting from simple elements and their interactions. Is an image just a collection of points? This is exactly how a camera sees an image as a set of points, but then it is clear that it does not really see it.

Tononi continues:

> *"Seem to be making three points. First, we are not alone. There is a social aspect to consciousness that develops it, expands it, and gives it value and fulfillment. Second, we are all humans, and we are all life. One can and should identify with other living beings, it's just a matter of degree, and in that sense one's consciousness is immortal. Third, nonetheless, everyone is special and therefore precious"* (Tononi, 2012).

2. On the theory of utopian cyber employment and remuneration

Cyber utopians insist that new technologies, artificial intelligence in particular, introduce and will introduce more and more mechanisms for improving our lives, reducing or abolishing strenuous, dangerous, generally tiring jobs, giving us a life of well-being without effort. At the highest points of the cyber utopian vision, the world they tell us is made up of managers (all directors of something) who work little (often very little) in which wealth – distributed in the form of wages – is magically multiplied (much more than bread and fish). It goes without saying that thanks to AI there will be no more hunger in the world; if not abolished, diseases will be drastically reduced (and almost all of them are curable). People will have a "purpose without work" and an "income without work".

In Tegmark's book "Near future" (chapter 3 "Near future" *ca van sans dire*) this wonderful world is described on a dozen pages of "Employment and remuneration" section in which valuable advice is also given on which career suggestions to give to our children to "make sure you are in the right place tomorrow with the right training". Obviously we are presented with a (near) future which does not require sources, research and documentation. The point is that even when the documentation exists and the situation is apparently predictable – almost taken for granted – history takes its own path: algorithms do not make history.

In 1917 everyone would have bet that if there was a communist or socialist revolution, it would happen in industrialized Germany, certainly not in backward and essentially peasant-feudal Russia. No one would have believed a democracy was possible in the Kaiser's Germany. The point of the prophecy is almost banal: the prospect is tempting, if it comes true we were right, if it doesn't come true it's because the States got involved with regulation and people "didn't believe in it enough". The truth is that everything suggests – not just the data, if you know how to read them – that a dystopian world like the one described in "Brave New World" by Aldus Huxley (1932) is a "near future" prophetically much more possible in the utopian cyber AI scenario compared to that of Tegmark and McAfee.

To support this twelve-page prophecy, and the more lush ones in McAfee's text, one may turn to the book "The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power" (2019) by Shoshana Zuboff, American sociologist and essayist with a PhD in social psychology from Harvard University and a degree in philosophy from the University of Chicago. Those who need academic qualifications to validate an idea may read the 630 pages of data, concrete information and real facts compiled in it. However, one should also remember the "Nobel Disease", that is, that generic appeal in support of one's theory which goes by the name of "appeal to authority" – a cognitive bias.

In his article "The Nobel disease: When intelligence fails to protect against irrationality" Candice Basterfield (Basterfield et al., 2020) reports the many cases in which the opinions of scientific authorities, even famous Nobel Prize winners outside of their own field of specialization, were not proven to be authoritative. These opinions ranged from eugenics to races, from homeopathy to astrology, from AIDS to HIV to autism! Also in this case, a bit of healthy common sense, and a "humane" use of human intelligence, can help avoid falling into easy and comfortable and utopian prophecies-promises, which – in this case clearly – are not disinterested, but well founded on enormous economic interests.

3. The hungry judge is more cruel

Tegmark wrote that Robojudges "could also eliminate human biases that are accidental rather than intentional" (Tegmark, 2018, p. 137). After this sentence he adds a supporting quote:

"For example, a controversial 2012 study of Israeli judges claimed that they delivered significantly harsher verdicts when they were hungry: whereas they denied about 35% of parole cases right after breakfast, they denied over 85% right before lunch" (Tegmark, 2018, p. 137).

The cited study, by Danzinger (Danziger et al., 2011a) was criticized as "incorrect" by Weinshall-Margela and Shepard (Weinshall-Margel & Shapard, 2011), although in response Denzinger and coauthors (Danziger et al., 2011b) continued to support their claims.

Now, given that we now know that it is better to undergo judgment at 9 in the morning and not at 12, and that if possible it is better to offer a croissant to our judge, take this statistical data to the consequence that a human - who must feed himself - would be better replaced by a computer that is attached to its electrical cable, in itself seems a bit forced as evidence that "that robot judges could also eliminate accidental rather than intentional human inclinations".

Statistical data show that a human would be better replaced by a computer but it seems a bit forced to say that "robot judges could also eliminate accidental rather than intentional human inclinations".

Wanting to be less polemical and have a more scientific approach (also for the benefit of our future human judge) we must consider – if we take the study and the thesis presented as valid – that the so-called "hangry" (a combination of terms "angry" and "hungry") is a complicated emotional response caused by a combination of biology, environmental signals and the personality of the individual. The aggressive reaction in the face of a prolonged lack of food is not immediate and there are two fundamental criteria to establish whether or not it will contribute to negative emotions: context and self-awareness. Appetite and mood in general are very connected[2].

Returning to the Israeli study, it must be said that often "easy cases" of conditional release are put at the beginning of the day to have more time to deal with the "complex" ones. It is therefore entirely probable that the "more complex" cases in doubt led to a decision not to grant the benefits, regardless of the glycemic or serotonin index. It is also possible that after four or five hours of mental work and attention (which we hope intense and constant) the judge's general condition suggested "when in doubt" not to let a potential murderer go free.

Nonetheless, each study has its own useful suggestion, and it applies to judges as well as doctors, but also to students and anyone who carries out an activity that requires attention, concentration and intellectual work: have a snack every 2–3 hours to lower the glycemic index, better with simple sugars or non-complex proteins, and maintain a healthy and balanced diet, better if accompanied by physical activity. Obviously, if you feel that you are not particularly "in balance", you feel tired, hungry, sad and depressed, avoid making important decisions at that moment. This too is intelligence, and there is definitely nothing artificial about it.

Conclusions and inconclusions

I borrow this title from "The lie of power" by Giulio Maria Chiodi (1979), my professor of Philosophy of Politics. Here we will not play on the title to talk about "lies" regarding the definition of "intelligence" attributed to the algorithms with which computational networks run and grind data. This study also will not discuss the tools with which the new-economy companies divert attention from themselves, in an attitude that is based on two pillars: first, we are self-regulated, because state regulation is inefficient and harmful; second, everything we do, we do to improve your life. These are the assumptions on which the theory of cyber-utopianism is based.

I borrow the title – and only that – because the lesson beyond the specific theme of that book is that a critical writing must make us reflect, it can never be exhaustive, its aim is to generate debate and stimulate reflection, possibly intellectually honest. Given that this reflection is "human" and uses "human intelligence" as an instrument, it is essentially subject to errors and omissions. The hope is that with these errors we will be able to improve ourselves over time, as homo sapiens has always done, without giving in to the apparently simple solution of relying on the technocratic utopianism of delegating to others (in this case to another programmed by others with criteria unknown) the "reasoning and deciding for us".

[2] Eating is a complex behavior; it does not just mean nourishment, but implies a close link between physiological, psychological, social, family and symbolic aspects. The interaction of all these factors gives rise to our relationship with food, which each of us builds since childhood and which is marked by the perception of hunger and the consequent sense of satiety. At the basis of this influence there is an important neurotransmitter, serotonin, produced mainly in the gastrointestinal tract, but also in the brain:

Post Scriptum

This applies in the field of law and the application of justice. But it also applies to all other sectors of the expression of human life: entertainment, culture, art, healthcare, driving vehicles, trains, planes, ships. The choice of which film to see or how to react to turbulence in flight can be validly supported by sophisticated technological prediction tools, but the choice, the decision, the action must remain human. This is how I think, with my brain, my personal mix of intelligences that work, like yours, with chemistry and electricity, programmed in architecture by our DNA, half by each parent.

Filled with content from my environment, from my experiences, from what I read in the order I read it, from the films I saw, from the music I listened to, shaped by the people I met, from the smiles I received and from the tears I made, from the views I saw, from the sunrises, the sunsets and the scents of the flowers I smelled. From the bodies I caressed, from the looks I met, from the eyes I reflected in. From the animals and trees I touched and the words I heard.

All of this – which are not just "inputs into the memory" – but human memories, which have an accompanying "value" in the memory which is called emotion and feeling, all of this makes me who I am.

And all these things will never belong to a computational machine, which with its non-intelligence all these things doesn't even know what they mean.

But you do, because you are human, mammals, of the homo sapiens species just like me.

Let's stay human.

– in the brain it regulates mood, sleep quality, body temperature, sexuality and appetite. In fact, the lack of serotonin causes depression, obsessive-compulsive disorders, anxiety, migraines, nervous hunger and bulimia, male premature ejaculation;

– in the intestine, serotonin controls intestinal motility, hygiene and well-being. Its deficiency produces chronic constipation, impaired digestion and slowing of intestinal transit.

The brain and intestine are - this is now well-established - directly connected, which is why in depressed and melancholic subjects there is a compromised intestine, and why in nervous hunger there is also an alteration of serotonin metabolism.

The precursor of serotonin is tryptophan, an amino acid that we cannot synthesize, but which is present in animal and plant proteins.

The problem is that tryptophan enters human cells only after other amino acids: before tryptophan, other amino acids enter cells, especially intestinal and nervous ones: isoleucine, leucine, tyrosine, valine, methionine, phenylalanine. The result is a reduction in the production of serotonin and also melatonin, which derives from the former. Our hormonal balance consequently alters and the so-called "hunger for sweets" grows in us.

In fact, foods rich in sugars increase serotonin levels in the central nervous system. When we consume sugars, a hormone, insulin, is produced which facilitates the entry of amino acids into cells, with the exception of tryptophan.

As a result, tryptophan remains circulating in the blood and can be assimilated by the central nervous system. This explains why sweet foods are able to increase serotonin, and therefore good mood.

In terms of diet, it is necessary to consume low-calorie foods that are rich in tryptophan, but poor in other amino acids. This characteristic is satisfied, partially, only by a few fruits, such as papaya, banana and dates. Why not introduce more meat and derivatives, apparently richer in this amino acid? Precisely because meat is rich in various amino acids, which prevail over tryptophan. A middle ground is represented by fish and eggs.

Another way to increase serotonin levels is to do physical activity. Muscles mainly use branched chain amino acids, used to build muscle, and save tryptophan, which thus remains available for nerve cells.

It must also be remembered that tryptophan does not transform into serotonin without the right intake of vitamins B3, B6 and C which are respectively found more concentrated in the following foods:

Vitamin B3: wheat, barley, legumes, tomatoes, milk, cheese, fish, carrots, potatoes;

Vitamin B6: milk, fish, cereals, potatoes, cheeses, spinach, beans, carrots;

Vitamin C: fresh fruit and vegetables, especially citrus fruits, kiwis, peppers, broccoli.

In this context, a basically egg-peach-vegetable diet becomes a particularly suitable diet. Finally, recent research has shown that an adequate presence of omega-3 fats in the brain has antidepressant and neurogenesis-stimulating effects, in fact that neurons are fat cells par excellence.

Diabetes is a condition that is very sensitive to emotions and moods since there is a close functional connection between the endocrine system and the limbic system, paleoencephalon or "affective brain".

Inner calm and emotional well-being, for example, stabilize blood sugar and facilitate diabetes control. Conversely, apprehension, restlessness or anxiety are generally accompanied by the release of hormones – such as adrenaline and cortisol – which hinder the hormone insulin, which, not being able to act freely in passing sugar from the blood to the cells, determines a condition of hyperglycemia.

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