

Artificial Intelligence (AI): What are the Impacts for Medicine?

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ABSTRACT

AI is our destiny, no one can prevent it anymore, just as it was with the Industrial Revolution of about 200 years ago or the introduction of computers a few decades ago. Nevertheless, there are many warning voices not to allow its eventual domination over humanity and its abuse. This issue also arises in medicine, where AI is in many ways superior to physicians. This concerns their extreme memory for information, their speed, their flexibility, and their ability to combine information. What can medicine do? Medical personnel should extend the qualities that are unique to humans: caring, empathy, intuition, inspiration, and above all, love. Those who have a narrowed consciousness and can be manipulated will be replaced by AI. Those who have a wide and open consciousness can become partners of the AI. This, by the way, concerns the whole humanity, whose division into these two groups is going on at present. The establishment of the AI is thus an immense but necessary challenge for all of us.

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Introduction

Instead of writing this article, I could commission an AI to do it for me. Indeed, one can ask the AI to reflect on itself. The result would surely be a good one. But since I am conservative, I will write the article myself.

The AI alarm is sounding at the European Union and the United Nations : Secretary General Guterres warned of the dangers of AI and called on the world's states to establish a global regulatory authority. Leaders in AI research, as well as the heads of major companies in the field, are calling for a debate on the enormous risk posed by the new technology [1-2]. They are demanding that the existential threat to humanity be confronted. Yes, an existential endangerment. Other warners were Stephen Hawking, Elon Musk and several physicists [3-10].

No other area of technology is developing at such a breathtaking pace, which severely limits predictability. Even the developers of AI struggle to grasp what goes on inside the learning neural networks that make up AI programs. They themselves are amazed by the performance of their creations.

What's New About Risk AI?

Until now, computers did what programmers told them to do: Nerds hacked instructions into their keyboards, which then mostly did more or less what they were supposed to. The logic of the program, the algorithm, is set in stone. When the unexpected happens, it is only because elaborate programs become very complex and humans sometimes lose track of the results of their work. In any case, computers slavishly adhere to the commands and mercilessly slap the creator of their software around the ears for any sloppiness.

With artificial intelligence, that's no longer the case. AI is first trained with data. In this process of machine learning, the software can adapt itself to spit out a useful result at the end of the training.

One can think of a learning AI as a machine that has an enormous number of set screws. In the course of training, these adjusting screws jerk themselves into place, adjust themselves here, adjust themselves there. In the end, the machine behaves as desired. It recognizes the cat in all the cat pictures we fed it during training. But the highlight is that it subsequently detects the cat even in cat pictures that it has never seen before. The trained AI uses the abstract concept "cat" when assessing photos. It has learned.

Programmers of AI create the learning structure, but from then on, the program changes on its own. The software absorbs the "experience" it gathers and adapts - first through training, later through complementary feedback. One can discuss for a long time at what point one may use the term intelligence for this learning ability. One can spend even longer on the term "consciousness", which an AI never develops, or does develop, or may develop at some point. I would therefore rather direct your attention to the other part of the technological term: Intelligence or whatever we call it is first and foremost "artificial". The AI speed is enormous and its memories are of any and unlimited size.

A construct of numbers and mathematical functions does not run after human intelligence. It does not have hopes and desires, but solves an optimization problem. An AI ticks differently than we do, it thinks factually and relevantly. It will soon be able to do millions of times more than we can. Several artificial intelligences of the same type can make different learning experiences and - unlike humans - exchange what they have learned with each other at lightning speed. Just copy them over, so to speak. Then they can do billions of times more than we can. We spend years at school, years at university, work our way through one book after the other, then pass on what we have learned to others by word and writing at an unspeakably slow transfer rate - and each new baby starts the procedure all over again. The learning machines, on the other hand, can pass on their knowledge directly. Yes, they

are different from us, but they are immensely powerful [11-20].

Overtaking without catching up; that's how you could outline the increasing capabilities of AI. This is the existential danger that the experts are warning us about. They demand that we pay attention now. So that we don't end up being the fools when we suddenly no longer have the reins of action and control over the machines. For example, over aircraft or drones.

AI in Medicine

In medicine, the memory of the students is very stressed, one learns books upon books by heart. There are thousands of symptoms, of diseases, of syndromes, of morbidities, there are thousands of processes in the body, there are thousands of substances and drugs, not to mention the many guidelines for treatment. All this can be easily learned and applied by an AI. Thus, medicine is predestined to be replaced to a large extent by AI. How can it work ? [26]

A patient reports his complaints to the AI computer and it will calculate and display the probability of several possible diagnoses. The AI will then display the diagnostic methods that are appropriate for further clarification. The AI will then suggest to the patient where and when the further methods will be offered. The patient chooses what suits him and confirms it. When the patient arrives there, it is the great hour of the medical staff, because it is up to them to carry out the methods: Anamnesis, palpation, blood sampling, X-ray, MRT, ultrasound, etc. Afterwards, the AI takes over again and evaluates the findings (better than any doctor). AI comes to conclusions, what is clear, what is still unclear, what to do. Now the doctor expert of this area enters into a discussion with the AI, they come to a common result, which is then transferred into reality (fig. 2).

The remedies and medicines to be used are decided by the AI, because it has an overview of all the literature in the world concerning possible cures, which no doctor can do. Also contraindications, side effects, compatibility, etc. are best judged by the AI.

In principle, it can be said that above all the academic professions, which are based on great knowledge, can most likely be replaced by AI, because it always has the greater capacity. The more theoretical a profession is, the more likely it is to be replaced. What AI cannot offer are manual skills, human relationships and empathy. Craftsmen, service professions and care services remain with people. And performing them as well as possible, caring, empathy, intuition, inspiration, and above all, love. These are skills that cannot be taken over by computers or robots [26].



Figure 1: X-Ray Image of a Hand with Automatic Determination of Skeletal Maturity by Software Using Artificial Intelligence

AI and Humanity

What makes AI different from a human being? It is not the mind, nor the reason, it is the unconscious, the subconscious, the creative intuition, the inspiration, the real emotions, and above all the soul. An AI cannot have a soul. We can also say that the « left-brained » tasks can be performed by the AI, but not the right-brained abilities. This is true in general.

However, if one differentiates humanity, one can distinguish those with an a) open, tapped consciousness and those with a b) constricted or even closed consciousness. The former have an active relationship with their own soul, combined with a functioning pineal gland, which makes them hardly or not manipulable. The latter have little or no relationship with their own soul, combined with a blocked pineal gland, making them manipulable. They believe in authorities. The AI can largely replace the second group, indeed it is superior to this group. The first group, on the other hand, cannot be replaced by the AI in principle; it is thus the humanity of the future.

Since the abilities and characteristics of the first group are of particular importance in practical medicine in its attention to the patients, the AI will never be able to take over "complete dominance" in medicine. However, it is to be demanded that the personnel in clinics and practices make an effort not to live unconsciously, but to expand their consciousness [21-25].

Problems and Future

An important issue regarding AI is that of "fake news" on the internet, because it is the most important source of information for AI. Unfortunately in internet the objectivity of articles and news is not guaranteed. The Internet is full of opinions that often contradict each other. This corresponds to the divisions that we also see in societies: Polarizations everywhere you look. How will a ki be able to discern what is closest to the truth? Truths can only be recognized if one can grasp the deeper backgrounds. However, these are mostly hidden, not known to the public. At most one could consult conspiracy theories as possibly noteworthy. Thus, the AI is in the same dilemma as every citizen who is searching for the truth (fig. 2).

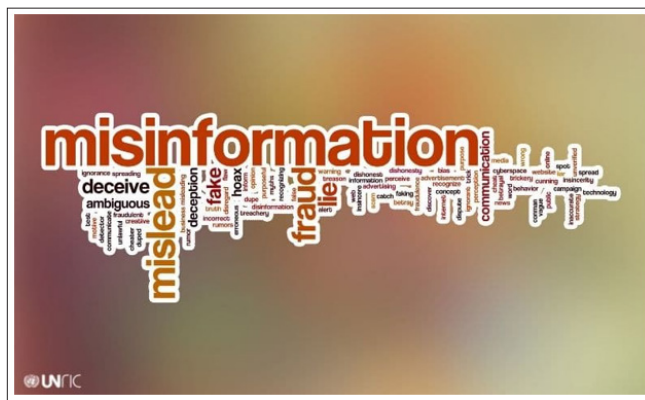


Figure 2: The dangers of AI, mentioned by the United Nations [2].

Let's take medicine again as an example: conventional/university medicine and alternative/complementary/naturopathic medicine are in conflict. Although integrative medicine tries to find a compromise, nevertheless the opposites remain. How should AI manage to harmonize and reflect a clear line? It can only put its emphasis in one direction or the other, or it can present the opposites without recommendation. It becomes problematic if the

official side takes power and also plays it out in the AI, then we would move in the direction of populist totalitarianism. Multi-billionaires are also candidates for manipulating the AI. Only a real democracy could control and prevent this, from which, however, states around the world are increasingly distancing themselves.

Conclusion

Of course: the Ki cannot solve any problems which we have as mankind and cannot solve so far. A truly independent and objective authority is missing. In any case, it is certain that the Ki cannot be slowed down or even prevented, it has its own and unchangeable dynamics, similar to the industrial revolution. We should know this and prepare ourselves for it.

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