Thoughts Concerning Artificial Intelligence & Machine Learning III. part

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Abstract:

The preceding parts of Thoughts... got numerous comments and thoughts, allowing us to approach the sources and expected growth of artificial intelligence from a different angle. Our starting point is always human creation, which is motivated by common sense, Power's quest for omnipotence, and the capitalist economy's limitlessness. According to current scientific knowledge, artificial intelligence is based on the anthropomorphic paradigm, which attempts to mimic human thought and behavior. Human intelligence is founded on the human brain, whereas artificial intelligence is founded on computers. People organize themselves into communities based on rules and morality. Common sense contradicts giving artificial intelligence such self-organizing abilities, and human aims do not even necessitate them. This study attempts to uncover the differences and possible convergence of the two intelligences based on the model's components. Meanwhile, always stressing man's supremacy and duty. The immoral, the destruction, is produced by man – truly by Power - even if it is done by intelligent machines. The model's brain and its functioning will now be discussed.

Keywords: artificial intelligence, machine learning, human intelligence, formal logic, decision automation, danger.

INTRODUCTION

The Thoughts Concerning Artificial Intelligence & Machine Learning[1] studies aroused considerable interest, with more than four hundred people expressing their interest in the topic. Based on the numerous observations and opinions, I try to rethink what has been written and explore it with a different approach. I repeat that the statements here are arguments and debate starters. I think it is important that as many people as possible live with their agreement, their separate opinion and communicate it to the editors, or directly to the author, or even to the public.

COMMON SENSE

Through Artificial Intelligence, humans have become capable of creating beings that are more than human and which may take over power on humanity - claim some futurologists. However, we are not even able to 'make' a living cell, not even in a laboratory. So, do we bypass it and produce an artificial one? Viruses and gene modifications are produced in many laboratories and are infecting our entire world either by accident or on purpose. Algorithms and programs, whose decisions the users cannot control, are becoming more and more common in financial/economic life. They are forced to rely on them, thereby submitting themselves to power, because they order

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[1] P. G. Gyarmati: Thoughts Concerning Artificial Intelligence & Machine Learning Part I. Journal of Research in Engineering and Computer Sciences June 2023, Vol. 1, No. 2, pp. 18-24.

P. G. Gyarmati: Thoughts Concerning Artificial Intelligence & Machine Learning Part II. International Journal of Intelligent Information Systems 2022; 11(5): 70-77.

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the programs. Beyond that, common sense warns us to be careful, because we don't need a computer that analyzes its problems, but one that can solve our problems, or we don't need a phone that talks itself, but one that we talk on. So, our common-sense dictates that we don't want to create artificial 'beings' that live ourselves and occupy the Earth's goods, but rather ones that serve man, improve and ease his living conditions, prolong his life, and optimize coexistence and societies. So why is there a need for an artificial brain, a synthetic human? Unfortunately, there are fewer and fewer obstacles to this, and one day someone, somewhere will create such. Consequently, we must constantly review the possibilities and development of artificial intelligence with a common-sense approach! This work is also an opportunity.

FICTIONS, FACTS

Much of the science fiction literature sees it differently. The computer will execute the program installed in it. If, for example, we instruct *'protect the men at all costs'* and it has the means to do so, it is only a matter of intelligence whether he immediately destroys either himself or humanity. After all, man is the enemy of man, so the machine must destroy them, but it cannot because it is also a man whom it must protect – it is a paradox. In the first case, humanity remains without machines, in the second case, man has 'destroyed himself'. Literature usually does not go this far, but instead invents the *'feel-good machine'* and the *'good man'*, who then live-in symbiosis[2]. As in fairy tales before the computer: they lived happily ever after. The case is far from settled, since in the case of success, the story will continue - raising new problems - and may even become a series. Thanks to the modern series mania. It is no more about life, but rather a fiction. Of course, the program could be more complicated: the machine *'creates its successor[3] before it destroys itself'*. This means an endless cycle, i.e., it repeats itself until the necessary material resources run out. To make it even more complicated, let's introduce *selection and mutation* into the reproduction of the machine as in nature: the new machine will be slightly different from its predecessor. Otherness would only become significant if it changed the basis, the protection of man at all costs. Until then, it would repeat the cycle of reproduction and self-destruction. The smallest measure of selection would be a modified program: *'protect the selected people...'*. Well, humanity has already created this situation for itself[4]! The fact that now we 'mechanize and automate' this does not say anything new. Again, the danger is not in machine intelligence, but in humans! The object of danger and responsibility is still human activity. The activity that arises from the various societies, from their different stratification, from the tensions between individuals and between communities, and also their incitement against each other. In short, *homo ludens and homo business*.

THE QUESTION OF POWER

From the beginning, humanity has gathered in some kind of community to exist. The members of the communities are not the same and only work together for a certain purpose. To function, you need leaders who stand out from the crowd, and there are the downtrodden, the sick, the

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[2] The important point of literature is to draw attention to the dangers and at the same time to provide a solution for the good.

[3] We can also consider the newer version as a new machine - program, software, algorithm -, which is undoubtedly a successor, but this is done by man, not the machine. It could create more successors, but why? But man do it: sell it to others.

[4] Humanity has been making things we call 'artificial' since ancient times. Most recently, he also included intelligence in this circle and is able to 'create' certain elements of it. Examples include shape recognition, language, perception processing, data processing as experience gathering. Research is ongoing into animal and human imitation.

elderly, and their caregivers, as well as the young and their educators. So, society is stratified: leaders, servants, vulnerable, as history proves.

Leadership would be most favorable if it were exercised by a tireless being who was as careful, and precise, taking into account multiple aspects as possible, as opposed to a self-interested leader chosen based on ideas. It is particularly disadvantageous if this activity goes against your constituents. Because, for example, someone who is used to the benefits of driving is willing to do everything to keep it, which can have unforeseeable consequences. History proves that inhumanity can occur in any society. It is a fact that man is capable of both beneficial and destructive solutions for humanity, and this is not new, it is history. Artificial Intelligence examines the activities and knowledge of humans as individuals imitates them, and teaches them to machines[5]. Its results are utilized by power in a broader sense, mainly for the unity of society and its functioning and existence according to its vision. The main goal of power in the new globalism is to make everything and everyone behave as they want. We can ask the question again: is this why we need an artificial brain, a synthetic human? Because there are fewer and fewer obstacles to this and one day someone, somewhere will create such. We can say it again, the issues of the rise of artificial beings to power arise from humans and should not be sought in artificial intelligence!

ANTHROPOMORPHISM

Artificial Intelligence research is extensive, covering almost all areas of the human world. We make intelligent flying machines, self-driving vehicles, clever assembly robots, machines imitating animals, intelligent task-solving programs, and algorithms, I would mention them as examples. Anthropomorphism, as the 'most intelligent' world, is a prominent area because here the development is aimed not only at some kind of human activity but even imitating humans. In extreme cases, it can also be about building man and machine into one. There are different versions of transhumanism and we will deal with it in another study. The realization of human-shaped machines has been a concern of man for a long time, for example, the well-known Golem or Frankenstein, that is the scientific and technical possibilities with which human-like, human-behaving devices can be created. So, we are faced with some kind of model creation, the source of which is man and the realization of his model would be an anthropomorphic machine. The model, according to our medical knowledge, consists of the following main parts:
- the brain and its functioning;
- the senses, relationship with the environment and others;
- movement, control, and structure;
- energy management, metabolism;
- the 'components' and the structure, internal operation;
- external cover, protection.

Self-reproduction is not part of the model, but it is still closely related. Many studies deal with it. A modified new version of a program may represent a new generation, but it is not a self-reproduction, it is a human creation. The scientific work is therefore aimed at the development of the model, while the technique is aimed at the realization of the current scientific state. AI activity is grouped around this topic.

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[5] Because it is faster, more accurate, more reliable, more rational, more logical, more complete than humans. Intuition, heuristics, deliberation, and mistaking remain for man.

Artificial Intelligence does not exist objectively, it is not an object that arose together with our world and develops, like evolution. Artificiality means human creation, created and developed by man.

Artificial Intelligence research covers all areas of the model and the achieved results - depending on the availabilities - are used almost immediately by the technology and applied in many areas of life. The experimenting, which takes place in laboratory conditions – even secretly -, is also part. The opportunity given by the technique stems from the significant development of computer science - miniaturization, decreasing energy consumption, speed, and reliability - as an additional model.

On the one hand, we have a model of humans, which we continuously develop by examining, measuring, monitoring human activity, and recording and processing data with all available technical tools. On the other hand, we expand our tools by researching natural materials and producing artificial materials. Such, to mention a few examples, the material and structure of sensors, light emitters, circuit carriers, energy sources, and energy storage devices, as well as protective, transparent, support, and moving plastics. We can say that the range of sources is as wide as the field of application of productive artificial intelligence.

Development cannot be stopped - we often quote János Neumann. As a result, we must repeatedly ask questions to make us aware of where we stand, what we need, and what we can expect.

ANOTHER APPROACH TO INTELLIGENCE

It is therefore important to compare the biological, human model and the artificial, human-derived model, which leads to an understanding of the current situation and the direction of further research. Some concepts need to be introduced for the work:

- Biological brain: the brain of any living being, source of biological intelligence;
- Human brain: the human biological brain, a source of human intelligence;
- Computer: artificial brain, the source of artificial intelligence;
- Biological Intelligence: the behavior and activities of any organic being for the sake of the relationship with the environment and its survival;
- Human Intelligence: biological intelligence, supplemented with awareness, memory, and some kind of conscience[6] - HI;
- Artificial Intelligence: human attempt to model biological and human intelligence to realize any (!) human intention - AI.

Before any further discussion, we should give some kind of definition to the often-used concept of intelligence. This is an almost impossible task the whole study is about this, at least parts of it. The task of the brain of every being is to control and *manage survival*, which is created through inheritance and the acquisition of additional experiences. Experiences also have an impact on the functioning of the brain, this is development, *the brain learns*. We could call this *Intelligence*, the visualization of the functioning of the brain, which has a *duality* and exists in the individual. As a consequence, *adaptability* is the nature of the individual.

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[6] Here, by mentality, we mean that a person reviews all his actions by himself, has a sense of responsibility.

Individuals organize themselves into groups, communities, and societies for the sake of existence and life, primarily along the lines of survival goals. Intelligence must adapt to this – this is *cooperation*. L*anguage* as a means of communication is a necessary condition. Its formation and development are the reaction of the brain to itself. The incorporation of cooperation rules is also a repercussion. Development and learning are a process that takes place over time - evolution - the highest level of man known today is becoming conscious. In other words, people know all this, even if they don't understand it. Perhaps *moral sense or conscience* can be derived from this. Common moral sense, conscience is *morality*, which is the most general rule of coexistence, regardless of its source. Duality also exists in the case of community and society. The just-mentioned *morality and community rules* for survival are the duality. Rules are called laws by power as if they were natural.

All connections are organized into a higher-level structure, this is the *network*. Development means an increase in complexity, which is feedback in the brain, by this the individual responds to challenges - develops and learns.

The natural cycle of beginning-end, birth-death is the opposite of brain development. As a solution, certain parts of the brain became suitable for inheritance. This is present already in the lower stage of evolution. Another part of the brain expanded and became suitable for knowledge. The solution is the formation of *childhood* when the ancestors pass on the acquired knowledge. The human as the highest degree of Evolution born with an almost completely *'empty brain'* and has a long childhood; nowadays it can be over 20 years. Moreover, the need for adult education is well known. Obviously, in addition to the minimal requirement of the inherited initial existence, it must include some kind of *ability*, *an inclination* to recharge. Uploading contains the most general rules and customs of integration into nature and society, while consciousness is the transfer of knowledge that affects the brain and is acquired by predecessors. Duality is easy to say, but in reality, it is impossible to separate it, and this highlights the paramount importance of *education, teaching, and learning*.

After all this, we reach Artificial Intelligence - according to the anthropomorphic requirements - simply: *we imitate intelligence artificially, as much and as we can*. Technically, people try to realize individual details of the human intelligence model according to their talents, possibilities, and knowledge in such a way that they can use it according to their current goals and interests. The activity is purposeful and has nothing to do with good, bad, truth, and similar concepts because they are purely subjective: they could mean different to others. It doesn't matter whether it's 'good for the machine[7]' or for the customer. It is good if it is used for good - says common sense. This is valid even if the device decides because it does it the way the person has built it. I would put it seriously: if a person makes a war and uses AI means in it, the responsibility for the destruction still belongs to the person and not to the means!

A recurring question: if the bomber drone gets loose and destroyed, it just doing its job, who is responsible? The question is old, the car also 'gets loose' and the chimney falls: all are accidents. What we are afraid of, is whether they can do this in an organized and purposeful way! Fortunately, this requires a lot of things: ability and intention for purposeful cooperation, then

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[7] For example, low energy consumption, longer life, maintenance-free, efficient manufacturing, profitable, durable, non-fragile, competitive, etc.

strategy, preparation, planning, plan B, etc. Do we program such machines? What for? I repeat, this is the responsibility of human intelligence and not the artificial one!

Now let's turn to the model and compare the sources and possibilities of the human and the artificial intelligence.

THE BRAIN AND ITS FUNCTIONING

Statement 1: The Spiritual Center of Human Activity Is the Individual, Unique Human Brain

This brain was formed in earthly nature - over millions of years - along the lines of genetic evolution, through selection and mutations, primarily for survival purposes. The essence of this is the perception and interpretation of the environment, as well as the remembering for comparison with the previous ones, the resulting decision and finally inducing some kind of suitable movement to react. In the human brain, this is complemented by awareness - according to our knowledge today - which distinguishes it from unconscious, reflex-like manipulation. The consequence of awareness is the creation of many concepts, such as past, present, and future, which enable experience, planning, or understanding the cause-effect. Our knowledge about this development is quite limited, and we use it as a fact. In essence, this is Human Intelligence - HI.

Statement 2: Among People, in Communities and Societies, These Unique Elements Continue to Function, Which Human Speech and Language Connect

Cooperation is realized by communication, rules, and morality. It's all human creation, artificial.

Statement 3: The Center of Artificial Intelligence is the computer, which is Itself a Model

Based on our rather incomplete knowledge of our brain and its functioning, the computer is an 'invented' model. According to John von Neumann, the inventor, 'The computer is built from logical and mathematical structures created by us, and the central nervous system - the human brain - differs significantly from this.'

Conclusion: The basic difference between HI and AI does not imply any lack of convergence between them.

The main argument is that AI aims to imitate and replace HI for the reasons already discussed.

Statement 4: The Operation of the Computer is Imperative

For a better understanding, we need to see how the computer is built and also to what extent and how it is suitable for establishing artificial intelligence. The computer is called a command system, i.e., with the help of a program we tell the machine which of its set of instructions to execute and in what order, this is called imperative operation. We tell the machine how to do it, and that's the computer itself. We generalize the procedures; we need and formulate them into typical programs. These are the algorithms. We perform any complicated task with a combination of algorithms and expect it to always give the same result under the same conditions, that is what we instructed the machine to do. The programmer is assisted by programming languages, which are essentially a link between the machine's instruction system and human language.

The enormous development of the computer, in terms of size, speed, capacity, and complexity, has periodically opened new and new paths for AI.

Statement 5: The Basis of Our Thinking-Including Mathematical Logic- is Different: Declarative

We solve the tasks and problems that arise in the course of our thinking by uncovering related things and connections and then determining what needs to be done. It doesn't matter how. This is called declarative operation.

The computer must therefore be supplemented with a procedure that translates the tasks we formulated into the machine's set of instructions. These are rather complicated translator programs, the interpreters. Therefore, the usability of the declarative mode is always conditioned by the given computer, its speed, and capacity - the better the computer, the more complicated the interpreter can be. Therefore, the development of artificial intelligence is almost identical to that of machines and roughly follows Moore's law with the periodic shutdown characteristic of AI. During programming, we formulate possible states and conditions, and these may change depending on the data received during operation, and thus the result.

Consequence: The basis of HI and AI are completely different.

The HI is biological and operates independently of our knowledge. The AI operates on a model's base we know and is always a function of it. A function of our knowledge about it as well as the implemented technique resulting from it.

Consequence: HI and AI errors and their consequences are completely different.

Human error is always a part of his work. The errors of AI are multiple: they include those built in by the creator, including its own, and also include the errors and uncertainties of the machine that serves as a base. Wrong results due to errors therefore have a cumulative effect. A commonly used method today is to hand over control to the operating staff when errors are detected. Unfortunately, this is a rather poor solution, on one hand, because it requires detection - which is another source of error, and on the other hand, as the operating staff is uninformed - the operator is not competent. And if the operator is an expert, then why MI?

Statement 6: Artificial Intelligence and Any of Its Tools are Human Creations

According to common sense, a person is always able to control his creation, and in extreme cases, turn it off. All other cases are accidents, intentional or unintentional, but human actions.

Statement 7: Differences in Purposefulness

Humans create purposeful tools with AI since they are purposeful beings themselves. The man is capable of setting new, or even completely different, other goals upon reaching his goal. A tool created with AI strives to maintain the goal when it is achieved - that's why we create. So, AI tools are limited in terms of goals.

Statement 8: The Language of AI is also Artificial and Goal-Oriented

The devices created with AI communicate with each other through a man-made artificial language and a man-made interface. So, AI communication is definitive and limited.

Statement 9: Human-Machine Communication is a Super-Production of AI

It is a long-standing endeavor to create an interpreter for the computer so that it is possible to converse with the machine in human language. Today, the development has reached such a level

that this is clearly possible. Its officials even claim that it is suitable for the creation of any human work, not for imitation. The product has been released; everyone can experiment with it. The basis of his results is deep learning[8], from an immense amount of reading. As a result, he knows words and sentences well, he even combines them, but he is far from literary in his interpretation of meaning.

Statement 10: The Empty Brain
Man is born with an 'empty' brain and trough years, with experience, education, and practice (training) becomes a human being, part of nature and society.

His empty brain can essentially be considered universal - 'can be trained for anything'! Actually, most of the people are only trained to survive in nature and fit into society. Much less for deep knowledge. Perhaps this is where the concept of the universality comes from – may make suitable for anything.

Statement 11: The Universal Brain
The universal computer the AI's brain is also empty. Its education and training are human tasks: it receives an operating system for its operation and application programs for its activities. It is not capable of independent application. It becomes usable only by uploading software of different levels and purposes, which are exclusively human creation. Humans can create applications that, from the incoming data, gain experiences - machine learning - than use them during on subsequent procedures. In extreme cases, even the goal to be achieved can change. Defining this is the creator's task. So, HI is primary and AI is a function of it.

Statement 12: AI is a Model Implemented on a Model
According to the McCulloh-Pitts[9] theorem, *anything that we can formulate with sufficient precision can be automated, so it can be programmed on a computer and implemented*. Broken down into its elements, it is called algorithmization. It is a controversial question whether what can be algorithmized is intelligence. Is the algorithm intelligent or not? The AI technique created on the models arising from the current state of science on HI. The model is also a human technique. Man models the human brain on a computer[10]. The quality and extent of the model depend on several scientific factors. One is our knowledge about the brain, the other is our knowledge about intelligence[11], as well as their technical feasibility. Model making is an additional factor as well as a technique.

Statement 13: The Dictates of Common Sense
It only makes sense to create artificial intelligence if it is better than human intelligence in some sense.

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[8] By deep learning, we mean a multi-level solution of the learning system. The successive levels represent the depth of learning.

[9] The statement was made for the first time in the discussion following the lecture given by John von Neumann at the Hixon Symposium on September 20, 1948. It sounds exactly like this: 'Everything that can be exhaustively and fully described, everything that can be put into words, can ipso facto be realized with a suitable, finite neural network.'

[10] The computer is also a model, an independent tool of the world of technology, that can include AI. It is the basis of almost all artificial intellectual activity.

[11] For more details: see footnote 1.

The machine equipped with AI is faster, more accurate, and more reliable than HI in all the cases for which it was prepared, beyond the simplest control to unpredictable procedures learned during operation.

The basic feature of any process is that nothing can be left without a decision. However, there are many cases where we are still not able to make a reasonable and correct decision, such as insufficient information, an emergency, or any extreme situation. An arbitrary decision can bring anything, even a world war, as we know from history. There are known decision making attempts for such cases: experience, intuition, delay, expert, plan B, habit, etc.

Of course, AI can't decide that either! Still, something must appear on the output of the MI application in this case as well! I wonder what it will be? Or you have to stop! And then what does the operator do? Can it be entrusted to an operator?

So, this is also human responsibility and not the AI's!

Statement 14: In a Mathematical Sense, we are Talking About Finite Systems and Finite Automats

The task is intelligently control of a process or select the appropriate one among variants. In a mathematical sense, this is most often the optimization of a function, bringing one of its values to an extreme state, no matter how complicated or complex that function is. This is precisely why intelligence is necessary. Each program starts with given initial conditions, 'runs', and terminates, and can then be restarted, even with new initial conditions made from previous results. The AI creation must regularly make a decision, which appears in its output. The impact of the decision is informed by the feedback received on the input. In more complex cases, the created decision proposal is examined on some kind of model and is only output if it meets certain criteria and expectations. If not, then change. Control and management technology offers many methods and techniques for this. An AI application while running can learn from these steps and from other information sources.

SUMMARY

Taking into account the completely different aspects of common sense and power, we modified our view on the issue of intelligence and concluded that artificial intelligence is a human creation and mimics the HI. Its current level can only be at most the same as our imagined model of the human brain and human intelligence. We also found that their base is completely different, the human brain has the biological brain, while the artificial brain has the computer, which is known not to be a model of the human brain. Despite all this, there is no obstacle to the fact that the artificial is getting closer and closer to the natural.

We have seen the human responsibility everywhere. According to our common sense, we only create things that serve us and never self-reproducing, end in itself tools. We are sure that the powers have interest in creating destructive things that work with intelligence, but we have also established that not the smart bomb responsible. Its creation is a coercion of power, a human responsibility, and it is not new, it is the same as the means of non-intelligent destruction. Regardless of their intelligence, 'unleashed' devices can cause an accident, no matter how big (an atomic bomb). Intelligent devices could join together and multiply themselves without limit only if the man made it so. But this is not at all obvious, intentional organization is necessary. I wonder why, what for would homo sapiens do this?

In the end, our goal with devices equipped with artificial intelligence is just to achieve some set goal even under changing conditions, or to be able to decide which goal to follow.

Additional parts of the model may be needed to obtain the information, such as sensors, data on its energy sources, and defense options. We will return to these in the discussion of further details of the model - in more recent studies.

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