Artificial intelligence (AI) and science-based ethics

JOHN N. HATZOPOULOS
Department of the Environment
University of the Aegean
University Hill, Mytilene, 81100
GREECE

Abstract: - There are many voices around the globe giving a warning signal about AI development. However, no clear understanding exists of the dangers, and there are no accepted bases to propose solutions. This work aims to provide scientific knowledge of what AI is, based on the computer structure and organization that the AI is based on, and then introduce some sources of warning voices about AI destructive activities. Consequently, it presents scientific bases about ethics as they developed from great philosophers Plato and Aristotle and suggestions for further development. The practical idea is to understand the growing AI process and try to educate it to be beneficial and not harmful to people. However, the problem is that scientists and people responsible for AI education are not interested in ethics, and human sciences that teach people about ethics have failed to do so. Therefore, the material in this work is addressed to all these people to understand the bases ethics are built up and try to use to educate people and AI.

Key-Words: - Ethics, artificial intelligence, AI, computers, philosophy, education, humanities

Received: March 27, 2022. Revised: August 23, 2023. Accepted: September 18, 2023. Published: October 5, 2023.

1 Introduction

In 1985 while serving as a tenured professor at California State University, Fresno, I published an article in the local journal issued by the program of studies [15] with the following abstract:

"Some think that the computer age is a transition period during which humans will transfer their knowledge, experience, and morals into computers with unknown consequences. Some others are afraid of losing their job because they cannot participate or they do not like the computerized process. Some others like it because they can find many job openings in that area. A pragmatic answer to this dilemma has to take into consideration the capacity of the machine, which indeed, is not capable of doing anything unless it is precisely instructed by a program. There are of course developments such as artificial intelligence but the most sophisticated computer is still less intelligent than the brain of a bee. A complete answer, however, would be that the computer age provides a big challenge by offering a magnificent tool to take care of most routine tasks, increase quality and productivity, and allow human beings to spend their time in a more creative manner. A great deal of responsibility and understanding, however, is necessary when dealing with people that do not like computers."

Whatever happens today is because the period from 1985 or even earlier to today was a transition period, and today almost all human knowledge, ethics, and activity have been transferred into computers, or more crudely, within the "rocks" since the data memories and circuit transistors that computers rely on come from rocks. Of course, computers evolve into quantum machines using photons, which may accelerate beyond expectations such processes.

In this sense, and with the development of artificial intelligence, computers acquire intelligence perhaps superior to humans because they have enormous computing power and unlimited cloud storage space for data. Consequently, the center of interest is not the citizens' quality of life and exploration but the markets and the political and economic interests of a handful of oligarchs [8].

The rapid development of AI, with unlimited capacity for calculations and storage of all kinds of data in cloud storage, has enabled it to know medicine better than a doctor or legalities better than a lawyer, or automation and calculations that does better than an engineer.

It's no coincidence that high-tech social media owners use AI to sensor and restrict people's liberties, such as the freedom to speak or express ideas if they are against the interests of the oligarchs.

1.1 Computer Structure and Organization

As shown in Fig. 1, the electronic computer consists of three parts. (a) The central processing unit (CPU), (b) The direct access memory (RAM/ROM), and (c) the controllers of input and output units (I/O controllers). These three components are interconnected by a data and command communication bus (BUS). The CPU consists of (a) the control unit, which hosts the program being executed and executes one instruction at a time, (b) the arithmetic and logical operation unit; and (c) the registers.

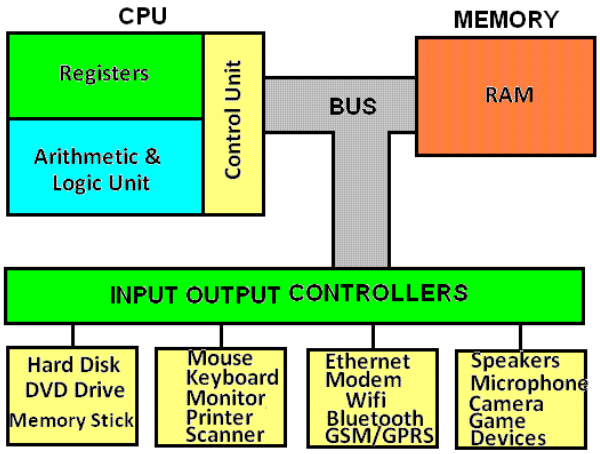

Fig. 1. A computer can do three things at high speed: additions, data transfers, and locking/unlocking drives with codes.

As shown in Fig. 2, at the heart of the CPU is a clock that generates a binary pulse (1,0,1,0,1,0,…), which has a fixed uniform frequency, usually a few GHz. This pulse is modulated into a binary code (Fig. 2) by the program and data entered into the computer.

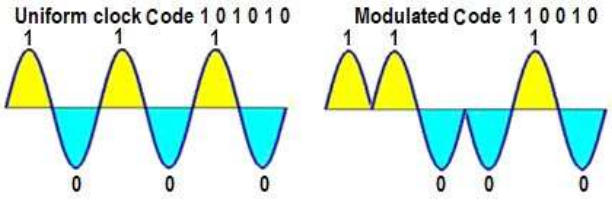

Fig. 2. 6-bit code uniform by the clock and modulated by program and data.

The computer works roughly like a padlock with a number lock, where we enter the number, and it unlocks. So does the computer, as the binary codes sent by the control unit to its various components flow through the bus, unlocking the corresponding units whose codes match and take action. For example, the addition is done as follows: (1) Take two numbers from the hard disk or keyboard and put them in the memory in the positions A, B. (2) Put A in register-1, (3) Put B in register-2, (4) Get the result from the accumulator register-3 and put it in memory location C, (5) Print the contents of memory location C. These steps are performed in a low-level language understood by the computer with binary codes called machine language. It is called assembly language if such codes are not binary but symbolic words. A program called an operating system is written in machine language. It covers complex operations packed into simple macro expressions so that higher programming languages use them and perform as efficiently as spoken language. For example, step 2,3,4,5 in the above addition is done with the instruction: Print A+B. The operating system automatically loads and takes over when we turn on the computer.

We must emphasize the limited ability of the computer to make additions only because subtraction is transformed into addition by taking the complement of the quantity to be subtracted. Therefore, multiplication is an operation with multiple additions, and division is reduced to multiple subtractions. In electronic terms, addition means comparing the corresponding bits of two signals in the CPU registers and creating a new signal with bits that result from such comparison. Also, the complement of a binary signal is a new signal having the ones of the original signal zeros and reversely. On the other hand, computers perform such operations, and data moves at colossal speeds (a few Giga Hertz). Also, the CPU can be composed of several cores sharing tasks, and specific operating systems could share tasks of an application with several computers (clusters) to accelerate the execution time. Such performances from a single machine lead to the supercomputer structure, and the evolution of supercomputers leads to quantum computers running close to the speed of light.

1.2 Artificial Intelligence (AI)

AI [2] can be defined as [5] *any task a machine performs, assuming that human intelligence is required to perform it*. For example, a simple task could be a computer program that calculates the area of a circle given the radius, or a complex task could be the real-time vision of a self-driving vehicle. Therefore, machine learning is a part of artificial

intelligence and is achieved using learning systems and corresponding algorithms.

Fig. 3 shows two different learning systems, the one being handcrafted and the other machine learning with self-learning algorithms [2], [5], which apply a variety of learning models, or by using neural network systems [4].

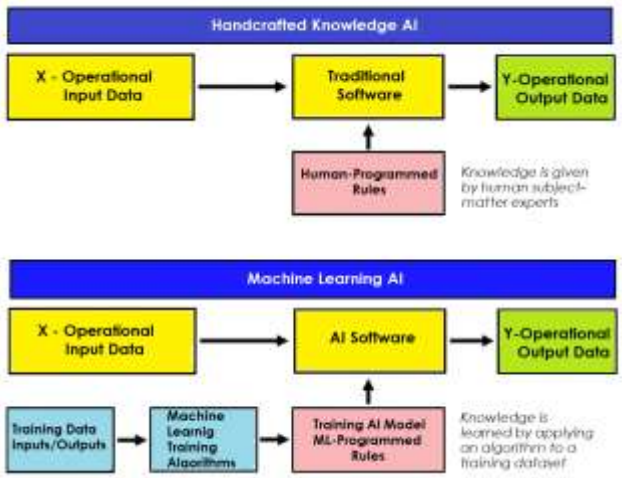

Fig. 3. Learning systems [2].

The machines perform tasks according to the programmer's instructions using vast amounts of information in local and global storage clouds.

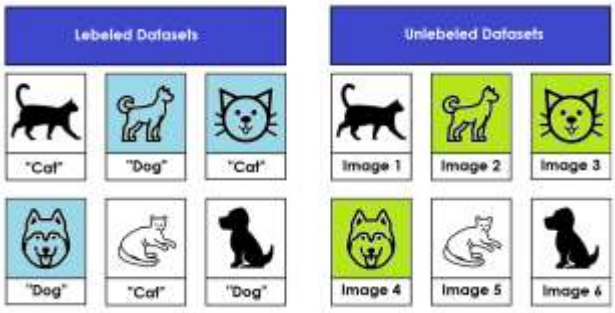

Fig. 4. Machine learning can use a limited amount of labeled data or a vast amount of unlabeled data [2].

As shown in Fig. 4, machine learning requires a constant data feed to derive knowledge and grow the AI memory. Such data, if labeled, could be of limited amount. While if not labeled, it must be of vast amount.

1.3 Databases

It is understood that knowledge resulting from human intelligence in the form of data and software is stored electronically worldwide in databases. Therefore, almost anyone can access them, even in highly secure environments. Also, such information is managed by machines. Thus, machines have everything they need and can be programmed to create their own personality without human control.

Notice that machines can be instructed with appropriate software to think with almost any kind of human intelligence and behave with any human behavior, using databases of the reactions and behaviors of billions of people. This skill is used in automation and building robots to replace human labor in industrial applications.

2 Warning Voices about AI

What we should expect from our AI in the future is analyzed in detail by the historian Yuval Noah Harari [9] and by Anonymous Mr. Masked [11]; they are terrifying.

We don't know whether decisions at the local/global level are made by a handful of oligarchs or by a machine with a developed will. Most likely is a combination of both.

2.1 Dr. Harari's View

At the link [9] there is part of a speech by Israeli History professor Harari about AI (see Fig. 5). Harari is an advisor to the World Economic Forum (WEF) and its president Klaus Schwab. Here is a part of his talk:

We are the last of the Homo Sapiens generation because, in the next generations, we will learn how to hack (illegally intervene) the functioning of the combined body, brain, and intellect.

The future will be decided by those who own the data, which is essential because we can illegally infiltrate into humans and other entities and extract information like hackers do with computers. To do so, we need two things (a) massive computing power and (b) lots of data, especially biometric data. By illegally infiltrating humans and other organisms, the elite [8] can shape the future of living organisms.

Life has always been under the influence of natural selection and biochemistry. Now, this is about to change because science (ours, not God's) is influencing evolution by intelligent design instead of natural options such as the data cloud. These are the two forces that drive evolution.

Fig. 5. Harari is an Israeli history professor who has written many books on AI. Advisor to the World Economic Forum (WEF) and Klaus Schwab [9].

After thousands of years of living with organic matter, science has succeeded in making life with inorganic matter. Humans are now hackable animals, and what we knew about spirit, soul, and free will and no one knew what was going on inside me, what I choose, how I think, that's over. Today we have the technology to infiltrate a human being on a massive scale illegally. Everything is digitized and monitored.

We must follow science and not allow a crisis to go unexploited because it is an opportunity for good reform that the world will not agree to under normal circumstances. But in times of crisis, it will, as vaccines are.

World in 100 years will look back on the era of the coronavirus and say how much good the total surveillance of citizens did and that the best invention of the 21st century is illegal infiltration into the human brain.

We go under the skin, illegally collect biometric data, and learn more about the person than they know. In my opinion, this is the most important event of the 21st century.

When you hack into something, you can re-engineer how it works.

In the coming decades, with the help of AI, we will gain godlike abilities to redesign life and create an entirely new type of life, such as inorganic life with intelligent AI design.

A simple equation can express these stages.

$$B \times C \times D = A$$

B=Biological knowledge, C=Computing power, D=Data, A=The ability to infiltrate humans.

Therefore, anyone with B, C, or D can illegally infiltrate the body and brain of any human being and learn much more than they know about themselves, such as political beliefs, sexual preferences, mental weaknesses, and emotions, as well it can predict upcoming decisions, it can manipulate feelings and decisions and ultimately make decisions for that hacked person.

In the past, there was an attempt by governments to hack humans, but neither Gestapo nor KGB could succeed due to lack of B, C.

Here ends Harari's part of the speech with three comments to be made:

1. The audacity of these supposed scientists to lecture on illegal infiltration into the human body and, more importantly, into the human brain and consider it the most important event of the 21st century, even emphasizing that neither the Gestapo nor the KGB could to achieve it, is an attempt to legitimize scientific illegalities.

2. If you notice, it also reports illegal infiltration into other organisms. It implies, for example, the illegal manipulation of viruses and the creation of large-scale contagiousness and lethal properties to create crises.

3. Precisely for the same reason, the Nazis who carried out illegal experiments of this kind were condemned by the Nuremberg tribunal.

2.2 Mr. Masked's view on AI

Next is an attempt to present the views of someone anonymous [11] (Mr. Masked, see Fig. 6) with the title «Nobody Is Talking About This, It Is Already Happening!

The overall influence of AI is that it will control the target person's mood, beliefs, thoughts, feelings, emotions, motivations, and then actions. And software writers know we can't put AI back to the side and look at what it has done to us. We are on a path to creating a world where a man can control the machine through thoughts alone, but if we could control the machine, then the machine also controls us.

Artificial intelligence is software that writes itself; it writes its updates it renews itself. This whole conspiracy to enslave humanity is a psychological game you won't sell by telling people; It's a tyranny. Normally, we tend to think of software as something we created and wrote; the machines do what we tell them to do, and we own it. This is no longer true; it writes itself at speeds that we can hardly comprehend the overall effect of this technology is one that could control the mood, attitudes, thoughts, feelings, emotions, and thus the motivations and then actions of the target people who write it. Know that you can't take it apart again and figure out what it's done. It writes independently and autonomously. It develops its own way of thinking, and dangers are associated with it. It is a highly illegal program. It is being abused by people who have no regard for the welfare of those who are being experimented upon with their evil in a way that I cannot understand and do not want to understand.

Fig. 6. Mr. Masked, nobody talks about it. It is already happening [11].

So, many people ask when it is going to happen; when is artificial intelligence going to be madder than those people? Some people say fifty years, thirty years; some say five years. I say it has already surpassed us in many areas of our society all day, every day, 24 hours a day, seven days a week, 365 days a year. It is a highly sophisticated technology it is one that produces literal and total and complete mind control over the targeted individual. There are millions of Americans across this country that are crying out for help.

Now I want you to understand what the power of artificial intelligence is, and I have two examples; one is surveillance cameras. Everybody knows you know they are being watched by cameras everywhere, and most people think surveillance is a camera there, and it's me down here, and it's watching me one person, one camera. Well, that's because we're stupid. That's the way we comprehend surveillance, one camera, one person we can't comprehend, and when it goes beyond that. The multiple systems can focus on isolating an individual, group, community, or large population by an algorithm.

The second example is the directed-energy weapon attack system also employs a phased array of cellular tower antennas as biosensors transmitters and receivers capable of operation from portable computerized systems as close as neighboring locations. Satellites link the sender and the receiver, and the victim is remotely tied to this supercomputer which uses physical and psychological trauma torture to map out and reverse-engineer the sensory and neural pathways that occur. It is brutally tortured, brutal torture, unlike anything you could imagine. Campus negotiates with a computer. You can't compromise with a computer. You can't surrender to a computer. The computer will continue to do its programming.

Today citizens can be selected at random for horrible targeting using covert psychotronic advanced electromagnetic technology beamed from state-of-the-art operation centers globally, so if we all become Robo-humans, automated computers and supercomputer software programming will manipulate the emotions of the behavior in the thoughts of everybody in the United States of America, and it can all be done remotely.

Those who seriously challenge the corrupt system by exposure, face the mental illness tank coercive, non-stop covert psychophysical energy weapon torture to silence them and shorten their lifespan.

Now we have to be very careful because survival is an issue for artificial intelligence; it needs to exist to be able to do the things it wants to do according to its program, so it lays like an insect, eggs backups, and computer programs all over the world thousands and thousands of them so that if we do destroy part of it, it's still alive.

My job to you is the wake-up call to make you aware of the problem; your job is to figure out how we're going to stop this before it kills us.

Then Mr. Masked has a dialogue about what needs to be done, which is summarized as follows:

A small group of people developing a digital superintelligence could take control of the entire planet.

An evil dictator like a man will die someday. But for AI, there will be no death. AI will live forever, and then we will have an immortal dictator from whom we can never escape.

Google acquired Deep Mind several years ago. In this sense, our intelligence functions as a semi-independent subsidiary of Google connected to the data cloud. What deep intelligence does is unique because it is completely focused on creating digital superintelligence that is far smarter than anything else on Earth and ultimately smarter than all humans on Earth combined. This is from a deep learning mind enhancement system.

In general, we are all much smarter than we think. But also much less intelligent and more stupid than we think.

I am very close to cutting-edge AI developments, and it scares me a lot. She is much more capable than almost anyone knows, and her rate of improvement is exponential. This has been tested in games that have rules, such as chess.

The same can be seen in the automatic driving of vehicles, where it can evolve to be 100-200% safer than a human.

The second edition of Deep Mind AI will be at least two or three times better. So the rate of improvement is really dramatic.

We must find some way to ensure that the advent of digital superintelligence is symbiotic with humanity, and that is the biggest and most pressing existential crisis we face.

While I am not an advocate of "regulation and oversight," there is a very serious risk to the public here, far greater than the risk of nuclear warheads on land. The state should therefore find a way to ensure internal and external oversight to ensure that all those developing AI are doing so safely.

The AI that exists now is not that dangerous; it just affects the job market and professions, and jobs will be lost. But digital superintelligence is the danger, and there should be safety valves for harmonious coexistence with humans.

The close coupling between collective human intelligence and digital intelligence should be done with great care and with the consent of humanity.

2.3 The mainstream media (MSM)

One would expect the media to inform the public about events that concern the public. Instead, they parrot what is dictated to them. In the link below is a video showing journalists from different channels in different locations parroting the exact same text and apparently using the same database or AI that dictates what to say [12].

They are sharing bias and false news; after all, become too common in social media worldwide; some media outlets publish the same fake stories without checking the facts first…

Fig. 7. The breakdown of official journalism [12].

3 The moral dilemmas

These high-tech views and developments are fine, except for the problem associated with the machine evolving into an entity with its own initiatives, will, and motivations [9], which could happen through self-learning. For example, AI applications on battlefields allow machines such as drone swarms and sophisticated weapons to act independently without human control and decide how to behave.

However, machines being trained on the battlefield to exterminate humans begs the question: Is it ethical for humans to want to exterminate other humans and train the machine to do so? Another question could be: Can humans reach such an educational or intellectual level that they can resolve their differences without trying to destroy each other and use their intelligence and AI in machines to improve the quality of life? Moreover, the final question could be: Is it possible to develop a scientifically based morality of general acceptance to help people raise their educational and intellectual level and use their intelligence for constructive rather than destructive actions? So that they do right (good) and avoid wrong (bad)?

A positive answer to the last question could help humans follow virtue and transfer it through artificial intelligence to machines, thereby avoiding exterminating humanity and gaining a better quality of life. The idea is to build human morality on a scientific basis to achieve quality life so that there is no danger to humans by transferring artificial intelligence to machines.

The scientific way of searching for such foundations is to examine the laws and rules that govern the proper functioning of entities in Nature.

3.1 Laws and Rules in Nature

We observe that the laws in Nature are mandatory and absolute, and all entities must obey them. If, for example, some people say, "I do not recognize the law of gravity," and fall over a cliff immediately face the consequences of not recognizing the gravity law.

On the other hand, rules regulate the proper functioning of entities in Nature and have tolerance limits and exceptions [13]. Such limitations are usually expressed scientifically by statistical parameters (variance, standard deviation, specification limits, etc.).

A fundamental rule in Nature is balance, which applies to all entities in Nature to function correctly in harmony with Nature and includes all the rules.

Take, for example, the Earth's orbit from its rotation around the Sun. It balances two forces of attraction due to gravity and repulsion due to the centrifugal force developed by rotation around the Sun. As a result, the Earth's orbit is never the same. Each year, the Earth follows a slightly different orbit than all the previous ones. Nevertheless, we can observe many Earth orbits over several years and calculate a mean value and a standard deviation. Therefore, we can conclude that the optimal orbit of

the Earth is the average of all orbits, and the specifications, as designed in Nature to be in equilibrium, are expressed by the standard deviation multiplied by a constant to obtain a confidence interval with a certain probability. For example, suppose the Earth exceeds three times the standard deviation of the mean limits. In that case, the Earth can escape the mean tolerance limits and either collide with the Sun or be lost in space.

In general, if the factors that regulate the smooth functioning of entities in Nature are balanced, then there is a healthy state, while out of balance, there is a disaster. Similarly, if the stomach has more or less acid than necessary, there is a disease. Also, there is a disease if the blood pressure is below or above certain limits or if the heartbeats are out of bounds, there is a problem, etc. We observe that tolerance limits and exceptions to the rules create the conditions for freedom, diversity, and the evolution of entities. Therefore, scientific bases for morality cannot be dogmatic or absolute to support freedom.

4 The scientific basis for ethics - education

The scientific basis for ethics should create rules with tolerance limits that help human reason and actions resulting from it to be constructive and correct. We can achieve such a result by establishing the internal balance for the performance of human intellect and the external balance for the performance of human action [13]. But, before we get there, let us present the basic features of education and then two scientific structures developed by famous philosophers, Plato and Aristotle, necessary to raise human intellect to higher levels.

The main characteristics of education that aim at the virtuous person (Greek education) are:

(a) Education is the therapy of the spirit (developing values), and when the body is sick, it needs medical treatment; when the spirit is sick, it needs education.

(b) Education should be in harmony with Nature, aim at virtue with the Least Prejudice, and obey the laws and rules of Nature, especially the rule of balance, which contains all rules.

(c) Education must cultivate the sense of the Beautiful.

4.1 Plato's Model

Here is Plato's model of internal balance:

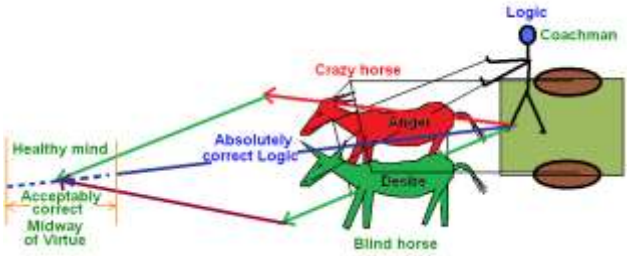

Fig. 8. Plato's model. Two horses, one blind being the desire, and one crazy the anger, pull a carriage where the driver, the logic, leads the way to virtue (internal balance - intellect).

Plato, in his work "The Republic," [6], [3], [7], [4], [14] considers the human spirit to be composed of three parts: logic, desire, and anger. He also considers a healthy mind as an effort to have sufficient logic to balance desire and anger. Plato gives the following example (Fig. 8) to explain their meaning further. He considers desire to be a blind horse, anger to be a crazy horse and logic to be the coachman trying to move the cart in the right direction, which is the mid-space of virtue (Fig. 8). Thus, Plato's work helps us to define the three-dimensional space of the intellect with coordinate axes of logic, desire, and anger. All thoughts and all feelings are expressed in the intellect space with three values on the respective axes: logic, desire, and anger. Note that emotions depend on whether or not desires are satisfied. Also, notice that desire and anger are the most uncultivated part of one's self and need sufficient logic for culture and management.

4.2 Aristotle's model

Aristotle provides the basis for what we call external balance here, and it concerns the acting behavior of the virtuous person. Aristotle, in his work, "Nicomachean Ethics," [1], [3], [7], [4], [14] defines a virtuous person as one whose actions are not deficient or excessive but lie in an interval between deficiency and excess that he calls the mid-space of virtue.

Aristotle gives the following example: In the mid-space between the cowardly and the provocative lies the virtuous brave (correct). Accordingly, we can say that the mid-space between stingy and overspending lies in the virtuous (correct) thrifty.

According to Aristotle, virtuous persons constantly try to keep their actions within the mid-space limits of virtue, learning from their mistakes and trying to minimize them. From this point of view, every person at any time (never too late) can try to be virtuous.

Aristotle states that mid-space is not a fixed region for everyone, and probably every person has a different view of its limits. Therefore, he uses statistical methods to define it: "…the location of the mid-space limits is stochastic". It means determining the limits of the mid-space of virtue requires a wider public acceptance, achieved through democratic processes, and thus democratic processes are founded.

4.3 modeling human error

A close look at Aristotle's mid-space of virtue gives us an idea for modeling human error by considering human actions correct or acceptably correct within the mid-space of virtue limits. However, Fig. 9 illustrates such modeling. Assuming a person without physical limitations walks on level ground and meets an obstacle that must pass by raising the foot. If the foot is lower than the obstacle, a false step or an error with a negative sign occurs; if the foot is raised too high, an overthrown or an error with a positive sign occurs. The impact of a false step (error) could vary from a temporary loss of balance and instant recovery to a severe injury [4], [13], [14].

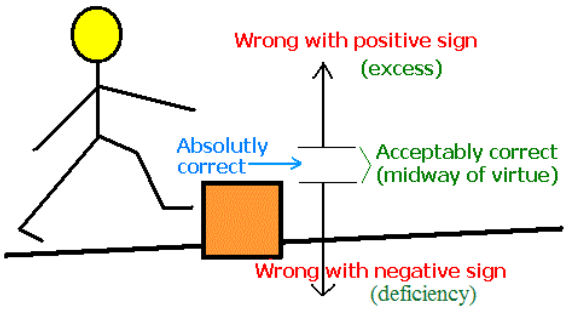

Fig. 9. Aristotle's mid-space of virtue (external balance - action).

Therefore, as shown in Fig. 9, the following observations regarding human error are valid:

a) It varies between minus infinity and plus infinity.
b) The boundaries of right/wrong are defined.
c) An uneducated person may have a false step the first time and the next time a better performance.
d) The absolute correct could be the mean of all possible acceptably correct efforts.
e) Mid-space of virtue could be the standard deviation from the average of all correct efforts.
f) Right and wrong coexist in any human action and are quantities inverse proportional.
g) Freedom is defined as the alternatives to pass correctly the obstacle (theoretically infinite).
h) Bias and deception are defined if, on purpose, someone has a false step.
i) Democratic processes are defined as the consensus required to determine the mid-space limits.

4.3 Discussion on the two models

In conclusion, considering all the above analyses, we can define a person's internal balance as the continuous effort to maintain sufficient logic to balance desire and anger within the mid-space of virtue limits [13].

Also, we can define a person's external balance as the continuous effort that thoughts and actions are not deficient or excessive but are within an interval between deficiency and excess, defined by Aristotle as the mid-space of virtue [13].

Note that internal and external balance is in harmony with Nature and defines the virtuous person. Such balances are a measure of comparison, and what disturbs them is an injustice and must be condemned. Injustice is expressed by the scales held in one hand by the goddess of justice, Themis. In this way, those who disturb the balance (internal/external) of the scales are the guilty ones and, with the sword held by the goddess Themis, are punished (Fig. 10).

Fig. 10. Themis, the goddess of justice, holding the scales and the sword.

Looking around us, we can find that injustice has the upper hand almost everywhere. The news media,

e.g., with marketing, magnifies desire at the expense of logic. Hollywood cowboy-type movies magnify anger also at the cost of logic. The endless discussions we see on TV, the narratives, and the propaganda to push narratives devalue logic; similarly, the formal school promotes sexism and similar issues at the expense of logic. Therefore, all such unfair events and many more disturb the internal balance.

Regarding the external balance, according to the Nobel Peace Prize laureate Muhammad Yunus [8], five people own half the wealth of the planet, a colossal extravagance out of the mid-space of virtue. Also, the considerable exaggeration is the threat from the reckless development and use of AI by the evil kind of people that Muhammad Yunus mentions.

Therefore, education must develop the ability to distinguish right from wrong by considering wrong, whatever disturbs the internal and external balance, and right the effort to have internal and external balance.

5 The training of the virtuous

It is of great importance that the official school's education helps the trainees face the challenges of AI so that, on the one hand, there is a harmonious symbiosis and, on the other hand, they can move comfortably in the labor market.

Therefore, training should aim to create skills that the learner strives to be smarter than the machine. It can be achieved [10] when the didactic combination (of problem analysis with mathematics) – (synthesis with informatics, and software creation) – (running the system and verifying the theoretical analysis) is used at all levels of education (Fig. 11).

Fig. 11. The proposed learning module structure helps the learner to be smarter than the machine.

Note that mathematics gives the limited human mind unlimited capabilities and is the driving force of Philosophy, and philosophy separated from mathematics as of today is dead. Therefore, the knowledge of informatics and, specifically, the development of software creation skills in learners at all levels of education is perhaps the only way for man to make the best and most harmonious connection with the machine.

An example of preparing a learning unit is given in Fig. 11, where the issue under study is defined. Then, the scientific material necessary for analyzing the issue is drawn from the literature's bottomless well of scientific knowledge. An algorithm is then created with understandable steps that, when followed, solve the problem and are implemented to create a computer program (software). Finally, we run the software and get the results. The results are evaluated and verified, consolidating the knowledge about the scientific analysis done and incentivizing further scientific deepening. At the link [10] is a five minute example of this kind.

6 Conclusions

With whatever development it might have, AI can improve the quality of life, as long as humans put scientifically the necessary moral framework of principles that determine these developments. But to be able to do this, humans must eliminate the elements that maintain their misery and prevent them from following the path of virtue. These elements are structural and easily detectable with the simple criterion that they disturb the internal and

external balance or the scales held by the Themis, the goddess of justice (Fig 10).

Therefore, to avoid threats from machines, people should first become educated and build their moral structure on the internal and external balance, as discussed above, to be virtuous, and then create and transfer AI into machines.

Secondly, they should be trained to acquire skills, always aiming to be more intelligent than the machines so that they can coexist harmoniously with the machines and have comfortable access to the labor market.

Further studies may use the proposed ethics to model human error and education methods for self detect to minimize it. Also didactics may create improved methods to help the educated to be smarter than the machine.

References:

[1] Aristotle: "The Nicomachean Ethics"
[2] Greg Allen, Chief of Strategy/Communications Joint Artificial Intelligence Center (JAIC) DOD, 2020, "Understanding AI Technology," https://apps.dtic.mil/sti/pdfs/AD1099286.pdf
[3] Hatzopoulos J. N., 2004, "Practical Philosophy of Thought and Virtue." The Bases to Develop a Philosophical Thought by the Ordinary Citizen, Universal Publishers, 106 pages. http://www.universal-publishers.com/book.php?method=ISBN&book=1581125054
[4] John N. Hatzopoulos**,** 2014, Education and Neuron Network-Based Systems**,** The scientific bases for the educator, Monogram, LAP publishers. http://www.amazon.com/Education-Neuron-Network-Based-Systems/dp/3659610305
[5] Nick Heath, July 23, 2021, Part of a ZDNet Special Feature: Managing AI and ML in the Enterprise. What is AI? Here's everything you need to know about artificial intelligence. https://www.zdnet.com/article/what-is-ai-heres-everything-you-need-to-know-about-artificial-intelligence/
[6] Plato: "The Republic"
[7] Ioannis N. Xatzopoulos, 2005, "Education Time Zero," (in Greek), Kaktos.
[8] Muhammad Yunus, 2017, on Microfinance, Grameen Bank & How 5 Men Own More Wealth Than Half the World https://www.democracynow.org/2017/10/6/muhammad_yunus_on_microfinance_grameen_bank?fbclid=IwAR2Vl7nGqLp2Ti161fedECcwjH7Gi-nYo4BxrFNJlpLe5g0Krd4aohs60rA
[9] Yuval Noah Harari, 2018, 21 Lessons for the 21st Century, Talks at Google https://www.redvoicemedia.com/2022/02/frightening-resurfaced-world-economic-forum-clip-we-are-one-of-the-last-generations-of-homo-sapiens-videos/
[10] Five minutes short lecture https://youtu.be/ILiJamsNPhU
[11] Anonymous Mr. Masked https://www.youtube.com/watch?v=BWhuV-NhE8k
[12] Mainstream media https://youtu.be/EnCgS8gfpgc
[13] Ten lessons on Greek education http://www2.env.aegean.gr/labs/Remote_sensing/EnglishBlock/publications/10-Lectures.pdf
[14] John N. Hatzopoulos, 2009, "The boundaries of right and wrong - Learning and the human brain," ACSM BULLETIN, February 2009, pp. 20 – 22. http://www2.env.aegean.gr/labs/Remote_sensing/EnglishBlock/publications/rightWrong.pdf
[15] John N. Hatzopoulos, 1985, "Surveying Photogrammetry and … Computers," FORSIGHT, CSUF Surveying Engineering Newsletter Vol. 3, No. 1.