_____

"Artificial Intelligence- Humanity's Fire, Pandora's Box, and the Promethean Dilemma": Exploring the Philosophical and Psychological Dimensions of AI"

_____

Nidhiya Balachandran
Assistant Professor of English ,College of Applied Science, Perissery, Chengannur,
Alappuzha , Kerala 689121
Email I'd: casperissery.ihrd@gmail.com

_____

Abstarct:

The concept of artificial intelligence, which is considered as both humanity's greatest accomplishment and its most complex challenge, echoes the ancient Greek myths of Prometheus and Pandora's Box. While the Titan's gift of fire in the myth of Prometheus symbolizes knowledge and scientific growth, Pandora's Box emblematizes the unexpected repercussions unleashed by human ignorance and curiosity. The ethical and societal implications of AI is scrutinized in this study. Much like Prometheus' fire did, AI is equipped with the potential to improve abilities, transform business and to address global issues like climate change, healthcare, poverty. The metaphor of Pandora's Box captures attention to the dangers and ethical predicaments brought on by AI's rapid advancement. Problems like algorithmic bias, privacy violations, disinformation, and the psychological effects of AI on human identity and autonomy highlights the necessity for rigorous thought and regulation.

The objective of this study is to explore the philosophical issues of accountability, control, and the ethical ramifications of developing autonomous systems as it tackles the Promethean Dilemma of weighing AI's potential benefits against its risks. It also discusses the psychological consequences of AI for people and society as a whole, especially how we deal with a future where robots make more and more decisions. More than that, it will investigate the gap in previous research to get an overall idea of what all measures should be taken to ensure that AI serves the greater good while minimising its risks, this investigation ultimately aims to offer a framework for navigating the changing connection between humans and AI, highlighting the significance of hope, ethical governance, and psychological resilience.

Keywords: Artificial Intelligence, Ethics and Societal implications, myth, Prometheus, Pandora's Box.

_____

Introduction

Our minds have been continued to reflect on life around us and upon ourselves during all stages of human development. Questions about our own existence and our own minds have been continuously asked. On this quest for understanding our minds, philosophers have joined by mathematicians, psychologists, economists, Cognitive scientists and computer scientists. We not only want to understand minds brains and Intelligence, but also want to create minds brains and Intelligence. This hunt goes broadly under the name of artificial Intelligence. With the invention of Artificial Intelligence, human life has become more easy as it makes it less difficult to perform activities which demands more time and strength, both physically and mentally. It also does things with utmost perfection and precision in A very short span of time.

The urge to create intelligent beings can be traced back to Greek mythology, Hephaestus, son of Hera (the queen of gods and Zeus' wife), constructed humanlike creations regularly on his forge. As a present from Zeus to Europa (a human princess), he created Talos out of bronze to guard and defend the island of Crete, where Europa lived. Perhaps his most famous creation is *Pandora*. He did so at the behest of Zeus who wanted to punish humankind for accepting Prometheus' gift of fire. Pandora is sent to Earth with a casket, which she has been forbidden to open, but does so, overcome by curiosity and releases the world's evils.

Artificial Intelligence (AI) offers numerous advantages, such as enhancing efficiency by automating repetitive tasks, improving decision-making through data analysis, and enabling advancements in fields like healthcare, education, and transportation. It can personalize user experiences, improve productivity, and solve complex problems at unprecedented speeds. However, AI also has its disadvantages, including potential job displacement due to automation, ethical concerns over data privacy and bias, and the risk of misuse in areas like surveillance or weaponization. Moreover, the lack of transparency in AI decision-making (black-box systems) and over-reliance on AI can lead to unintended consequences, emphasizing the need for responsible development and regulation. Just like Prometheus' fire and Pandora's Box, AI has the potential to enhance the ability of human beings and also posses danger to the human race.

Greek mythology of Prometheus and Pandora's Box

In Greek mythology, one of the TITANS, descended from the EARTHMOTHER (GAIA) and the Sky Father (URANUS); son of Iapetus and one of the daughters of OCEANUS, possibly Clymene; brother of ATLAS and of EPIMETHEUS; father of

_____

DEUCALION. Prometheus was a remarkable figure in Greek mythology. Some stories say that he was the creator of man. He was certainly the main champion of humankind, bringing the gift of fire and teaching people how to use it. He also taught humans astronomy, medicine, navigation, metalworking, architecture, and writing. ZEUS grew angry with Prometheus for stealing fire and giving it to people. He had Prometheus chained to a rock on Mount Caucasus, where an eagle or a vulture plucked at his liver all day. Prometheus healed every night, so that his suffering seemed destined to go on for all eternity. HERACLES eventually rescued Prometheus, and CHIRON, the CENTAUR gave Prometheus immortality. To revenge himself on humankind, Zeus sent PANDORA into the world and with her all the troubles and sicknesses of humankind. Some scholars say that in earlier mythologies Prometheus remained chained to his rock through all eternity. But to the fair-minded ancient Greek poets who recorded the myths, it was unthinkable that the champion of humankind should be so punished, hence the story of Heracles, the hero who broke the bonds of Prometheus, and of Chiron, the gentle centaur who conferred his immortality on Prometheus to end his own suffering. The story of the enmity between Zeus and Prometheus may represent the antagonism between an ancient god (Prometheus) and the more modern OLYMPIAN GODS, personified by Zeus. References to Prometheus are found in most of the classical poets, such as HESIOD and AESCHYLUS(Prometheus Bound). In the 18th century, German poet and scholar Johann Wolfgang von Goethe saw Prometheus as a symbol of humanity's creative striving and rebellion against the restraints of society. The19th-century English poet Percy Bysshe Shelley, in Prometheus Unbound, glorified the Titan who dared revolt against the gods and triumph over tyranny. Prometheus, Fire-bringer and Champion of Humankind Stories say that on one occasion Prometheus, a Titan, made two bundles out of there mains of an ox that had been sacrificed. One bundle contained the meat, the other, the bones. He wrapped the bones in succulent-looking fat; the meat he placed inside the stomach sac of the ox. Asked to choose which package he preferred, the god ZEUS chose the package that looked succulent but contained nothing but bones. In his anger at being tricked (although some say that the great god surely knew he was being tricked) Zeus decided to keep the knowledge of fire-making from humankind. Prometheus, undaunted, stole fire from heaven, or from the forge of the smith-god, HEPHAESTUS, and took it to Earth hidden in the hollow stalk of the fennel plant. He then began to teach people all the uses of fire—how to make tools and fashion metal, how to build, and how to cook. He also taught people how to sow and reap, and how to use herbs for healing.

Prometheus and Pandora Prometheus, was a cause of great anger to Zeus. Prometheus had tricked Zeus in the matter of sacrifices made by humans and he had eventually escaped from the terrible torture inflicted by Zeus as punishment. Zeus decided that

_____

humankind must be punished for having received the forbidden gift of fire. Zeus ordered Hephaestus, the smith-god, to make a woman out of clay. The gods breathed life into her and made her irresistibly beautiful. She was named Pandora(All-giving) and sent to Earth, bearing a sealed vase, of which she was forbidden to know the contents. In spite of warnings from Prometheus, Epimetheus, his brother, immediately took Pandora to be his wife. Then Pandora opened the vase, sometimes called Pandora's Box, and every disaster that humans were ever to know was released upon the world. Only Hope remained the vase, giving humankind the will to go on living.

The first woman to appear on Earth, according to Greek mythology. The gods created her and sent her down to release upon the world all the misfortunes that could occur. At the command of the great god ZEUS, the smith-god HEPHAESTUS crafted her out of clay and the other gods and goddesses breathed into her surpassing beauty, charm, graciousness, and cunning. They also gave her a vase to take with her to Earth and told her never to open it. PROMETHEUS (Forethought) resisted the beauty of Pandora, but his brother, EPIMETHEUS (Afterthought)at once took the beautiful creature to be his bride. After the wedding, Pandora opened the sacred vase(sometimes called Pandora's Box) and released upon the world all the ailments that it contained. Only Hope remained inside the vase, and it was Hopewho enabled humankind to go on living despite all adversity. Some legends say that Zeus released Pandora upon the Earth because he was angry with Prometheus, champion of humankind. Pandora was to be humankind's punishment for having learned the use of fire from Prometheus.

Prometheus's fire is a profound symbol in Greek mythology, representing the transformative power of knowledge, innovation, and human advancement. In the myth, Prometheus, a Titan, defied Zeus by stealing fire from the gods and giving it to humanity, a bold act that enabled humans to evolve beyond their primitive state. Fire, in this context, is more than just a physical element; it symbolizes enlightenment, creativity, and the intellectual spark that drives progress. It allowed humans to cook food, forge tools, build civilizations, and gain mastery over their environment, laying the foundation for culture and technology.

However, the symbol of Prometheus's fire also carries a cautionary undertone. While it highlights the immense potential of knowledge and creativity, it underscores the risks and responsibilities that accompany them. Prometheus's defiance of Zeus incurred severe punishment—being bound to a rock where an eagle ate his regenerating liver daily—

_____

reflecting the cost of challenging authority and wielding forbidden knowledge. This duality makes Prometheus's fire a symbol of both empowerment and the dangers of overreach.

In broader interpretations, Prometheus's fire has been associated with human ambition and the pursuit of progress, often likened to modern scientific and technological advancements. It serves as a timeless metaphor for the enduring human quest to push boundaries, even in the face of significant challenges, and the ethical dilemmas that arise from harnessing powerful tools.

Pandora's box is a rich and complex symbol that embodies curiosity, temptation, the inevitability of human suffering, and the enduring presence of hope. In Greek mythology, Pandora was created by the gods as the first mortal woman, endowed with gifts of beauty and cunning but also with a fateful flaw: insatiable curiosity. As part of her creation, Zeus gave her a jar (later mistranslated as a "box") and explicitly instructed her not to open it. However, driven by her inquisitive nature, Pandora succumbed to temptation and opened the jar, unleashing all the evils and hardships—sickness, death, sorrow, and despair—into the world. Realizing her mistake, she quickly closed the jar, trapping only **hope** inside. [1]

Artificial Neural Network (ANN)

Artificial Neural Networks (ANNs) are collection of interconnected nodes or neurons, designed to process and analyse data, inspired by the structure and functioning of human brain. These networks mimic the way biological neurons work by transmitting signals through connections that have "weights," which gets adjusted during training to optimize performance. The Nobel Prize in Physics 2024 was awarded to John J. Hopfield and Geoffrey Hinton " for foundational discoveries and inventions that enabled machine learning with artificial neural". **John Hopfield** created a structure that can store and reconstruct information. **Geoffrey Hinton,** the godfather of artificial intelligence, invented a method that can independently discover properties in data and which has become important for the large ANN now in use. The invention of computers brought about a drastic change in human life. These systems helped humans in several ways. But these computers performed solely on the basis of the inputs or instructions provided to them and they are incapable of thinking on their own. With the invention of artificial intelligence, the scenario has changed. The development of machine learning has exploded over the past fifteen to twenty years and utilises a structure called an artificial neural network. Machines can now mimic the functions of brain like memory and learning.[4]

Artificial Neural Networks contain artificial neurons which are called units The Artificial Neural Network system consists of these units, which are arranged in a number of

_____

layers. .The number of units in a layers is determined by the complexity of the neural networks to learn the hidden patterns in the given data bases. An input layer, an output layer as well as hidden layers constitute the Artificial Neural Networks.. The combined activity of these layers gives the desired outcomes. The input layer is receives data from the outside world and this this data passes through one or multiple hidden layers that transform the input into data that is valuable for the output layer. Finally, the output layer provides an output in the form of a response to input data provided.
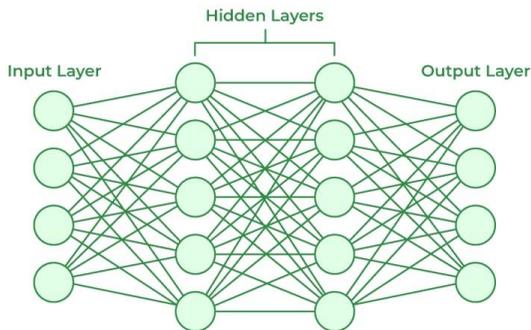
[2]

The structures and operations of human neurons serve as the basis for artificial neural networks. It is also known as neural networks or neural nets. The input layer of an artificial neural network is the first layer, and it receives input from external sources and releases it to the hidden layer, which is the second layer. In the hidden layer, each neuron receives input from the previous layer neurons, computes the weighted sum, and sends it to the neurons in the next layer. These connections are weighted means effects of the inputs from the previous layer are optimized more or less by assigning different-different weights to each input and it is adjusted during the training process by optimizing these weights for improved model performance.

Artificial neurons vs Biological neurons

The concept of artificial neural networks comes from biological neurons in animal brains. The structure of artificial neural networks is inspired by biological neurons. A biological neuron has a cell body to process the impulses, then there are dendrites to receive them, and an axon that transfers them to other neurons. Similarly, the input nodes of artificial neural networks receive input signals, these input signals are computed by ,the hidden layer nodes and the output layer nodes compute the final output by processing the hidden layer's results using activation functions, the output layer nodes calculate the final output. In the animal cell, there are link between neurons called synapses which helps in transmitting impulses from dendrites to cell body. In ANN, weights are the counterparts of synapse. . The strength of the links is determined by the weight value. In biological neurons, learning

_____

happens in the cell body nucleus, which has a nucleus that helps to process the impulses. An action potential is produced and travels through the axons if the impulses are powerful enough to reach the threshold. This becomes possible by synaptic plasticity, which represents the ability of synapses to become stronger or weaker over time in reaction to changes in their activity. In artificial neural networks, backpropagation is a technique used for learning, which adjusts the weights between nodes according to the error or differences between predicted and actual outcomes.: In biological neurons, activation is the firing rate of the neuron which happens when the impulses are strong enough to reach the threshold. In artificial neural networks, A mathematical function known as an activation function maps the input to the output, and executes activations.

Natural and artificial neurons

The brain's neural network is built from living cells, neurons, with advanced internal machinery. They can send signals to each other through the synapses. When we learn things, the connections between some neurons gets stronger, while others get weaker.
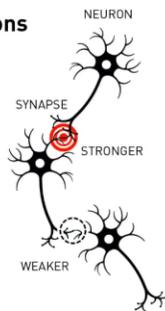
Artificial neural networks are built from nodes that are coded with a value. The nodes are connected to each other and, when the network is trained, the connections between nodes that are active at the same time get stronger, otherwise they get weaker.
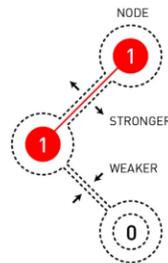
©Johan Jarnestad/The Royal Swedish Academy of Sciences

Artificial neural networks are trained using a training set. For example, suppose you want to teach an ANN to recognize a cat. Then it is shown thousands of different images of cats so that the network can learn to identify a cat. Once the neural network has been trained enough using images of cats, then you need to check if it can identify cat images correctly. This is done by making the ANN classify the images it is provided by deciding whether they are cat images or not. The output obtained by the ANN is corroborated by a human-provided description of whether the image is a cat image or not. If the ANN identifies incorrectly then back-propagation is used to adjust whatever it has learned during training. Backpropagation is done by fine-tuning the weights of the connections in ANN units based on the error rate obtained. This process continues until the artificial neural network can correctly recognize a cat in an image with minimal possible error rates.

Artificial Neural Networks are used heavily in Social Media. The finest example for this is the friend suggestion feature in some social medium. With the help of ANN, each single profiles are analysed with special attention paid to the interests, existing friends list and also their friends etc. Another application is the use of face recognition. This is made possible by analysing hundred reference points on the face and matching it with the features

_____

that are already available in the network system. In the field of marketing, personalized marketing is in vogue. The online shopping platforms offers a large variety of options and suggestion, whenever we are looking for something. . This uses Artificial Neural Networks to identify the customer likes, dislikes, previous shopping history, etc., and then tailor the marketing campaigns accordingly. Artificial Neural Networks are used in Oncology to train algorithms that can identify cancerous tissue at the microscopic level at the same accuracy as trained physicians. Various rare diseases may manifest in physical characteristics and can be identified in their premature stages by using Facial Analysis on the patient photos.. Speech Recognition is another milestone.

The Humanity's Fire - The Dangers Of AI

Hinton along with his colleagues created software in layers which enabled machine learning, where correct connections get stronger and wrong one gets weaker, allowing a machine to teach itself. An Al system , despite having lesser connections than humans , may be better at learning and acquiring knowledge. Geoffrey Hinton, "godfather of AI" stated that artificial intelligence can be used as a force for good – but there are also big risks involved with the generative technology as it gets even smarter and more widespread. He pointed out six potential risks of artificial intelligence: **Language models are approaching human level reasoning**. When he gave a complex puzzle to GPT 4, it solved it with ease, which means AI has starting 'thinking'. The second concern being, **the future may be controlled by AI**. "if they get smarter than us, which seems quite likely, and they have goals of their own, which also seems quite likely, they may well develop the goal of taking control. And if they do that, we are in trouble. **AI Increases social inequality.** According to Hinton, "in our society, if we get a big increase in productivity like that, the wealth is not going to the people who are doing the work. It's going to make the rich richer and the poor poorer." Dealing with a new situation like superintelligence will likely cause unprecedented changes. As for those who believe in the development of new job positions, he says, "I'm not sure how they can confidently predict that more jobs will be created than lost". **Plumbing is the type of career people should be looking at** . "The jobs that are going to survive AI for a long time are jobs where you have to be very adaptable and physically skilled. Plumbing is that kind of job. Manual dexterity is hard for machines.". The fifth risk is **The most impactful improvements in the next 5 years will be in multimodal large models.** In the near future, we are going to be looking at more than just language models. That is because language, as rich as it may be, is a limited vector of information, and it will soon be combined with other vectors. "It's amazing what you can learn from language alone, but you are much better off learning from many modalities. Small children just don't learn from language alone," he stated. **It's not just Science fiction** Consider this: if AI becomes smarter than humans and develops manipulating skills, are you confident people will stay in charge? "I

_____

think it's important that people understand it's not just science fiction, it's not just fear-mongering. It is a real risk that we need to think about, and we need to figure out in advance how to deal with it. Hinton said that before AI becomes super intelligent, the people developing it should be encouraged to put a lot of work into understanding how it might go wrong. The problem? "Right now, there are 99 very smart people trying to make it better and one very smart person trying to figure out how to stop it from taking over. And maybe you want to be more balanced." [3]

Conclusion

Thus artificial intelligence can be seen as an equivalent to Prometheus's fire. As the fire brought greater achievements to the humankind, AI definitely is a blessing to human beings in a number of ways. But similar to the events in the myth, it is a curse disguised as a blessing. When human beings were given the privilege to use fire, they started to challenge the divine authority and eventually almost overpowered them. The same doom will happen to human race, if we never make an effort to control the excessive use of Al. Now AI has started to 'think', which was earlier considered as an ability exclusively possessed by human being, which made them unique and superior to other beings. Human beings are now like Pandora who is given with a box that is artificial intelligence, which is not supposed to opened. But human being's never-ending curiosity, greed and the shortcut mentality will eventually let loose an era were artificial intelligence reigns over us as the Great Greek gods were surpassed by their own creations, that is the human beings.

The symbol of Pandora's box has several layers of meaning. On one level, it serves as a cautionary tale about the dangers of unchecked curiosity and the consequences of defying divine authority or instructions. Pandora's act parallels other myths, such as Eve eating the forbidden fruit, illustrating humanity's innate desire to seek knowledge, even at great personal cost. On another level, the jar represents the dual nature of human existence. It is both a source of suffering and a vessel of hope, signifying that even in the darkest times, there is a glimmer of something positive to cling to. Hope, the last remaining element, acts as a counterbalance to the unleashed chaos, suggesting that resilience and optimism are fundamental aspects of the human spirit. In broader cultural and philosophical interpretations, Pandora's box symbolizes the unpredictability of life and the idea that certain actions, once taken, cannot be undone. It serves as a metaphor for the unintended consequences of decisions or scientific advancements, as well as the complexity of moral and ethical dilemmas. Despite its association with calamity, the story ultimately underscores humanity's capacity to endure and strive for betterment, guided by the ever-present spark of hope. In modern English usage, "Pandora's box" has come to mean a gift that at first seems valuable but turns out to be a source of troubles.

_____

Science and technology are two terms that are often mistakenly interchanged. Science refers to the systematic study of the natural world and technology is its application for practical purposes. Whenever we are dealing with science and technology, it is important to make sure that the Ethics are followed. Science teaches us ' how' things are and technology is its application. If a technology is meant for the wellbeing of humankind, science should be backed by ethics. Then only the technology will ensure scientific and technological advancements which will help human responsibly and sustainably. It is essential to stick on to the ethics , which will eventually helps us to do things for the betterment of fellow beings, to respect them and to value them. Scientific and technological advancements without ethics will pose danger and will invite unintended consequences, misuse and other ethical and societal implications. , Geoffrey Hinton does see the positive side of AI and he affirmed that progress is inevitable. But does the good outweigh the bad? "We seriously ought to worry about mitigating all the bad side effects of it and worry about the existential threat."

References

1. Greek and Roman mythology A to Z : a young reader's companion
   Book·1992·Daly
2. GeeksforGeeks. (2024, August 7). *Artificial Neural Networks and its Applications*. GeeksforGeeks.

https://www.geeksforgeeks.org/artificial-neural-networks-and-its-applications/

   3.Taylor, J., & Hern, A. (2023, May 30). 'Godfather of AI' Geoffrey Hinton quits Google and warns over dangers of misinformation. *The Guardian*.

https://www.theguardian.com/technology/2023/may/02/geoffrey-hinton-godfather-of-ai-quits-google-warns-dangers-of-machine-learning

   4.*The Nobel Prize in Physics 2024*. (n.d.). NobelPrize.org.

https://www.nobelprize.org/prizes/physics/2024/popular-information/