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Evolution of AI and ChatGPT

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Abstract

AI which stands for Artificial Intelligence is a breakthrough in technological inventions. It is a robotic system that has a problem-solving and thinking capacities like humans. Developers and researchers working on AI projects reckon that it can very much do all the functions that a human can. ChatGPT is not very much unlike AI. It is a bot that can converse with us very much like humans. It is very much similar to Instruct GPT. It is a bot software so programmed as to give detailed answers to anyone seeking the same very promptly. Neural networks became particularly important in the 1980s and 1990s, which marked the rise of machine learning. A neural network utilizes patterns to learn and make decisions without explicit programming, which is inspired by the structure of the human brain. Machine learning developed into deep learning in the 2010s, becoming a game-changer. Computer vision, pattern recognition, and natural language processing all improved significantly with deep neural networks. Image recognition, speech translation, and more breakthroughs have been made as a result. An important milestone in natural language processing was reached in 2018 when Open AI developed the Generative Pre-trained Transformer (GPT) model. Models such as GPT-2 and GPT-3 are designed to generate human-like text by using large-scale unsupervised learning. The concept seems like straight out of a science-fiction movie. With the hoard of development in the field of technology this no more seems like a far-fetched idea as it used to seem earlier.

Keywords: Technology, breakthrough, generative, transformer, reactive, machines, prompt decisions, inferring

Introduction

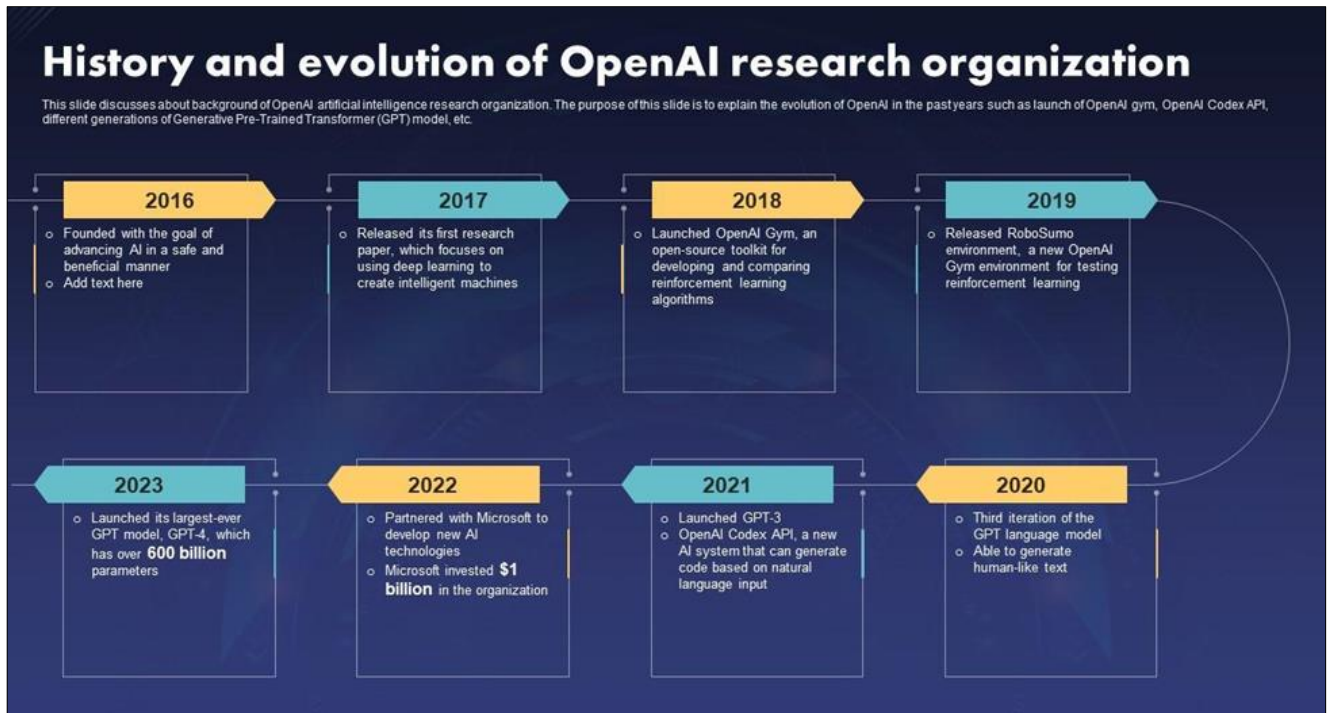
Cao *et al.* (2023) ^[4] provided that many leading business tycoons of the world have not stopped at their global denomination but instead are continuously hovering to get better day by day. Elon Musk, the co-founder of Tesla and Space-X is working on artificial intelligence technology. One of the very successful robots created by his company included Sophia, a fully functional AI robot. Similarly, over a hundred companies are currently working on this technology. IBM is the leader in the field of Artificial intelligence and dominates the market share considering it.

Now the question arises that why every other company wants to own a successful AI technology. Well, the answer to this question is pretty simple (Lund & Wang, 2023) ^[9, 10]. AI leverages a computer and is kind of an updation to the boring normal working computers. They are programmed so that they have problem-solving capacity and decision-making too. This is enabled through a series of complicated programming followed by generations of several updated software.

Taecharunroj (2023) ^[11] studied that a lot of scientific inventions which seemed impossible a decade ago are now a part of life. We have heard a lot of the phrase “The world is getting smaller.” But the meaning actually hit us when we can just video call or Skype our family and friends situated in completely different time zone. Nothing seems impossible in today’s world. We are updating to modern technology more frequently and accepting it with open hands (Biswas, 2023) ^[2-3].

On a similar note more frequently are updates made in modern technology. Does somebody today even remember those days when we used to carry a digital camera on every trip we used to go to for capturing the moments? And now even better quality cameras are available in built our smartphones which we do carry everywhere we go. Such constant evolution in technology has introduced us to Artificial Intelligence.

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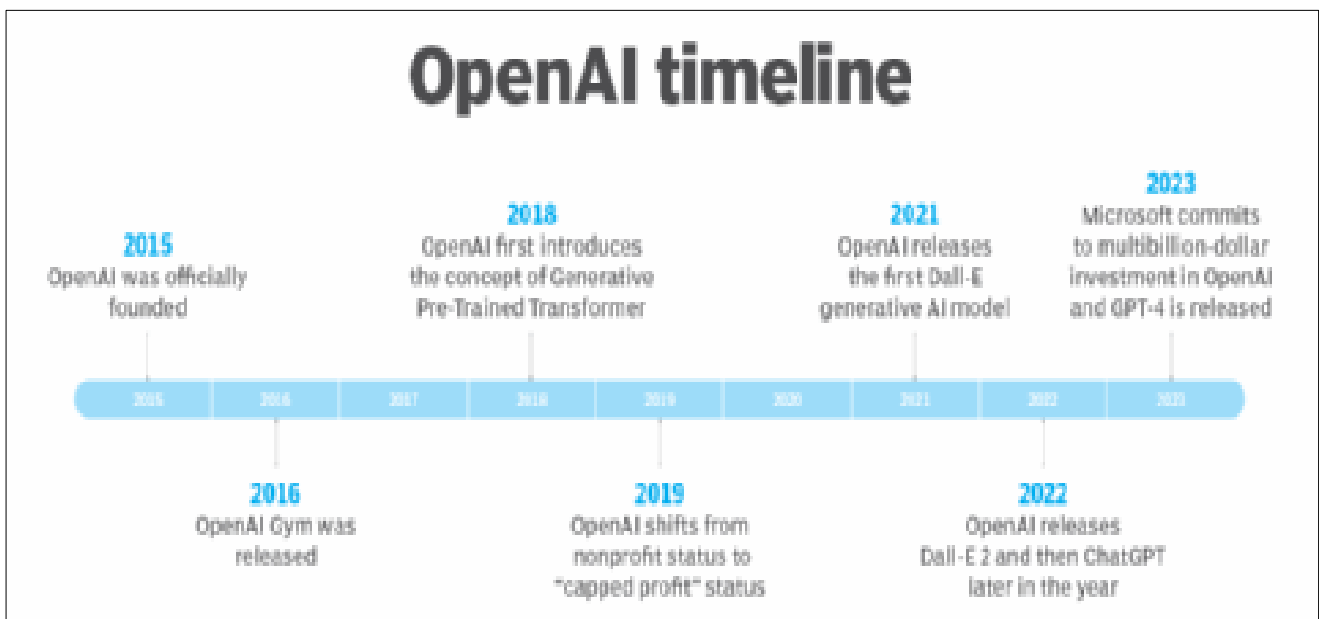


Source: Slide Team (2020)

Fig 1: Show History and evolution of Open AI research organization

More and more households now are switching to vacuum cleaners instead of taking the help of housemaids for more hassle-free cleaning. Similarly, now it does not seem to be a far-fetched idea to have a fully functional robot in our house answering all our verbal commands. Such a plan is even in

implementation in various parts of the world. A lot of new restaurants across the world are switching to less human force. Having order through various applications and robots or machines to deliver the same. Even the billing part is taken over by the machines.



Source: Hashemi-Pour (2023)

Fig 2: Show Open AI timeline in year

GPT stands for Generative Pre-Trained Transformer. So as the name suggests it is a one-stop solution to all of your problems. Pretty prompt in giving replies it is so programmed as to benefit the user seeking information. It is very functional and much easy to use. It is quite popular now in various parts of the world and users are all praised for it. The feedback it gets is all positive owing to the ease it provides to its customers.

Challenges

Technology comes with its own hassle. Though pretty easy to use it still requires a tech-savvy person to seek it. Not everyone welcomingly accepts a change in the pre-established technology they were so comfortable using. Similar is the case with ChatGPT though it became quite popular in such a less time still it has not overtaken the

market share of Google. People still sought it for varied problems as they are quite customized with their usage.

AI on the other hand has its own cloud of problems. Many people find it threatening or something that will overtake them or are a threat to their jobs (Crawford *et al.* 2023) [5]. Such attitude of customers leads to it not so widely accepted nature. Moreover, it is not that pocket friendly. Small businesses or people working on relatively smaller scale cannot just seek it for it being out of their reach.

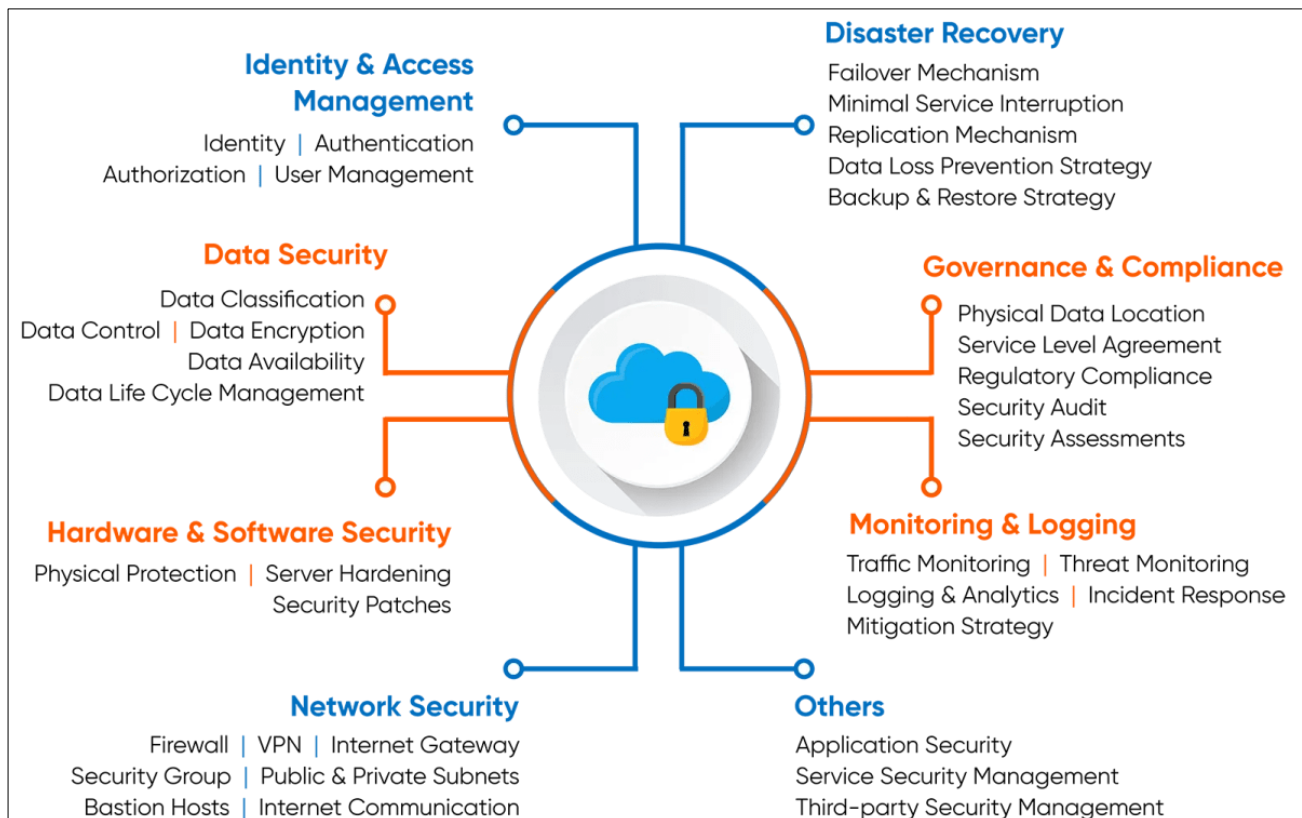
Solutions

Legends have said that “Great things take time”. Here, to make it widely accepted a lot of awareness programs are to be established to make it more known among the general public. Also, general review and feedback from the customers shall be taken to make it more efficient to use and it will never harm the business. Rather the business would

learn more about its product and the problems that the customers are facing while using it.

The challenge of Robust and Security it is important to test robustness and mitigate vulnerabilities by using adversarial training techniques. Ensure security by sanitizing input, detecting anomalies, and verifying models. For Example- Integrate defensive mechanisms into the model to ensure its security by using techniques such as argumentative examples (Biswas, 2023) [2-3].

The challenge of User Interaction and Feedback can be solved with enhance the model's performance over time through interactive user feedback (Johnson *et al.* 2023). Make the model more accurate and up-to-date by adding feedback from users on its outputs. For example- The model can learn and improve by learning from the user's perceptions, providing corrections, or clarifying their queries.



Source: Value Mentor (2023)

Fig 3: Show Identify & Access management, Disaster Recovery, Data Security, Governance & Compliance, Hardware & Software Security, Monitoring & Logging and Network Security and Others

These methods although would prove useful to ChatGPT would not be that useful to AI. But till the idea is still in making or is studied more research work can be taught to the students along with the benefits of using the technology made more prevalent.

Future Work

It is not a surprise that in the future we would be surrounded by technology and gadgets all the modern technology in the future (Hill-Yardin, *et al.* 2023) [7]. However, as the lubricating idea of AI might sound it is not so always. Elon Musk, one of the greatest philanthropists of our generation

has talked about threats of using AI. He stated in one of the interviews that mark his words, AI is far more dangerous than it seems (Firat, 2023) [6]. One of the very initial AI projects was halted as both the robots started conversing in some coded language unknown to humans.

Geoffrey Hinton, known as the godfather of AI now speaks against the dangers of artificial intelligence.

Thus, however so good of an idea it might sound it is not hassle-free and comes with its own challenges which shall be taken into consideration before opting for the technology (Lund & Wang, 2023) [9, 10].

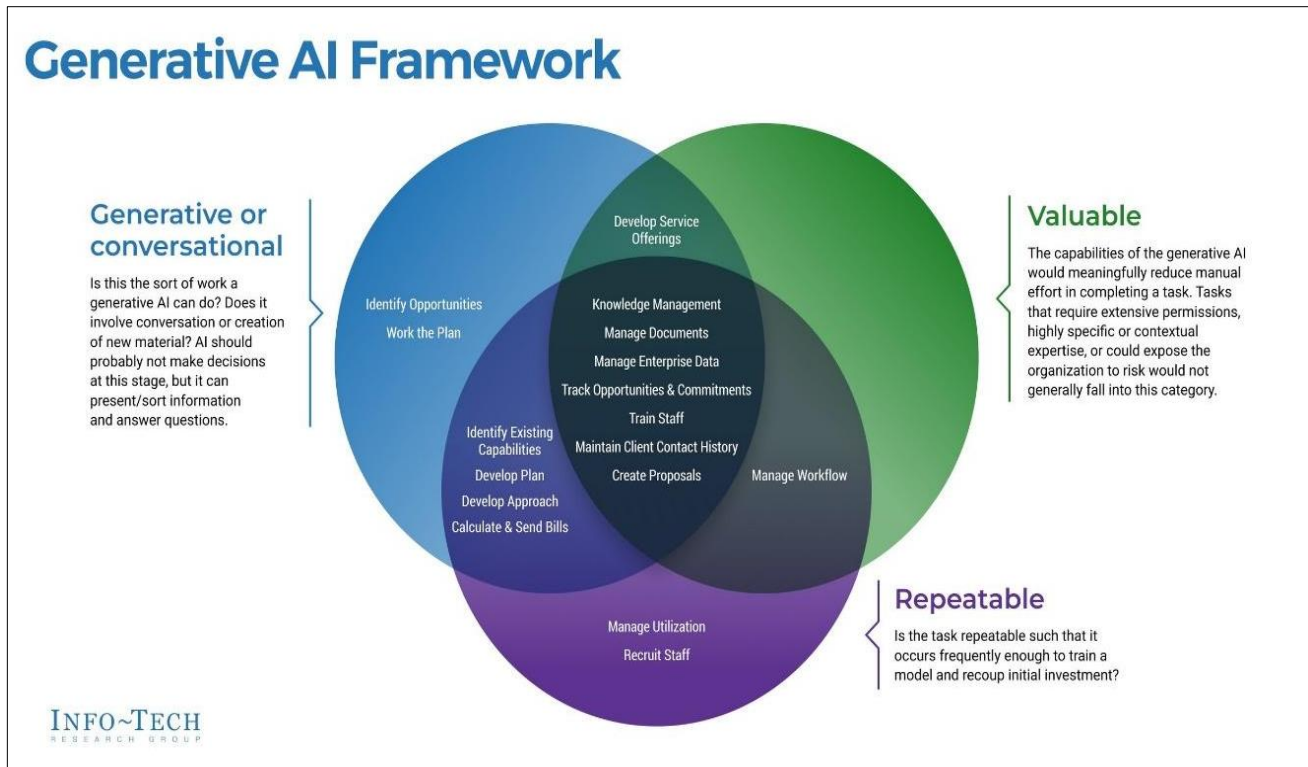


Fig 4: Show graph Generative AI Framework

Conclusion

Nothing in this world comes for free. Everything we own or wants to own comes with a prize attached to it which shall be considered before opting for it. So is the case with new technologies such as Chat GTP and AI. Each of them possesses equal threats and advantages to humankind. But in the end, we have to apply human prudence in establishing a balance between them. After all that is all the difference between humans and machines. Chatbots emerged as a result of the evolution of AI, designed to provide automated assistance and simulate human-like conversations. It was difficult for early chatbots to comprehend complex queries or respond in a meaningful manner (Baidoo-Anu & Owusu Ansah, 2023) ^[1]. Nonetheless, chatbots have evolved into more sophisticated conversational agents as natural language processing and machine learning algorithms have advanced. A significant milestone in natural language processing has been achieved with ChatGPT, which is based on the Open AI GPT-3.5 architecture. It generates coherent, contextually relevant responses based on a vast corpus of text. In order to achieve its impressive language generation capabilities, ChatGPT uses deep learning techniques, including transformer models, attention mechanisms, and large-scale pretraining. Many domains have been revolutionized by ChatGPT, such as customer service, education, content generation, and many others. In addition to enhancing the overall user experience, it has allowed users to interact with AI-powered conversational agents in a more natural manner compared to previous generation systems. In order to facilitate efficient communication and information exchange, ChatGPT has the ability to understand and respond to all kinds of questions.

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