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An Analysis of Benefits and Risks of Artificial Intelligence

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ABSTRACT
Artificial intelligence (AI) is now typical technology in our everyday lives with applications in image and voice recognition, language translations, chatbots, and predictive data analysis. AI technological progress is likely to present us with many challenges. Furthermore, AI increasingly complex algorithms currently influence our lives and our civilization more than ever before. AI should be taken very seriously even if the probability of their rate were low. Our focus on this paper is an analysis of benefits and risks of AI was on highlighting the potential vulnerabilities and inequities that the use of AI executes.

KEYWORDS: *Artificial intelligence, Benefits, Risks*

I. INTRODUCTION

Artificial Intelligence (AI) is the science of creating intelligent machines and intelligent computer programs that can think and act like human beings. The idea of artificial intelligence is based on the human philosophy that whether a machine can be as intelligent as the human. [3] Analysis about AI have jumped into the public eye over the past year, with several luminaries speaking publicly about the threat of AI to the future of humanity. Over the last several decades, AI computing methods for automated perception, learning, understanding, and reasoning have become commonplace in our lives. [1]

AI is the science and engineering of making computers act in ways that, until recently, we thought required human intelligence.

[6] The goal of keeping AI's impact on society beneficial motivates research in many areas, from economics and law to technical topics such as verification, validity, security and control.

AI is probably the most complex and creations of humanity yet. Amazing AI application that we see today represents merely the tip of the AI iceberg, as it were. While this fact may have been stated and restated numerous times, it is still hard to comprehensively gain perspective on the potential impact of AI in the future. AI's rapid growth and powerful capabilities have made people paranoid about the inevitability and proximity of an AI takeover. Also, the transformation brought about by AI in different industries has made business leaders and the mainstream public think that we are close to achieving the peak of AI research and maxing out AI's potential. However, understanding the types of AI that are possible and the types that exist now will give a clearer picture of existing AI capabilities and the long road ahead for AI research. [13]

II. BENEFIT OF ARTIFICIAL INTELLIGENCE

Benefit in data management of AI is extremely helpful when it comes to gathering and analyzing big data to improve efficiency and personalization. According to Google's DeepMind Project, using AI to manage data in the healthcare industry carries the potential to improve equality of access to care, increase the speed of care, open up new methods of diagnosis, and facilitate continual learning and improvement.[10] Improving the Internet of Things (IoT) and Cyber Security AI will also help better secure the IoT world by anticipating and fighting intruders more quickly than human beings can. To help you learn more about cyber security and ethical hacking techniques, IEEE offers online cyber security training.[11]

Benefit in healthcare field of AI has many subsets that have been positively impacted by artificial intelligence. In particular, AI has influenced **radiology** and **digital consultation**. Radiology is a specialty that uses diagnostic (medical) imaging to diagnose and treat diseases in patients. The purpose of diagnostic imaging is to see inside a patient's body, determine if there is an issue at hand, and diagnose treatment or further testing. Diagnostic imaging includes x-rays, CT scans, PET scans, MRIs, and ultrasounds. [12] Now, AI's purpose within radiology is to act as a second set of eyes or a second opinion that can aid with the level of accuracy of an initial diagnosis made by a physician. Additionally, AI can assist with reducing the time and human error of missing slight changes in diagnostic images time that, if wasted, could be detrimental to patient wellness. [12]

AI machines use machine learning algorithms to simulator the cognitive abilities of human beings and solve a simple or complex problem. [2]

1. Increase work efficiency

AI-powered machines are great at doing a particular repetitive task with amazing efficiency. The simple reason is that they remove human errors from their tasks to achieve

accurate results every time they do that specific task. Thus, they eliminate the need to deploy two sets of employees working in day and night shifts to work on important tasks. **For example,** AI-powered chat assistants can answer customer queries and provide support to visitors every minute of the day and boost the sales of a company. [2]

2. Work with high accuracy

Scientists are working to teach artificial intelligence powered machines to solve complex equations and perform critical tasks on their own so that the results obtained have higher accuracy as compared to their human counterparts. Their high accuracy has made these machines indispensable to work in the medical field particularly, owing to the criticality of the tasks. **For example**, robots are getting better at diagnosing serious conditions in the human body and performing delicate surgeries to minimize the risk of human lives. [2]

3. Reduce cost of training and operation

AI uses machine learning algorithms like Deep Learning and neural networks to learn new things like humans do. This way they eliminate the need to write new code every time we need them to learn new things. There is significant Research and Development going on in the world to develop AI machines that optimize their machine learning abilities so that they learn much faster about new processes. This way the cost of training robots would become much lesser than that of humans. Moreover, machines already reduce the cost of operations with their high efficiency and accuracy of doing work. **For example**, machines don't take breaks and can perform the same mundane task again and again without any downtime or change in results. [2]

4. Improve Processes

The best part about AI-powered machines being deployed for work is that they let us gather humongous amounts of data related to their work. Such data can be processed to gather deep insights into the processes with quantitative analysis so that we can optimize them even further. **For example**, Machine learning abilities of AI machines are increasing further and further to do even the analysis by themselves. [2]

III. RISKS OF ARTIFICIAL INTELLIGENCE

One set of risks shoots from programming errors in AI software. The study of the verification of the behavior of software systems is challenging and critical, and much progress has been made. However, the growing complexity of AI systems and their enlistment in high-stakes roles, such as controlling automobiles, surgical robots, and weapons systems, means that we must redouble our efforts in software quality. AI poses global risks, which will be greater than, say, the risks of nuclear technology which in any case have historically been underestimated. Furthermore, scientific risk analysis suggests that high potential damages should be taken very seriously even if the probability of their occurrence were low. [8] In complex systems where several algorithms interact at high speed, there is a heightened risk that new AI technologies will be misused, or will experience unexpected systematic failures. [8]

A second set of risks is cyber attacking: criminals and adversaries are continually attacking our computers with viruses and other forms of malware. AI algorithms are no different from other software in terms of their vulnerability to cyberattack. But because AI algorithms are being asked to make high-stakes decisions, such as driving cars and controlling robots, the impact of successful cyber attacks on AI systems could be much more devastating than attacks in the past. Before we put AI algorithms in control of high-stakes decisions, we must be much more confident that these systems can survive large scale cyber attacks. [8]

A third set of risks echo the tale of the Sorcerer's Apprentice. Suppose we tell a self-driving car to "get us to the airport as quickly as possible!" Would the autonomous driving system put the pedal to the metal and drive at 300 mph while running over pedestrians? Troubling scenarios of this form have appeared recently in the press. Other fears center on the prospect of out-of-control super intelligences that threaten the survival of humanity. All of these examples refer to cases where humans have failed to correctly instruct the AI algorithm in how it should behave.AI might become a risk, experts think two scenarios most likely. [8]

A fourth set of risks is Transparency**:** Journalists wonder about the ethical issues of using AI to help reporting, such as how to disclose information about robotic writing to readers and acquire information legally and ethically [9].

A fifth set of risks is Personalization: While personalization can also be considered a benefit of AI, it challenges the concept of news as a public record, such that the news we read is customized to fit our background and preferences, eliminating the ability to store one single story for everyone and provide an unbiased baseline viewpoint. [9]

The risks of AI research are of a global nature. If AI researchers fail to transfer ethical goals to a super intelligence in the first attempt, there quite possibly won't be a second chance. It is absolutely tenable to estimate the long-term risks of AI research as even greater than those of climate change. In comparison to climate change, however, AI research is receiving very little attention. With this paper, we want to emphasize that it is therefore even more valuable to invest considerable resources into AI safety research. [8]

IV. CONCLUSION

Artificial intelligence will no doubt play an increasingly critical role in our future so it is important to at least have a general understanding of the analysis of benefits and risks of AI. We're moving away from trying to maximize automation, with people taking a bigger part in industrial processes again. As with all technological revolutions, the advent of AI will be utilized to help humankind reach a new paradigm, not to replace it entirely.

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