

Human-centric artificial intelligence

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Abstract. The essay explores the influence of artificial intelligence (AI) on society and its potential to take over jobs from humans. With the ongoing acceleration of technology and the increasing independence of machines, a reduced number of workers will be required. The significant progress of artificial intelligence indicates that numerous jobs such as those of paralegals, journalists, office workers, and even computer programmers are at the brink of becoming obsolete as robots and intelligent software are set to replace them. It examines the possibility of augmented intelligence and concentrates on machine learning and deep learning as possible approaches. The study indicates variables that determine how likely an occupation is to be automated and highlights the advantages of using AI to boost work productivity. The application of AI and the concerned problem associated with it has a huge impact on human society. Machine learning and deep learning are implemented to discuss the feasibility of augmented intelligence. Many scientific approaches suggest the factors that determine the automation potential of an occupation and the benefits of using AI to improve work efficiency. Data analysis and result comparison are used in the essay. The essay draws the conclusion that Artificial Intelligence should improve human productivity and propel the development of society, but not replace it.

Keywords: artificial intelligence, automation, augmented intelligence, job replacement, technical feasibility.

1. Introduction

Never does the topic concerning the influence of Artificial Intelligence (AI) on Human society fail to fascinate us in modern society. AI is, without a doubt, one of the hottest topics recently. “In an economy where data is changing how companies create value - and compete - experts predict that using artificial intelligence at a larger scale will add as much as \$15.7 trillion to the global economy by 2030” [1]. Many people may relate AI to robots as the predominant effect of those movies and films related to AI. While robots are a significant component of applying Artificial intelligence, that’s not the whole story. And that leads to the question that people usually ask: What is AI and why is AI important? The answer to common people may be described as a robot that accomplishes complicated and sophisticated tasks by itself, however, AI is more than that. Moreover, whether AI can completely replace human is highly debatable, however, many convincing data and research results demonstrate several factors that humans can’t be replaced by artificial intelligence. Instead, Artificial intelligence can help Human Intelligence work better to achieve Augmented Intelligence. AI is a field of Computer Science where programs and coding make the machine do intelligent things such as learning and problem-solving by themselves without much help from human beings. This is very similar to how natural intelligence functions in

humans and other animals. AI can receive information from the environment, through computational calculations to give an action that can help better achieve the goal. AI can also learn and improve its ability and performance through machine learning and deep learning. “Automation starts with a baseline of what people do in a given job and subtracts from that. It deploys computers to chip away at the tasks humans perform as soon as those tasks can be codified” [2]. “Aiming for increased automation promises cost savings but limits us to thinking within the parameters of work that is being accomplished today. Augmentation, in contrast, means starting with what humans do today and figuring out how that work could be deepened rather than diminished by greater use of machines” [3]. This study holds great significance since it can show which jobs can be automated and how AI can boost work productivity. It's crucial to comprehend the impact that artificial intelligence can have on society since it can deeply affect various professions and particular groups of people. Moreover, the findings of this research can offer valuable insights to support decision-making and policy creation regarding the incorporation of AI in different fields. By acknowledging both the advantages and disadvantages of implementing AI, society can make knowledgeable decisions on how to utilize this technology in the best possible way.

2. The application of AI

With the development of AI, it has already been widely used in many fields of our lives. Voice assistants, entertainment devices, and game bots all rely on AI to figure out the procedure to respond and increase the game experiences of the users. Examples like suggested songs and targeted advertisements which are customized based on the activity and preferences of users are good representations of AI [4]. But with the deeper development of AI, many problems and concerns of researchers come to light in correspondence to it. It's widely acknowledged that AI can better perform those easy and repetitive tasks in the factory than humans, so many factory workers may face high risks of being replaced by AI and losing their jobs. “Such A.I. may be deployed in the ordinary production of goods and services with potential effects on growth rates and income shares” [5]. But A.I. may also change the production of new ideas themselves according to the BBC, 35 per cent of today's jobs will disappear in the next 20 years. In this case, some researchers claim that in the long run, AI may replace all human workers. But, as more research is done and data accumulated, the answer to this question becomes clearer that AI probably won't replace humans but in turn, human intelligence works with artificial intelligence to enhance augmented intelligence.

2.1. Automation potential

Thus, the researchers redirect the question to what kinds of jobs should be replaced by intelligent machines to increase productivity while others do not. While AI will only eliminate very few occupations, it is widely accepted that AI has an impact on various job sectors, as it is likely to affect different occupations to varying degrees. The advancements in AI now extend beyond basic manufacturing tasks, presenting opportunities for significant transformations in fields like healthcare and nutrition services, which heavily rely on cooperative work. These conclusions are drawn from a comprehensive analysis of over 2,000 works spanning more than 800 occupations. The automation potential of a particular occupation, indicating the likelihood of being replaced by machines, is determined by evaluating the tasks within the job that can be automated using the technologies currently available. The main factor in the determination of automation potential for AI is the technical feasibility. Each occupation is made up of a variety of different activity categories, all of which have varying levels of technical feasibility. “Still, automation will not happen overnight. Even when the technical potential exists, we estimate it will take years for automation's effect on current work activities to play out fully” [6].

2.2. Technical feasibility

Before considering automation, technical feasibility must be established, but this alone does not ensure that a process will be automated. The second factor is the cost involved in developing and implementing the necessary software and hardware for automation. If the cost of labour is much cheaper than the

equipment needed for the implementation of intelligent automation, then there's no need to waste a huge amount of money on it.

The fourth factor to be taken into account turns out to be the profits beyond labour substitution, for instance, relatively higher levels of output with better qualities and fewer errors. And the benefits that workers produce are way larger than the cost to hire them. And this phenomenon creates a win-win situation for both the company and the workers. Regulation and social acceptance issues, such as the level of machine acceptance in a certain environment, must also be taken into consideration. Let's take nurses, for example, theoretically, AI may be able to replace some of the functions of a nurse, but standing in the prospect of the patients, this is proved to be implausible and impractical for the patients who want human contact. But instead, AI can help nursing systems work better and increase the efficiency of working and coordinating between different departments for the patients.'

All the convincing factors above conclude that Artificial Intelligence can potentially replace some human occupations and help augment human work to some extent.

3. Differences between AI and human intelligence

The initial phase of mechanization sparked the Industrial Revolution, which is resulted from multiple advancements in mechanical engineering and related domains. Currently, we are witnessing the onset of the second phase of mechanization. The progress made in computer technology and other digital innovations is revolutionizing our cognitive abilities - the power to utilize our minds for comprehending and influencing the world around us - akin to how machines, devised by humans and their successors, enhanced our physical capabilities. It is a scientific fact that intelligent systems are displacing humans in many fields in terms of manufacturing, service delivery financial industry which are easy to be performed. Furthermore, scientific research shows that it's estimated that in 2040 our workforce may be totally unrecognizable. "New goals and requirements for Human-AI System (HAIS) functions and qualities are emerging, whereas the boundaries between human and machine behaviors continue to blur" [7].

The significant and conceivable factors in terms of the replacement relationship between humans and Artificial Intelligence are already pre-analyzed, which leads to a deeper understanding of them: are humans really competing with machines and robots? For common sense, we all acknowledge that humans invent machines and harness them to make more profit in an efficient way. In the history of work, from the Industrial Revolution involved with the steam engine and renovation of the factory system to the modern hot topic such as machine learning and deep learning, it's undeniable that machines are constantly being improved even in complicated cognitive work. The debate surrounding the substitution of human employees by AI operates on the premise that both possess similar qualities and abilities, although this assumption is inaccurate. AI-driven systems excel in speed, precision, and logical reasoning, yet they lack intuition, emotions, and cultural sensitivity. It is precisely these distinct human skills that grant us our unique capabilities and strength.

From this point of view, there are several core differences between Human Intelligence and Artificial Intelligence that should be examined.

One essential reason that people recognize those computers and machines as intelligent is that they have the potential to learn and make decisions. Although we may be able to detect such ability, the intellect we have is unquestionable of a different kind.

In short, AI acts and decides in ways that seem intelligent. Because of this, AI possesses the ability to imitate and identify informational patterns after being trended hundreds of thousands of times. Moreover, contrary to humans, AI will never get physically tired and it will keep processing as long it's fed continuous input. From these qualities, we can safely reach the conclusion that AI is highly suitable for tasks where the rules are well-defined and remain unaffected by external factors. We can also get the point that the usages of AI are largely confined to certain areas, however, human abilities are more versatile. Human beings are social animals, which indicates that humans couldn't survive long in the wild which has been evolving for millions of years. We have the ability to think deeply, speak under different circumstances, and express our emotions according to various instances. These properties are

of vital importance to humans since they do not require a steady flow of externally provided information as is the case with artificial intelligence.

4. Authentic intelligence

Thus, another kind of intelligence called Authentic intelligence which is represented by human intelligence is introduced. Authentic intelligence is used when open systems is accessible. In an open system, people need to coordinate with each other while considering the influences from the external environment such as public opinion and stocks. Furthermore, people also need to learn to deal with sudden changes and extreme conditions which are hard to be predicted precisely. Nevertheless, people simultaneously generate ideas and future strategies as more experiences are gained.

Theoretically speaking, Artificial intelligence and Authentic intelligence seem to be contradicted each other, however, they are also complementary if both of their strengths are well organized and installed. When Artificial Intelligence combines with Authentic Intelligence, it will generate intelligence that will enable organizations to be more efficient and accurate while also being creative and proactive. This type of AI is referred to as Augmented Intelligence.

In the simplest terms, augmented intelligence uses machine learning with the help of predictive analytics of data sets (input and output) to enhance human intelligence but not replace it.

Unlike the traditional mode of AI that operates without human involvement, Machine learning and deep learning are used in augmented intelligence to provide humans with actionable data. “As ML algorithms can learn from data, they are widely used in data analysis. Currently, ML algorithms mainly include regression, clustering, dimensionality reduction, and classification” [8]. Machine learning is AI’s ability to enhance and educate itself from its experiences without requiring further coding. It allows computers to identify written numbers, and languages and even predict what will happen in the future using probabilities. Some neural networks, for example, convoluted neural networks and recurrent neural networks, are practised and widely used. Those neural networks have the ability to process data and see patterns by mimicking how human brain network functions. “Tho such performance data are somehow deceptively inflated due to two misconducts: ‘data deletion’ and ‘test on training set’” [9].

Augmented intelligence is used in virtual assistants which provide you with data by tracking your daily activities and converting them to a customized suggestion trend. It can also optimize and find solutions to big-data problems. Big data problems, as its name suggests, refer to the problems caused by massive amounts of data produced when people perform specific tasks like ordering and buying online. As such, a primary advantage of augmented intelligence lies in its ability to aid data scientists in navigating through colossal data volumes. Its deep learning competencies can discern patterns within gigabytes of data that could otherwise be overlooked by human observers due to the massive scale of the dataset.

Without the intervention of augmented intelligence, the analysis of big data could be a lengthy process—potentially spanning years, contingent on the data set size—and vital data trends could be ignored owing to human error. Consequently, the emergence and importance of augmented intelligence are considerably significant to the rapidly developing spheres of data analytics and predictive data.

Augmented intelligence can also be beneficial when determining physical interaction outcomes. “It is a crucial component of human intelligence and is important for safe and efficient deployments of robots in the real world” [10].

Nowadays, though augmented intelligence has made huge strides, many challenges, such as the optimization of neural networks, adjustment of learning algorithms, complexity, and so on, are still there to be solved by our future generations.

5. Conclusion

While the technical feasibility and expense of building and implementing the automation's software and hardware dictate AI's automation potential, several scientific methodologies show that AI can boost labour efficiency and production without totally replacing human workers. The future is augmented intelligence, in which human intellect collaborates with artificial intelligence to achieve greater results.

AI is currently widely employed in many aspects of our lives, including voice assistants, entertainment devices, and game bots, and it has the potential to alter industries such as healthcare and nutrition services. In short, AI should improve human productivity and propel the development of society, but not replace it.

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