

What Are The Various Effects Of Replacing Human Workloads With Artificial Intelligence In Different Industries?

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ABSTRACT

The incorporation of Artificial Intelligence into a variety of industries in our society has brought about revolutionary changes. By analyzing the social, economic, and ethical repercussions of integrating AI into our society, we can shed light on the positives and negatives of this integration. While the result of using Artificial Intelligence is widely positive and beneficial, this paper will discuss areas of our society in which it either hinders or, in some cases, disrupts industries. Knowing the full extent of the impact of adopting this new technology can aid us as a species in maximizing its benefits while addressing potential drawbacks.

Keywords: Integration, Artificial Intelligence, ethical, economic, social

Subject: Technology and AI

INTRODUCTION

Today, Artificial Intelligence is much more than a tool students use to complete assignments faster. AI is an incredibly complex algorithm that essentially attempts to think similarly to the way humans do. AI learns with various methods, such as Machine Learning and Neural Networks. This means that the AI program is able to read and understand the data it is being provided and is able to draw conclusions on patterns within the data set. Today, AI threatens to replace many jobs and the jobs of future generations. However, technology has been threatening the human place in the industry since the first gas-powered car was invented by Karl Benz in 1886. More simply, back then, the car replaced the need for carriages, and therefore many jobs were associated with it - including the carriage driver, the horse breeder, the carriage manufacturers, and many others. However, now in the 21st century, AI as a new technology threatens not only one industry but a whole society.

METHODOLOGY

This paper employs a qualitative and secondary research methodology, analyzing existing literature and data to explore the multifaceted effects of Artificial Intelligence (AI) on various industries. Sources include academic journals, industry reports, economic analyses, and sociological studies, providing a comprehensive overview of AI's economic, social, and ethical impacts. This approach enables a holistic understanding of the AI-driven transformation across different sectors, considering both macroeconomic trends and individual experiences. The qualitative nature of this research is justified as it allows for a nuanced exploration of complex, interrelated factors, such as societal attitudes, ethical considerations, and economic shifts, which are not easily quantifiable but critically shape the AI integration narrative.

RESULTS & DISCUSSION

Economic Impacts

On a surface level, replacing human jobs with robots and machines powered by AI is simply highly cost-effective. In the manufacturing industry, many tasks are already automated by machines, but there are still humans controlling their basic functions. Now that effort could be replaced by an AI algorithm that could control the entire

manufacturing process. Not needing to pay monthly wages to hundreds of specialized laborers and instead implementing this new technology is indeed very costly, but the money will be recovered instantaneously, with the margin of error and faulty products decreasing, saving money, and increasing profit. Around \$8 trillion is lost every year worldwide due to manufacturing inefficiencies (Shedletsky, 2020). Thus, using an AI system would exponentially decrease this number. Additionally, repetitive and monotonous tasks such as data entry or tasks that can be easily automated - like customer care helplines - will open up many different avenues for profit and development.

While replacing human effort with machines might lead to much higher product quality and rates of production, job displacement in many industries would be an issue impossible to tackle. Unemployment would skyrocket, and so would the need for unemployment benefits, as most laborers lost their jobs at no fault of their own. Norway, often considered to be one of the countries with the best unemployment benefits, pays about 63% of its salary (Norwegian Labour and Welfare Administration). With an average wage of 50,000 euros a year, an unemployed worker in Norway could expect 2,600 euros a month. With the government handing out benefits like this, the economy will not remain stable for very long. This example would be in a country of only 5 million people. The world's largest populations and economies, such as the USA and India, will have their economies plummet due to the sheer size of industry and workforce.

Social Impacts

Positive: As in the previous carriage example, many people needed to adapt their skills in order to survive. From carriage to engine manufacturer, for instance. With the emergence of new technology that can rival human intelligence, human workers must adapt their skills to those that are uniquely human. Most importantly, creative thinking and emotional intelligence will be the deciding factors here. While machines can oppose our knowledge, it will be long before they can match the level of basic human emotion that is needed for human interaction. This competition with machines is ultimately for the betterment of mankind, and this competition will lead to further and further advancements in our technologies. Furthermore, the use of Artificial Intelligence in our daily lives for simplistic tasks can improve our lives tenfold. It would further enhance our work-life balance, allowing us to spend more time on our own health. In a 2021 survey, of the 2501 workers, 29% claimed they despised going to work (Elflien, 2023). This is no doubt due to the monotony of the tasks and jobs the majority of US workers have.

With the meteoric rise of AI in many industries, job security has become one of the biggest social issues. In 2022, 15% of US workers felt at risk of losing their jobs, be it due to corporate downsizing or rising inflation rates (Shoss et al., 2022). This percentage will only continue to increase when simple and non-labor-intensive roles are filled by machines controlled by an AI system. Consider the trucking industry, for example. There are roughly 3.5 million semi and other truck-drivers in the USA alone (Trucking Industry Trends, Statistics, and Forecast, 2023). Autonomous car driving systems such as the Tesla Autopilot have been around since 2014, and they will only continue to improve with the help of AI, thus jeopardizing the jobs of over 3.5 million people. The average trucker salary is \$62,000 (Talent.com, 2023), and with 3.5 million truckers, that comes out to 217 billion dollars saved in expenditure for large corporations, but 217 billion lost for the families of the truck drivers whose main source of income might have been trucking.

Ethical Concerns/Impacts

Ethically, the implementation of Artificial Intelligence into our everyday lives and our work seems disagreeable. While it will not only replace human jobs and effort without reallocating the effort, it will also bring along the hefty baggage that comes along with using AI in general. Around 86% of US adults own a smartphone (Zippia.com, 2023). Most of these smartphones, regardless of platform (Android, IOS, etc) have a virtual assistant built in. Siri is a crude but complex version of an AI system. The biggest concern when using and implementing AI on such a large scale is the bias and fairness it has, or lack thereof. For instance, 'Craiyon', an AI model that generates 9 images based on a prompt, will more likely than not generate a group of Caucasian individuals when asked for the umbrella prompt of 'people'.

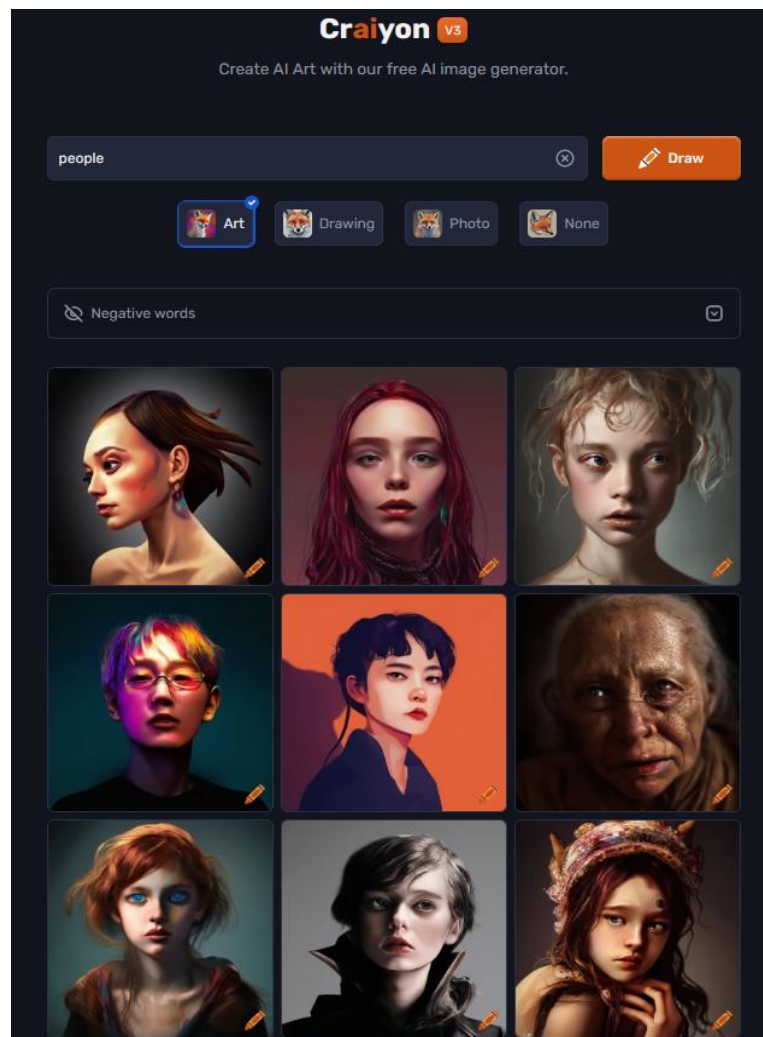


Figure 1: Images generated using Craiyon.com.

As we can see, 6 out of 9 images are of Caucasian women. This bias is not just limited to race but also gender and religion. Many fear that these biases and discriminatory outcomes, when implemented on the big stage, may lead to disaster. Consider, for example, a search and rescue drone. If the drone, controlled by AI, searches for survivors after an earthquake in a primarily Caucasian country, will it be able to identify a person of color as a survivor, or will it ignore them and continue to search for a Caucasian person who fits the pattern in the dataset? Alas, these biases exist within the AI system due to the biases of humans. The datasets it has been fed are those that contain data about humans. Because our society perpetuates these biases and stereotypes, AI does the same.

Moreover, privacy and security online have become the biggest priorities for some. However, AI involves the accumulation of data from its users to learn. Many people could easily misuse this.

LIMITATIONS AND FUTURE DIRECTIONS

A key limitation of this study is its reliance on secondary sources, which may not fully capture the rapidly evolving landscape of AI integration and its nuanced impacts across industries. Future research should focus on primary data collection, including surveys and interviews with workers, employers, and industry experts, to gain firsthand insights into the real-time challenges and opportunities presented by AI. Additionally, longitudinal studies are needed to assess the long-term effects of AI on job markets, societal structures, and ethical considerations, offering a more dynamic understanding of how AI reshapes our world over time.

CONCLUSION

Implementing Artificial Intelligence in a wide range of industries would be able to boost productivity, increase quality, create a better work-life balance, and vastly improve efficiency, all while raising concerns about mass unemployment, bias, and privacy laws. We can infer that the positives greatly outweigh the negative effects of using Artificial Intelligence, but only if we implement the correct measures for it to be used in a safe context,

providing safety for workers globally. AI is causing us to advance, see the world in a new light, and find other challenges. For the first time in the existence of the planet, another entity exists that has the same intelligence as a human being.

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