

Artificial Intelligence and the Death of Human Superiority

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Abstract

This paper looks at the attributes and ramifications of artificial intelligence and automation. Artificial intelligence has inherent authoritarian politics and invisibility that allows it to influence behavior and foster dependence. Using artificial intelligence for automation has the potential to bring about another industrial revolution, and the effects of this already exist through job loss and rising income inequality. The US and China's close trade relationship creates a race for artificial intelligence superiority between the two countries because of the economic benefits of automated labor and manufacturing.

Introduction

During my time at Heron Systems, the gravity of the technology I was helping to create hit me. The reality of AI surpassing and replacing skilled humans was in front of me, and all I could do was imagine the ramifications on labor markets and the geopolitical climate. Research shows that increases in automation in an area directly correlate to the decline in routine manual laborers (Bharadwaj, 2021). Machine learning has become an increasingly popular tool to drive automation and productivity gains, with corporate investment in machine learning tripling in 2017 and a \$100 billion market by 2025 (Wellers et al., 2017). AI's continued improvement will cause increased automation and continue polarizing labor markets. The technologies created with AI are helping authoritarian regimes carry out their policies and commit crimes, raising questions about the political attributes of AI (Everington, 2020; Bhuiyan, 2021). This paper will answer the question: what will the geopolitical consequences, specifically in the US and China, of large-scale replacement of human labor with AI be? Analyzing and attempting to predict the

effects will help create more informed regulations and help mitigate potentially dangerous situations.

This paper focuses on analyzing the inherent political attributes of artificial intelligence using Langdon Winner's technopolitical framework laid out in "Do Artifacts Have Politics?" (1980). Winner asserts that technologies and technical artifacts have political properties and can embody political ideologies such as authoritarianism, and with close examination, we can dissect a technology into its inherent political attributes. Nuclear energy and weapons are examples of technologies that are innately authoritarian because the risks they pose to society require social structures to form around and regulate them. The paper will analyze some literature on the subject and look at current uses of artificial intelligence to show that artificial intelligence as technology has inherently authoritarian political components using similar arguments to Langdon Winner. The possible geopolitical ramifications, specifically in the US and China, of the large-scale replacement of human labor, will be discussed. This paper will not focus on any particular subset of artificial intelligence and machine learning. Instead, it will look broadly at labor automation and specific examples of its applications when analyzing its politics. Ethical issues and implications will not be specifically addressed or discussed at length in this paper.

This paper will first discuss and dissect the inherent political attributes of artificial intelligence. The next topic discussed will be the invisibility of artificial intelligence. Within this topic, the focus will be on how artificial intelligence can subtly influence and manipulate behavior. Finally, the paper will consider human labor's large replacement by artificial intelligence within the context of the two previous topics and the history of previous industrial revolutions.

Inherent Political Attributes of Artificial Intelligence

In the framework laid out by Langdon Winner in "Do Artifacts Have Politics?" (1980), technology is inherently political, and all technologies have inherent political attributes. This section will focus on the politics shown by artificial intelligence and its uses. As previously mentioned, Langdon Winner uses the dangers presented by nuclear energy as evidence for why societies have and will erect laws and regulations around the technology to mitigate potential disasters. "In this conception, some kinds of technology require their social environments to be structured in a particular way in much the same sense that an automobile requires wheels in order to run" (Winner, 1980). Artificial intelligence is one of these technologies. It similarly, poses a potential threat to society through both military and civilian applications. An example of a military application of artificial intelligence with danger is autonomous dogfighting systems. Using reinforcement learning Heron Systems was able to develop one of these systems. Their agent won DARPA's AlphaDogfight trials in August 2020 (Lawler, 2020) and defeated an experienced human fighter pilot in all five dogfights in the simulator (DARPA RSS, 2020). An example of a civilian application of artificial intelligence that creates a security concern for societies is Deepfakes. One reason for this is that Deepfakes of political figures could be used to sway elections or interfere with international relations. Since the capacity to create believable Deepfakes is progressing faster than the technology to detect them, the danger they pose is only growing (Galston, 2020). For both dogfighting AI and Deepfakes, they provide an avenue for tech-savvy bad actors to gain capabilities outside the ability of local police forces or militaries to handle. Governments can increase regulation and governmental control to reduce emergent risks. Thus, through Winner's technopolitical lens, AI has inherently authoritarian attributes.

Artificial intelligence's current use by authoritarian regimes and its ability to manipulate decision-making further highlights its inherent politicalness and lean-to authoritarianism. The Chinese government currently uses facial recognition technology to prevent foreign nationals from appearing on live streams broadcast in China (Everington, 2020). They also are using it to notify police of the presence of Uyghurs, a Turkic ethnic group in China (Bhuiyan, 2021). These are clear examples of the Chinese government using artificial intelligence's superhuman abilities to enforce stricter information control by preventing foreigners from streaming to its citizens and more efficient widespread political persecution of unwanted minority populations such as the Uyghurs.

The academic and corporate use of AI further highlights its lean-to authoritarianism and tendency to centralize power. Evidence of these tendencies in academia is provided by a paper that reviews the encoded values in machine learning papers (Birhane et al., 2021). The authors created an annotation scheme, manually reviewed and annotated the publications, and confirmed intercoder consensus. The results showed that the values currently encoded in machine learning papers centralize power and disproportionately favor large and powerful organizations and corporations. These results perfectly align with the assertion that if you accept certain technologies, "you also accept a techno-scientific-industrial-military elite" because the large and established organizations with the resources to achieve state of the art results form an elite that controls and guides the field. "The rise of automation: How robots may impact the U.S. labor markets" (2021) from the St. Louis Fed posits that the world may be on the verge of the fourth industrial revolution as large swaths of the labor market can be automated with improvements in AI. The article also reveals that the automation of jobs is currently polarizing the labor markets as job loss is taking place primarily among routine labor. Recent research by the National Bureau

of Economic Research shows that labor automation is the driver of increases in income inequality over the last four decades in the US (Acemoglu & Restrepo, 2021). These are clear evidence of AI's inherent tendency to centralize power and lean-to authoritarianism.

Invisible Influence of Artificial Intelligence

Artificial intelligence's use in applications is often in the background or does not explicitly mention its use, providing anonymity and invisibility to artificial intelligence from its user. Choice architectures are decision-making contexts, the design of how user choices get presented. An example of choice architecture is donor card opt-in versus opt-out. People are much more likely to be donors if it is the default despite the options staying the same (Johnson & Goldstein, 2003). Changes in the choice architecture can influence behavior in desired directions (Susser, 2019). The use of AI allows for adaptive choice architectures, personalized choice architectures targeted at specific users based on their preferences, thus making manipulation of user behavior easier for outside actors such as companies and governments. Adaptive choice architectures can get designed and created to suppress dissent and sway user opinions to the state's desired stance.

Geopolitical Ramifications of Artificial Intelligence and Automation

Artificial intelligence's inherent authoritarian lean, paired with accelerating automation of human labor, set the stage for massive geopolitical and societal shifts. As mentioned earlier, labor automation is causing a polarization of labor markets since job losses are primarily among routine labor jobs (Bharadwaj, 2021). Because of this polarization, labor automation is the driving factor behind the increase in wealth inequality over the last four decades in the US,

according to the National Bureau of Economic Research (Acemoglu & Restrepo, 2021). As artificial intelligence improves, the scope and impact of labor automation will continue to increase, possibly causing a fourth industrial revolution.

The last industrial revolution and its upheaval of the global economic order caused sweeping changes to politics worldwide. The industrial revolution's innovations caused long-term macroeconomic impacts. They transformed productivity and created wealth, but in the short-term created hardship for individuals, such as job loss and decreasing wages, not directly benefitted by industrialization, and it took a long time for income gains to disperse through the economy and for everyone to experience them (Macon-Cooney, 2019). The slow distribution of income gains experienced during the industrial revolution mirrors how labor automation and artificial intelligence are causing job loss for routine laborers and wealth inequality in the United States (Bharadwaj, 2021; Acemoglu et al., 2021).

Governments and institutions will have to adapt to the changing economic and political climate caused by further automation. Governments may react by trying to regulate and restrict the use of artificial intelligence to allay the short-term pains. These reactions could range from regulations requiring a particular ratio of human employees to automated labor. It could also result in structural social changes such as those suggested are necessary for some technologies (Winner, 1980), such as the government centralizing computing resources or artificial intelligence research. This path fits with the inherent politics and authoritarian lean of artificial intelligence discussed earlier in this paper.

The United States of America (US) and China are each other's largest trade partners, with an "estimated \$615.2 billion in 2020" and the US operating at a trade deficit of \$285.5 billion (<https://ustr.gov/countries-regions/china-mongolia-taiwan/peoples-republic-china>). Research by

the Economic Policy Institute shows that the US-Chinese trade deficit caused 3.2 million jobs in the US between 2001 and 2013 to be lost (Kimbali et al., 2014). Cheaper Chinese labor and manufacturing costs lead to US jobs and manufacturing moving to China since the costs of importing them back is lower than locally creating them. Artificial intelligence and automation provide an avenue for massive reductions in the price of labor and manufacturing. The vast trade relationship between the US and China means that improved artificial intelligence and automation in either country has economic ramifications for the other country. Outsized increases in automation and decreases in manufacturing costs in the US would lead to more onshore manufacturing and decreased imports and job offshoring to China. Whereas if China can outpace the US's artificial intelligence and automation gains, there will be even greater incentives to offshore labor and manufacturing to China, leading to further job loss and an increase in the trade deficit. Political resistance to offshoring jobs means that in this scenario, the US government would be more likely to put in place economic policies to maintain US manufacturing. These potential policies align with the stated authoritarian politics of artificial intelligence from a technopolitical perspective. The Chinese government's centralized authoritarian politics closely aligns with artificial intelligence's tendency to centralize power and disproportionately favor large and powerful organizations. This alignment of politics could be the cause for China outpacing and experiencing more success in AI research than the US. The technopolitical framework suggests that the US may socially shift towards centralization and authoritarianism in order to handle and adapt to artificial intelligence, so US and Chinese social and political beliefs may grow closer through adaptation to technology.

Counterarguments

This paper's assertion that artificial intelligence has inherently authoritarian politics has two primary counterarguments. The first counterargument is that the examples of artificial intelligence applications do not present a danger that governments will feel the need to react to or regulate. The risks presented by potential bad actors using artificial intelligence are small enough that they are not on a scale of national security and won't result in structural social changes. However, this argument ignores the US government's track record of regulating advertising and other forms of influence and the existence of the FTC. The risks posed by adaptive choice architectures are similar to risks of children's advertising and false advertising because of the ability to influence and manipulate, both of which are regulated and controlled by the FTC. The second counterargument is that artificial intelligence has democratic and decentralizing politics instead of the autocratic ones stated in the paper. Artificial intelligence applications such as AI dogfighting systems and Deepfakes can give non-governmental actors potentially disruptive abilities. They decentralize power and give the general population more independence from the government. This criticism ignores the values shown in the artificial intelligence field more broadly. It also ignores the vast resources needed to achieve state-of-the-art results (Castro, 2021) because a need for consolidated knowledge and resources to achieve top results goes against the argument that artificial intelligence has an inherent political quality of decentralization.

Another criticism of this paper is that the paper's claim that the potential changes caused by artificial intelligence and labor automation are equivalent to or enough to cause an industrial revolution is false. However, the actions of many countries imply that they are taking the

potential economic and political ramifications of artificial intelligence seriously. "More than 40 nations have now published strategies outlining its potential across the whole public sphere," where health, education, and societal institutions all look dramatically different within generations (Macon-Cooney, 2019). Another thing not taken into account by this criticism of the paper is that the impact of artificial intelligence and automation are not future issues but already existing ones. Short-term hardships such as job loss from automation have already begun, and unevenly distributed wealth gains created by artificial intelligence and automation are already the driving factor for income inequality in the US.

Conclusion

Artificial intelligence has broad potential economic and geopolitical ramifications. A technopolitical analysis of artificial intelligence and its applications shows an inherent authoritarian political lean. Along with its political lean, top artificial intelligence research has encoded values with a tendency to centralize power and favor large and powerful institutions. The invisibility of artificial intelligence and its use in choice architectures also gives it a superb ability to influence and manipulate individuals' behavior. The US and China's trade relationship and the attributes of artificial intelligence and its ability to automate human labor create an incentive for each country to beat the other in the development of artificial intelligence. As of now, China is outpacing the US in artificial intelligence research. This lead in research could cause further offshoring of US labor and manufacturing, potentially resulting in stricter economic controls and authoritarian policies. Winner's technopolitical framework also suggests the US could socially and politically shift towards China to adapt to and align with artificial intelligence. This next industrial revolution brought by artificial intelligence and automation will bring a wave

of political and economic changes, and whoever wins the automation arms race will reap the spoils.

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