Review

Artificial Intelligence

Global Artificial Intelligence Governance
Challenges and Complications

Peiyu Gu*
Nanjing Normal University of Special Education, Nanjing 210038, Jiangsu, China
*: All correspondence should be sent to: Peiyu Gu.
Author's Contact: Peiyu Gu, E-mail: 354953165@qq.com
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The development of artificial intelligence (AI) is bringing transformative changes to the political landscape of the world by having profound effects on numerous spheres. In addition, it poses challenges to global governance by intensifying international competition, fostering aggressive diplomacy, and subverting existing international norms. This study seeks to investigate the challenges of AI development to global economic and political governance, as well as the challenges of global AI regulation, in order to provide recommendations for the development of international AI regulatory frameworks.

Keywords: Artificial Intelligence; Challenges; Governance; Global Regulation

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THE fourth industrial revolution, characterized by advances in artificial intelligence (AI) technology, is catalyzing the development of a highly automated and extremely productive human society. AI has a broader range of applications than previous technologies (1), with the potential to fundamentally transform disciplines such as urban planning, healthcare, education, finance, and law and ultimately impact global socioeconomic conditions.

As with the majority of other technologies, AI will present humans with both challenges and immense benefits. Existing international relations, norms, and political structures are a major concern. Key AI technologies possessed by major economies grant them "overwhelming power," thereby strengthening global powers and further marginalizing smaller nations. This will make the world more unstable and vulnerable, which could lead to an increase in international conflicts (2).

The potential impact of AI on established moral and ethical standards and social norms in human cultures is another issue. As noted by Gao, the emergence of AI may lead to new monopolies, such as the control of global economic and cultural production by a small group of "technological prodigies" and the top management of AI corporations (3). This would reduce AI technology to a tool for the small elite while worsening the precarious position of the underprivileged. Conflicts within society and the likelihood of social instability may result from this.

The topic of AI has emerged as a global concern, necessitating a coordinated response from the international community. The challenge of balancing the potential risks and benefits of advanced technology has become a pressing issue for global governance and society at large. The Secretary General, Guterres, presented a report titled "Our Common Agenda" to the United Nations General Assembly in September 2021. In this report, he urged all parties to collaborate in creating a global

cooperation framework that is comprehensive, adaptable, and efficient to address the issues arising from AI (4).

Primary Challenges of AI to Global Governance

There are three primary categories of AI, namely artificial narrow intelligence (ANI), artificial general intelligence (AGI), and artificial super intelligence (ASI). ANI is the prevalent variety, and its contribution to the economy and effect on employment are limited in the near future. AGI is believed to have the same intelligence as humans. Once developed, the effects of Al could far exceed human expectations (5).

The potential impact of AI on global politics has sparked significant academic reflection. The Belfer Center for Science and International Affairs at the Harvard Kennedy School published a report entitled "*Artificial Intelligence and National Security*" in July 2017. The report posited that the development of AI would have an impact on national security by bringing about changes in three key areas: military superiority, information superiority, and economic superiority. Additionally, the report suggested that AI had the potential to be a revolutionary technology for national security, comparable to nuclear weapons, aircraft, computers, and biotechnology (6).

Challenges to the Governance of Global Economic Development

Technology applications increase productivity while also helping to dismantle the current production methods. When compared to earlier technological revolutions, AI's influence on the growth of the world economy is more radical.

Altering Traditional Economic Patterns

"Producing intelligence by using intelligence" is a distinguishing feature of AI-era production, which consists of automated production by intelligent devices. This emerging mode of production will cause a persistent wave of unemployment, notably the layoff of a large number of workers with low levels of education (7). The deputy chief economist of the Asian Development Bank, Zhuang, asserted that AI technology could perform a portion of the labor in existing occupations. 64% and 69%, respectively, of the routine mental labor of accountants and bank tellers may be replaced by machine-automated data collection and processing; 78% of repetitive manual labor on the assembly line—performed, for example, by assemblers and textile workers—may be automated (8). The increased vertical applications of AI in various sectors will threaten an increasing number of human jobs, leading to a rise in unemployment and a lengthening of its duration (9).

Further Marginalizing Developing Countries

The international division of labor may come to an end with the arrival of AI, decreasing the economic competitiveness of nations behind in AI development and enlarging the gap between developed and developing nations (10). Generally speaking, "less significant" nations have poorer innovation capacities, a broad base of cheap labor, and increased risks of political instability. Their access to cheap labor has historically benefited them in the global division of labor, enabling them to genuinely control the means of production in the worldwide production of products and ultimately boosting their level of national autonomy (11). On the other hand, "automated" and "localized" productions are results of the rise of AI. Localization of production foresees that developing countries will gradually lose the opportunity to earn foreign exchange through international transactions and to promote national development through the training of skilled workers. Automated production allows businesses to use unmanned factories to avoid using large amounts of labor. The worldwide trend toward automated and intelligent production is growing with the expedited development of AI technology, which further marginalizes the economies of emerging nations and reduces their involvement in the global division of labor (12).

Widening the Gap between Rich and Poor

The widening of the wealth disparity caused by AI technology occurs both internationally and within individual nations. According to the preceding analysis, the localization and automation of production under the AI-enabled economic model will reduce the opportunities for developing countries to participate in global labor division. As a result, the world's resources, including financial and human capital, will become increasingly concentrated in developed nations that are strong in AI technology (13), thereby widening the wealth disparity between "pivotal" and "marginalized" nations.

In the meantime, the accelerated development of AI exacerbates the income disparity between various professions and populations within a country. The rise of AI will undoubtedly alter the distribution of capital across industries as AI applications garner more investor interest, resulting in enormous gaps between traditional sectors and AI-related industries in terms of development opportunities. Eventually, the latter generates a disproportionately large quantity of new wealth. Low-income and low-education populations will be severely disadvantaged in the next round of resource redistribution, and a handful of AI firms will control more wealth (14).

Challenges to Global Security Governance

The progression of AI technology is anticipated to stimulate transformative developments within the military field. The future military landscape is expected to undergo significant changes with the widespread implementation and deployment of AI applications. This development is anticipated to have a transformative impact on military power dynamics and the nature of warfare scenarios. Lethal autonomous weapons comprise a significant portion of military arsenals. The use of cyberweapons has become a common practice for lethal purposes. Terrorists have been able to acquire low-cost mobile robotic-improvised explosive devices, which provide them with precision-guided munition-like capabilities. The incorporation of machine learning into military systems may engender novel vulnerabilities and cyberattacks that are specifically aimed at the training data of machine learning systems. According to Allen and Chan, the act of stealing and duplicating military AI systems may lead to the proliferation of AI cyberweapons by unauthorized individuals or entities (6).

A New Arms Race

The degree of military power possessed by a nation plays a pivotal role in safeguarding its national security and bolstering its self-assurance in pursuing its national objectives within the global political landscape. According to Guo and Chen, AI has emerged as a significant contributor to the expansion of national power in the 21st century and is expected to continue to facilitate the advancement and evolution of global military capabilities (15).

AI-enabled military might has emerged as the new point of competition among major powers amid the present wave of scientific and technological transformation. The US Army emphasized the integration of AI as a critical technology into military operations when it published its 25-year Robotic and Autonomous Systems Strategy in 2017 (16). The National Security Strategy of the Trump Administration acknowledged the necessity to pioneer AI and emphasized the significance of AI for the future of the American military (17). The White House then published a series of reports on the military applications of AI, developed national military budgets that put an emphasis on the research and development of advanced automation systems powered by AI, and created a cross-cutting, specialized development committee to handle issues related to the application of AI technology in national defense (18).

Only a few nations now have the capacity to do AI research and development. Those who are at the forefront of fundamental AI technologies will obtain more "power," which in turn encourages additional AI initiatives in developed nations (15). Due to their worries about national security, other nations will also join the AI rush. Such global dynamics could spark a fresh arms race.

Increased Risks of Warfare

According to the 2018 Rand Corporation report entitled "*How Might Artificial Intelligence Affect the Risk of Nuclear War?*", by 2040, advances in AI technology will significantly increase the likelihood that retaliatory nuclear counterforce will be targeted and destroyed, thereby endangering the nuclear strategic balance. Even if states have no intention of launching a preemptive strike, they are likely to pursue preemptive strike capabilities as a bargaining chip with adversaries, which will inevitably undermine strategic stability (19). Moreover, the application of AI in the nuclear field has the potential to increase the risk of nuclear proliferation, as it will exacerbate the feeling of insecurity in smaller countries, thereby increasing their desire to possess nuclear weapons for national security (20).

Terrorist actions enabled by AI will be far more damaging than traditional ones. On the one hand, significant advancements in technology such as computer vision, natural language processing, and cognitive analytics and decision-making have successfully been applied to counter-terrorism operations (21). Terrorist forces, on the other hand, have become increasingly aware of the benefits of AI technology as a result of a plethora of worldwide counterterrorism operations and have begun to exploit this technology in their anti-detection and terrorist actions (22).

Advances in AI can greatly amplify the impact of the information revolution in fostering the growth of cyberwar. Cyberwarfare is defined as the conduct and preparation of military operations based on information-related principles, such as interrupting or destroying information and communication networks (23). Zhang defined cyberwar as a new type of war in which one country intervenes, invades, or destroys for military purposes adversaries' information and communication systems, as well as cyber transportation and finance networks, with the potential to be as destructive as or more destructive than traditional warfare (24). The use of AI has increased the popularity and connectivity of the internet, resulting in a lower threshold for the organization of cyberattacks, implying that traditional criteria for measuring a country's military capability will undergo major changes. By modifying the laws of war, cyberwar will raise the complexity of conflict (6).

Challenges to Existing Ethics and Norms

The proliferation and advancement of AI have brought to the forefront several concerns, including the possibility of AI encroaching on human autonomy, the accountability of AI technologies, and the legal and ethical responsibilities of those who use AI (25). In the words of Stephen Hawking, the development of an entity that surpasses human intelligence and cannot be managed poses a significant risk to human survival. According to Cellan-Jones, the speaker cautioned that the gradual pace of biological evolution in humans could impede their ability to outcompete rapidly advancing AI. Furthermore, the attainment of complete AI has the potential to bring about the demise of humanity (26).

The distribution of power in society is impacted by the growing significance of AI technology. The small intellectual elite and high-tech behemoths that control key AI technologies are theoretically developing the ability to acquire vast volumes of data and shape political agendas (27). However, as the impact of AI increases, the relationships between diverse AI actors may get more intricate. With their command of critical AI technologies, large international firms in AI-related industries can supply international public goods in particular areas and progressively develop into global players with significant market and discourse influence. At the same time, the community of AI researchers adheres to a mostly independent philosophy, concentrating on advancing technology and creating technical standards. They guide the course of global AI growth with their authoritative knowledge and moral awareness (13).

Complications to Global Regulation of AI

AI is bringing about fundamental and revolutionary transformations in human society. As philosophical as it is scientific and technological, the concept of AI governance further complicates the regulation of AI (28).

The Complexity of Rulemaking in AI Governance

Effective governance requires authoritative decision-makers, workable regulations, and effective implementation. AI governance encompasses a wide range of stakeholders, including governments, the commercial sector, and academics. Currently, governments of all states and levels have developed a wide range of AI governance instruments, including holistic, net-

worked, and contractual governance (29). Major nations like the United States, the European Union, and China, as well as key international organizations, have implemented AI planning strategies and responded to pressing concerns in AI development. Overall, there is a lack of coordination and leadership in AI governance rulemaking.

Absence of Universal Legal and Ethical Regulatory Frameworks

The issues that have arisen as a result of the development of AI technology have intensified the push for legislative and legal reforms. According to Zheng (30), AI, a tremendous leap in information technology, is offering unique hazards that are having an increasingly strong impact on the existing legal systems by disrupting the social ecology in which they operate. To limit the possible risks of AI technology and enable its healthy development, AI governance relies on a globally applicable principle of "common interests," institutionalized cooperative procedures, and universally accepted norms (31). Despite the fact that international organizations and governments of states have reached an agreement on the importance of AI regulation, no universally applicable legislative framework for AI governance has been developed. Because of the technology's complexity and ambiguity, as well as political factors in information security, there are clear divides in attitudes and plans for AI security governance across all stakeholders, preventing the adoption of international conventions for AI-related operations. Furthermore, there is a dearth of effective implementation methods for realizing global-level AI governance, limiting both theoretical and practical explorations of AI regulatory frameworks (32).

Conclusion

AI technology, a game-changer in the information age, is demonstrating its far-reaching impact on global governance, international relations, and society as a whole, and concerns over its potential dangers are surfacing alongside positive expectations (33). With global-scale, rigorous interaction, and integration, emerges a technologically connected world and a community with a shared future, which means that no nation, organization, or individual can be shielded from AI's potential dangers or face its challenges alone. To safeguard the common interests and future development of humanity, it is essential to accurately assess the potential dangers posed by AI, establish an international framework for AI governance, and develop strategic plans in advance.

As seen by its current state, global AI governance is still in its early stages. It is crucial that states, international organizations, multinational corporations, and global civil society come to an agreement on the guidelines for global-level AI governance in order to address the numerous security risks that AI has created. It is also crucial that the development of institutions and norms keep up with AI's development in order to advance the development of AI security governance and prevent potential crises that could arise from AI's unrestrained development. ■

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