

Artificial Intelligence: A New Geostategic Weapon

Artificial intelligence (AI), once seen as a far-off fantasy reserved for science-fiction genre authors, has now become an inescapable reality in contemporary armed conflicts. Far from being a mere technological project, AI is now making its presence felt on the battlefield, redefining the very notion of military power. This transformation is not just the work of governments, but is the result of an ecosystem of hybrid players, combining traditional defense companies with new technology giants. As in the wars in Ukraine and Gaza, AI is playing a central role, upsetting geopolitical and economic balances by changing the way conflicts are fought and perceived. These theaters of war illustrate two distinct facets of the use of AI: in one case, as a strategic tool for turning the balance of power against a more powerful adversary, and in the other, as a technology for perfecting already formidable weapons systems. However, this unbridled digital arms race raises crucial questions: can AI really make warfare “cleaner”? Or, on the contrary, does it exacerbate the risks of error and disempowerment in military decision-making?

These issues invite us to question not only the operational impacts of AI, but also its influence on the legal and ethical standards that frame international humanitarian law.

I. History of AI

A. The rise of a technology (between progress and reticence)

Artificial intelligence (AI) is a computer system for sorting, processing and storing large quantities of data. It relies on algorithms, which are precise sequences of instructions designed to accomplish a specific task. Algorithms work like “recipes”: a list of steps which, when followed in a defined order, produce a result. In simple terms, an algorithm combines raw data with a series of instructions to produce a targeted result.

For example, if a non-AI program is asked to find the image of a celebrity like Obama, it will scour its database, rather like a digital library, in an attempt to locate an image associated with Fred's name. If it finds a photo correctly tagged “Obama”, it will be able to respond to the request. On the other hand, if it comes across an image without a corresponding label, the program won't be able to show it. This reflects the rigidity of traditional programs, which can only process information that is already known in a straightforward way.

AI, however, takes a far more sophisticated approach. Through machine learning techniques, the program is able to adapt its search processes according to the data it is presented with. To learn to recognize Obama, for example, it will first analyze numerous images of him, spotting characteristic features that don't change, such as the shape of the eyes, the size of the nose or the mouth. At the same time, it will identify elements that are likely to vary, such as the color of clothing or the background. Thanks to this learning phase, the program creates a kind of digital imprint of Fred, enabling it to recognize him even in new situations. This ability to adapt is one of the pillars of modern artificial intelligence.

However, the history of AI is far from linear. Since its inception, it has alternated between periods of dazzling progress, marked by high-profile successes, and phases of stagnation or regression, often due to disillusionment with its limitations. We are now in a phase of renaissance, where AI technologies are once again arousing enthusiasm, but with a heightened need for discernment in the face of the challenges they pose.

B. Mechanics of AI (deep learning, expert machines, algorithms)

To understand the challenges of AI, we first need to understand what biological intelligence (BI) is. In 2024, biological intelligence is defined as the study of cognitive science, which focuses on the mechanisms at work in human thought. These mechanisms enable us to perceive, speak, move, memorize, reason, plan, and even be creative and abstract. The idea of simulating human intelligence has prompted researchers to develop systems capable of mimicking certain cognitive functions. Two main approaches can be distinguished here: the symbolic approach and the connectionist approach.

The *symbolic approach* seeks to reproduce human logical reasoning, using a set of rules, procedures and knowledge. It is similar to the way knowledge is transmitted in schools: step by step, according to a structured process. As INRIA researcher Thalita Firmo explains, this approach is based on the transmission of explicit knowledge. For example, if you teach a pupil how to add a number, you can formalize this process into a series of steps that the machine can carry out much more quickly. This is the approach from which expert systems emerge, capable of reproducing the reasoning of a specialist to solve a specific problem. In the 1980s, this method enjoyed considerable success, before showing its limitations in more complex, less formalized situations.

The *connectionist approach*, also known as deep learning, focuses on imitating the way humans learn through experience. It is inspired by the way human neurons work, and enables machines to learn by trial and error, from a multitude of examples. It's like learning to ride a bike: you progress by practicing, failing and correcting your mistakes. Today, this method is at the heart of AI developments, as it enables us to process vast datasets to find complex patterns that symbolic approaches cannot capture.

For Frédéric Alexandre, a researcher in computational neuroscience, being intelligent means knowing how to adapt rapidly to complex situations, finding not the optimal solution, but the most satisfactory response. This implies the ability to distinguish what is important in a flood of information, to react to the unexpected and to adapt if conditions change. Biological intelligence possesses this flexibility, fuelled by emotion, motivation and creativity - aspects that are still lacking in today's AIs, which remain confined to the specific tasks for which they have been programmed.

C. AI technology in everyday use (autonomous cars, GPS, household appliances, personalized content on the Internet)

Algorithms, the engines of artificial intelligence, are now omnipresent in our daily lives. They manage content recommendations on social networks like Facebook, optimize journeys thanks to GPS location, warn of traffic jams, and even hide behind facial recognition systems used in security and mobile applications. Every action, every choice, is influenced by an algorithm that has learned, analyzed and adjusted its behavior according to our previous interactions.

Computing, by its very nature, aims to process information automatically. So, once an algorithm has been translated into computer language (coding), it becomes a program capable of executing these instructions without human intervention. Whether in autonomous cars, intelligent household appliances or the optimization of our online navigation, AI is quietly shaping our environment.

AI is not limited to our personal uses: it profoundly influences geopolitical dynamics and cultural battles. Tech giants like Sam Altman (OpenAI) and Elon Musk are playing a key role in this new era. While Musk, through X (ex-Twitter), seeks to promote a vision of direct democracy, OpenAI, backed by Microsoft, is at the heart of an ideological struggle over the future of AI. Silicon Valley, once united, is now divided, with part of its elite tilting towards the ideology of the American far right, influencing the algorithms that structure our online interactions.

These algorithms are not neutral. They amplify certain content and hide others, shaping the international agenda. The great difficulty lies in the governance of these tools: how can we ensure that these technologies, in the hands of private players, serve the public interest rather than partisan political agendas?

Elon Musk, in particular, is seeking to turn X into a space of “direct democracy”, where power is supposed to return to the people. However, by destroying traditional checks and balances such as journalists, he is seeking to reshape the public space according to his vision, raising profound questions about the future of free speech and public debate.

II. New wars beyond space: cyberwar and cognitive warfare

Digital technologies and artificial intelligence (AI) are radically changing the nature of modern conflict with the emergence of new battlefields outside traditional physical space. These wars are known as "cyberwar" or "cognitive war." They raise geopolitical, military, and ethical issues. Information itself is becoming a weapon, and cyberspace and large-scale cognitive manipulation are becoming battlefields.

A. Algorithms as soldiers of ideology

1. Data as a weapon

In the digital age, data has taken on a central role in global power relations. Major powers are increasingly using technological infrastructures, in particular the massive use of algorithms and data, to confront each other in international politics. The most striking example is Russia under Vladimir Putin, who declared in 2017 that "whoever masters artificial intelligence will dominate the world". In a bid to strengthen its digital sovereignty, this speech symbolises Russia's willingness to invest heavily in AI technologies.

Russia's so-called 'information' laws, such as the introduction of RuNet, an autonomous internet, are an illustration of this desire. The aim is twofold: to control the circulation of internal information and to protect itself from external influences. Russia is not alone in this strategy. China, while developing a sophisticated technological ecosystem focused on surveillance, censorship and facial recognition, is taking a similar approach to information control. Data management is thus becoming a major strategic issue for these regimes, which see these technologies as a lever of geopolitical and social power.

2. Political influence of industrial giants

The weight of private technology corporations, especially big tech, like Meta, X [former Twitter] and Tesla, raises issues about the relationship between public power and the private sector in modern conflict. The example of Elon Musk, who refused to activate his StarLink satellite network during a Ukrainian offensive against the Russian fleet in 2022, shows how private companies can influence large-scale geopolitical decisions.

In the US, Big Tech has become a hybrid player, serving both private and state interests. The Pentagon works closely with Silicon Valley, reinforcing the integration of the technology sector into military affairs. It also raises ethical questions regarding corporations' role in international conflict.

B. Cognitive war: the tug-of-war between nations, corporations and citizens

1. Disinformation, deepfakes and manipulation

The AI era marks the advent of cognitive warfare, where information becomes a tool for large-scale manipulation. Long before the start of the war in Ukraine, Russia distinguished itself through its massive use of troll farms and automated bots to influence public debates in the West. This strategy is based on spreading disinformation designed to polarise and brutalise public debate.

AI is making it possible to industrialise the production of false content, such as deep-fake videos, fake news sites and misleading narratives. In France, for example, a pro-Rassemblement National (far-right party) female AI has been created, although it is not yet possible to determine who is behind it. Not only do these disinformation campaigns threaten democracy, they aim to sow discord within societies themselves, undermining the foundations of democratic discourse.

2. How can these campaigns be combated ?

Western democracies are trying to develop counter-measures in the face of this threat. In France, the Viginum organisation works on the identification and communication of disinformation campaigns, but the effectiveness of these efforts is limited by the speed and sophistication of the attacks. In the United States, free speech protected by the First Amendment complicates regulating online speech, leaving grey areas for moderation.

However, the rise of authoritarian regimes, such as China and Russia, highlights a more radical use of AI in surveillance and social control. In China, AI is used to homogenise online discourse through censorship and increase population surveillance, particularly through facial recognition and social network control.

III. The impact of AI on security and defence

Artificial Intelligence (AI) is becoming central to the arms race and modern military strategies, and is revolutionising the security and defence sectors. This technological transformation is accompanied by major geopolitical upheavals, increasing competition between powers like the US and China. Military strategies and the balance of power are being profoundly altered by the integration of AI into military arsenals, cyber-attacks and surveillance. Questions of regulation, ethics and sovereignty become essential in the face of this new reality. This section examines the impact of AI on security and defense

along two main axes: military AI in the arms race, and its role in contemporary conflicts, particularly through cyber-attacks and technological surveillance.

A. Military Artificial Intelligence and Technological Arms Race

1. Military AI: a strategic challenge

Artificial intelligence is at the heart of contemporary military issues, particularly in the arms race between the United States and China. In 2017, China declared its ambition to become the world's leading military power by 2049, with AI as a central pillar of this strategy.

This Sino-American rivalry is the crystallisation of a new technological Cold War, in which AI supremacy could redefine global power relations.

Military AI encompasses a wide range of technologies, such as autonomous drones, hyper-fast defence systems and the real-time coordination of operations on the battlefield.

The AI race is at the heart of great power defence policy, and whoever masters these technologies will have a decisive advantage in future wars. In the US, the ecosystem of technological innovation is driven by the private sector, with companies such as Google, Microsoft and OpenAI playing a crucial role in developing US military capabilities.

However, many ethical and legal issues arise in the regulation of these technologies. The international legal framework, including the Geneva Conventions, needs to be adapted to meet the challenges posed by these new military technologies. Rules such as Article 36 of the Additional Protocol to the Geneva Conventions, which requires states to ensure that any new military technology complies with international law, demonstrate the importance of regulating these advances.

2. Europe: catching up

In this technological race, Europe is lagging behind. The European Union has been slow to make its mark in the field of military AI, despite the efforts of Commissioner Thierry Breton to promote "strategic autonomy". Regulatory measures like the Digital Services Act and the Digital Markets Act, while important, cannot close the gap with the US and China.

Europe's technological sovereignty is still mainly defensive, with a focus on critical infrastructure protection rather than proactive innovation. To catch up, Europe needs to develop a more ambitious

industrial strategy. This should be based on cooperation between Member States and on strengthening its technology sector.

B. Cyber-attacks and micro-targeting: the role of AI in contemporary conflicts

1. The cyber-attack threat

Cyber attacks have become one of the most important weapons in today's conflicts. Countries are regularly accused of launching cyber attacks against the critical infrastructure of rival states, including Russia, China and Iran. In 2017, for example, Emmanuel Macron's presidential campaign was the target of cyber attacks attributed to Russia, with the aim of destabilising the French election.

These cyberattacks are not confined to electoral processes. They also have an impact on critical sectors such as power grids, banking systems and communications infrastructure. In the United States, the 2020 presidential election has been marked by attempts to manipulate public opinion by means of disinformation attacks, often orchestrated by state or non-state actors.

The phenomenon of cheap fakes highlights an emerging threat: the massive dissemination of false information, even of low quality, may be highly influential because of the sentiment they generate. These tactics are an illustration of the extent to which AI can be a powerful weapon in modern warfare through the manipulation of information.

2. The geopolitics of cyberspace

Cyberspace has become the playground of the world's technological powers. The giants of Big Tech (Google, Meta, Amazon, etc.) are no longer just economic players, but also political and military ones. Elon Musk, for example, played a key role in the conflict in Ukraine through StarLink. The company provided essential communications to the Ukrainian army.

Through techno-surveillance and censorship, AI is being used in China to strengthen social and political control. This use of AI, focused on networking society, allows the Chinese government to maintain tight control over the population. In the US, on the other hand, the emphasis is on defending democratic values and combating cyber-attacks from abroad.

The Sino-American rivalry in AI has profound implications for global security. Both countries are investing heavily in developing new technologies. At the same time, they are trying to impose

restrictions on their rivals. The US recently blocked China from selling advanced AI technologies, but this only encourages China to accelerate its own programmes to develop the technology.

C. AI and technological sovereignty

AI is not only shaping military conflicts, it is also redefining the question of state sovereignty. With every major power seeking to use technological innovation as an instrument of power, Big Tech and Big State are now inextricably linked. Countries that succeed in developing their own technological ecosystems will be able to assert their sovereignty on the international stage.

The European Union is trying to position itself as a leader in the regulation of artificial intelligence with its Artificial Intelligence Act. This legal framework lays down strict rules for the use of AI in sensitive areas such as education, health and security. However, in terms of technological and industrial power, Europe is still far from competing with the US and China.

1. The Israeli case: AI in military operations

The Israeli example shows how AI can be integrated into military operations. The Israeli army uses software called Gospel to select targets for its operations in Gaza. The software collects and analyses intelligence data. It calculates the amount of ammunition needed and suggests an order of attack.

The Israeli army claims to be targeting Hamas members. However, many civilian casualties are inevitable.

Critics of the use of AI in armed conflict point to the risk of 'automated decisions' beyond human control. While AI can improve the effectiveness of military strikes, it also raises ethical questions about the responsibility of commanders in the face of civilian casualties.

2. challenges for democracies

Finally, AI's impact on securing and defending the world poses significant challenges for democracies. Countries such as France and Germany, which are to a large extent dependent on technologies developed by the United States or China, will have to reflect on their own technological sovereignty. These democracies risk losing their strategic autonomy by becoming "clients" of the major technological powers.

Regulation of AI is essential. But it is slow and struggles to keep up with the rapid evolution of the technology. At the same time, states trying to regulate these technologies while remaining competitive are under constant pressure as private players such as OpenAI continue to develop more powerful systems.

Influencing military strategies, the balance of power between great powers and the technological sovereignty of states, artificial intelligence is redefining global security and defence. Cyber-attacks, techno-surveillance and the use of AI on the battlefield illustrate the new threats governments face. However, the development of AI also offers an opportunity: the opportunity to rethink regulation and to strengthen international cooperation in order to ensure the ethical and responsible use of these technologies in future conflicts.

IV. International law and AI: what regulations?

The aim of international humanitarian law (IHL) is to alleviate human suffering in times of war by safeguarding those who are not involved in hostilities, such as civilians, humanitarian personnel, journalists, and wounded or captured fighters. It also regulates methods and means of warfare, prohibiting the use of certain weapons and practices. The rise of new technologies, and in particular artificial intelligence (AI), poses significant challenges to this established legal framework. Among emerging technologies, cyberspace, autonomous weapons and machine learning are key concerns as their potential uses may threaten the implementation of IHL.

The central question is: to what extent is war law still relevant in the face of these new technologies and should it be modified to meet the challenges posed by military AI? This question is all the more crucial as AI introduces automation into military decision-making processes, thus limiting direct human intervention in certain contexts. How can we ensure that these technologies, despite their destructive potential, meet basic humanitarian standards?

A. International humanitarian law and new technologies: the data of the problem

1. Should we review the laws of war?

International humanitarian law has always evolved in response to the new realities of armed conflict, from the Geneva Conventions of 1949 to the Additional Protocols that regulate the use of certain technologies. However, the question remains: is this legal framework sufficient to regulate new technologies such as military AI, or should specific rules be adopted?

IHL is based on some key principles, such as protecting civilians, limiting means and methods of combat, and banning certain weapons. The principle of distinction, for example, is that civilians and civilian property should not be the target of attacks. The principles of proportionality and precaution reinforce this framework by ensuring that collateral damage is minimised and that all possible measures are taken to avoid violations of humanitarian law.

The integration of military AI and autonomous systems into conflicts raises questions about compliance with these principles. Take the example of AI-driven autonomous weapons. Article 36 of Protocol I to the Geneva Conventions requires states to ensure that any new arms comply with existing international law before they are adopted. In theory, a rigorous assessment of the compliance of these technologies with international humanitarian law must be undertaken by any state, including Israel, that deploys automated weapons systems.

2. Artificial intelligence's impact on armed conflict.

AI, especially when integrated into autonomous weapons, poses unique challenges for IHL. AI systems are capable of processing huge amounts of data and making military decisions in real-time, potentially faster than humans. However, these systems lack the human discernment that is crucial to ethical decision-making in conflict situations. According to reports, in some military settings, such as Israel, military operators are given a significant amount of targets identified by AI systems within a short period of time, leaving little room for human critical evaluation. Operators often have to rely on information provided by AI, which may be incomplete or biased, and sometimes allow keystrokes without having all the data necessary for a full IHL-compliant assessment.

This shows a fundamental limitation in the use of AI: the lack of knowledge of military operators about how these tools work, and thus a possible violation of the principle of proportionality and precaution, which are essential to IHL. The combination of human errors and algorithmic biases can cause disastrous humanitarian consequences, as decisions are made without the moral and ethical perspective that an experienced human operator could provide.

B. International law versus AI

1. The limits

International humanitarian law is based on principles which, while they are adaptable, may become inadequate as military technologies evolve more rapidly than the ability of the law to regulate them. The principles of distinction, proportionality and precaution are relevant. However, they require consistent and rigorous interpretation to remain effective. However, it is difficult to ensure the uniform application of IHL, as these interpretations may vary from State to State.

Another difficulty arises from the nature of AI systems themselves. Unlike humans, algorithms cannot be motivated by ethical values or moral principles. According to Herbert Simon's theory, human actors are guided not only by rationality, but also by their principles, values and knowledge, which may be imperfect or biased. This concept of limited rationality also applies to AI, but even more so because AI

systems do not have this intrinsic moral consciousness. They make decisions based on algorithms that, while sophisticated, cannot take into account the moral complexity of war situations.

States are therefore faced with the need to rigorously assess the potential impact of military AI on compliance with international humanitarian law. The assessment process is not always transparent, and the limitations of the technology, such as the lack of moral judgement, are an additional source of risk.

2. International regulation of military AI: towards a new legal framework?

Does the law of war need to be reformed to better regulate military AI? The issue is complex and divisive, with several elements that prevent the adoption of a strict international legal framework.

International humanitarian law as a whole does not need to be completely reinvented. Its basic principles remain broadly applicable to new technologies. However, it is clear that adjustments are needed to ensure that the use of military AI remains consistent with these principles.

It remains to be seen how far states actually comply with Article 36 of Protocol I, which provides a solid basis for regulating new technologies.

What is now missing is a more robust monitoring and enforcement regime. Indeed, international humanitarian law is one of the least respected areas of international law. This is partly due to the difficulty of monitoring and enforcing its provisions in real time. This is where the role of non-governmental organisations (NGOs) and the UN comes in, by monitoring the compliance of armed forces with IHL on the ground.

One of the main obstacles to reforming the laws of war to include more specific rules on military AI is the current geopolitical fragmentation. States have different visions of the future of war and technology. The complexity of multilateral negotiations in this area makes it difficult to adopt clear and universal rules. Instead, international law seems to be moving towards so-called soft law, that is, non-binding agreements that provide guidelines without strict obligations.

Conclusion

In conclusion, international humanitarian law (IHL) faces a significant challenge from the increasing integration of artificial intelligence (AI) into armed conflict. While AI promises major operational advances, it also risks undermining the ability of military actors to respect the fundamental ethical and legal principles that govern the conduct of hostilities. However, rather than completely overhauling IHL, it would be more sensible to adapt existing rules. This would ensure that human beings remain at

the centre of critical decisions. The future of IHL will therefore depend on the ability of states to cooperate in guiding the development of military AI, while protecting civilian populations from potential abuses associated with automating warfare. Effective regulation of these new technologies will require international consensus to maintain a balance between technological innovation and respect for human rights.