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The Legality of Cyber Operations and Automated Hackbacks under International Law

Joyce Hasan*
Department of Public Health, Plovdiv Medical University, Bulgaria

Abstract

As the significance of cyberspace grows, the legality of cyber operations and automated hackbacks under international law has become a critical issue. This article examines the application of international legal principles to cyber operations, focusing on how they align with the Law of Armed Conflict (LOAC) and existing cybersecurity frameworks. It also explores the controversial nature of automated hackbacks, including their alignment with principles of sovereignty, self-defense, and accountability. The discussion highlights the need for clear international norms to address these evolving challenges, advocating for enhanced cooperation, improved attribution mechanisms, and the development of comprehensive legal frameworks to ensure responsible state behavior in cyberspace.

Keywords: Cyber operations; Automated hackbacks; International law; Law of armed conflict (LOAC); Cybersecurity; Sovereignty

Introduction

In an age where digital infrastructure is integral to national security, economic stability, and everyday life, the legality of cyber operations and automated hackbacks has become a pressing issue. As cyber threats evolve, the need for clear international legal frameworks to address these challenges grows. This article explores the current international legal perspectives on cyber operations and automated hackbacks, examining when they are considered permissible and the complexities involved [1].

Understanding cyber operations

Cyber operations refer to actions conducted through digital means to achieve strategic, tactical, or operational objectives. These operations can include espionage, sabotage, or direct attacks on digital infrastructures. Under international law, especially the law of armed conflict (LOAC) and various cybersecurity frameworks, the legality of cyber operations is nuanced [2].

The law of armed conflict (LOAC): LOAC, or international humanitarian law, governs the conduct of warfare and ensures the protection of civilians and civilian objects. In the context of cyber operations, LOAC applies principles such as distinction, proportionality, and necessity. Distinction requires that attacks be directed only at military objectives, proportionality prohibits attacks causing excessive civilian harm in relation to the anticipated military advantage, and necessity limits operations to what is essential for achieving the desired military outcome [3].

The tallinn manual: The Tallinn Manual, a comprehensive guide developed by international legal experts, provides interpretations of how existing international law applies to cyber operations. It emphasizes that cyber operations must adhere to the same principles as traditional military operations. For instance, a cyber attack that causes significant harm to civilian infrastructure may be deemed illegal under LOAC unless it directly supports a military objective [4].

Automated hackbacks: a controversial solution

Automated hackbacks involve using software or systems to automatically retaliate against cyber-attacks. The notion is that by retaliating, a state or organization can deter future attacks and protect its interests. However, automated hackbacks introduce legal and ethical complexities.

Legal uncertainties: International law generally lacks explicit provisions on automated hackbacks. The principle of sovereignty and the prohibition of the use of force are central to international relations. Automated hackbacks could potentially violate these principles if they result in unauthorized access or disruption of systems in another state [5].

The principle of self-defense: Article 51 of the United Nations Charter permits self-defense in response to armed attacks. If a cyber attack qualifies as an armed attack, a state may theoretically have the right to respond with force, including cyber measures. However, the automatic nature of hackbacks raises concerns about the proportionality and necessity of the response, as well as the potential for unintended escalation.

Accountability and control: Automated systems may act beyond human control, leading to unintended consequences or escalation of conflicts. International law emphasizes accountability, and automated hackbacks may complicate this by making it difficult to attribute actions and assess responsibility [6].

The need for international norms

Given the rapid advancement of cyber technology and the increasing frequency of cyber incidents, there is a growing consensus on the need for clear international norms governing cyber operations and automated hackbacks. Some key considerations include:

Establishing norms and agreements: International bodies such as the United Nations and cybersecurity organizations are working towards establishing norms for responsible state behavior in cyberspace. Agreements or treaties could provide clearer guidelines on what constitutes permissible cyber operations and the boundaries of automated responses.

***Corresponding author:** Joyce Haman, Department of Public Health, Plovdiv Medical University, Bulgaria, E-mail: Joyce.hasan@gmail.com

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Enhancing attribution and transparency: Improved mechanisms for attributing cyber attacks and ensuring transparency in cyber operations can help mitigate risks associated with automated responses and foster trust among states [7].

Promoting cooperative efforts: International cooperation is crucial for addressing cyber threats. Collaborative efforts in information sharing, joint exercises, and capacity building can enhance collective security and reduce the reliance on unilateral automated responses.

Discussion

The rapid expansion of cyberspace has introduced complex legal questions regarding the conduct of cyber operations and the use of automated hackbacks. These issues are examined within the framework of international law, particularly focusing on how traditional legal principles apply to the modern digital landscape.

Cyber operations encompass a range of activities conducted through digital means to achieve strategic, tactical, or operational objectives. Under the Law of Armed Conflict (LOAC), which governs the conduct of warfare, cyber operations must adhere to established principles such as distinction, proportionality, and necessity. These principles are crucial in ensuring that cyber activities do not inadvertently harm civilians or civilian infrastructure [8].

Distinction requires that cyber attacks target only legitimate military objectives, not civilian entities or infrastructure. For instance, a cyber-attack that disrupts a civilian power grid without a clear military objective would likely be deemed unlawful under LOAC.

Proportionality prohibits attacks that would cause excessive collateral damage in relation to the anticipated military advantage. A cyber operation causing significant unintended harm to civilian systems would face scrutiny under this principle.

Necessity limits the scope of cyber operations to what is essential for achieving the military objective. Operations must be directly linked to military aims rather than engaging in indiscriminate or excessive actions.

The Tallinn Manual, a key reference on international cyber law, reinforces these principles by applying traditional rules of warfare to the cyber domain. It underscores that the legal standards applicable to conventional military operations extend to cyber operations, aiming to ensure that actions in cyberspace remain consistent with international humanitarian law [9].

Automated hackbacks, or automatic retaliatory cyber operations, present unique legal and ethical challenges. These systems, designed to automatically retaliate against cyber-attacks, introduce significant complexities into international law.

Automated hackbacks could potentially violate state sovereignty by launching attacks against systems in another country without explicit consent. Such actions might be viewed as a breach of the prohibition on the use of force under international law. Even if a cyber-attack qualifies as an armed attack under Article 51 of the UN Charter, the automated nature of hackbacks raises concerns about the proportionality and control of responses.

While states have the right to defend themselves from armed attacks, the automatic nature of hackbacks challenges the ability to ensure proportional and measured responses. Automated systems may act impulsively, causing unintended escalation or collateral damage. The principle of proportionality becomes particularly complex when automated responses are involved, as human oversight is critical to assessing the appropriate level of response.

Automated hackbacks complicate the issue of accountability. The difficulty in attributing actions to specific actors and assessing responsibility for unintended consequences makes it challenging to hold parties accountable for their cyber operations. This lack of clarity can lead to disputes and exacerbate tensions between states.

To address these challenges, there is a pressing need for international norms and agreements governing cyber operations and automated hackbacks. Current frameworks, such as the Tallinn Manual, provide valuable guidance but are not legally binding. There is a call for more formalized agreements or treaties that establish clear rules and standards for cyber conduct.

Enhanced international cooperation, improved mechanisms for attribution, and the development of comprehensive legal frameworks are essential to ensure responsible behavior in cyberspace. Collaborative efforts among states can help mitigate risks and foster a secure digital environment [10].

Conclusion

Under international law, cyber operations are permissible when they adhere to principles of armed conflict, but automated hackbacks introduce complex legal and ethical challenges. As cyber threats and technologies evolve, the international community must work towards developing robust legal frameworks that address these challenges while ensuring accountability, proportionality, and the protection of global stability. In the quest to safeguard digital domains, a balanced approach that combines legal clarity with international cooperation will be essential for navigating the complexities of cyber operations and automated responses.

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