Criminal Liability Arising from Offenses Committed by Robots

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Abstract

The modern era is a technological era that has influenced all aspects of life. In this domain, robots and artificial intelligence have emerged, bringing both opportunities and challenges. One of these challenges concerns the legal and judicial issues related to robots and artificial intelligence. Accordingly, the objective of this study is to examine the criminal liability arising from offenses committed by robots. This study adopts an analytical approach to explore the subject. The findings indicate that traditional legal and judicial norms and regulations are inadequate in addressing crimes committed by robots. This is because the current and traditional model of crime, which is based on material and moral elements, is unable to comprehend the unique and distinct nature of robots that possess the ability to make independent decisions. This necessitates a complete reconstruction of the theoretical perspective in criminology, rather than merely making amendments to existing legal texts. Moreover, the absence of a clear boundary between criminal error, technical error, and industrial error in crimes related to robots requires the development of new models of liability that combine both criminal and technical responsibility. On the other hand, it may be possible to establish the concept of legal personality or juridical personality for robots under strict conditions. Accordingly, it is essential to formulate new legal rules that, while providing a clear definition of the concept of joint liability, take into account the role of designers, developers, and users in this regard. This constitutes the main focus of the present research.

Keywords: Criminal liability, Robots, Artificial intelligence, Intelligent systems, Emerging technological crimes

Citation: Al-Jizani, H. K. A., Heidari, M., Hussein Ali Ali, H., & Saeedi, Y. (2026). Criminal Liability Arising from Offenses Committed by Robots. *Legal Studies in Digital Age,* 5(1), 1-11.

1. Introduction

With the remarkable advancements of the present era, robots equipped with artificial intelligence systems play a fundamental and extensive role in various aspects of human life. These advanced tools, endowed with extraordinary capabilities in

processing complex data and making independent decisions, have not only facilitated human life but have also brought about novel legal, ethical, and intellectual challenges that relate to all dimensions of contemporary life (Valdez & Cook, 2023). One of the most prominent of these challenges is the absence of free will and human consciousness in these systems, an issue that compels us to raise fundamental and, at the same time, important questions regarding the possibility of imposing criminal liability on these robots or transferring such liability to related individuals such as designers, programmers, or users. This is particularly significant given that traditional criminal law is founded on principles such as criminal intent, material conduct, and causal relationship, which play a central role in the analysis of crimes (Molfino et al., 2024).

The emergence of robots and artificial intelligence-related technologies has created fundamental challenges for these traditional principles, especially in cases where robots independently engage in complex cyberattacks or illegal activities whose consequences are not merely technical but also have extensive legal dimensions, particularly in determining liability. This has become a serious problem due to the complexity of the technical and legal structures of robots (Mohamed, 2021).

On the other hand, the advancement of artificial intelligence technology has enabled robots to make decisions that can have dangerous legal consequences; for example, the use of robots in medical systems, where errors may occur and cause harm to patients. In such cases, questions arise regarding the extent of the criminal liability of robots and other involved human actors. Accordingly, this issue has created new challenges concerning the compatibility of traditional criminal law principles with modern conditions (Al-Jawhari, 2019).

Al-Jamili and Omar Hilal Jandari (2025) concluded in their research that technological advancements necessitate the establishment of new legal frameworks that determine the liability of designers and users of these systems in parallel with technological development (Al-Jamili, 2025). Al-Haddad and Muhannad Walid (2024), in their study, pointed out the absence of specific legal frameworks for prosecuting intelligent robots in the criminal justice system. This legal gap has led to a lack of effective oversight and control over the performance of these robots and to inefficiency in the enforcement of criminal laws against their committed offenses (Al-Haddad, 2024).

In addition to the above, the use of robots in sensitive fields such as security and defense has revealed new dimensions of criminal liability. For instance, in situations where military robots make decisions independently based on specific algorithms and carry out attacks that result in human casualties or irreparable damage, fundamental questions are raised regarding the role of programmers and decision-makers in the process of designing and using these technologies. This underscores the necessity of revisiting the principles of international law and formulating new legal frameworks.

On another front, the social and ethical impacts of robots in the criminal justice system are also of concern: Can robots be used in the judiciary to make judicial decisions or issue rulings? This question raises a fundamental issue in legal ethics and the impact of technology on human rights. Although the use of advanced algorithms in artificial intelligence may reduce judicial processing time, it may also, due to algorithmic biases, lead to violations of individuals' fundamental rights. In the international arena, some international legal systems have sought to define responsibilities related to robots through advanced technical agreements and legal obligations. For example, the European Union legal system is striving to provide a clear framework for managing issues related to robots by enacting comprehensive laws, whereas countries such as the United States have adopted a practice-oriented approach, focusing on the personal liability of robot users and owners. Furthermore, establishing a global legal framework to regulate human–robot relations could help reduce international conflicts and ensure coordination in facing shared challenges—provided that such a framework contains clear criteria for determining liability, assessing risks, and managing the social and economic impacts of robots, especially in the field of cross-border cybercrimes, which further emphasizes the importance of international cooperation.

Based on the above explanations and the importance of the legal issues surrounding robots in the modern era, conducting legal–criminal studies on new technologies, particularly robots, is essential. Therefore, examining the criminal liability arising from offenses committed by robots constitutes the aim of this research.

2. Methodology

This study is conducted using a descriptive–analytical method. In the first stage, it relies on library and documentary sources and involves the collection and classification of studies related to the dissertation topic through the examination of written

sources, legal documents, and previous research. At this stage, the initial information and required variables are identified, and the main data are extracted from library sources, scientific articles, journals, news, and specialized reports published on the internet and academic websites.

In the next stage, the quality of the information is evaluated, and its accuracy is carefully examined. This stage includes analyzing the data collected from books, theses, articles, and journals related to the subject. The analysis is based on identifying legal gaps, focusing on weaknesses and strengths in existing laws, and examining how to formulate a legal basis consistent with the complexities of modern technology. In this regard, critical analysis of legal and judicial texts related to the criminal liability of intelligent robots is utilized. This research is further reinforced by applied analysis based on the comparative experiences of some leading countries in the field of criminal liability of robots with artificial intelligence.

3.   Criminal Liability

Criminal liability is one of the fundamental principles in legal systems, established to maintain public order while ensuring social justice. Therefore, this concept must be precisely defined and studied in detail within the legal framework. It is a liability that arises from committing or omitting an act that the legislator has criminalized and for which a penalty has been prescribed in one of the legal texts (Ellamey & Elwakad, 2023). In other words, criminal liability is a mechanism by which the perpetrator must bear the consequences and outcomes of their criminal acts. For a long time, this liability was applicable only to natural persons, as the law addressed those capable of understanding and comprehension so they could follow commands and avoid prohibitions. However, with social and legal advancements, a new theory known as the "legal person theory" emerged alongside the natural person (Al-Saeed, 2016). Accordingly, legal personality necessitated recognizing legal persons alongside natural persons as rights-bearing parties.

The application of criminal liability includes natural persons who commit various crimes, where the individual is held accountable based on the degree of fault and the circumstances surrounding the crime. This liability is also applicable to legal persons such as companies and institutions, provided that the crime is committed in pursuit of their interests or by their legal representatives within the scope of their authority, with exceptions such as state immunity in some legal systems. The imposition of criminal liability on legal persons also raises issues that conflict with the principle of the personal nature of punishment, as the penalty may affect individuals who were not directly responsible for committing the offense.

Furthermore, there are certain situations that exclude criminal liability, including justifications or defenses that depend on specific conditions and either render the act lawful or exempt the perpetrator from punishment. Among the most important of these are self-defense, necessity, insanity, and intoxication—provided that the latter results from compulsion to consume alcoholic or narcotic substances—as stipulated in Article 60 of the Iraqi Penal Code. Most laws also refer to the extinction of criminal proceedings or penalties in cases such as the death of the accused or the lapse of time, in order to uphold the principle of the personal nature of punishment, which mandates that punishment be imposed only on the person whose criminal liability has been established.

Punishment, in fact, is a legal response to crime, aimed at achieving justice and creating both individual and general deterrence, since punishing the offender instills fear in society regarding the repetition of criminal behavior. The principle of the personal nature of punishment is one of the general principles of criminal law, ensuring that no one is held accountable for another's crime. Modern laws have also addressed cybercrimes and technology-related crimes, assigning criminal liability to programmers and users of intelligent systems or robots through which the crime is committed. This highlights the necessity of amending and developing laws to align with modern technological developments.

However, regarding robots, which are the subject of this research, a fundamental question arises: Can criminal liability be directly imposed on these tools? Most jurists and judges believe that robots lack independent legal personality, comprehension, and will; therefore, they cannot be held directly liable. Instead, liability rests with the natural or legal persons who control or operate them, such as manufacturers, programmers, and users. In addition, there are other viewpoints and discussions that will be addressed in detail later.

4. Characteristics of Robots and Their Role in Daily Life

The world of robotics in this era is witnessing its true beginning, as it possesses advanced technical and cognitive features that have elevated artificial intelligence tools and robots to an advanced level, making them prominent actors in human daily life. Modern robots are capable of autonomous learning and adapting to changing environments, employing artificial intelligence and machine learning technologies to improve their performance and make complex decisions without constant human intervention. On the other hand, these robots possess high precision and the ability to move independently in complex environments, enabled by advanced sensors and sophisticated algorithms that allow them to perform sensitive tasks such as medical surgery, industrial operations, and responses to emergencies (Darwish, 2025).

In daily life, robots play multiple roles: in industry, they increase productivity, work continuously without interruption, and reduce errors, thereby lowering costs and improving product quality (Al-Muaibid, 2024). In healthcare, precise surgical robots are used to improve surgical outcomes and reduce complications, and they are also effective in patient care and medication delivery in hospitals. In homes, intelligent cleaning robots help reduce workload, saving people time and energy. In education, they serve as interactive educational tools to motivate students, and in agriculture, they are employed for soil analysis and for planting and harvesting crops with high precision (Al-Halahlah, 2025).

Moreover, the presence of robots in the fields of art, sports, music, and the judiciary is also increasing. In sports, they range from simple simulation tools to advanced technology that executes training scenarios with precision and flexibility, analyzing physical performance indicators such as heart rate and body fat percentage to enhance skills and sports strategies. These robots also assist in goalkeeper training in football and precise shot practice in tennis, and they analyze the physical performance of professional athletes (Younes, 2024). Notably, in 2025, the first sports competition dedicated to robots was held in China, which indicates significant technological progress in this field. In art and music, robots have been used to perform artistic and musical programs with such precision and skill that they can play various instruments and interact innovatively with audiences. They are also used in producing digital artworks that integrate art and technology (Al Arabiya, 2025).

5. Criminal Liability in Crimes Related to Robots

Criminal liability for crimes related to robots is among the modern and complex legal issues that bring with them extensive technical and legal challenges, particularly given the advanced and independent nature of these systems. Robots operating on the basis of artificial intelligence and functioning semi-autonomously may be employed in the commission of criminal acts such as cyberattacks, forgery, trespass, and even physical harm.

Since robots lack legal personality, cognition, and will, the attribution of criminal liability in this regard falls upon the natural or legal persons associated with them, including manufacturers, programmers, users, or entities exercising control over them. The complexity of assigning criminal liability in such crimes arises from the multiplicity of parties involved and the overlap of their roles, which necessitates precise, logical, and case-by-case analysis in each matter.

For example, if a design flaw or coding defect causes the commission of a crime, the manufacturer may be held liable. Conversely, if a user employs a robot for unlawful purposes or is negligent in its maintenance, the liability will rest with that user. Likewise, a programmer who embeds instructions or algorithms in the system that enable unlawful behavior may incur liability (Al-Halahlah, 2025).

However, with regard to self-learning robots, there are additional challenges, especially in proving causation between the criminal act and the responsible actor or entity. This is because these systems can make independent decisions based on data and experiences derived from their own internal learning; an issue that makes attributing liability based on fault or negligence highly complex. In such cases, the theory of liability for risk is applied, under which even in the absence of direct fault, civil or criminal liability is imposed on manufacturers or operators, with the aim of ensuring compensation for damages and safeguarding the public interest (Al-Zuwi, 2024).

From a legal perspective, such crimes require the application of precise and specialized rules in determining liability. Analysis of the three elements of crime—the material element, the moral element, and the legal element—must be carried out meticulously and professionally in line with the specific nature of robots and intelligent systems. Furthermore, mitigating,

aggravating, or exculpatory circumstances, including necessity or inability to control, particularly in the face of technical failure or external intrusion, must be taken into account.

With regard to self-learning robots that exhibit behaviors beyond their initial programming, a specific legal framework must be established to examine the type and scope of their liability. This is because such robots may make decisions, based on advanced algorithms, that were not foreseen by the designer or user. It is noteworthy that most national legal systems, especially in Arab countries, still lack explicit and comprehensive provisions regulating crimes related to robots and artificial intelligence, creating a legislative vacuum that may be exploited.

6.   Characteristics of Penalties for Robots

Penalties related to robots have specific characteristics that reflect both the technological nature and the legal complexity of these devices. In crimes involving robots, criminal liability and, consequently, penalties are primarily directed toward manufacturers, programmers, and users of robots, since under current conditions, it is not possible to directly impose criminal penalties on the robot itself, as they do not possess the necessary elements for attributing criminal liability, such as awareness, will, and intent.

One of the most important characteristics of such penalties is that they may involve reprogramming or modifying the performance of the robot. Confiscation of the robot or imposing an obligation to perform community service may also be considered part of the penalty. In cases where crimes are committed by information technology specialists or government employees, the severity of the penalty increases, reflecting lawmakers' understanding of the potential dangers of criminal exploitation of these technologies. To distinguish between intentional and unintentional offenses, criminal liability for intentional acts will fall upon the programmer or user, while the robot, due to lack of awareness and volition, will be exempt from criminal liability. In this regard, the causal relationship between human error and the criminal result arising from the robot's performance must be carefully identified and analyzed.

Penalties also serve two functions: on one hand, they aim to deter wrongful conduct, and on the other, they aim to ensure social security and prevent harm resulting from misuse or malfunction of robots. Therefore, emphasis on rehabilitation and technical correction as part of the criminal process is essential, and reliance solely on traditional punishments such as imprisonment or fines should be avoided.

In addition, penalties related to robots must align with contemporary and forward-looking technological trends. Such a requirement obliges legal systems to update legislative texts and to include offenses resulting from the use of these devices, especially considering the particular nature of cybercrimes and crimes committed through artificial intelligence—which differ in nature from traditional crimes and require specialized mechanisms for investigation and prosecution (Al-Zuwi, 2024).

Accordingly, the scope of penalties in this field goes beyond financial fines or imprisonment and includes technological and legal measures aimed at preventing the recurrence of criminal behavior related to robots. The nature of penalties in this context is particularly complex, as it is defined at the intersection of technology and law, and criminal liability is directed toward those who directly operate or misuse these systems. At present, robots themselves remain outside the scope of direct liability.

However, in the future, especially concerning self-learning robots, the situation will be different, as these robots exhibit behaviors resulting from independent learning and data processing—behaviors that may go beyond the initial programming. This will inevitably compel us to grant such robots a form of limited legal personality, rather than waiting until they reach a level of advancement and influence where regulating them legally would no longer be straightforward.

7.   Existing Legal Framework for Criminal Liability

A robot, in general, is never considered a human being and inherently lacks human personality. Although these systems think independently, draw on past experiences, and make decisions without reliance on their initial programmer or manufacturer, this does not mean they should be regarded merely as "objects." Therefore, robots cannot simply be dismissed as mere tools; rather, they should be regarded as possessing a form of legal entity or even moral identity.

A robot is neither a human being nor an ordinary object but an entity with real capacities for thinking, learning from experience, and making independent decisions. For this reason, it cannot be classified under the custodian liability theory

(liability of the guardian), which applies solely to objects. Its unique structure necessitates recognition as an independent personality—a concept researchers have referred to as "electronic personality" (Avila Negri, 2021).

If hypothetically we considered a robot as an "object," then liability could be established on the basis of the custodian liability theory, meaning vicarious liability. However, since a robot is neither a subordinate nor an object, but rather an entity with unique characteristics, it is necessary to define a new personality for it—namely, electronic personality—which entails a special mode of treatment at the legal level.

The law has always distinguished between persons and objects. An object is defined in relation to real rights, which establish a form of direct legal control over the subject matter of the right, such that the rights holder is directly connected to the object, and the object is anything that can be the subject of proprietary rights.

Therefore, the legal approach to robots must be such that, on one hand, it does not classify them as mere objects but recognizes them as entities beyond the concept of an object, and on the other hand, since they are not human beings, they should not be included among natural persons. Instead, they are hybrid entities with a specific nature (Ellamey & Elwakad, 2023).

Consequently, we are confronted with liability arising from the emergence of a new personality, which necessitates the development of laws and regulations defining and regulating the scope of its responsibilities and actions. Criminal liability constitutes a link between a criminal act—which is considered an offense under the law—and the person to whom that act is attributed (Ameish, 2021). For criminal liability to be established and attributed, two elements are necessary: the offender and the offense, as well as the links between them.

These links include the causal relationship, which demonstrates that the accused, through an act or omission, caused the occurrence of the offense, as well as the mental connections, which explain the relationship between the perpetrator's state of mind and the criminal event. Given that the nature of artificial intelligence embodied in robots—as mentioned earlier—possesses a hybrid and unique character, any examination of their criminal liability must be based on a deep understanding of this structural characteristic.

8.   Criminal Liability of Robots

In the system of criminal liability, indirect damages arising from the use of robots include long-term economic losses that affect the reputation and credibility of the injured parties. Based on the nature of these damages, they do not directly result from the criminal act but appear as secondary and delayed consequences. Therefore, it is necessary to establish a link between these damages and the robot's conduct through proving a complex causal relationship, one that also considers the factor of time and the sequence of events. This situation goes beyond the traditional model of criminal liability, which is based on direct and harmful acts (Maydanyk et al., 2021).

In civil law, such damages are addressed through the model of strict liability, which allows for compensation even in the absence of prior intent or classical fault. However, in the criminal sphere, direct application of such a model is not possible, because the liability of a robot does not stem from human will; rather, it must be determined based on the extent of programming and operational independence granted to the system.

Recent economic research has shown that imposing criminal liability for the acts of robots can provide strong incentives for manufacturers and programmers to develop effective and continuous preventive measures, which in turn enhances public safety and reduces the level of secondary harm to society (Guerra et al., 2022). The same logic applies to strict liability of the manufacturer for indirect damages, in that this type of liability reduces the gap between technology and regulation because it incorporates the concept of advanced safety—a concept that obligates technical designs to bear the costs of continuous preventive measures. In addition, establishing a compensation fund system for injured parties can play an important role in promptly covering damages, regardless of the presence or absence of criminal intent on the part of the technological actor. Moreover, recording and documenting the automated decision-making pathways of robots by tracking the various stages of the process is highly important to enable full and effective proof of indirect damages.

9. Principles of Criminal Justice in Confronting Robots

The challenges of artificial intelligence and robots in the field of criminal justice are distinguished by the fact that they revive the active role of courts in emphasizing a set of fundamental principles that guarantee fairness and reliability in judicial processes. One of the foremost of these principles is transparency and interpretability, which obliges judges and lawyers to have access to the logic of automated decision-making and to be able to review technical and informational records.

Regarding the principle of proportional liability, it is necessary that penalties be adjusted according to the degree of autonomy of the robot, while judicial assessments may also vary depending on the technical data. Therefore, there is a need to develop a new perspective focusing on the analysis of automated performance records—records that are regarded as objective and effective evidentiary indicators in criminal justice (Darwish, 2025). Furthermore, there must be a balance between innovation and legislation, as every technological leap must be accompanied by a law that safeguards the rights of the parties and respects human guarantees. This enhances the legal health of robot use. Criminal justice requires a fundamental conceptual transformation—one that does not merely interpret existing laws but instead calls for the formulation of a new criminal theory that considers current algorithmic components and technological structures. Criminal justice in the era of robots cannot remain confined to classical principles; rather, it must move beyond traditional frameworks toward establishing a comprehensive system that seriously accounts for algorithmic self-awareness and the contemporary technical ecosystem.

10. Ethical Criminal Standards for Robot Behavior

From a legal standpoint, in order to impose criminal liability on robots, these systems must be equipped with algorithms that enable them to make ethically based decisions and simultaneously communicate those decisions to humans, and must also be capable of operating without direct human supervision. In such circumstances, criminal liability falls on the natural or legal persons connected to the robot, including the end user, supervisor, manufacturer, or owner—as the actual actors who control the robot or determine its behavioral trajectory. The relationship between human and robot in this framework is considered a form of participation or complicity, which allows for the imposition of criminal liability on all human parties involved (Al-Sandīd, 2024).

From an ethical perspective, the question arises as to whether robots are capable of making genuinely moral decisions, since most robots lack awareness or intent. Consequently, criminal liability is treated as a dual responsibility shared between the natural person (programmer or user) and the legal person (manufacturing company) (Al-Maghribi, 2023). Ethical criminal standards also include the mandatory transparency in algorithm design, such that decisions made by robots are traceable and analyzable, and responsibilities among human actors are precisely delineated. Furthermore, penalties should target the responsible human actor, not the robot as an independent entity, while at the same time preventive mechanisms should be established to avoid ethical crimes related to robots through design criteria that prevent unethical exploitation of such systems.

11. Developments in Criminal Policy Regarding Crimes Committed by Robots

Developments in criminal policy regarding crimes committed by robots are complex and multi-layered, requiring in-depth study in light of the rapid changes in technologies associated with robots that utilize artificial intelligence. These developments play a critical role in redefining legislative and judicial responses to crimes committed by robots, since intelligent technologies have created unprecedented challenges for classical concepts of liability and the criminal actor. It is no longer sufficient to prosecute only the natural human; rather, it is necessary to reconsider the distribution of responsibility among programmers, manufacturers, and users, and in many cases, to even consider granting robots a form of partial legal personality (Shahin, 2023).

11.1. Crimes Against Persons by Robots

If we examine crimes committed by robots against persons from a legal perspective, it is insufficient to approach the matter solely from the standpoint of traditional criminal liability; rather, we must understand the profound transformations that intelligent systems impose on the concept of crime. Robots are no longer mere tools for executing human instructions; they

make decisions that can lead to unpredictable results. This means that we are dealing with an entity entirely different from what the legal system has previously recognized. Crimes against persons committed by robots—which are novel to the legal system—can be classified as follows:

First: Unplanned physical violence within the scope of human control. Robots capable of independent movement, even while complying with safety protocols, may cause severe bodily injury to workers. For example, in 2024 a robotic arm in a factory in Germany caused a worker's skull fracture due to an error in the distance-recognition algorithm. These incidents raise questions about the effectiveness of emergency stop systems in robots with deep learning capabilities.

Second: Digital sexual assaults, which raise the issue of consent in the virtual age. Sex robots (Sexbots) capable of advanced simulation of human interactions are used to produce illegal pornographic content. This is carried out through the integration of deepfake technologies with robotic bodies, resulting in violations of individuals' privacy. In recent years, sex robots have been developed by companies such as True Companion and Realbotix, causing serious legal and social concerns related to issues such as privacy, health risks, and the potential for physical injury during use. Some researchers have called for the involvement of regulatory bodies such as the Consumer Product Safety Commission to establish clear and strict regulations (Rigotti, 2020).

Third: Psychological exploitation through automated agents, which can be described as "bloodless crimes." Certain social robots exploit the psychological vulnerabilities of victims, such as the elderly and children, to extract personal information or influence their financial decisions. A 2024 study conducted by Stanford University found that 32% of robot users considered them trustworthy friends, making them susceptible to exploitation by AI chatbot programs.

Fourth: Automated hate crimes, in which algorithmic biases are weaponized. Evidence exists that some service robots have exhibited discriminatory behaviors, such as refusing to serve people with dark skin or speaking in racist language. These incidents cannot be regarded merely as technical errors, because a sound human conscience rejects racism. Such capabilities have become tools for reinforcing structural discrimination, particularly in public spaces such as airports, markets, and shopping centers.

Fifth: Robotic assassinations, one of the clearest examples of the thin line between accident and crime. In 2025, a drone equipped with facial recognition technology sparked international debate when it precisely targeted a Ukrainian politician. Investigations revealed that the algorithm had malfunctioned due to optical interference in facial recognition. Crimes against persons by robots represent a fusion of law and technology, particularly when deep-learning robots make independent decisions that can result in harm, death, or violation of privacy. This creates a serious challenge in determining criminal liability (Younes, 2024).

11.2. *Physical Crimes Such as Assault and Bodily Harm*

Physical crimes committed by AI-powered robots have now reached a point where reconsideration of the related legal concepts has become an undeniable necessity. It should not be overlooked that physical crimes such as assault or bodily injury committed by robots present a fundamental challenge to criminal policy, because in these cases, the boundaries between human action and the technical autonomy of robots become blurred. In traditional models, the robot was merely considered a tool in human hands; however, with the advancement of artificial intelligence, robots have achieved a level of autonomy that enables them to make independent decisions. This has made the occurrence of physical crimes such as homicide or assault—whether unintentional, the result of malicious programming, or due to negligence in design—both possible and probable (Al-Asyouti, 2020).

11.3. *Theft or Destruction by Robots*

Robots can be used to carry out advanced and complex thefts. Furthermore, intelligent chatbots or mobile robots can engage in acts such as deception and fraud. In this context, deepfake is considered one of the most dangerous negative applications of artificial intelligence, created using deep learning techniques and neural networks, and capable of producing image or audio files that reconstruct the faces and voices of celebrities or even ordinary individuals in scenarios that never occurred. Despite

the many advantages of AI technologies, this technology is widely misused to falsify content, leading to numerous social and legal problems (Al Arabiya, 2025).

These robots may be programmed to commit digital or physical thefts, such as hacking into bank accounts or stealing sensitive data—clearly revealing the vulnerability of traditional security systems to these advanced technologies. It is noteworthy that some robots are specifically designed for sabotage and have the ability to disrupt infrastructure or destroy property, whether through cyberattacks or physical assaults, thereby doubling the risk of crimes committed by AI-based entities.

Intervention of Robots in Financial Fraud

One of the most prominent examples in this regard is algorithmic trading bots, which can execute thousands of trades within seconds, exploiting time differences and price fluctuations to create conditions for artificial market volatility or price manipulation in favor of certain specific actors (Chudleigh, 2024). It is noteworthy that cybercriminals also employ fake intelligent chatbots that imitate bank or investment firm employees to deceive victims and collect their personal and financial information in highly professional ways that are difficult to detect. These bots utilize advanced natural language processing (NLP) technologies, making their distinction from humans a real challenge and increasing both the precision and efficiency of fraudulent operations.

11.4. Crimes Against Public Security and Order

Today, self-learning robots are capable of making complex decisions without direct human intervention. This enables them to engage in sabotage activities against critical infrastructures such as power grids or transportation systems. For instance, robots designed to optimize energy consumption could, if hacked, deliberately cause a network collapse. Such an attack would exploit vulnerabilities in deep learning systems and constitutes a form of intelligent cyberattack that is difficult to trace and analyze (Darwish, 2025). These crimes often have a hybrid nature, straddling the line between cyberattacks and physical attacks. Particularly with the emergence of robots enhanced by generative artificial intelligence, they can autonomously design malware, adapt in real time to defensive systems, and evade detection. Ultimately, our world has entered a stage of digital warfare in which the internet has become the battlefield—a place where attacks are no longer limited to network intrusions but also target people's minds, making them part of the conflict through social media.

Forgery and Dissemination of False Information by Intelligent Systems

Forgery and dissemination of false information by intelligent systems represent one of the major and growing challenges in the age of artificial intelligence. The deepfake technique generally refers to any image or video produced using AI to impersonate a real person. While this technology has some harmless applications, such as entertainment, humor, or meme creation, it has now become a tool for fraud in video calls. In response to this threat, advanced tools have been developed to detect and expose deepfakes. These tools assist journalists and media professionals in verifying information amid the overwhelming volume of misleading content (Arab Democratic Center, 2025).

On the other hand, artificial intelligence also plays a role in the advancement of digital criminal investigations, as it can analyze and categorize large-scale data at a speed far exceeding human capability. New methods of forgery include the use of electronic bots to widely disseminate rumors on social media and the application of text-to-speech technology to generate fake audio files of public figures, thereby complicating efforts to combat misinformation.

11.5. Crimes Against Property and Ownership

The concept of "crimes against property and ownership by AI-powered robots" presents a legal and security challenge in light of the rapid technological evolution of these systems. These crimes leverage AI capabilities for theft, fraud, and money laundering in ways more sophisticated than human capability, resulting in severe financial losses and broad economic and social impacts. Money laundering, in particular, often has a cross-border nature, as the roles may be distributed across several countries or financial institutions. Considering the legal differences regarding the material element of the crime, it is reasonable to assert that in some cases, money laundering might not be criminalizable according to the territorial scope principle of criminal jurisdiction.

Among the most significant AI-related crimes involving property and assets is electronic theft: using robotic software capable of penetrating bank accounts, automatically transferring funds, or intentionally damaging digital infrastructure in ways that impact financial markets. Other examples include using AI to forge digital documents, create fake identities, and carry out illegal algorithmic transactions in financial markets. Combating these crimes requires advanced legal and regulatory frameworks that keep pace with technical developments (Al-Halahlah, 2025).

12. Conclusion

The current and traditional model of crime, which is based on material and moral elements, is incapable of understanding the unique and distinct nature of robots with independent decision-making abilities. This necessitates a complete reconstruction of the theoretical perspective in criminology, not merely an amendment to existing legal texts. The absence of a clear boundary between criminal fault, technical fault, and industrial fault in robot-related crimes requires the development of new models of liability that combine both criminal and technical responsibility. Moreover, the possibility exists to establish the concept of legal personality or juridical personality for robots, but only under strict conditions. Some intelligent robots with learning and independent decision-making capabilities may require the granting of limited legal personality so that their liability can be precisely determined, while ultimate responsibility remains with the natural persons who developed them.

The element of criminal intent is no longer capable of addressing acts arising from systems that make decisions independently and without direct human awareness. Therefore, the concept of intent must be expanded to include new forms such as probable intent and automated behavior resulting from machine learning, and a new classification must be created for autonomous acts resulting from artificial intelligence that cannot be contained within traditional frameworks and require a level of "independent and effective mechanical intent." Current laws do not provide adequate legal solutions for situations where robots act beyond human control, creating a phenomenon known as "causal gap," in which linking the act to a specific legal actor becomes difficult. In this regard, the act should hypothetically be attributed to the nearest human actor who could have foreseen the result, making use of new concepts such as "reverse causation presumption."

12.1. Recommendations

Establish criminal records for intelligent robots and create an international database that includes their criminal records as well as technical and programming histories, with continuous updates—facilitating the tracking of liability.

Place the development of intelligent software with potential criminal implications under a licensing regime similar to that applied in high-risk industries such as nuclear materials.

Adopt a binding international convention to create a unified legal framework for the liability of intelligent robots and establish a specialized international judicial body to handle disputes related to robots.

Include educational courses on ethical and legal responsibility in the development of intelligent robots in university curricula for law and engineering students.

Develop the definition of criminal intent to encompass acts resulting from intelligent systems, considering that these systems make decisions independently and without human intervention, and create a new classification for autonomous acts of artificial intelligence that are formally recognized and distinguished from traditional classifications.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

Acknowledgments

Authors thank all who helped us through this study.

Conflict of Interest

The authors report no conflict of interest.

Funding/Financial Support

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