THE SYSTEM OF SMART ROBOTS AND THE ISSUES IT RAISES WITHIN THE SCOPE OF CRIMINAL LIABILITY

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Abstract

This study aims to shed light on the nature of smart robots, determine their legal nature and legal personality, explore the possibility of adapting and applying traditional criminal liability provisions to crimes that smart robots may commit, and examine the issues that the system of smart robots may raise within the scope of criminal liability. It also attempts to establish and analyse the conceptual framework of robots as one of the advanced artificial intelligence systems, highlighting the position of existing criminal legislation and its adequacy to incorporate the crimes that smart robots may commit during their direct interaction with humans. The study concluded that it is impossible to apply criminal liability provisions to crimes hypothetically committed by smart robots, whether by assigning criminal liability directly to the robots or by assigning liability to others, whether natural or legal persons, for crimes committed by the smart robots. In light of this legislative gap, the study presented a set of recommendations, most notably the necessity for the criminal legislator to intervene and establish special legal provisions related to assigning criminal liability to others for crimes committed by artificial intelligence.

Keywords: Smart Robots, Artificial Intelligence, Criminal liability, Legal Personality, Self-learning, Deep Learning

INTRODUCTION

Robots are no longer confined to science fiction literature and cinema movies but have entered our real world and directly interacted with humans. Due to the technological development humanity has never witnessed, artificial intelligence (AI) systems have reached advanced levels that almost mimic human intelligence, combining human intelligence with machine power. Among the creations of artificial intelligence are smart robot systems that mimic humans in their appearance and essence, participate in social life and engage in direct interaction with humans in various vital sectors such as industries, medicine, services, entertainment, military, judicial, and others.

Despite the positive features and great services that robot systems can provide in the social and human aspects, it is not immune to making mistakes. It is conceivable that they may perform actions that match criminal models, especially unintended ones. Therefore, this study aimed to examine the adequacy of criminal law rules in addressing and regulating crimes resulting from the actions of smart robot systems.

Study Importance

The importance of this paper lies in its review of the legal principles and theories enshrined in criminal legislation, particularly in criminal liability, and assessing their suitability to confront potential crimes that smart robot systems may commit. This is especially important given that international trends and some legal studies have focused on exploring the civil liability of artificial intelligence systems without criminal liability. In addition, there is a lack of legislative regulation related to smart robots in most criminal legal systems, leading to a lack of judicial application and a scarcity of legal research on this topic.

Study Goals

This study attempts to establish the intelligent Robot's conceptual framework as an advanced artificial intelligence system and highlight existing criminal legislation's position and their adequacy to accommodate potential crimes that smart robots may commit while directly interacting with humans.

Study Methodology

Given the legal nature of this study, the researchers adopted three approaches: The descriptive approach to identify the conceptual framework of advanced intelligent systems, especially the robot systems. The analytical method to analyses general and specific legal provisions for determining legal personality and criminal liability. In addition to the comparative methodology, by comparing several legislations and jurisprudential trends, whether in the context of general or specific provisions laid down to regulate criminal liability nationally, regionally and internationally within the scope of this study. This study is considered a prospective study for legal studies in regulating the activity of artificial intelligence systems, particularly the intelligent robot system.

Study Problem: The main problem of this study lies in determining the legal nature of the smart robots and the extent to which the legal principles and theories enshrined in criminal legislation are suitable for addressing the potential crimes committed by this type of artificial intelligence system, and the possibility of applying legal rules in assigning criminal responsibility.

This problem raises many questions, including:

1. What is the possibility of defining the concept of a smart robot, especially with the multiplicity and diversity of advanced intelligent systems?

2. To what extent can a robot be considered to have a unique personality and nature that distinguishes it from other creatures and inventions according to the applicable legal standards?

3. To what extent can smart robots be expected to commit crimes according to the principle of criminal legitimacy and applicable criminalisation provisions?

4. To what extent is it possible to directly assign criminal responsibility to a smart robot under the applicable rules for assigning criminal responsibility?

5. To what extent can another legal personality be held responsible for the criminal liability of crimes that are hypothetically committed by a smart robot in light of the applicable rules of criminal liability?

6. To what extent can criminal penalties be imposed on a smart robot if it commits a crime under the applicable criminal penalty provisions?

These issues will be discussed in two sections: The first addresses the conceptual framework of smart robots, and the second deals with the criminal responsibility for the crimes of smart robots.

Section One

The Conceptual Framework of Smart Robot

1. The concept of artificial intelligence:

What is Artificial intelligence? As Kaplan says, "This is an easy question to ask but a difficult one to answer. [1]" It is a question that seems simple but is actually mysterious for many reasons, perhaps the most important of which is the philosophical, technical, and legal debate over the nature of the science to which Artificial intelligence belongs [2] and the nature of Artificial intelligence itself. Nonetheless, many definitions of artificial intelligence have emerged from diverse perspectives.

The idea of artificial intelligence dates back to 1942 when American science fiction writer Isaac Asimov published his short story "Runaround" about a robot developed by two engineers. It was the first explicit appearance of the Three Laws of Robotics. At the same time, the English mathematician Alan Turing developed a code-breaking machine called "The Bombe, "s used by the German army in World War I. This machine is considered the first electromechanical computer. About six years later, the word artificial intelligence was officially coined when Marvin Minsky and John McCarthy hosted the nearly eight-week Dartmon Summer Project on Artificial Intelligence Research (DSRPAI) in New Hampshire. This initiative is considered the beginning of the prosperity of artificial intelligence, which aimed to bring together researchers from various fields to create a new field of research aimed at building machines capable of

simulating human intelligence or examining the possibility of using computers in operations that can be described as intelligence [3].

The definition of artificial intelligence was up for debate. Some trends defined it as human thinking simulation, meaning imitating human thinking using the structure of a computer. This approach influenced the development of conventional artificial intelligence. The other trend characterises it as modelling the human brain's structure and function, creating electronic systems comparable to the human brain [4].

John McCarthy, the founding father of artificial intelligence, described it as: "making the machine think and reason like humans. [5]" Marvin Menskibaneh defines it as the study and design of intelligent systems in an independent way's while taking all necessary measures to achieve specific goals. It is the science that explores the theories and techniques used in creating machines capable of simulating human intelligence [6]. It is the science and engineering of smart machine makers, based on the study and design of smart systems that understand their environment and take measures that increase their chances of success [7].

The United Nations Commission on International Trade Law memorandum mentioned many definitions of artificial intelligence at its fifty-first session in 2018, but it did not gain universal acceptance. Generally speaking, artificial intelligence is the development of systems capable of solving problems and performing functions independently by simulating the mental process. Therefore, predicting these systems' work or results is unreasonable because they act as black boxes" [8].

Despite the variety of definitions of artificial intelligence, some studies contend that they all revolve around the idea that it is: "a branch of computer science that is concerned with studying and developing computer programs that exhibit some forms of intelligence to simulate human intelligence and understand many natural languages that are required for several skills, including decision-making [9].

By examining the previous definitions, we conclude that they do not attribute artificial intelligence to a specific field of science, which constitutes a problem in defining the concept. However, although artificial intelligence comes in various forms, each with its nature, traits, goals, framework, and working environment, these definitions treat it as a single, comparable system. In addition, if we look at the technical side, we also find that the previous definitions mix up the system of modelling the human mind (advanced systems) with the system of simulating human thinking (traditional systems).

The researcher assumes that to solve this issue and make the legal and criminal aspects of artificial intelligence clear, it is necessary to deal with each type of artificial intelligence system separately. This requires thoroughly examining each system to determine its nature, characteristics, objectives, system, and operating environment.

2. Smart Robot

A. Robots

The term "robot" was first coined by Karel ÿapek in his 1920 science fiction play R.U.R. The American author Isaac Asimov also referred to this word in his 1942 fiction I Robot, meaning a human servant or aid. He established three rules for robots, including obeying humans unless there is a dispute, not injuring humans, or keeping quiet about things that affect them. In addition, he must maintain or protect his survival as long as it does not clash with the first and second rules [10]. Since then, it was described as machines that accomplish varied degrees of automation, ranging from real-world things that can automatically conduct fairly complex operations to science fiction machines that can fulfil almost all human functions [11].

However, Robots can be described as machines that can detect their environment, process the data they accumulate, and take immediate action in response to that environment [12]. Balkin, on the other hand, has a broader perspective on robotics. He states it encompasses "material objects that interact with their environment, artificial intelligence agents, and machine learning algorithms." [13]

The American Institute defines it as a reprogrammable, multi-leverage manual manipulator designed to move materials, parts, tools, or special devices through various programmatic motions to perform various tasks. While the Japanese Federation of Industrial Robots defined it as a machine for all purposes, equipped with limbs and a memory device to perform a predetermined sequence of movement, it can rotate and replace the human factor utilizing automatic performance. Finally, it was defined as a self-programmed machine to perform specific actions. Robotics is the science of using artificial intelligence, computer science, and mechanical engineering to design machines that can be programmed to perform specific actions [14].

Robots have multiple applications, forms, and types that are difficult to address. However, what matters to this study is those robots that enter into direct contact with humans during the performance of their services and that are characterized by a high degree of independence away from human control [15], and this is what prompts us to investigate the nature of these intelligent entities which are known as Smart Robots.

B. The legal personality of Smart Robot

There is no doubt that the question of how to define the legal personality of the smart robot sparks intense debate in the legal field because figuring out an entity's legal personality is crucial to determining the extent of that entity's liability, whether civil or criminal. Therefore, we must first address the relationship between personality and human features before moving on to the legal personality of the robot [3]. If a natural person is the only one to possess the human trait, then the concept of personality is no longer limited to people because it has been enlarged to include any entity capable of exercising rights and obligations. Accordingly, whether an entity has a human character or not, it can be claimed that legal personality is conferred under the entity's legal recognition or approval.

In 2017, the European Parliament proposed a resolution with Robotics guidelines to create electronic personhood for "intelligent" robotic artefacts (European Union, 2017). It should be noted that the term "legal person" refers to an autonomous centre of legal relations. Legal personhood is ascribed based on the legal relationships between natural persons (human beings) and legal persons, such as corporations.

Calo (2015) identified three qualities of robots: embodiment, emergence, and social meaning. One of the key attributes of a robot is to be physically incorporated into the world, which enables it to coexist with people in the same physical environment [16]. There is no doubt that the intelligent social robot has a tangible physical existence, and it cannot in any way be considered a virtual existence, as it is like a human being. Still, it is not of blood and flesh and does not have the same tangible human nature. This raises the following questions: Is it possible to assign a legal personality to a robot? Does every tangible physical entity have a legal personality? In answering this question, it can be said that this issue is resolved by legal approval. If the legislator finds that this entity can be qualified to enjoy rights and obligations, it can grant it legal personality if necessary. Based on the fact that granting legal personality is imposed by reality, not mere assumption.

The idea of electronic personhood has been discussed in the context of the increasing sophistication of AI and robotics. Proponents argue that giving legal personality to intelligent machines could have many benefits, such as clarifying liability in case of accidents, facilitating intellectual property rights for AI-generated works, and ensuring that advanced AI systems are developed and used ethically.

However, there are also many challenges and ethical concerns associated with the concept of electronic personhoods, such as the potential for the exploitation of AI systems, the difficulty of defining the rights and responsibilities of non-human entities, and the question of whether machines can truly be held responsible for their actions [2].

Here, the question of what led the legislator to assign a legal personality to the smart robot arises.

The European Union (EU) has been actively exploring the development of a legal framework for robotics and artificial intelligence (AI) systems, including rules for civil law liability. In February 2017, the European Parliament adopted a resolution calling for developing such a legal framework. The resolution suggests that robots with advanced AI capabilities should be treated as "electronic persons" with certain legal rights and obligations. This concept implies that such systems can be granted legal status and be held accountable for their actions, similar to human beings.

Granting robots legal personality came within the framework of providing legal protection for such smart machines, in the sense that the position of the resolution rejects granting independent legal personality to these intelligent entities to provide a kind of specific legal protection that is compatible with the nature of this entity, as they can be given some rights without any obligations being charged to it [17].

Section Two: Criminal Liability for Smart Robot Crimes

Criminal liability is an obligation to bear the legal consequences resulting from the availability of the elements of the crime. The subject of this obligation is the criminal penalty in the form of punishment or a precautionary measure. [18]

Recent incidents demonstrate that robots have the capacity to injure people significantly on a physical, financial, and emotional level. For example, autonomous vehicles claimed their first fatality in 2016; automated trading is thought to have caused a recent stock market meltdown in the United States in 2018. Moreover, future more intelligent robots could endanger people and their property unanticipatedly as scientists advance in artificial intelligence and robots [19].

This fact raises the question: Can a smart robot be held responsible for the harm it causes? We see that the criminal liability of the smart robot should be discussed in terms of determining the extent to which it is possible to assign criminal responsibility to the smart robot if it commits or causes criminal acts such as murder, injury, and damage to the money of others. And also the extent of the possibility of assigning criminal liability to others for crimes committed by the smart robot.

A. Criminal liability of Smart Robot

Criminal liability is achieved if the perpetrator of the crime enjoyed consciousness and intentionality at the time of its commission. The Jordanian legislator explicitly stipulated this in Article (1/74) of the Jordanian Penal Code [20]. Intent and will are two basic elements that must be available to establish criminal liability [21].

Criminal liability is of two types: punitive and precautionary. It is originally imposed on natural persons because the basis for its imposition is consciousness and will, so there is no room for imposing it except on man. Punitive criminal liability aims to punish the offender for wrongdoing and deter others from committing similar crimes. Logically, only man can be deterred, and only he can commit a wrongful act "mistake." Wrongful acts cannot be assigned to animals, inanimate objects, or even the insane [22].

Consciousness or discernment means recognising the act, its nature and its consequences. This ability extends to the materiality's of the act, so it relates to its nature and elements, as well as to its effects and the risks that result from it. In contrast, willingness or freedom of choice refers to the offender's capacity to choose the course he will take or the conduct he follows. These attributes only exist in a living person [23].

As an exception to the previous general principle, which stipulates that criminal liability is only assigned to the natural person, most punitive legislations have recognized the criminal liability of a legal person. These legislations adopted the theory of truth that considers a legal person a real entity, not just a metaphor. This means the legal person who works on his behalf possesses the will. Therefore, if the legislator admits the legal person's real will, he can be held criminally liable. However, given the legal person's nature, the legislator confined the penalty to financial fines and confiscation, sufficient to cause the required suffering. [24].

In light of the aforementioned, and if we discuss the potential application of liability provisions following the punitive legislation currently in effect on smart robots, it becomes clear that it is impossible to adapt them to the nature of their application on smart robots because no matter how advanced the technical progress in the production of smart robots, it can not have the elements of consciousness and will. Therefore, existing criminal liability requirements cannot be applied to any entity, regardless of its nature or level of development, according to the well-established approach, since criminal responsibility can only be ascribed to a human being.

And let's examine the exception that permitted the legal person to be criminally questioned to determine whether or not its provisions can be applied to the intelligent ro. It is obvious that they cannot be applied because accepting this responsibility toward the intelligent robot presumes the acceptance of his will. This is impossible as no robot representatives are operating on its behalf and no source of intelligence from which an intelligent robot may draw its will.

B. Criminal liability of third parties for the acts of a smart robot:

The fundamental legal foundation governing criminal liability is that it is personal and rests with individuals who committed or assisted in committing the crime. The principles of individual punishment and individual responsibility are fundamental because they are the cornerstone of the legal regulation of criminal liability and punishment, in contrast to civil liability, where vicarious liability is recognized under the doctrine of respondent superior, which holds an employer legally responsible for the wrongful acts of his employee. In criminal law, there is no recognition of presumed error. Instead, the person proven to have committed the wrongful act or to whom the wrongful act is attributed is held criminally responsible [25].

As for the exception to this general rule, there is no provision for it in the general provisions of penal legislation, including the Jordanian Penal Code. Except for what was mentioned by the legislator in Article (78) [26] of the Jordanian Penal Code regarding the responsibility of the editor-in-chief for what is published in his newspaper.

In criminal culpability, new issues have developed with the evolution of the legal system in the context of economic crimes; the notion of responsibility for the actions of others, "vicarious liability", first appeared. Article (19) of the Jordanian Supply Law of 1988 stipulates that the business owner, the manager or the person in charge are responsible for all violations of the provisions of this law that occur in the business and shall be punished with the penalty prescribed for it. Article (347) of the Jordanian Customs Law stipulates that customs brokers are fully responsible for violations and smuggling crimes committed by their authorized employees. Article (234) of the same law considered owners of the means of transport used for smuggling, drivers and assistants responsible for the crime of smuggling.

Based on those mentioned above, it is clear that criminal responsibility for the act of others is not established unless the third party is a natural person, that is, a human being. And that the correct interpretation of criminal responsibility for the act of others is that it is a hypothetical responsibility that comes from legislation, and the only justification for this responsibility is the intervention of the legislator in the narrowest limits by singling out special texts that determine this responsibility. [27]We see that the legislator did not take into account the idea of

penal responsibility for the actions of others as an integrated legal system organized according to general legal provisions. Rather, it was necessary to assign criminal responsibility to others in special cases, to which the legislator singled out specific legal texts which could not be adopted for all cases.

It is obvious that it is impossible in any way to hold third parties responsible for the conduct of artificial intelligence entities, particularly smart robots. This is because, to be held criminally culpable, the offender must possess a natural personality. On the other hand, a specific legal provision must permit third parties to be held accountable for what Smart robots did. Regarding the legal responsibility for the machine's actions, we discover that it is applied within the parameters of civil law. Regarding criminal law, the legislator didn't consider this responsibility. However, when we look at the legal rules of criminal responsibility, it becomes clear that most punitive legislations do not set regulations for criminal responsibility regarding crimes caused by machines.

In actuality, intelligent machines can be produced, programmed, marketed, and purchased. However, no matter how technologically advanced they are, they are categorized as a "thing" (the machine). However, some contemporary jurisprudential trends believe that artificial intelligence entities have a special nature, and this nature requires recognition of their legal personality. Therefore, regulations must be put in place to hold them criminally responsible because these intelligent entities have become capable of self-learning and are able to make appropriate decisions at the right time by processing a huge amount of data quickly so that the robot can have an independent reaction from its manufacturer or owner [28].

The previous trend is based on several arguments, including the inevitable lack of correlation between human status and legal personality. Legal personality is a pure legal idea related to the extent to which it is possible to enjoy rights and assume obligations. They argue that the criminal law recognises the legal personality of a legal person. And if it is acceptable to recognise the robot's eligibility to acquire rights and assume obligations, and to recognise it as a legal personality, then it can be legally questioned. Especially in light of the replacement of artificial perception in place of human perception [29].

Concerning the criminal liability of smart robots, we see that the existing legal rules that regulate criminal liability and are currently in force cannot be established or adapted to apply to artificial intelligence entities in general and to smart robots in particular. As a result, it is illogical to recognise the legal personality of the smart robot to hold it or others criminally responsible for the crimes it may commit.

The researcher believes that technological advancements, particularly artificial intelligence and super-intelligent machines that mimic human intelligence, have developed the AI capacity for self-learning, deep and enhanced learning, and direct learning from the environment without human intervention. As a result, smart robots can now make independent decisions based on information from their environment. However, it is also conceivable that these entities and smart robots, purposefully or unintentionally, could commit crimes that violate the safeguarded legal rights and interests. Therefore, the legislator must adopt a contemporary approach as a

proactive step to establish criminal liability for crimes perceived to be committed by artificial intelligence entities by recognizing the criminal responsibility of the natural person for the crimes of the smart machine under their supervision. As well as recognizing the responsibility of the legal person based on the defect in artificial intelligence products, taking into account the nature of these intelligent entities when assessing the criminal penalty.

CONCLUSION

After discussing the conceptual framework of the smart robot, examining the criminal responsibility for the crimes of the smart robot and highlighting the most important problems raised by this smart system in the scope of legal personality and criminal responsibility, the study concluded with a set of results and recommendations that we describe as follows:

According to the existing legislation, the legal personality is for the human being, and this is a general principle. The exception is the granting of legal personality to a legal person. Therefore, it can be asserted that the smart robot does not have a legal personality under the applicable legislation because it can not have the capacity to acquire rights and assume obligations.

According to the current penal code, consciousness (discrimination) and will (freedom of choice) are the foundation for criminal culpability. In humans, these two components are present. However, according to this method, the smart robot does not have both elements, which form the basis for determining criminal liability. He cannot be held responsible as a result.

An intelligent robot is classified by nature within the term "things" that are by their nature subject to legal use and conduct. Since the penal legislation in force does not recognise the criminal liability of third parties for crimes of objects and machines, the provisions of penal liability cannot be applied to a smart robot or its manufacturer, owner, or programmer.

Since the smart robot can simulate human intelligence through direct learning from the surrounding environment without human intervention and is able to make decisions independently, these entities and smart machines can commit crimes that constitute an assault on the rights and interests protected under the law, whether intentionally or by mistake.

RECOMMENDATIONS

1. The necessity imposed by the reality of technical progress necessitates the recognition of the legal personality of the intelligent robot. Therefore, the legislator should abandon the traditional division of the legal personality (the natural person and the legal person) and adopt a modern legal system that recognizes the special subjectivity of the smart robot and grants the legal personality commensurate with its nature.

2. Because of the potential for robots to perform actions that conform to the legal model of crime, it has become necessary to amend the applicable punitive legislation which allows the application of responsibility for the actions of others for the crimes of the smart robot, whether the third party is a natural person or a legal person.

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