THE CRIMINAL RESPONSIBILITY OF ARTIFICIAL INTELLIGENCE SYSTEMS: A PROSPECTIVE ANALYTICAL STUDY

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Abstract

Undoubtedly that technological development, especially in artificial intelligence (AI), which is a wide-ranging branch of computer science, has a great impact on human behavior, and that pushed researchers to engage in this important field to answer the legal problems resulting from criminal behavior. The question here is: Does the robotics or AI programmer take the criminal liability of AI? Or, does AI have an independent legal personality as a new type called the electronic legal personality on which criminal responsibility depends? The question is still confused about the expected criminal penalty that will fit this new legal personality of AI. We also address the criminal liability of the maker, programmer, user, and designer for the work of AI and robotics, we will try to review the legal framework to regulate the relationship between humans and AI (robots) as follows: the regular laws of using AI, and the criminal and civil liability of AI actions. This is in order to finally come up with a new theory related to the criminal liability of AI related to giving the electronic legal personality to AI to bear civil and criminal responsibility for its actions, which is outside the scope of responsibility of the manufacturer, programmer, user, and owner of these smart systems. The studies cover issues in topics related to determining criminal responsibility for the actions of AI, practical applications, and the most important legal problems they raise, in light of the electronic legal personality of AI.

Keywords: Criminal Law, Economics of Crime, Cybercrime, Crime Prevention, Artificial Intelligence Crimes, Criminal Liability of Robots

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1. INTRODUCTION

The successive technological and information development has made people move speedily from the information technology (IT) era in which the criminal commits the crime using the computer, to the data (DT) era which is analyzed through programs and information to commit data crimes. Now, artificial intelligence (AI) is the era of AI crimes and killer robots, which is a new criminal phenomenon committed by unknown criminals through AI systems and robots (Sukhodolov et al., 2020).

AI, regardless of its accuracy and development nowadays, is expected that it will make mistakes and commit crimes. It can reach an advanced stage of consciousness that makes AI capable of emotional awareness (Al-Qusi, 2018), which drives it to do hostile actions that harm others. While developing autonomous systems that have AI, we must take into account the importance of preserving human rights and the benefit of users, so that priority is given to increasing human welfare and creating ethical standards for AI systems (IEEE SA, 2016[1]).

[1] A program of the Society of Electrical and Electronic Engineers, and the initiative provides an opportunity to bring together multiple experiences in science, technology and related scientific communities to identify and create consensus on science and technology issues in a timely manner, issued on December 13.

AI raises many legal inquiries; in the beginning, it is necessary to clarify what AI is. What are its types? And what is the legal adaptation of AI? Then the question arises about who is criminally asked about the work of AI, do the robotics engineer, programmer, operator, and user have a role in this criminal responsibility? Or does AI assume the consequences of its criminal actions alone?

There are many inquiries about the applicable law to the criminal actions of AI. Can we refer to the general rules of criminal law to apply them to the work of AI? Or is it not appropriate to face this development in the criminality of AI? Therefore, we need special laws to face the actions of AI that are suitable for its unique nature and the developments of the new era (Baldwin, 2019).

There are many inquiries about the types of committed crimes by AI and robots. After the development of the criminal law in the rules of criminal liability of the legal person, do we consider the AI criminally responsible for its actions under those rules (the criminal liability of the legal person)? For example, the self-driving cars that have been used will be expanded on a large scale in the coming years.

The self-driving cars make you go in the streets of cities for the first time without a driver. If this car crashes into someone and makes him dead, who will be responsible: the company that produces the car, the AI, or the user?

If we admit the criminal liability of AI, what is the criminal penalty that we can apply to AI systems, and does the extent of its proportionality with the naturalness differ from the penalty that can apply to the normal person?

The research questions of the study are as follows:

RQ1: What is the legal framework for the work of AI?

RQ2: Who asks about AI behaviors?

RQ3: Does AI have a legal personality?

RQ4: What are the appropriate measures and penalties for AI?

The remainder of this paper is structured as follows: Section 2 reviews the related literature. Section 3 provides the research methodology. Section 4 discusses the research findings. Section 5 concludes the paper.

2. LITERATURE REVIEW

The subject of criminal responsibility for the creation of AI is one of the modern subjects that have been recently raised by jurisprudence, and the last research studies were divided into many laws, namely: The foremost trend. It is the traditional movement that went to the fact that AI cannot bear criminal responsibility at all but asks the factory, programmer, designer, operator, or user, about what happened to him/her, whether it was intentional or by mistake. The second trend. The modern trend has been divided into two parts. The first part puts forward the theory of the machine or AI on behalf of the human being, and thus the person bears criminal responsibility for all the errors of AI in the light of the rules of civil responsibility. The second part proposes a good theory related to AI bearing criminal responsibility for its actions in granting it an electronic legal character similar to the legal personality of a legal person, and this trend is what it supports and deals with in research with all legal suggestions and perceptions (Dongmei & Olkhovik, 2022).

The question also arises about what precautionary measures and penalties are appropriate to the personality of AI and robots, which can be imposed on artificial intelligence (Abbott & Sarch, 2019), in light of the assumption that artificial intelligence systems have electronic legal personality, and whether in this case, we need a change in the traditional theories related to the purposes of punishment for traditional criminals (Forest, 2019).

3. RESEARCH METHODOLOGY

This study will depend on the descriptive and analytical approach by describing the ideas and proposing the possibilities of AI systems and robots. Then the study will analyze the legal situation, whether at the international or regional level to get the logic of the optimal law for the application. It is by providing a legal conclusion to apply to the theories that govern AI systems and robotics, and our evaluation of what is proposed by the jurisprudence and comparative judiciary, in the European Union countries, especially France, and the Arab countries, Egypt in particular. This study is considered a prospective study for the future of legal studies in legalizing the work of AI systems and robots. In this study, we encountered many difficulties related to the novelty of the subject, as it is one of the new subjects in the field of criminal responsibility, in which legal and specialized references are scarce. Likewise, the field of AI is one of the rapidly developing fields that require extensive and continuous knowledge of all the successive and rapid developments.

4. DISCUSSION

4.1. The criminal liability perceptions of AI actions

There is no doubt that developing a legal framework to regulate the relationship between humans, robots, and machines that operate with the AI system is one of the most important topics that will interest researchers in the coming years, especially with the increasing use of robots and AI systems in all areas of life. This field raises many legal questions about the extent to which robots and AI may be asked criminally about their committed actions outside the control of the programmer, robotics engineer, operator, and user of robots and AI systems. Also, what is the criminal penalty that can be expected of robots and AI so that it is commensurate with its nature and at the same time it fulfills the purposes of criminal punishment, which in this case needs another view compatible with this technological development in AI?

In this topic, we will try to review the legal framework to regulate the relationship between humans and AI (robots) as follows:

- The regular laws of using AI.
- The criminal and civil liability of AI actions.

4.1.1. The nature of the responsible person for the actions of AI and robots

In civil law, the traditional jurisprudential trend goes into determining the person who is responsible for the actions of AI and robots considering the liability of dangerous things, which is here the dangerous mechanical with the assumption of error. As its owner is a guardian of things, the burden of supposed error falls just like the car owner.

As for the recent trend in civil law jurisprudence, it appeared with the approval of the new rules in the civil law of robotics that is issued by the European Parliament on February 16, 2017. The European project developed a new theory for determining civil liability for the actions of AI and robots under the name of the deputy human. This is to determine the liability for compensation of damage caused by operating robots and AI systems based on error and the proofs of the deputy human who may be a robotics engineer, operator, owner, or user of robots and AI systems (Al-Qusi, 2018). It concludes that the civil liability for operating robots and AI systems on a group of people is according to the extent of their error in its manufacturing or exploitation and the extent of their passivity in avoiding the expected behavior of robots and AI systems, without assuming errors and considering robots or AI systems as anything.

It is clear that the European project has imposed the theory of the deputy human in charge of robots and artificial intelligence. This is to transfer liability for the actions of AI systems and robots to the person who represents him. He will assume full responsibility for compensating the injured by the force of law. The more robots and AI systems are independent, the more the liability of a person is lost, whether he/she is a robotics engineer, owner, operator, or user.

We think that the theory of the deputy human by the European project is a transitional stage between the liability for guarding things or supervising the person lacking capacity with the supposed error, to the liability from robots to the human based on either the error and the duty of proof in the factory's management, operation or avoiding an expected dangerous accident from robots and AI systems because (European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics, Sections AA., AB., AD.):

1) Robots and AI systems are no longer a guarded thing or a person of minor capacity amenable to court oversight.

2) Robots and AI systems are intelligent machines that are independent in thinking about humans, and therefore autonomous.

The examples of the deputy human in charge of robots and AI systems are:

Factory owner: The factory owner is asked about the faults of robots and AI systems resulting from poor manufacturing that lead to the commission of the crime. For example, the smart devices that are responsible for wrong moving the patient that exacerbated his/her health condition or the negligence of the robotics engineer of smart machines for maintenance of what he/she is producing. Injuries to operators in these examples, the operator, the user, or the worker are not asked because it is a manufacturing fault.

Operator: The operator means the person who exploits robots and AI systems, for example, the driver of a self-driving car, unmanned aircraft systems (UAS) operator, and AI systems operator in homes such as service robots, etc.

Owner: It means the person who operates robots and AI systems to serve his/her clients, for example, the doctor who owns a hospital uses the robot medically to perform surgeries. If they expect that robots pose a risk to patient safety, and despite this, he used them without precaution to prevent this danger. The Belgian jurisprudence cares about the idea of limited liability for the owner of robots and AI systems with an independent decision. The owner is held accountable within the limits of the robots' value without referring to his full financial liability to limit the risks of operating the robot and AI systems in the value of this investment (De Schrijver, 2018).

User: It means the dependent person who uses robots and AI systems other than the owner or operator, and who is responsible for the behavior of robots and AI systems that may harm people. The user may benefit from robots and AI systems, such as who uses an autonomous vehicle to issue the wrong order resulting in a crime (Almonte v. Averna Vision & Robotics, Inc., 2015), or the professional operator may take a human user to use the robot as his/her assistant.

4.1.2. The legal status of AI and robots

To determine the nature of the legal rules for robots and AI systems that govern the relationship between robots and AI systems and humans. The need arises according to the rapid development of these systems to adapt this relationship because it is between two beings and not between an object and a subject to deprived personality and eligibility, as in the guardian's theory of things. This is what reality now imposes, and what will inevitably deepen in it soon.

4.1.3. The legal perceptions of determining the criminal liability for the actions of AI systems and robots

There are many legal perceptions to deal with criminal liability for actions of AI.

The first perception: AI is intentionally programmed to commit crimes, such as UAS and military robots (Binder, 2016). It is clear that there is a person who controls this AI. He/she is the one, who assumes criminal liability according to the rules of responsibility of the moral actor, and he/she is the person who exploits others deprived of the will or awareness in committing the crime therefore he/she alone is the one who is criminally responsible for his criminal behavior. The availability of criminal intent with its two elements of knowledge and will has proven that whoever used AI systems and robots was aware of committing the criminal behavior that made up this crime, i.e., on prior knowledge that using these smart systems and robots would lead to harm others and commit criminal behavior. In addition, his/her conscious free will tended to commit criminal behavior and achieve the criminal result, and these intelligent systems and robots were

subject to the full will of man at the moment of committing the criminal behavior that made up the crime.

The second perception: AI and robots commit criminal behaviors because of a malfunction in their operating system, or negligence in maintenance (Müller, 2014). It is one of the most common cases in relation to risk management and due diligence in the AI programming system. Here, the programmer and the institution through which the AI system operates bear criminal responsibility for the criminal behavior that has been committed by the defect in the programming of the AI system, considering the criminal responsibility for the error resulted from negligence in taking the precautions required by law and caution against potential risks. Negligence in the manufacture or use of robots and AI systems arranges the unintentional liability of the robotics engineer, programmer, operator, or user, each according to their powers.

The third perception: If AI commits criminal behavior based on its own development (Čerka et al., 2017), relying on AI capable of self-development without interference from the natural person (programmer).

It is easy for AI systems to independently adopt wrong standards and rules. There will be criminal behavior such as defamation crimes on the Internet or entering the financial and stock markets and violating their laws. The breach of privacy and misuse of electronic personal data can be seen in other criminal images. The question arises about the possibility of AI bearing criminal responsibility for these criminal actions. However, this raises the problem of attributing crime to AI considering the theory of assuming human free will as a basis for the traditional theory of criminal responsibility. Besides the principle of criminal personality (that is, to ask criminally the person who committed the criminal behavior).

To answer this question, it must be clarified that criminal responsibility is based on the principle of freedom of will and knowledge, meaning that free will has AI in its actions entails its criminal responsibility for these actions if they make up a crime punishable by law. In addition, the crime can be attributed to AI (robots) based on the context of social interaction as an evolution of the principle of criminal responsibility, which was based on free will only (Geisler, 1998), in addition, criminal responsibility requires awareness and consciousness. Does AI have the awareness to bear criminal responsibility for its criminal actions?

Finally, the proposal of the electronic personality theory as a basis for criminal liability for actions of AI.

The law forms the legal persons who do not have an actual or realistic existence for practical and legal purposes. This is under the term legal persons and thus recognizes some rights that are originally attributed to natural persons, and it recognizes their legal responsibility, whether they are criminal or civil for their actions committed in violation of the law.

The recognition of the legal personality of robots and AI systems depends mainly on the automatic, not human, approach that gives them in the end the ability to develop and make them independent from humans, and then they become able to bear civil and criminal responsibility for their criminal actions. Result from the various activities that you undertake, where AI systems and robots move from being limited to helping humans without a will, to the legal existence of an electronic personality who contributes to society in partnership with humans, and thus these smart systems will interact with their environments and learn from their personal experiences unattended, which creates fears of the possibility of committing crimes, e.g., robots capable of forging an electronic signature and carrying out cyber-attacks, and electronic media disinformation, under the Internet of Things system, which is intended as a system that links smart things together, so they send information and data to each other so that a collective circle automates that can make a circle A complete process is an example of this is the automotive production system with intelligent robots (Oliveira, 2016).

We can measure the criminal liability that is based on the corporate legal person, as a basis for determining the criminal liability of artificial intelligence. The proposal of criminal responsibility for the actions of AI according to the concept of a digital legal personality, a legal personality for AI as a basis for criminal responsibility for its criminal actions.

This proposal raises a jurisprudential debate about the possibility of AI having a legal personality similar to the legal personality of companies, and it can base this on a set of the following legal arguments:

The granting of legal personality to AI is for the principle of suitability or legal necessity (Bellia, 2001). The rapid and successive development of AI in its capabilities to act with awareness and independence entails actions that represent a violation of the law, which requires the legislator to find a solution to confront the new criminal phenomenon that takes place through AI systems and robots.

Granting the legal personality of AI solves all legal problems resulting from the actions of AI and robots, which possess the capacity of awareness similar to human consciousness, and thus bear criminal and civil responsibility for the consequences of these actions that break the law.

The future development of AI systems imposes the inevitability of these systems have an independent legal personality due to the multi-faceted nature and applications of AI systems, especially as no human has done anything wrong that specifically resulted in harm or expected harm. Emphasizing this, Karnow (1996) said that just as we are not responsible for the consequences of the unexpected anomalous or defective actions of the human agent, humans should also be exempt from the unexpected consequences of AI imbalances. Granting the legal personality to AI provides a kind of insurance and protection for its use if there is an error from the AI systems and robots, so they bear alone because of their actions. However, it is not understood from this that the users of these systems that have AI are not responsible for the results of the expected or potential errors and consequences of their actions while using these systems that have AI as long as they could prevent potential harm or danger and did not do so.

One aspect of jurisprudence has gone as far as granting AI a legal personality like the rest of the legal persons, with some disagreement about the details of this legal personality (Chpora & White, 2009).

The legal personality of AI can be divided into two parts, the first section in which the AI enjoys a full and independent legal personality, and the second part of it in which the AI has a legal personality dependent or under the tutelage of another person, and thus concludes this trend of jurisprudence to say that AI has a legal person but he/she is not fully qualified but is deficient. However, this trend of jurisprudence is subject to criticism because it confuses legal capacity and legal personality. The minor does not have full performance capacity but has a legal personality therefore, it can be said that AI has a legal personality, but not complete.

As for the other trend in jurisprudence, it criticized granting the legal personality to AI compared to granting legal person to companies, but the question posed about who represents the legal personality of AI. It is known that a legal person needs a natural person who represents him/her, as he/she does not have an existence, and such a perception is not possible for the legal personality of AI, because of its special nature and the environment in which it exists, in implementation of this, the Kuwaiti Court of Cassation ruled that any group of funds that the law did not admit this personality not considered a financial liability independent of the financial liability of its owner (Kuwaiti Court of Cassation, 2005). The owner or owner of robots and AI systems is asked about these crimes.

There are inquiries about who is the normal person who represents the legal person for AI, especially considering the AI systems that allow more than one person to use at the same time. What is the law that should be applied in terms of location for crimes of AI systems? Because of saying that AI has a legal personality, this personality must have a specific domicile or place of residence, so where is the home of the legal personality of AI (De Miglio et al., 2002)? However, we can respond to that by saying that it is possible to locate the legal personality of AI by organizing a specific form of registration compared to the registration of companies in the legal personality. Therefore, it imposes a set of legal procedures to register the legal personality of AI, and determining who represents the legal personality of AI from natural persons before the law, as for the director of the company who represents it in the procedures before the law.

The French jurist Bourcier said that the law must protect individuals from AI systems and robots, and therefore the human being as a guardian of the robot and AI systems bears any damage resulting from their supposed operation without the need to prove the error (Pagallo, 2013). This trend is supported by the judgment of the French Court of Cassation issued in 2018, which ruled that robots respond to e-mail messages as just an information computer program, without granting it any representative capacity for its operator, i.e., just a means or tool that contributes to the flow of data in the digital space in the service of public needs it is a tool in committing the crime (Cornu, 2014). This provision is based on what was stipulated in the United Nations Convention on Electronic Communications in International Contracts, Article 12 thereof, which was stated in the explanatory memorandum issued by the United Nations Commission on International Trade Law (UNCITRAL) Secretariat on the general principle of this article, which stated in its content that any natural person or legal entity who has programmed the computer must be held accountable, to act on his/her behalf, for the act of any message issued by this device (UNCITRAL, 2005). This principle is consistent with what it settled on ensure that the owner of the tool is responsible for it and for the consequences of using it (Pagallo, 2013), as long as it does not have a will independent of its owner.

Despite this, the French jurist Bourcier said that the transition from AI to the virtual person, and thus the ability of AI systems and robots to carry out many of the tasks that humans do in a way that mimics human intelligence has become a reality (Pagallo, 2013). The electronic or digital legal personality through which robots and AI systems assume obligations and gain rights — it is, in fact — a set of rights and duties, and the content of these concludes the criminal responsibility of robots and AI systems.

By applying the above mentioned, killer robots are automatic weapon systems, you can operate them and select targets and engage with no additional intervention from the human component that operates them, independently of the choice of target and the use of lethal force[2], and autonomous cars.

4.2. Applications of AI systems that raise legal questions about criminal responsibility

AI systems have many applications that have become present in our world now, and among these applications are self-driving cars, robots, drones, etc. AI systems are used in treatment, AI systems and robots are used in the industrial field and other smart systems are included in all fields of life.

4.2.1. Self-driving car application and legal questions about criminal liability

Humans must control the development of AI systems that simulate humans in terms of autonomy and the ability to perform intellectual tasks. A self-driving car is known as an AI system that enables the machine to behave like a human, without relying on a human to drive the car[3]. By the year 2023, we will find that self-driving cars are moving within urban neighborhoods — thus if this self-driving car commits a traffic offense that causes the injury or death of a person, who is responsible for these crimes? The question also arises about how far an AI system can hold criminal responsibility for its actions.

According to the French legislator, it was stipulated in Law No. 992-2015 issued on August 17, 2015, that it requires a driver in the practical

[2] See definition of the attribution of criminal responsibility primarily to military personnel at Human Rights Watch, https://www.hrw.org/
[3] See Human Rights Watch, https://www.hrw.org/

controls of the test-drive of the vehicle[4]. However, because of the emergence of self-driving cars, the Vienna Convention on Traffic issued on November 8, 1968, amended according to Article 8 of March 23, 2016, which explicitly permits licensing of automatic driving systems for cars on the streets, but on the condition that they comply with United Nations rules and that humans remain in control. On these, self-driving cars or at least humans can deactivate them, according to the United Nations Economic Commission.

Since they base the crime on the principle of personal responsibility stipulated in Article 121-1 of the French Penal Code, the purpose of the self-driving car is to act in place of a human being, with no one in the cockpit. The claim of responsibility for guarding things is not acceptable in criminal law. (Owner — operator — designer — programmer — robotics engineer of self-driving cars) as a basis for criminal liability for crimes of self-driving cars.

4.2.2. The criminal liability for the crimes of the self-driving car

To determine the criminal liability for the crimes of the self-driving car, it must make a distinction between traffic offenses, murders, and accidental injuries resulting from the actions of the self-driving car:

1) Traffic offenses for autonomous car traffic: Article L. 121-3 of the French Traffic Law states that the owner of the vehicle license pays fines for traffic offenses in the event of violating the maximum permitted speeds. It bases the liability here on the supposed error, and therefore with the self-driving car, the responsibility for paying the fine is without recording it in his/her criminal record. In addition, they do not deduct from the driving license points, meaning the obligation to pay does not result in any of the consequences of pronouncing a criminal conviction.

2) Murders and unintentional injuries: To determine criminal responsibility for the actions of a self-driving car that is a problem of homicide and unintentional injuries. We depend on a criterion to what extent the autonomous car depends entirely on AI in operation, and control and accordingly with the first hypothesis that the driver cannot hold responsibility, because he/she cannot regain control of this car. As for the second hypothesis, if the driver of the self-driving car can control and act, we distinguish between two cases:

The first case is failure to act for a direct cause, and the person who carried out or helped in the existence of the behavior that led to the damage or who required by law to do an action but refrained from taking an action to avoid them[5]).

The second case is failure to act due to an indirect reason, for example, the mechanic who leaves the car to be repaired defective. The judiciary in this case has discretion whether the driver considers his/her action direct or indirect because the operator or the driver is responsible as a perpetrator in the vehicle over which he/she has full control but with indirect behavior, he/she was not asked unless it was proved that there is misconduct committed by the driver or operator.

The French legislator states that misconduct has two types: The first type is intentional misconduct, which means an intentional violation of a specific duty of care and security stipulated in the law and regulations, and this type cannot apply to the driver unless there is a specific obligation on him. The second type is unintentional misconduct, the distinctive mistake that shows recklessness, lack of precaution, and caution that exposes others to a certain risk that the perpetrator could not correct.

As force majeure sometimes takes away the criminal liability of the driver or operator, the driver or operator must show force majeure. As for the faults resulting from failing to maintain the car, it cannot be considered as force majeure to deny criminal liability, as Article L. 311-1 of the French Traffic Law requires every driver to maintain his car from defects that cannot be discovered by himself. In the implementation of this, the French Court of Cassation ruled that the failure of the flashing lamp of the car resulting from the accidental presence of rainwater in controlling this device should not consider a justification for proving force majeure.

4.2.3. The criminal liability of robotics engineers' fault of driving cars

Designers and producers bear the crimes that occur because of the expected and potential risks of AI systems placed in the autonomous car, under Article 223-1 of the French Penal Code, and in this case, they are considered indirect representatives in the event of such crimes. If a crime occurs because of an autonomous car and there is no driver present, the designer or producer shall bear criminal responsibility according to the criminal responsibility of the legal person, and the person's responsibility for the things or their representatives (Bénéjat-Guerlin, 2016). If it injures the driver because of this, the criminal responsibility falls on the designer or the natural or legal person who owns or manufactures it.

Self-driving cars are classified into five levels according to how advanced AI systems are. Moreover, the current level of self-driving cars is the third level called the vehicle's accessory and in this case, the human driver does not always have to control the movement system but must be able to regain control of the car at any given time. The fifth level of the self-driving car eliminates any human interference with the control or driving of the self-driving car.

The question arises here when and how a human driver can control an autonomous car. On the other hand, when is it considered that he/she has taken the lead already? This is because the answer to this question determines the extent to which the human driver can hold accountable for crimes resulting from controlling or driving an autonomous car. Likewise Idrac (2018), the danger of over-confidence is associated with transferring responsibility for driving to smart systems and thus raising the criminal liability of AI.

Emphasizing the importance of this issue, the European Parliament adopted on February 20, 2019, decided on the European industrial policy related to AI in which it stressed the need to develop

[4] See Article R. 412-8 of the French Traffic Law, https://www.legifrance.gouv.fr /codes/texte_lc/LEGITEXT000006074228/

[5] See Article L. 121-3 of the French Traffic Law, https://www.legifrance.gouv.fr /codes/texte_lc/LEGITEXT000006074228/

a legal framework for AI systems and robots, based on the ethical principles of AI systems and robots, and the need to re-test current legislation accordingly. Periodically, to ensure their suitability for these developments according to the principle of organizing for better (d'Esclapon, 2019). Besides that, the commitment to protect the privacy of personal data from the risks of the business of AI systems and robots, all considering the commitment to the principle of AI systems and trustworthy robots, transparency and governance, and enabling humans to understand their actions considering responsibility and algorithms.

4.3. The criminal punishment for AI actions

The punishment for AI and robots for their criminal acts shall be commensurate with the robots and AI systems. AI should be asked within civil liability to compensate for the damages resulting from its actions that cause harm to others. As for the criminal penalty, the matter is different, as the basis for applying the punishment is to achieve special deterrence for the offender, and general deterrence for the rest of society, and to achieve justice for society and the victim by applying the punishment to the perpetrator, and thus difficulty arises about the extent of achieving the objectives of the criminal penalty applied to robots and AI systems.

Artificial awareness is related to the extent of AI's ability to sense the pain of punishment, as the point of punishment is to feel the pain of punishment in an amount equivalent to what happened to society and victims because of committing criminal behavior. Therefore, scientists are working to develop an AI so it feels pain, thus the punishment can apply to it, and examples of these punishments are as follows:

Financial fines: The financial penalty is one penalty that can apply to the legal person, and it is suitable to apply to the work of AI and robots according to the concept of the legal digital or electronic personality of AI.

Rehabilitation measures: The rehabilitation management of AI and robots is a measure compatible with intelligent robots (Cullen, 2013) which represents a change that can be achieved in the application of penalties and criminal measures on AI through the programming of the work systems of AI and robots so it returns to the fold of society again and does not commit any kind of criminal behavior in the future.

Blame measure: It is among the measures envisaged to apply to AI and robots (Simmler & Markwalder, 2018). Especially considering the development of artificial awareness, it becomes close to human consciousness, and thus the possibility of achieving the blame penalty for its application, especially if the electronic legal personality of AI and robots is considered a personality similar to the natural personality of the event.

5. CONCLUSION

As a result, we can say that the commission of the crime can be attributed to AI and robots, thus subjecting it to criminal responsibility, but criminal responsibility for the actions of AI requires the fulfillment of requirements, the most important of which is the extent to which AI has awareness. It bases this on the entropy of criminal responsibility that is based on a systemic function from a social point of view, which is to protect people from the dangers of robots and smart systems, which have the potential to destabilize society. This does not exempt the programmer from criminal liability for error or negligence in the AI work system if a crime occurred because of this negligence or error in the industry or programming. Thus suggesting the electronic legal personality of AI, so that AI systems and robots bear criminal and civil responsibility for their actions, if there is no error or intention on the part of the manufacturer, programmer, user, designer, or owner of these smart systems. Despite the risks of proposing this legal personality, which he/she tried to reject after jurisprudence, the practical need for the existence of a legal personality for AI similar to the legal personality is stronger than the evidence and arguments of those who reject it.

The importance of determining criminal responsibility for the actions of AI is due to the interference of AI systems in all aspects of life in the current era, and the successive technological development in the use of AI systems in self-driving cars, at work, and home, as a result of the high number of crimes committed using these smart systems. There was a need to establish a legal framework regulating the work of these smart systems and to determine criminal liability for them. Below a set of recommendations are provided as follows:

First, the independent electronic legal personality of AI, the need to develop a new conceptualization of a new legal personality similar to a legal person, in which AI systems and robots have the electronic legal personality in which they bear civil and criminal responsibility.

Second, smart measures and penalties (termination — lowering the level of AI — financial penalties — rehabilitation measures), the necessity of changing the purposes and kinds of criminal punishment to suit the naturalness of AI and robots, and it is suggested starting with financial penalties, rehabilitation measures, and blame and then expand penalties that achieve the essence of the new penalties that based on rehabilitation and reform more than pain and cruelty.

Third, work on amending legislation, especially civil and criminal, and intellectual property laws to accommodate recent developments in applications of AI systems and robots so that in the end it reaches the development of legal frameworks that regulate the work of these smart systems, starting from the manufacturing process, software, and design, and ending with its operation and use. Considering adherence to the principle of trustworthy AI systems and robots, transparency and governance, and enabling humans to understand their actions and the ability to control them.

Fourth, the need to adhere to protecting the privacy of electronic personal data, the personal data collected by AI systems must be secure and private, and access to it must not be available to anyone to protect the privacy of this personal data from all forms of abuse.

Fifth, the need to digitize the criminal procedure law so that criminal procedures become more appropriate to modern developments and at the same time compatible with the crimes of AI systems and robots, in order to achieve speed in criminal procedures that leads to the achievement of prompt criminal justice.

Sixth, establishing a mandatory insurance fund for accidents resulting from AI systems and robots, in which the responsibility for compensation is not based on error, but rather the compensation is without error for accidents of AI systems and robots.

The difficulties that the researcher faced are summarized in that the issue of criminal responsibility for the work of AI is one of the modern topics in which specialized scientific books and articles are not available, as well as the lack of laws and legislative systems that regulate the work of AI in most countries, especially Arab countries.

We look forward to developing a legal framework for AI, to include a clear conception of the legal personality of AI.

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