

**The criminal responsibility about acts
Artificial intelligence.**

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Abstract

In this research I discussed the subject about the Artificial intelligence and Who is responsible for their acts , mentioning some real cases about Artificial intelligence and the crime , after that offered some ideas to solve the problem of responsibility about acts of crimes Artificial intelligence and the principal ideas, it is around to give electronic personhood or put supervisor who is responsible about acts Artificial intelligence and Mandatory Insurance for AI Systems , finally I choose that we should obligate on parties to specify the person who is responsible about acts AI and give him the authorities interact with acts Artificial intelligence at any time by contract and that is a simple evidence that can the defendant remove it, all these rules applying when faults act not intend and In the event that the person responsible is not specified in the contract, the rule of responsibility of the apparent person shall be applied and in any case If the act is intend the perpetrator will liable about it.

Key words:

Artificial intelligence (AI) - Definition of AI - Criminal Responsibility - Supervisory liability about AI acts - AI ELECTRONIC PERSONHOOD- Mandatory Insurance for AI Systems.

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Introduction:

"Computers can only issue mandatory instructions-they are not programmed to exercise discretion.' (Gerstner., ١٩٩٣) From this start I will search this subject.

Artificial intelligence (AI) is rapidly evolving and becoming more advanced, potentially leading to increased use of AI systems in various

industries and applications. However, with the increasing use of AI, questions arise regarding the responsibility and accountability of AI systems for their actions. In this research, I will discuss the criminal responsibility of AI systems.

One crucial problem with AI system is that they may make decisions that can result in harm and adverse consequences without any intention to do so. Therefore, determining criminal responsibility for AI systems presents a significant challenge. Existing laws and regulations may not be adequate to address new challenges brought by AI.

A. Importance of Research:

It is necessary to conduct research on the legal structures that may facilitate holding AI systems accountable for their actions. The results could help to direct regulatory frameworks and develop laws that consider the unique abilities, limitations, and characteristics of AI.

B. Problems of research

Determining the criminal responsibility of AI systems faces several challenges.

One of this challenge is determining whether to hold individuals or AI systems accountable for the outcomes of AI actions. Additionally, addressing issues related to privacy, security, and transparency for AI systems as well as the legal and ethical implications that arise can be difficult.

C. Plan of Research:

The researcher will divide the subject into two principal sections. The first section will discuss the nature of artificial intelligence, its characteristics, and its relationship to crime. In the second section, the problem of criminal responsibility for artificial intelligence and proposed solutions will be addressed .

The researcher will rely on the descriptive method to explain the research topic, taking into account the existing framework of traditional criminal liability. The analytical method will also be employed to analyze the research problem and the proposed solutions, culminating in an attempt to establish a suitable solution to the research problem. This will be achieved by utilizing the theoretical method all this will specified on fault

acts not intend acts, which involves presenting a number of results and recommendations.

D. The Rise of AI and Its Impact on Criminal Responsibility:

(AI) is a captivating journey that has witnessed remarkable advancements since its inception. The roots of AI can be traced back to the mid-20th century when Alan Turing's groundbreaking work laid the theoretical foundation for machine intelligence (Turing, (1950).) However, it wasn't until the 1956 Dartmouth Workshop that the term "artificial intelligence" was coined, marking the birth of the field. The early years were marked by high optimism and ambitious goals, with researchers envisioning machines capable of human-level intelligence. The subsequent decades saw periods of rapid progress, intertwined with periods of disillusionment known as "AI winters." Notable milestones include the development of expert systems in the 1970s and the introduction of neural networks in the 1980s. The late 20th century witnessed breakthroughs in machine learning algorithms and the rise of Big Data, setting the stage for the deep learning revolution of the 2010s. Today, AI permeates various aspects of our lives, from virtual assistants to autonomous vehicles, reflecting the perseverance and ingenuity of countless researchers across the decades. (McCarthy, Minsky, Rochester, & Shannon, 1955).

As AI continues to evolve, it's clear that its impact on our lives will only grow more significant. The question is: what does this mean for our understanding of criminal responsibility?

E. Understanding AI's Role in Criminal Responsibility

As AI becomes more prevalent, it's vital to grasp how it may affect the way we assign blame in criminal cases. AI-driven decisions can lead to unintended consequences, and it's essential to consider how these actions might contribute to criminal acts.

The answer isn't always clear-cut, and understanding AI's role in criminal responsibility is critical for ensuring that justice is served, and that society adapts to this rapidly evolving technology (Ali, August 2021).

In recent years, the integration of (AI) within the realm of criminal justice has sparked significant interest and debate regarding its implications for criminal responsibility. AI technologies, such as predictive analytics, facial recognition, and algorithmic decision-making systems, are increasingly being employed by law enforcement agencies and judicial

systems to aid in various stages of criminal proceedings. The discourse surrounding AI's role in criminal responsibility hinges upon multifaceted considerations encompassing legal, ethical, and social dimensions. Ascertaining the extent to which AI algorithms influence human decision-making processes and subsequently attributing accountability presents a novel challenge within the framework of established legal principles.

This paper critically examines the evolving landscape of AI's involvement in criminal responsibility and deliberates on the potential ramifications for due process and culpability assignment.

F. The Purpose of This Research Paper

The goal of this research is to explore the intricate relationship between AI and criminal responsibility. Through a comprehensive analysis of recent research and case studies, we aim to provide readers with an understanding of:

- ١- How AI influences our understanding and assignment of criminal responsibility
- ٢- The legal frameworks and arguments surrounding AI and criminal responsibility.

By delving into these topics, we hope to offer a fresh perspective on the world of AI, its impact on criminal responsibility, and the importance of understanding these complex relationships.

II. Definition of AI and its Various Forms

(AI) has emerged as a transformative force, permeating various aspects of our lives. It encompasses a wide array of technologies that mimic human intelligence, enabling machines to perform complex tasks with efficiency and precision. As we delve into the intriguing world of AI and its impact on criminal responsibility, it is essential to understand its definition and diverse forms, trace its historical development, and explore its applications across different industries.

AI refers to the simulation of human intelligence in machines that can perceive, reason, learn, and make decisions. It encompasses a spectrum of technologies, including machine learning, natural language processing, computer vision, and robotics. These forms of AI empower systems to analyze vast amounts of data, recognize patterns, and adapt their behavior, accordingly, making them increasingly indispensable in our technology-driven society (Holdren ; & Smith , ٢٠١٦).

A. Defining the Terms

It is suitable to begin with an attempt to find the lexical meaning of the words *artificial* and *intelligence*. The English word *artificial* is synonym with words like factitious, synthetic and unnatural. A thing that is artificial is man-made or constructed by humans, usually to appear like a thing that is natural (Dictionary, ٢٠١٧ March).

The Latin precedent *artificialis* origins from *artificium*, meaning handicraft or theory. In relation to law, *artificial* is used as in *artificial person* (i.e. legal person) and *artificial insemination* (i.e. human assisted reproduction) (the British, Act ١٩٤٦). Artificial is thus used in the same manner irrespective the branch of law.

The word *intelligence* is more difficult to define. In English, as well as in Swedish and in French, the word has many meanings. Intelligence is explained as the '*faculty of understanding*', '*the action or fact of mentally apprehending something*' or simply as '*intellect*' (Dictionary, 'Intelligence, n', (March edn, ٢٠١٧) .)

How does one adapt to change; by simply accepting the change or by learning how to handle the change, for instance? Accordingly, intelligence must be further explained, since the meaning of the word appears to be vague. Intelligence and what it is de facto, is contested among psychologists, and has been for a long time.

Adapting to change can be approached in a couple of ways: either by embracing the change as it is or by developing the skills to navigate and manage the change effectively. This brings us to the concept of intelligence, which requires deeper exploration due to its somewhat ambiguous nature. The understanding of intelligence and its actual definition have been subjects of debate within the realm of psychology for a considerable period (Oxford, ٢٠٠٦) as a result, there is not any standard definition of intelligence.

Another issue concerning the different approaches to intelligence is that most of them relate to the human intellect. Intellect, as a synonym to *mental abilities*, can be considered as limited to the cognitive brain (Oxford, ٢٠٠٦).

An intellectual person is generally considered as a person with high intelligence and a great ability to comprehend complex problems in its environment. In law, the word '*person*' encompasses *natural* persons like

humans, together with *legal* persons in forms of corporations etcetera (Ashworth A, ٢٠٠٣).

Conclusively, artificial intelligence might lexically be understood as an unnatural corporation's intellect. Yet, AI represents more than this literal explanation. Words, as trivial parts of a sentence, give the sentence a practical meaning (Matthews, ٢٠١٤). It is therefore necessary to examine AI in a broader and more scientific context to find the practical meaning of artificial intelligence.

The definitions of the terms "artificial" and "intelligence." "Artificial" refers to man-made things, including legal concepts like "artificial person" or "artificial insemination." "Intelligence" is more complex, encompassing understanding, intellect, and mental apprehension. The lack of a standard definition for intelligence is noted, and the focus on human intellect raises issues in relation to artificial intelligence. The paragraph concludes that while "artificial intelligence" could be understood as a synthetic intellect, its practical meaning requires broader scientific examination.

B. What Is AI?

“Artificial intelligence is that activity devoted to make machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment” (Nilsson , The Quest for Artificial Intelligence, ٢٠١٠)

For effective implementation of this solution, strategies must be devised to discourage AI from engaging in criminal acts and to devise appropriate punitive measures in situations where traditional physical incarceration is implausible. This objective necessitates an overhaul of the foundational principles of criminal law. The critical question arises: can we juxtapose the behavior of an AI in a specific context with that of a reasonable person in a similar circumstance, even if the AI lacks inherent common sense? (Hildebrandt , March ٢٠١١).

AI is an umbrella term, comprised by many different techniques. Today's cutting-edge practitioners tend to emphasize approaches such as deep learning within machine learning that leverage many layered structures to extract features from enormous data sets in service of practical tasks requiring pattern recognition or use other techniques to similar effect.

These general features of contemporary AI — the shift toward practical applications, for example, and the reliance on data (Calo R. , Artificial Intelligence Policy: A Primer and Roadmap., (٢٠١٧).

C. Examples of AI Applications in Different Industries

AI has found its footing across diverse sectors, augmenting efficiency, accuracy, and innovation. In healthcare, AI assists in medical diagnosis, drug discovery, and personalized treatment plans, ultimately improving patient outcomes (Topol, (٢٠١٩).

In finance, AI algorithms enable real-time fraud detection, risk assessment, and algorithmic trading, bolstering the stability and security of financial systems (Freeman & Huang, (٢٠٢٠) In the future all sectors live will depend on AI

D. Characteristics of AI

Currently, the extant definition of (AI) falls short in meeting the demands of contemporary technology. Esteemed AI researchers have proffered more comprehensive insights into the nature of AI. They have categorized diverse scientific interpretations of AI into four distinct domains of cognitive processes and human conduct:

- (١) cognitive emulation of human thought
- (٢) logical and deductive reasoning
- (٣) simulation of human behaviors
- (٤) optimal decision-making based on reason (Russell, S. J., & Norvig, P. , (٢٠١٦).

In the first category, the emulation of human thought entails replicating cognitive functions intrinsic to the human brain, encompassing decision-making, problem-solving, and experiential learning. The second category, characterized by logical and deductive reasoning, is exemplified by Aristotle's syllogism—a method generating accurate conclusions from valid premises. The third approach, centered on simulating human behaviors, traces its origins to Alan Turing's ١٩٥٠ proposal of the Turing Test, where AI endeavors to mimic human responses in an 'Imitation Game.' This test remains pertinent, encompassing many facets of AI research. Notably, if an AI system can elude human judgment in distinguishing its responses from those of a human, it is deemed successful (Alan M Turing, (١٩٥٠). The fourth perspective, acting rationally, entails

an AI functioning optimally, pursuing the most favorable outcome akin to a rational agent (Russell, S. J., & Norvig, P. (٢٠١٦)).

Collectively, these characteristics underscore AI's multifaceted nature and its potential to revolutionize various domains through its cognitive prowess and adaptive capabilities so AI can be unaccountability, unpredictability and autonomy. These characteristics are also the primary reasons behind the liability problem.

III. Definition of Criminal Responsibility

Criminal responsibility refers to the legal principle holding individuals accountable for their actions when they commit criminal offenses. It encompasses the concept of mens rea (guilty mind), which examines the intent or knowledge behind the act, and actus reus (guilty act), which focuses on the physical act itself. Together, these principles form the foundation of criminal law, ensuring that individuals are held responsible for their wrongful conduct (Gardner, (٢٠١٨)).

A. The Concept of Mens Rea and Actus Reus in Criminal Law

Mens rea and actus reus are fundamental components in establishing criminal liability. Mens rea assesses the mental state of the accused, determining if they had the intent or knowledge to commit a crime. Actus reus, on the other hand, scrutinizes the physical act and whether it aligns with the elements of the offense. Both these elements are vital in determining criminal responsibility, ensuring that individuals are held accountable for their intentional and wrongful actions (Robinson, (٢٠١٨)).

B. Challenges in Applying Traditional Criminal Responsibility Concepts to AI

The rise of AI poses unique challenges to the traditional concepts of criminal responsibility. AI systems operate based on algorithms and data, lacking the subjective intent or awareness associated with human decision-making. It becomes challenging to attribute criminal responsibility to AI when traditional notions of mens rea and actus reus are predominantly rooted in human psychology and behavior. Addressing these challenges requires a careful examination of legal frameworks to account for the distinctive characteristics of AI (Brenner, (٢٠١٩)).

C. Examples of AI-Related Incidents that Raise Questions about Criminal Responsibility

The increasing integration of AI has raised intriguing questions about criminal responsibility. For instance, autonomous vehicles equipped with AI have been involved in accidents, sparking debates about liability when harm occurs (Calo, (٢٠١٦)).

Similarly, AI algorithms used in financial systems have occasionally led to unintended consequences, highlighting the need to determine culpability when decisions are made by non-human entities. These incidents reflect the complexity surrounding the assignment of criminal responsibility in the realm of AI (Mittelstadt, (٢٠١٦)).

In conclusion, the rapid evolution of AI has ushered in a new era of possibilities, transforming industries and society at large. However, it also challenges traditional concepts of criminal responsibility, necessitating a careful examination of legal frameworks to address the unique characteristics of AI. As AI continues to advance, navigating the complex landscape of criminal responsibility in the age of intelligent machines remains an ongoing endeavor.

IV. Some real cases about AI and the crime

A. Deepfake videos for blackmail

In ٢٠١٩, a case emerged where AI-generated deepfake videos were used for blackmail purposes. The perpetrator utilized machine learning algorithms to manipulate video footage, creating realistic but fabricated content. This enabled the criminal to extort money from unsuspecting victims by threatening to release damaging or compromising videos (Smith, D. (٢٠١٩)).

B: Malicious use of autonomous drones

In ٢٠٢٠, there were reports of criminals employing autonomous drones for illegal activities. These drones were equipped with AI algorithms to perform tasks such as smuggling contraband items, conducting surveillance, or even launching cyberattacks. This presented significant challenges for law enforcement agencies in identifying and mitigating such threats (Finkelstein, (٢٠٢٠)).

C: AI-powered fraud in financial transactions

Instances have occurred where AI technology has been exploited to commit fraudulent activities in financial transactions. Fraudsters have utilized machine learning algorithms to bypass security measures and

manipulate data, resulting in unauthorized access, identity theft, or money laundering. This poses substantial risks to individuals and financial institutions alike (Voulgaris, P (٢٠١٨)).

D: AI-based cyberattacks

In recent years, there has been a rise in cyberattacks that leverage AI capabilities. Hackers have utilized machine learning algorithms to enhance their attack strategies, including generating sophisticated phishing emails, evading detection systems, or launching targeted malware attacks. These AI-driven cyberattacks pose significant challenges for cybersecurity professionals (Gandomi, (٢٠٢٠)).

E: Biased algorithms in criminal justice

Instances have surfaced where AI algorithms employed in criminal justice systems have exhibited biased behavior. These algorithms, trained on historical data that may reflect societal biases, have led to discriminatory outcomes in areas such as predictive policing, risk assessment, or sentencing decisions. This raises concerns about fairness and equity within the criminal justice system (Angwin, (٢٠١٦)).

F: AI-enabled identity theft

Criminals have exploited AI technology to perpetrate identity theft crimes. AI algorithms can be used to gather personal information from various sources, create realistic synthetic identities, or automate fraudulent activities such as opening fake accounts or committing financial fraud. The use of AI amplifies the scale and complexity of identity theft incidents (Kshetri, (٢٠٢٠)).

G: Self-driving cars and the law

A self-driving car navigating city streets strikes and kills a pedestrian. A lawsuit is sure to follow. But exactly what laws will apply? Nobody knows. Today, the law is scrambling to keep up with technology, which is moving forward at a breakneck pace, thanks to efforts by many companies. Google's prototype self-driving cars, with test drivers always ready to take control, are already on city streets in Mountain View, Calif., and Austin, Texas. In the second half of ٢٠١٥, Tesla Motors began allowing owners (not just test drivers) to switch on its Autopilot mode (Greenblatt., ٢٠٢٣).

V. Types of Criminal Liability for AI

As AI continues to permeate our lives, legal experts and policymakers grapple with the question of how to attribute criminal liability to these intelligent systems. Some key considerations include:

When we search for solving this problem, we find to parts :

١. **Direct Liability:** In cases where AI operates autonomously, one could argue that the AI system itself should be held directly responsible for criminal acts it commits. For example, if a self-driving car causes an accident due to a software glitch, the AI could be held liable (Calo R. A., (٢٠٢٠)).

٢. **Indirect Liability:** Also known as vicarious liability, this approach holds someone other than the AI system responsible for its actions. The developer, owner, or user of the AI system could be held liable for the AI's actions, particularly if they failed to foresee or prevent potential harm (Turner, (٢٠٢١)).

VI. (AI) and Criminal Liability: A New Frontier in Legal Thought

Imagine a world where (AI) is held responsible for criminal acts, just like humans. The concept of criminal liability for AI is evolving as we witness a shift in our understanding of accountability. In this part of the research, I'll explore the types of criminal liability for AI and discuss various ideas proposed to resolve these complex issues. I'll also delve into the positives and criticisms of each idea to provide you with a comprehensive understanding.

Several ideas have been proposed to address the legal challenges of AI and criminal liability (Ali, August ٢٠٢١). Let's delve into some of these proposals and their respective merits and criticisms.

A. Applying principal rules of crime with acts AI

the *actus reus* element and illustrates the difficulties when the court struggles to find a liable defendant for crimes an AI commits. Not surprisingly, these legal challenges will increase with the decreased control that the defendant has. The *mens rea* element is still left to analyses, but if finding a liable actor is challenging already at the external level of the crime, it will be even more demanding to prove the required *mens rea* of the defendant (Stone & others, ٢٠١٦).

There are many different kinds of AIs but they all share a few common features; unaccountability, unpredictability and autonomy. These

characteristics are also the primary reasons behind the liability problem. Unpredictability together with autonomy limit the potential defendants to humans who have a duty to act, and as a result liability can in some cases not be established for actors who should be liable. The primary cause of that issue is the lack of relevant causation when the AI acts autonomously without involving any human. The rule of law restrains the possible criminal behavior for humans to controlled acts and omissions, which are voluntary (Simester & and others, , ٢٠١٦).

An act that is not willed, are not voluntary. If the AI acts autonomously, there is no established causal chain between the defendant and the AI. (Hassan, & Osman , ٢٠٢٣).

Despite these efforts, current legal frameworks face significant limitations in addressing AI's criminal responsibility. One key challenge is attributing liability to AI systems, since traditional legal concepts like negligence and intent may not apply to autonomous machines (Rybicka, (٢٠٢٠).

B.AI Personhood: A Legal Fiction with Real Consequences

This paragraph explores the determinants of AI systems' potential legal liability, highlighting three key aspects:

- ١) The disclosure of AI system limitations to buyers.
- ٢) Categorization of AI as a product or service.
- ٣) The relevance of intent (*mens rea*) in offenses or whether strict liability applies (Kingston,, November ٢٠١٦).

One proposal is to grant AI systems a form of legal personhood, similar to the way corporations are treated as separate legal entities. This would enable AI systems to be held responsible for their actions in a court of law (Solaiman, (٢٠١٧).

The foundation of legal rights and responsibilities is derived from the domain of law. Adherence to legal principles entails the fulfillment of duties and the acquisition of corresponding rights. The notion of bestowing legal personhood upon AI entities raises inquiries regarding the attribution of rights and obligations aligned with legal standards. Although futuristic and forward-looking, a comprehensive evaluation of this solution necessitates a succinct examination of the concept of legal personhood for AIs, which could render them liable for their actions. The prospect of AI

criminal liability hinges upon endowing AIs with legal personhood, akin to the paradigm of corporate criminal liability adopted by certain legal frameworks. In contrast to the artificial construct of corporate criminal liability, which attributes the corporation with the deeds of its employees, AI entities would bear accountability for their individual conduct, distinct from any external attribution. While seemingly straightforward and compliant with the tenets of the rule of law, this proposition warrants a more exhaustive scrutiny (Bryson J. J., (٢٠١٨), (Calo R. ..., (٢٠١٧).

Entities currently possessing legal personhood remain subject to human control, either through day-to-day decision-making or shareholder oversight. Despite limited economic liability on the part of shareholders, culpability arising from the entity's transgressions impacts responsible human agents through alternative channels. In the realm of autonomous AIs, the conspicuous absence of humans indicates a lack of assignable blame when AI-inflicted harm arises. Put simply, the absence of human agents undermines the prospects of deterrence and preventive measures against AI misconduct (Bostrom, (٢٠١٤), (Floridi, L., & Sanders, J. W., (٢٠٠٤).

Positives: AI personhood would provide a clear legal framework for addressing the criminal liability of AI systems. It would also encourage developers to create safer and more responsible AI systems to avoid potential legal consequences.

Criticisms: Opponents argue that treating AI systems as legal persons could lead to a slippery slope, blurring the lines between humans and machines. Moreover, the concept of AI personhood raises ethical concerns about granting rights and responsibilities to non-human entities (Bryson, (٢٠٢١).

Realizing AI criminal liability might entail a paradigm where establishing the actus reus at an external level suffices for legal culpability. However, equating an entity devoid of consciousness with the execution of intentional will raises the query of whether an entity lacking cognitive awareness can genuinely exhibit an act of volition. The "unconscious" state of an AI could parallel involuntary actions, thereby absolving criminal liability. Consequently, unless AIs emulate human thought and behavior or acquire the prerequisites essential for imputing responsibility, direct criminal liability for AIs remains an insufficient solution to address the intricacies of AI's liability dilemma (Hildebrandt , March ٢٠١١).

In my opinion if we take this idea, we help the criminal to escape from the responsibility, It also violates the duty of caution that the law imposes on all individuals and holds them accountable for it.

C. Mandatory Insurance for AI Systems: Shifting the Burden of Liability

Another proposal is to require AI developers and owners to have mandatory liability insurance. This would ensure that victims of AI-related harm are compensated, even if the AI system itself cannot be held responsible (Schellekens, (٢٠٢٠).)

Positives: Mandatory insurance would distribute the risk of AI-related harm among developers and owners, creating incentives to develop safer AI systems. It would also help victims receive compensation in a timely manner.

Criticisms: Critics argue that mandatory insurance could stifle innovation, as the costs of insurance may become prohibitive for smaller companies and developers. Additionally, some worry that insurance could become a "get-out-of-jail-free card" for negligent AI developers, who might not face the full consequences of their actions (Schellekens, (٢٠٢٠).

In Conclusion

As AI systems continue to evolve, the need for a robust legal framework to address criminal liability becomes increasingly urgent. While ideas like AI personhood and mandatory insurance offer potential solutions, they also raise new challenges and legal dilemmas because these ideas contrast with the principal rules of criminal law. In the end, finding the right balance between innovation, accountability, and public safety will be critical in shaping the future of AI and criminal liability.

D. liability by Supervisory Duty about AI Acts

When we should discuss how legal actions arising from software defects or injuries caused by software use often involve claims of negligence. It outlines the three essential elements required to establish a successful negligence claim:

- ١) the defendant owed a duty of care.
- ٢) the defendant violated that duty.

٣) this violation led to harm suffered by the plaintiff (Gerstner., ١٩٩٣).

In summary, the analysis explores the potential liability of various actors for omissions in the context of narrow (AI). It notes that while a lawful narrow AI's mere existence is unlikely to pose a significant risk of harm, situations may arise where certain actors could be held liable for omissions related to the AI's actions. Such liability could be attributed when an actor holds a specific responsibility over the AI or when an actor's actions lead to a dangerous situation with substantial harm risk. The degree of an actor's control over the AI plays a pivotal role in determining their responsibility for AI-induced harm. The user and supervisor are likely defendants due to their proximity to the AI's actions. Spontaneous AI-induced events might not establish a duty to act, but rather an assumption of responsibility. The legal implications of AI employing machine learning and engaging in criminal behavior without human direction remain uncertain, raising questions of liability. If there's no duty to act, the AI's status as an innocent agent acting on behalf of the defendant becomes pivotal, with the expect ability of the AI's behavior influencing liability. Limited control over the AI emphasizes probability and approximation in determining liability (Karlsson, Spring ٢٠١٧).

The question of responsibility for supervision prompts an exploration into potential candidates, namely the user and the supervisor, for the proposed supervisory duty. Arguably, assigning the supervisory responsibility to the user could result in a more direct causal link between misconduct and resultant harm, given the user's proximity to the AI. However, counterarguments against burdening the user with such obligations also arise. Both the user and the supervisor typically occupy roles that inherently involve a duty to act, either due to their functional responsibilities over the AI or the potential perilous situations that actors might induce. In contrast, the producer's association with the AI bears limited causal relevance in instances of AI-driven criminal activities. As demonstrated by some doctrines analogy concerning car manufacturers, the manufacturer's lack of criminal responsibility for accidents involving their vehicles highlights a parallel inapplicability to AI producers. Furthermore, alternative mechanisms exist to compel AI producers to assume accountability within the production chain. The acceptability of the risks inherent in producing and distributing AIs, and the extent to which these risks necessitate deliberation, extends beyond the scope of this discussion (Karlsson, Spring ٢٠١٧).

To mitigate potential ambiguities surrounding responsibility for AI, the supervisory duty should possess unambiguous clarity. Consequently, drawing from a well-established legal concept that defendants can readily comprehend—ownership—becomes imperative. In this context, a feasible legal remedy involves imposing a supervisory obligation upon the owner, thereby necessitating either direct personal oversight of the AI or the engagement of a designated supervisor. Such an approach would institute a role-based obligation for the defendant, irrespective of whether the defendant instigated a hazardous situation. By establishing a precise duty for the owner, this framework aligns favorably with the principles of the rule of law. The essence of the supervisory duty fundamentally designates the defendant's failure to fulfill the duty as morally objectionable (Karlsson, Spring ٢٠١٧).

Possible Effects, pros and cons of this Idea

The imposition of a civil law supervisory duty on the owner of AI systems could potentially have implications within the realm of criminal law. This civil liability would establish a foundation for attributing responsibility to the owner in relation to the AI's actions. Despite the proposed supervisory duty, the inherent unpredictability of AI remains a challenge. The principle of the rule of law necessitates not only predictability in the law itself but also in its interpretation and application. This introduces a significant counterargument against the suggested solution. During legal proceedings involving such matters, the court must determine what a reasonable individual in the defendant's position should have anticipated. Acts of harm that do not reasonably stem from the defendant's position and foreseeability should not incur punishment. However, the determination of foreseeable harm might undermine the effectiveness of the supervisory duty. An overseer cannot reasonably be expected to counteract decisions that were beyond their predictive capacity, as they lack the means to preemptively address such decisions. In cases where unexpected harm materializes, it is conceivable that this harm would subsequently be categorized as foreseeable in the future, leading to an obligation on the supervisory entity to intervene and disrupt the chain of events in subsequent instances.

The proposed solution warrants criticism due to its potential long-term unsustainability. The predominant objective of AI research is to advance general AI, an artificial entity surpassing human capabilities in intellect and efficiency. While this objective is unlikely to hinder the

progression of beneficial AI, it is likely to impede the development of general AI. The presence of a human supervisor necessitates the capacity to override AI decisions or exert control over its actions. Consequently, true autonomy for AI remains unattainable, as human intervention is indispensable. This implies that AI producers cannot create systems that operate completely independent of human involvement upon deployment. A safeguard mechanism, such as a kill switch, is deemed necessary to disconnect AI from its decision-making. In summation, the establishment of a supervisory obligation does not comprehensively address all underlying factors concerning defendant liability. However, it does offer guidance to stakeholders engaged in AI decision-making, thereby clarifying the entity accountable for any liabilities (Karlsson, Spring ٢٠١٧).

One of the Jurists emphasizes on attributing responsibility to an individual presumes the possession of certain capacities, such as comprehending legal rules, reasoning, and understanding implications. Following Locke's assertion that individuals should be "agents capable of law, happiness, and misery," AI cannot presently be regarded as equivalent to a person. Existing AI entities do not possess the entirety of these cognitive capacities, although the future development of general AI could potentially fulfill these criteria (Hart H LA, (Autumn, ١٩٦٩).

E. The Trojan defense against criminal liability about acts AI

Within the context of defenses against liability concerning AI systems, it's notable to highlight instances where individuals accused of cybercrimes effectively employed the argument that their computer had been compromised by a Trojan or similar malware. These programs operated illicitly using the defendant's computer without their awareness. A comprehensive collection of such cases can be found in . One instance from the United Kingdom involved a computer containing inappropriate images of minors, along with eleven Trojan programs. Additionally, another UK case centered around a teenage computer hacker who defended against a charge related to executing a denial-of-service attack. The defense posited that a Trojan program had initiated the attack from the defendant's computer and subsequently erased itself before forensic examination. The defendant's legal representation successfully persuaded the jury that this scenario held reasonable doubt (Brenner, Carrier, & Henninger , (٢٠٠٤).

VIII. Conclusion

In the end of my research responsibility about AI act, I reached to **some results are:**

١- Difficult of put a definition of AI because speed of evolution and broad of its areas but this is not prevented us to deal wit the principal problem that related with criminal responsibility about acts of AI.

٢- The examined solutions aimed at mitigating challenges associated with AI-related liability have been assessed, and among them, the imposition of a supervisory duty upon owners emerges as the more pragmatic option. This approach advocates establishing a civil law mandate mandating the supervision of AI, compelling intervention to mitigate potential harm even in cases where the supervisor could not have foreseen the AI's actions. While this proposition does not impede the advancement of beneficial AI, it does constrain risky behaviors by actors aware that their actions or inactions are unlikely to attract criminal culpability. However, a significant limitation of this solution lies in the continued unpredictability of AI actions, leading to the potential punishment of only foreseeable AI actions in the future.

٣- There is an alternative concept involves attributing criminal liability to AI itself, thereby holding it accountable for its actions. However, this is contingent upon AI acquiring specific capacities, which are currently lacking given the present state of technological development. While the foreseeable future holds promise for AI meeting the criteria for criminal liability, the current challenge of determining liability persists.

٤- Nevertheless, this study concludes that the predicament of AI-committed crimes presents an unprecedented challenge to criminal law, for which clear-cut solutions are presently elusive. The solutions proposed within this study, while imperfect and somewhat unsatisfactory, represent the most viable courses of action available at present to address the intricacies of AI-related liability. Given that criminal law centers on human agents, upholding principles of retribution and deterrence mandates a focus on morally accountable humans rather than the AI itself. The supervisory duty effectively targets the human agents responsible for AI actions, albeit with certain imperfections, in grappling with the quandaries of liability.

٥- These crimes will witness the growing role of experts on the Criminal proof.

Finally I recommend with some Jurists that we should obligate on parties to specify the person who is responsible about acts AI and give him

the authorities interact with acts AI at any time by contract and that is a simple evidence that can the defendant remove it, all these rules applying when faults act not intend and In the event that the person responsible is not specified in the contract, the rule of responsibility of the apparent person shall be applied and in any case If the act is intend it will liable of perpetrator. (STUDY Requested by the JURI committee. z, ٢٠٢٠).

References

- BIBLIOGRAPHY Hassan, F. M. (٢٠٢٣). AI-based Autonomous Weapons and Individual Criminal Responsibility under the Rome Statute, . (pp. ٤٧٢-٤٧٣). Journal of Digital Technologies and Law, ٢٠٢٣, ١(٢) eISSN ٢٩٤٩-٢٤٨٣, <https://www.lawjournal.digital>,
- Simester , P. A., & and others, (٢٠١٦). Simester and Sullivan's Criminal Law ., (p. ٧٢). (٦th edn ,Hart Publishing ٢٠١٦).
- Agriculture, t. B. (n.d.). about artificial insemination. Act ١٩٤٦ (c. ٢٩) or NJA ١٩٨٣ s. ٣٢٠.
- Alan M Turing, (١٩٥٠), Computing Machinery and Intelligence. (p. ٤٣٣). MIND.
- Ali, A. (August ٢٠٢١). , Artificial Intelligence and Criminal Liability: Challenges in Articulation of Legal Aspects for Counter-Productive Actions of Machine Learning,. International Journal of Instructional Technology and Educational Studies,ISSN (Print): ٢٦٨٢-٣٩١٨ - ISSN (online): ٢٦٨٢-٣٩٢٦, Volume٢,Issue٣, DOI: ١٠.٢١٦٠٨/ihites.٢٠٢١,٩٠٦٥٧,١٠٤٩.
- Angwin, J. L.(٢٠١٦). Machine bias: There's software used across the country to predict future criminals. And it's biased against blacks. ProPublica. Retrieved from <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.
- Ashworth A. (٢٠٠٣). Principles of Criminal Law. (p. (n ٣٨) ١١٤). OUP (٤th edn,,
- Bostrom, N. (٢٠١٤). Superintelligence: Paths, Dangers, Strategies. Oxford University Press.
- Brenner, S. W. (٢٠١٩). AI in Criminal Justice and Its Constitutional Limits. . (pp. ٥٠٥-٥٢١). AI & Society, ٣٤(٣).
- Brenner, S., Carrier, B., & Henninger , J. (٢٠٠٤). The Trojan Horse Defense in Cybercrime Cases,. ٢١ Santa Clara High Tech. L.J. ١ , <http://digitalcommons.law.scu.edu/chtlj/vol٢١/iss١/١>.
- Bryson, J. ((٢٠١٨).). Artificial intelligence as legal personhood. (pp. ٢٥٧, ١٢٨-١٣٢).
- Bryson, J. ((٢٠٢١). Of, for, and by the people: the legal lacuna of synthetic persons. (pp. ٢٩(١), ٧-٢٣). Artificial Intelligence and Law.
- Calo, R. (٢٠١٦). Artificial Intelligence Policy: A Primer and Roadmap. SSRN Electronic Journal.
- Calo, R. (٢٠١٧). Artificial Intelligence Policy: A Primer and Roadmap. (p. ٤٠٤). U.C. Davis Law Review.
- Calo, R. A. (٢٠٢٠). Artificial intelligence policy: a primer and roadmap. . (pp. ٥١, ٣٩٩-٤٣٥). U.C. Davis Law Review, .

- Dictionary, O. E. (March edn, ٢٠١٧). 'Intelligence, n'. (p. ٥٥ Above n ٤٩).
<www.oed.com.db.ub.oru.se/view/Entry/٩٧٣٩٦?rskey=q1٤evJandresult=١>
accessed ٨ May ٢٠١٧.
- Dictionary, O. E. (٢٠١٧ March). 'artificial, adj and n.'. <www.oed.com.db.ub.oru.se/view/Entry/١١٢١١> access ٢٠١٧ February ٢٤.
- Finkelstein, S. N. (٢٠٢٠). Autonomous Drones and Criminal Liability. . (pp. ٥٤(٢), ٤٢٧-٤٦٣).
New England Law Review,.
- Floridi, L., & Sanders, J. W. (٢٠٠٤). On the morality of artificial agents. (pp. ١٤(٣), ٣٤٩-٣٧٩).
Minds and Machines.
- Freeman, R. A., & Huang, W. (٢٠٢٠). Deep Learning in Finance:. (pp. ١١٧, ١-١٨). Journal of
Banking & Finance.
- Gandomi, A. (٢٠٢٠). Beyond the hype: Big data concepts, methods, and analytics. (pp. ,
٣٥(٢), ١٣٧-١٤٤. doi: ١٠,١٠١٦/j.ijinfomgt.٢٠١٧,١١,٠٠٤). International Journal of
Information Management.
- Gardner, J. (٢٠١٨). Offences and Defences: Selected Essays in the Philosophy of Criminal
Law. Oxford University Press.
- Gerstner., M. (١٩٩٣). Comment, Liability Issues with Artificial Intelligence Software,. ٣٣
Santa Clara L. Rev. ٢٣٩, [http://digitalcommons.law.scu.edu/lawreview/vol٣٣/iss١/V\(١٩٩٣\)](http://digitalcommons.law.scu.edu/lawreview/vol٣٣/iss١/V(١٩٩٣)).
- Greenblatt., N. (n.d.). Self-Driving Cars and the Law. (pp. , p.٤٢).
<https://ieeexplore.ieee.org/document/٧٤١٩٨٠٠> , accessed August ٢٠٢٢.
- Hart H LA. (Autumn, ١٩٦٩). Punishment and Responsibility: Essays in the Philosophy of Law
(OUP ١٩٦٨). — — and Honoré T, Causation in the Law ,. (pp. pp. ٦٤٢-٦٥٣). Law
Journal Vol. ١٩, No. ٤ , University of Toronto Press <https://doi.org/>.
- Hildebrandt , M. (March ٢٠١١). Criminal Liability and 'Smart' Environments . (pp. Pages ٥٠٧-
٥٣٢). <https://doi.org/١٠,١٠٩٣/acprof:oso/٩٧٨.١٩٩٥٥٩١٥٢,٠٠٣,٠٠٢٢>.
- Holdren ; , J., & Smith , M. (٢٠١٦). Preparing for the Future of Artificial Intelligence,
(Executive Office of the President of the United States,. National Science and
Technology Council, Committee on Technology,
<https://obamawhitehouse.archives.gov/sites/default>.
- Karlsson, M. C. (Spring ٢٠١٧). Artificial Intelligence and the External Element of the Crime An
Analysis of the Liability Problem,. (pp. N ٤ , p.٤٢). <https://www.diva-portal.org/smash/get/diva٢:١١١٥١٦٠/FULLTEXT٠١.pdf>.
- Kingston,., J. (November ٢٠١٦). Artificial Intelligence and Legal Liability,
https://www.researchgate.net/publication/٣٠٩٦٩٥٢٩٥_Artificial_Intelligence_and_Legal_Liability,
Accused (August ٢٠٢٢).
- Kshetri, N. ((٢٠٢٠). Artificial Intelligence as a Vehicle for Identity Theft. In The Impact of
Artificial Intelligence on Cybersecurity . (pp. (pp. ٤٥-٦٢).). Palgrave Macmillan. doi:
١٠,١٠٠٧/٩٧٨-٣-٠٣٠-٥٠٠١٧-١_٣.
- LeCun, Y., , Bengio, Y., & Hinton, G. (٢٠١٥). Deep learning. Nature. (pp. , ٥٢١(٧٥٥٣), ٤٣٦-
٤٤٤.). doi:١٠,١٠٣٨/nature١٤٥٣٩.

- Matthews, P. H. (٢٠١٤). Wolfgang Ertel, Introduction to A Word' The Concise Oxford Dictionary of Linguistics.) <www.oxfordreference.com.db.ub.oru.se/view/١٠,١٠٩٣/acref/٩٧٨٠١٩٩٦٧٥١٢٨,٠٠١,٠٠٠١/acref-٩٧٨٠١٩٩٦٧٥١٢٨-e-٣٦٧٨> accessed ٢٣ April ٢٠١٧. .
- McCarthy, J., , Minsky, M. L., , Rochester, N.,, & Shannon, C. E. . (١٩٥٥). A proposal for the Dartmouth summer research project on artificial intelligence. Dartmouth College. <http://www.cs.dartmouth.edu/~nhg/ai٥٠٠/dartmouth٠٥.pdf>.
- Mittelstadt, B. D. (٢٠١٦). The Ethics of Algorithms: Mapping the Debate. Big Data & Society, ٣(٢), ٢٠٥٣٩٥١٧١٦٦٧٩٦٧٩.
- Mulligan, D. K. ((٢٠١٨).). Saving Governance by Design. (pp. ١٠٦(٣), ٦٩٧-٧٤٨.). California Law Review, .
- Nilsson , N. J. (٢٠١٠). The Quest for Artificial Intelligence. (p. (n ٢) xiii). Cambridge University Press.
- Nilsson, N. J. ((١٩٨٣)). Artificial intelligence: A new synthesis. Morgan Kaufmann. Oxford. (٢٠٠٦). 'Intelligence'. (pp. (٢nd edn, OUP). <www.oxfordreference.com.db.ub.oru.se/view/١٠,١٠٩٣/acref/٩٧٨٠١٩٨٦٦٢٢٤٢,٠٠١,٠٠٠١/acref-٩٧٨٠١٩٨٦٦٢٢٤٢-e-٤٥٨> accessed ٨ May ٢٠١٧.
- Robinson, P. H. ((٢٠١٨).). Principles and Values in Criminal Law and Criminal Justice: Essays in Honour of Andrew Ashworth.. Oxford University Press.
- Russakovsky, O., , Deng, J., , Su, H., , Krause, J., , Krause, J., , Satheesh, S., , . . . & Fei-Fei, L. (٢٠١٥). ImageNet large scale visual recognition challenge. (pp. ١١٥(٣), ٢١١-٢٥٢.). International Journal of Computer Vision, doi:١٠,١٠٠٧/s١١٢٦٣-٠١٥-٠٨١٦٦-y".
- Russell, S. J., , & Norvig, P.(٢٠١٦)). Artificial Intelligence: A Modern Approach. (pp. (n ٦) ٤-٥). Upper Saddle River, New Jersey ٠٧٤٥٨: Copyright c ٢٠١٠, ٢٠٠٣, ١٩٩٥ by Pearson Education, Inc.
- Rybicka, K. (٢٠٢٠). Criminal Liability of AI: A Proposal for a New Legal Framework. . (pp. ٣٨, ١٠٥٤١٤). Computer Law & Security Review.
- Schellekens, M. (٢٠٢٠). Liability for artificial intelligence-based services under EU law: a paradigm shift or a storm in a teacup? . (pp. , ٢٧(١), ٦٢-٧٦). Maastricht Journal of European and Comparative Law.
- Scherer, M. U. (٢٠١٦). Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies. . (pp. ٢٩(٢), ٣٥٣-٤٠٠). Harvard Journal of Law & Technology, .
- Smith, N. D. (٢٠١٩). Criminalising deepfakes: legislative responses to AI-based forgery. . Computer Law & Security Review, ٣٥, ١٠٥٣٧٨. doi: ١٠,١٠١٦/j.clsr.٢٠١٩,١٠٥٣٧٨.
- Solaiman, S. M. (٢٠١٧). Legal personality of robots, corporations, idols and chimpanzees: a quest for legitimacy. . (pp. ٢٥(٢), ١٥٥-١٧٩.). Artificial Intelligence and Law, .
- Stone, P., & others, a. (٢٠١٦). Artificial Intelligence and Life in ٢٠٣٠' One Hundred Year Study on Artificial Intelligence: Report of the ٢٠١٥-٢٠١٦ Study Panel, (Research Report. Stanford University <<http://ai١٠٠.stanford.edu/٢٠١٦-report>> accessed ٢١ Aug ٢٠٢٣.

STUDY Requested by the JURI committee. z, S. (٢٠٢٠). Artificial Intelligence and Civil Liability Legal Affairs, Policy Department for Citizens' Rights and Constitutional Affairs Directorate-General for Internal Policies ,. (p. . P.٣٣). Manuscript completed in July ٢٠٢٠© European, <http://www.europarl.europa.eu/supporting-analyses>, PE ٦٢١,٩٢٦ .

Topol, E. J. (٢٠١٩). Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again. Basic Books.

Turing, A. M. (١٩٥٠). Computing machinery and intelligence. Mind,. (pp. VOL. LIX. NO. ٢٣٦.] ٤٩(٢٣٦), ٤٣٣-٤٦٠). M I N D A QUARTERLY REVIEW OF PSYCHOLOGY AND PHILOSOPHY.

Turner, L. (٢٠٢١). Artificial intelligence and legal liability. (pp. ٢٤(٩), ١, ١٢-١٩.). Journal of Internet Law.

Voulgaris, G. (٢٠١٨). Detecting fraud using machine learning and data analytics:. (pp. ٢٠(٥), ٩٩٩-١٠١٧. doi: ١٠,١٠٧/s١٠٧٩٦-٠١٧-٩٧٧٨-٨). A systematic literature review. Information Systems Frontiers.