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Responsibility and Proving Damages Caused by Artificial Intelligence

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Abstract

Artificial intelligence (AI) devices are highly sophisticated and operate based on intricate algorithms that equip them with the ability to learn and evolve through repeated actions. Consequently, these devices can emulate human behaviors, including the potential to replicate human errors.

This research is dedicated to elucidating the detrimental impacts of artificial intelligence, aiming to demystify the concept itself. Moreover, the study delves into the legal responsibilities associated with AI-induced damages, exploring the mechanisms through which the aggrieved parties may substantiate claims and secure equitable compensation.

Keywords: Responsibility; Proof of Damage; Aggrieved; Artificial Intelligence.

ملخص:

إن أجهزة الذكاء الاصطناعي أجهزة ذكية متطورة جدا، تعمل بخوارزميات معقدة، تجعلها مبرمجة على القابلية للتعلم واكتساب الخبرة من خلال تكرار تصرفات معينة، لذلك نجدها تحاكي البشر في معظم تصرفاتهم، الأمر الذي يفترض ارتكابها لنفس الأخطاء التي يمكن أن يقع فيها البشر.

يهدف هذا البحث إلى تسليط الضوء عن الأضرار الناجمة عن الذكاء الاصطناعي حيث يسعى إلى توضيح مفهوم الذكاء الاصطناعي، كما يهدف البحث إلى معرفة المسؤولية الواجبة التطبيق في إثبات أضرار أو عيوب الناتجة عن الذكاء الاصطناعي وطرق الإثبات التي يستند عليها المتضرر من أجل حصوله على تعويض عادل.

كلمات مفتاحية: المسؤولية؛ إثبات الضرر؛ المتضرر؛ الذكاء الاصطناعي.

1-Introduction:

Artificial intelligence epitomizes a relentless technological progression that has been firmly established over recent decades, beginning with the advent of computers, followed by the internet and the development of remote communication technologies, culminating in the discipline known as artificial intelligence. This context primarily addresses tort liability rather than contractual liability due to its infrequency.

The era from 1940 to 1950 marks the foundational phase of artificial intelligence, with the development of neural networks and the term 'artificial intelligence' being first introduced by John McCarthy at the 1956 Dartmouth conference. Initial attempts at creating automated models aimed at simple tasks such as learning were made. Despite these efforts, these models were unable to exhibit complex behaviors, whether human or animalistic, depending solely on neural network simulations that reacted based on input data.

Artificial intelligence systems and applications have introduced a plethora of functionalities that aid in tasks traditionally requiring human intelligence. Nevertheless, these systems have also been the cause of significant damages, occasionally leading to fatalities. With the global expansion and increasing reliance on AI systems as industrial alternatives to human labor, it becomes imperative to address the liability implications of the damages these systems may inflict.

The legal complexities introduced by artificial intelligence require a clear delineation of the burden of proof, which often presents significant challenges to establish and articulate, thus complicating legal proceedings. In scenarios involving AI malfunctions, the number of parties implicated can range from two to four or more, each required to present their case, particularly in contexts involving novel and complex risks, such as autonomous vehicle operation or the deployment of medical devices.

According to Professor Colliard, the realm of law is no longer solely the province of philosophers and jurists but has expanded to include significant contributions from engineers and technicians.

Therefore, with the technological advancements in AI techniques and applications, **a critical issue emerges concerning the liability for damages caused by artificial intelligence and the methodologies for proving such damages?**

2-The Concept of Artificial Intelligence

Artificial intelligence (AI) is a term that has gained prominence relatively recently within both legal and social realms, primarily referring to the application of contemporary models for practical machine utilization in daily life. The essence of artificial intelligence lies in its foundation on developing applications designed to simulate human behaviors, embodying a scientific and technological trend that incorporates diverse mechanisms, theories, and technologies.

These endeavors aim at crafting machines that embody artificial intelligence, especially through the creation of computer systems capable of undertaking tasks that traditionally require human intelligence.

The primary classifications of artificial intelligence, along with their distinct capabilities, include:

- 1) **Narrow or Limited Artificial Intelligence:** This category is tailored to execute specific, well-defined tasks. Examples include self-driving cars, drones, facial or image recognition systems, and popular chess applications on smart devices. It represents the most prevalent form of artificial intelligence encountered today.
- 2) **General Artificial Intelligence:** This type of AI aspires to perform tasks with capabilities that approximate or are akin to human levels in autonomous thinking and planning. It remains a theoretical concept without real-world manifestations to date, though progress towards this form of AI is ongoing. The Artificial Neural Network represents a notable area of scientific study and application towards this goal.
- 3) **Superintelligence:** Characterized by a level of intelligence that significantly exceeds human capabilities—often envisioned as thrice that of the average human—this form of AI can outperform specialized professionals in various fields, such as surgeons. Superintelligence encompasses the ability to learn, plan, communicate spontaneously, and make decisions rapidly, setting it apart as the most advanced form of AI.

II: Responsibility and the Burden of Proof in the Field of Artificial Intelligence

In the realm of artificial intelligence, those adversely affected by AI operations face significant challenges, chiefly centering around the necessity to prove the machine's defects and the resultant damages. Traditional methods of proof, such as documentation, evidence, admissions, presumptions, and expert testimony, play a crucial role, as direct evidence and swearing are typically unfeasible with intelligent machines.

This discussion seeks to clarify the responsibilities that ought to be imposed to streamline the damage proving process, particularly given the disadvantaged position of the aggrieved party.

Tort liability is recognized whenever an individual contravenes the general legal duty not to harm others by committing a specific detrimental act that causes damage. As articulated by the Algerian Civil Code in Article 124, tort liability arises from an act that embodies fault, damage, and a causal link between the two.

Fault may stem from negligence or a failure to adhere to legally mandated duties, such as respecting the rights of others or the obligations of a car driver who causes an accident through reckless driving.

Tort liability involves breaching a legal obligation, which typically signifies deviation from the behavior expected of a reasonable person. The components of fault include the material element, which encompasses acts of aggression or deviation, and the moral element, which

involves awareness and discernment. The consequent damage and the causal relationship between the fault and the damage are integral to establishing liability.¹

In the context of artificial intelligence (AI), the default presumption is that AI systems are inherently free from defects, placing the burden of proving fault squarely on the plaintiff, or the aggrieved party. The foundational elements required to establish machine damage are fault, damage, and a causal relationship between them. This causal relationship is defined as the harm inflicted upon an individual's rights or legitimate interests.

Artificial intelligence is dedicated to the development of machines capable of actions that are deemed intelligent by human standards. It involves controlling a computer or robot via a program designed to mimic human cognitive processes.

To effectively address AI-related damage, it is essential to clarify the legal nature of these damages. There is a debate among scholars regarding whether AI should be granted legal personality, which would assign AI systems rights and obligations, making them directly responsible for any damages they cause.²

This perspective is contested by those who oppose endowing AI with legal personality, arguing that such a move could blur the distinctions between humans and objects and potentially threaten human existence. Consequently, AI is currently classified as an object, with legal accountability resting on the human creators for the actions of their AI systems³.

Should AI be recognized as having legal personality, the responsibility for personal acts would then apply in determining liability for damages arising from intangible actions.

Given the myriad of stakeholders involved in AI, from manufacturers to end-users, including programmers and operators, pinpointing the specific action that caused damage presents a considerable challenge. This is especially true since AI-generated actions are known for the complexity and exhaustion they impart on the aggrieved.

The aggrieved must demonstrate AI-related damages under the doctrine of object liability, which is deemed a more straightforward approach by some legal scholars. They advocate for applying the principle of responsibility for guarding objects, which encompasses damages caused by AI.

Under this principle, the guardian of an AI system, whether manifested as a robot or purely electronic programs, is legally accountable for any damages it inflicts. This concept of guardianship is defined in legal terms as the entity having use, direction, and control over the object.⁴

Self-driving cars serve as a prominent example of AI application, with numerous companies conducting trial runs. These vehicles operate through an AI program that processes motion and stopping commands based on data received from various sensors that detect the surrounding environment, such as buildings, roadways, and nearby vehicles.

However, proving damage under object liability can be challenging, particularly in identifying the guardian of the AI. Judicial interpretations typically regard the guardian as the person or entity that exercises actual control over the AI system. This notion of guardianship emphasizes the practical control over the object, complicating the legal landscape for those seeking redress for AI-caused damages.

In the context of French civil law, the legislator has not explicitly defined the concept of a 'thing'. However, jurisprudence and judicial decisions have shaped this concept, emphasizing its typically non-living, physical nature, as well as its potential to include living entities that are non-sentient.

When considering artificial intelligence (AI), which fundamentally consists of software programs that simulate human cognitive abilities, it inherently falls under the umbrella of intellectual property rights pertinent to the literary domain. This classification underscores a crucial distinction in defining the nature of AI—whether it should be viewed as a right with financial value or as a physical 'thing'.⁵

A substantial portion of legal doctrine robustly challenges the application of the 'thing' concept to artificial intelligence. Critics argue that AI, as a digital program with the capacity to learn and develop skills independently, should be primarily linked to the virtual rather than the physical world. This perspective highlights AI's autonomy and its disconnect from tangible, real-world entities.

The degree to which AI can be considered a 'thing' for the purposes of object liability is a contentious issue. Legal scholars note that while the physical attributes of AI could potentially be applied to robots, the predominantly intangible nature of AI complicates its categorization as a 'thing'.

Traditional definitions of a 'thing' in most legislations are confined to physical objects, and the existing framework of liability for acts of things is tailored to address damages caused by these physical entities. This framework is ill-suited to encompass the intangible aspects of AI, even if one were to consider the physical hardware that supports these intelligent systems as part of its physical manifestation.⁶

If one were to accept the premise that AI could be considered a 'thing', several significant hurdles emerge. The most daunting of these is the autonomous nature of AI, which often operates beyond direct human control.

Under the general principles of object liability, establishing the responsibility of a guardian involves proving either an external cause or an act that could have preemptively averted the damage. This requirement complicates the proof process and diverts focus away from compensating the aggrieved party.

A) Navigating Legal Complexities in AI Damages

The challenges faced by those harmed by AI in pinpointing the cause of the damage are considerable. They must determine whether the damage was due to the inherent components of the AI or its programming before initiating legal action.

This prerequisite often results in the aggrieved losing the primary advantage of liability for things, which is designed to alleviate the burden of tracing the specific cause of an accident. Such complexities highlight the need for revised legal frameworks that can more aptly address the unique challenges posed by artificial intelligence in the modern legal landscape.

A segment of legal doctrine supports the notion that liability for damages caused by robots can be framed as a matter of defective products. This perspective is based on the principles of product liability. Notably, a report by the French Parliamentary Institute for Scientific and Technological Assessment dated March 15, 2017, endorses this approach for addressing liabilities arising from artificial intelligence. In such cases, responsibility may fall on either the designer of the smart system or the manufacturer.

To establish liability, it is sufficient to demonstrate a defect in the product or a failure to meet manufacturing and safety standards. This form of liability is recognized regardless of the presence of a contractual relationship, as outlined in Article 1245 of the French Civil Code.

However, applying the principles of product liability to artificial intelligence presents substantial challenges. Due to the inherent dangers in its functionality, artificial intelligence is considered a source of public hazards. Consequently, aggrieved parties often struggle to establish the presence of defects in AI products.

Additionally, the identification of a responsible manufacturer is complicated by the involvement of multiple parties in the development of AI technologies. In some instances, damages may be irreparable under the framework of product liability.⁷

Amidst the growing reliance on artificial intelligence, which at times verges on complete dependency, critical questions emerge regarding dependency dynamics: Who depends on whom? Who controls whom? Who is the guardian of whom?

The autonomy of these systems extends beyond the control of both users and owners, allowing both to potentially disclaim responsibility by asserting a lack of control over the system's actions. This leads to a fundamental question in establishing liability: Who truly has control?⁸

B) Methods of Proving Fault in Artificial Intelligence:⁹

In the realm of artificial intelligence, defects in machines, particularly those deemed dangerous, are tangible realities. The aggrieved party bears the burden of demonstrating the defect using all available methods of proof, which include documentation, evidence, admissions, oaths, expert testimony, and presumptions.

Given the complexities involved with smart machines, damages and defects are often substantiated through legal presumptions and expert evaluations, as the traditional methods of swearing and presenting direct evidence are generally impractical and illogical.

A presumption is an inference that either the legislator or a judge makes from a known and established fact, applying it to another fact that is either disputed or not readily provable.¹⁰

Presumptions can be challenging to demonstrate scientifically. They may be classified as either legal, which exempts the claimant from providing proof (either temporarily or permanently, depending on whether the presumption allows for contrary evidence), or judicial, which represents a proactive approach to evidence gathering. Judicial presumptions are particularly significant due to their diversity and the broad discretion judges possess in accepting them.¹¹

These presumptions are invaluable in many cases, serving as a crucial form of proof, particularly when they provide indirect evidence in situations where direct evidence is unavailable.

In cases involving damages or defects that may arise from the misuse of smart products, such as a smart product owner using it in a manner that harms another, the legal framework provides a presumption that eases the burden on the aggrieved party to prove the existence of a defect or damage.

Judicial expertise plays a pivotal role as a technical and scientific procedure that assists the judiciary in navigating special circumstances and specific cases. This expertise is essential for providing necessary clarifications on technical matters, which are better handled by experts rather than laypersons.¹²

Experts in the fields of artificial intelligence and technology play a crucial role in elucidating the responsibilities of each party involved, according to their expertise. This enables judges to make informed decisions when resolving technical and technological disputes.

An expert, for example, can provide detailed insights into intelligence programs and the necessary algorithms to establish the causal link between the damage incurred and the defect in smart products such as autonomous vehicles or advanced devices for pulse calculation.

3- Conclusion:

Upon concluding this study, we arrive at several key results and recommendations.

1- Results:

- There is currently no comprehensive and universally accepted definition of artificial intelligence. The concept continues to evolve rapidly, growing more complex, dynamic, and filled with challenges. This evolution leads to significant variations among scholars and legislators in defining the precise nature of artificial intelligence.

Responsibility and Proving Damages Caused by Artificial Intelligence

- The field of AI is still relatively nascent, and the depth of legal and academic research pertaining to it remains limited.
- It is imperative that legislators recognize the unique status of artificial intelligence, which merges characteristics of both inanimate objects and human-like entities.
- Actions involving artificial intelligence cannot be easily subsumed under the rules of liability for personal acts, due to the complexities involved in proving such cases and attributing personal fault to users of artificial intelligence systems.
- Presumptions and expert testimony stand out as critical methods of proof in legal disputes involving artificial intelligence.
- While the rules of liability for defective products are frequently applied to cases involving AI, they exhibit notable limitations. The physical aspects of AI, represented by the devices that house the intelligence, are treated as products. However, the moral aspects, such as software and algorithms, often fall outside the traditional legal frameworks.
- Currently, there are no specific legal provisions tailored to regulating the proof of damages from artificial intelligence. This study addresses how civil liability is established in tort cases involving AI.

2-Recommendations:

- There is a pressing need to develop specialized legal rules that safeguard individuals harmed by smart robots, possibly through the enactment of laws specifically regulating this responsibility.
- We propose amending Article 138 of the Civil Code to include provisions for the guardianship of objects that require special care, or mechanical devices and smart applications. The amendment would hold guardians responsible for any damages caused by these objects or applications, enhancing accountability in the use of AI.

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