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APPLICATION OF ARTIFICIAL INTELLIGENCE IN THE CRIMINAL COURT PROCEEDINGS AND THE POSSIBLE ETHICAL DILEMMAS

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ABSTRACT

This study investigated the integration of artificial intelligence (AI) within the criminal justice system, focusing on its application in legal proceedings and its broader implications for justice administration. The primary objective was to assess AI's potential to improve efficiency, fairness, and accuracy in decision-making processes such as investigation, adjudication, and case prioritization. A qualitative approach was employed, analyzing existing literature, policy reports, and real-world applications of AI in various jurisdictions. Results showed that AI technologies have enhanced the ability of legal professionals to process complex information and manage sophisticated criminal behaviors. However, the research also highlighted critical ethical and legal concerns, particularly regarding privacy, accountability, and the protection of fundamental human rights. As AI tools become increasingly advanced and embedded in court processes, the need for robust ethical frameworks and regulatory oversight becomes essential. The study concluded that while AI holds transformative potential for the criminal justice system, its implementation must be approached with caution to ensure that technological advancement does not come at the expense of justice or civil liberties.

Keywords: artificial intelligence, criminal justice, legal technology, ethical concerns, decision-making, court proceedings, human rights.

INTRODUCTION

Justice systems worldwide are currently facing the initial challenges of crime control and criminal justice, brought on by the impact of artificial intelligence (hereinafter: AI) on global society's digital transformation. Because crimes have gradually become complex, sophisticated, and hidden, it is highly difficult for law enforcement agencies to trace specific criminal activities and their *modus operandi*. This fact negates the social credibility of conventional systems of justice.

Right from the start, this paper briefly discusses the meaning of AI before outlining its content. Heading in that direction, our initial focus would be on providing a definition of AI.

AI at its core is the capability of computer systems to perform tasks simulating human intelligence. It uses a combination of math and logic to mimic human reasoning, learning, and decision-making. While there are many possible approaches to AI, machine learning—the

practice of enabling computers to learn from data—currently dominates the field, and an advanced form of this called deep learning has made current AI technologies possible. Generative AI is an AI technology that can create new, varying types of content, from text to imagery, to audio and synthetic data (Impact of Artificial Intelligence (AI) on Criminal and Illicit Activities 2024, 6).

For the purposes of this paper, we adopt the High-Level Expert Group on Artificial Intelligence (AI HLEG)'s general definition of AI according to which:

Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans¹ that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions. As a scientific discipline, AI includes several approaches and techniques, such as machine learning (of which deep learning and reinforcement learning are specific examples), machine reasoning (which includes planning, scheduling, knowledge representation and reasoning, search, and optimization), and robotics (which includes control, perception, sensors and actuators, as well as the integration of all other techniques into cyber-physical systems)(European Commission: High-Level Expert Group on Artificial Intelligence2018, 6).

In the field of criminal law, there is a longstanding close bond between criminal justice and technology. Over the past 150 years, criminal courts have deployed the so-called "machine evidence" to form and support their verdict, and the "silent testimony of instruments" has supplemented the testimony of humans (Damaška1997, 143).

Among the notable international documents related to this topic, we would highlight the *European Convention on Human Rights* and the *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment*.

Article 6 of the *European Convention on Human Rights* recognizes the right to a fair trial with core components of a fair hearing, a reasonable time, and the independence and impartiality of the court. Although the case-law of the ECtHR provides detailed guidance on the requirements deriving from these principles, we must bear in mind that the interpretation of the Convention – and therefore of Article 6 – shall always be subject to present-day conditions. This concept of the Convention as ‘a living instrument’ entails that the principles and standards of the ECHR are not static; their interpretation shall reflect social and economic changes (See: *Tyrer v. United Kingdom*; *Marckx v. Belgium*).

The Council of Europe has adopted the *European Ethical Charter on the use of Artificial Intelligence in judicial systems and their environment*, where the respect for human rights prevails as a key principle. This Charter also states that we must ensure the guarantees of the right of access to the judge and the right to a fair trial, even when AI is used to provide or assist decision-making. When using AI, it is important to consider these fundamental rights as a framework for its application.

In the upcoming sections of this paper, we will examine the main areas of possible application of AI in criminal court proceedings, the uses, and abuses of AI technology, and ethical dilemmas arising from the application of AI in criminal court proceedings within the context of fundamental human rights and freedoms. A conclusion will be provided at the end of the paper.

¹ Humans design AI systems directly, but they may also use AI techniques to optimise their design.

USES AND ABUSES OF ARTIFICIAL INTELLIGENCE TECHNOLOGY

The fourth industrial revolution is marked by a significant increase in automation and data-driven technologies, with AI leading advancements in fields like healthcare, energy, and transportation. As AI tools become more advanced and powerful, the risks associated with this technology also escalate. In other terms, as AI systems become more sophisticated, they also attract the risk of misuse, which can adversely affect individuals, organizations, and even nations.

This paper also explores the potential future misuse of AI technology, but accurate predictions can only be made based on current data. Specifically, AI is a dual-use technology that plays a crucial role in the fourth industrial revolution. Because of this dual nature, while AI has the capacity to provide substantial benefits to society and help tackle major challenges, it also poses various digital, physical, and political risks. Therefore, it is essential to thoroughly understand the threats and possible illegal uses of AI systems to protect society, as well as vital industries and infrastructures, from malicious actors.

In the rapidly evolving landscape of technology and computer science, AI continues to offer numerous potential applications for businesses and individuals. Unfortunately, the rise of automation and autonomy also introduces various methods that can be exploited by malicious individuals. For instance, criminals can leverage AI to enhance their attacks, quickly boost potential profits, target new victims, devise innovative criminal strategies, and reduce the likelihood of detection. Moreover, the widespread use of AI assistants creates opportunities for criminals to exploit these devices in homes. For example, unauthorized individuals might gain access to a smart home by taking advantage of vulnerabilities in the automation system through compromised audio devices. Criminal organizations are rapidly incorporating new technologies into their operations, leading to ongoing changes in the global criminal landscape and posing significant challenges for law enforcement and cybersecurity as a whole. Moreover, the increasing popularity of AI-as-a-Service will make it easier for individuals to utilize AI by lowering the required expertise and technical knowledge.

Mitigating the harms caused by AI-related crime will require a multi-faceted effort including robust collaboration across sectors, public engagement, developing innovative AI-powered defensive measures, and applying lessons and best practices from cybersecurity (Impact of Artificial Intelligence (AI) on Criminal and Illicit Activities 2024, 5).

Enhancing our understanding of how criminals might exploit AI can strengthen the cybersecurity sector and improve law enforcement's ability to anticipate, prevent, respond to, and mitigate the impacts of potential threats in advance. Recognizing the capabilities, scenarios, and types of attacks is essential for enhancing preparedness and building more robust defenses. The swift advancement of AI and machine learning brings complex issues regarding the benefits and risks for the criminal justice system.

THE MAIN AREAS OF POSSIBLE APPLICATION OF ARTIFICIAL INTELLIGENCE IN THE CRIMINAL JUSTICE SYSTEM

AI has made a significant impact across various sectors, including healthcare, finance, and education. However, its effect on the criminal justice system stands out. The use of AI in this field started with the creation of basic data analysis tools that helped law enforcement identify patterns in criminal behavior. With advancements in machine learning, natural language processing, and big data analysis, more advanced applications have emerged. The potential for AI in the criminal justice system is vast, encompassing areas like predictive policing, improving access to legal processes, and analyzing court documents to enhance efficiency, accuracy, and fairness. Adopting AI in the criminal justice system could be essential

and transformative for crime prevention, investigations, evidence collection, and optimizing time and resources.

Access to justice is a notion frequently advanced by judicial systems to justify the use of digital tools, which, depending on the context, are intended to increase the amount of information or level of services available to court users or to lower the barriers (taken to mean the material and financial costs) to accessing existing services (European Commission for the Efficiency of Justice– CEPEJ2017, 10).

AI has the potential to be used in various areas of the criminal justice system, such as:

a) Predictive Policing

AI is increasingly being integrated into various aspects of the criminal justice system, with one of the most notable applications being predictive policing. This innovative approach uses data analytics and machine learning algorithms to anticipate criminal activity, allowing law enforcement agencies to allocate resources more efficiently and improve crime prevention strategies. Predictive policing relies on big data analysis to uncover patterns and trends that may signal potential criminal behavior. AI systems examine historical crime data to assess the likelihood of future crimes based on factors like location, time, and previous criminal activities. The aim is to enhance the effectiveness of law enforcement by enabling officers to intervene in potential incidents before they escalate. However, despite its advantages, predictive policing also brings forth significant ethical concerns. Issues such as algorithmic bias can result in an unequal focus on certain demographic groups, reinforcing existing societal inequalities. The potential for both transformation and ethical dilemmas in the criminal justice system is underscored by the field of predictive policing through AI.

b) Facial Recognition

The primary use of this technology is in security and law enforcement, but there is growing interest in exploring other applications as well. Facial recognition identifies or verifies a person's identity by analyzing their facial features. This technology can pinpoint individuals in images, video footage, or live streams. Its role in the criminal justice system showcases the potential of AI, while also underscoring the importance of establishing ethical guidelines for its use. It is crucial to collaborate with law enforcement, regulators, and communities to find the right balance between security and civil liberties as this technology advances.

c) Risk Assessment Tools

AI is increasingly important in the criminal justice system, especially when it comes to risk assessment tools. A risk assessment is the process of identifying potential threats and hazards in a given situation and evaluating the possible outcomes if these threats were to occur. This approach aids in decision-making by determining the necessary actions to manage or reduce risks, while also prioritizing them based on their potential impact and likelihood for the organization.

d) Automated Case Management

Automated case management systems play a crucial role in the criminal justice system by enhancing administrative and operational processes. They utilize technology to boost the efficiency, organization, and accessibility of case information. AI algorithms and software tools manage legal cases from beginning to end within these systems. They assist in coordinating documents, tracking deadlines, and facilitating communication among stakeholders such as law enforcement, attorneys, and courts. By automating routine tasks like data entry and scheduling notifications, these systems reduce the workload for human employees.

e) Cross-border Cooperation

Tackling cross-border crime has been a persistent challenge for law enforcement and judicial authorities. For financial crime, trafficking of human beings, terrorism, or cybercrime, criminal activities have become borderless. These and many other cross-border criminal activities are facilitated by the use of modern information and communication technologies, including encryption and AI. Tackling cross-border crime requires effective collaboration between authorities from different EU Member States and third countries. It also requires the effective use of modern technologies on par with those used by the organized criminal groups (European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice [eu-LISA], The European Union Agency for Criminal Justice Cooperation [Eurojust]2022, 8).

The advantages of using these technologies hinge on their reliability and credibility. It's important to strike a balance between leveraging these tools and safeguarding fundamental rights. Considering the previously discussed applications of AI, we can assert that its integration into the criminal justice system has the potential to greatly enhance and streamline its functions. However, there are several challenges to address when introducing AI in this area. Concerns such as algorithmic bias, transparency, and accountability are paramount. The risk of AI exacerbating existing biases and the ambiguity in decision-making processes can erode trust in the technology. Still, these obstacles can be navigated. To effectively incorporate AI, adhering to strong ethical standards and regulatory frameworks is crucial.

It is imperative, therefore, for legal scholars to cross disciplinary boundaries and work together with AI experts, in order for them to demystify and understand in depth the workings of AI. Only then they can produce relevant and applicable laws that will effectively incorporate AI in our legal reality and justice systems and regulate its possible dangers(Bampasika2021, 133-138).

By promoting robust interdisciplinary partnerships, establishing ethical standards, and developing regulatory frameworks, we can strive for a criminal justice system where AI enhances fairness and efficiency while upholding justice and public trust.

ETHICAL DILEMMAS FROM THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN THE CRIMINAL COURT PROCEEDINGS IN THE CONTEXT OF FUNDAMENTAL HUMAN RIGHTS AND FREEDOMS

In this section of the paper, it is important to define what an ethical dilemma is. An ethical dilemma, sometimes referred to as an ethical paradox or moral dilemma, arises when a decision must be made between two options, each presenting its own ethical concerns. It is often characterized as a scenario where all possible choices appear to be wrong. Moreover, ethical dilemmas introduce complex challenges that are not easily resolved. Therefore, it is crucial for individuals to identify the most appropriate course of action in these situations. Typically, an ethical dilemma requires careful thought and consideration. Finding a resolution can be a lengthy process that cannot be simply solved by applying rules and facts. One of the main difficulties with ethical dilemmas is that they do not provide a straightforward solution that aligns with ethical principles. Throughout history, individuals have encountered similar dilemmas, prompting philosophers to investigate and suggest potential solutions.

Digital technologies are slowly, over time, increasingly becoming a part of different aspects of our daily routine. Simultaneously, there is a diverse range of interpretations of digitalization in society. However, we should still acknowledge its broad definition as ‘legal, political, economic, cultural, social and political changes caused by the use of digital tools and technologies’ (Razmetaeva *et al.* 2022, 41-56).

In the mentioned definition, the key point is to indicate the changes caused by digital technologies when they are introduced into our lives. On the one hand, this can serve as the basis for its qualitative improvement and facilitation, while on the other hand, the disproportionate and unreasonable introduction of digital technologies can yield adverse effects. This includes, for example, unreasonable interference with human rights, the risk of unauthorised access to personal data due to insecurity, discriminatory decisions, and more (Kaplina *et al.* 2023, 147-166).

Based on the Charter and the European Convention on Human Rights, as well as relevant secondary EU legislation (General Data Protection Regulation (GDPR), Regulation (EU) 2018/172521 (EUDPR), the Electronic Privacy Directive, and the Law Enforcement Agencies Directive (LED)) and practice, the High Level Expert Group on AI published *Ethical Guidelines for Trustworthy AI* on 8 April 2019. The recommendations define seven key requirements that AI systems must satisfy: 1) human involvement and supervision; 2) technical reliability and security; 3) privacy and data management; 4) transparency; 5) nondiscrimination and fairness; 6) societal and environmental welfare; and 7) accountability and responsibility (*Ibid.*).

As AI does not equal artificial perfection, the weaknesses of AI as an evidence-generating mechanism must be put under a magnifying glass, in order to figure out satisfactory safety requirements conditioning its use in the realm of the criminal justice (Bampasika2021, 133-138).

According to the *High-Level Expert Group on Artificial Intelligence* (AI HLEG), there are three components of AI.

- 1) it should be lawful, ensuring compliance with all applicable laws and regulations;
- 2) it should be ethical, ensuring adherence to ethical principles and values and
- 3) it should be robust, both from a technical and social perspective since to ensure that, even with good intentions, AI systems do not cause any unintentional harm (High-Level Expert Group on Artificial Intelligence2018).

The current state of the art does not provide for systems to self-report their decisions, but there is a widely held view in the relevant scientific community that regulators will force developers to interject “explanation systems” into their AI solutions when they are deployed in environments where their outputs (or decisions) are likely to have a significant regulatory or human impact (Buyers2018, 22-23).

International human rights instruments, notably the *International Covenant on Civil and Political Rights* (ICCPR) and the *European Convention on Human Rights and Fundamental Freedoms* (ECHR), but also such treaties as the *U.N. Convention against Torture and Other Cruel, Inhuman or Degrading Treatment and the European Convention for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment*, provide for a number of fundamental human rights that have interrelated links to criminal process, as well as encompassing humanitarian values regarding the inherent rights of individuals as human beings to physical integrity, freedom and self-determination. These set the boundaries of what a state may do in order to achieve the prosecution, trial, conviction and punishment of (suspected) criminals, and therefore the security of society at large. While the rule of law dictates that the state is bound by the limits the law sets upon it, human rights conventions provide the extra guarantee that, in the final event, state activities regarding criminal justice that infringe upon the fundamental rights of individuals be scrutinised by an impartial and independent tribunal – a principle that is explicitly guaranteed by the ICCPR (Article 9) and by the ECHR (Article 5) with regard to the deprivation of liberty (*habeas corpus*) (Brants & Franken2009, 8).

Furthermore, other fundamental rights, guaranteed by the same or other Conventions, may also influence the fairness of proceedings. The presumption of innocence and the right to silence can, for example, be undermined by undue infringements by investigating officers of the right to privacy, or by degrading and humiliating treatment of a suspect at the hands of the police, while the right to a public trial may be affected if the media are barred from attending proceedings and therefore unable to exercise their right to gather information, which is part of the fundamental right to free expression. It is also immediately apparent that the international guarantees of fair trial are intricately related to accurate truth-finding (correct verdicts): the right to silence, closely linked to the protection against self-incrimination and the prohibition of undue methods of persuasion during interrogation, not only derives from humanitarian notions that torture is unacceptable, but also from the recognition that statements/confessions obtained by force are inherently unreliable and likely to contribute to miscarriages of justice. Likewise, the right to know and contest the evidence not only reflects the idea that it is unfair to try and convict a person on the basis of evidence he does not know, but is also an important means of establishing the truth by ensuring that both sides of the story are heard by the tribunal of fact(*Ibid.*, 9).

CONCLUSION

The swift progression of technology across diverse sectors is posing a multitude of challenges, inquiries, and uncertainties within the existing legal framework. AI is evolving at an extraordinary rate, often accompanied by hype, misinformation, and sometimes unnecessary anxiety. While AI has the potential to enhance the criminal justice system, there remains a significant lack of clear and practical guidance for legal professionals to understand and effectively utilize this technology. This gap in knowledge and resources complicates the task of determining what AI can achieve, managing its risks, and ensuring it supports, rather than undermines, the principle of fairness.

AI has the potential to impact productivity, equity, and decision-making in various aspects of the criminal justice system. AI tools can assist in cutting down paperwork, backing data-based decisions, and avoiding case delays by simplifying case management and aiding in analyzing evidence. Nonetheless, it is essential to handle the incorporation of AI carefully and follow a sturdy framework that emphasizes fairness and equality. In order to make the most of these advantages, it is crucial to create, examine, and put into practice AI technologies in a manner that stays true to the fundamental principles of the justice system, while also reducing the chance of reinforcing biases.

This paper delves into the complex role of AI within the justice system. While AI has the potential to enhance processes, it also introduces significant risks related to ethical dilemmas in legal proceedings. Without proper oversight, AI-driven decisions could infringe on individuals' rights and obscure transparency and accountability. As algorithms begin to influence outcomes such as sentencing, bail determinations, and risk assessments, it is vital to ensure that these tools are as transparent and equitable as possible. The ethical concerns raised in this paper highlight the urgent need for regulations to mitigate risks and establish safeguards against the misuse of AI.

The true potential of AI can only be realized through collaboration among legal professionals, industry leaders, and academic experts. An interdisciplinary approach is essential to understand how to use this technology responsibly and to raise awareness about its potential for misuse. Academics and professionals from various fields can help legal practitioners grasp how AI functions, its limitations, and the associated risks. This teamwork is crucial for anticipating how AI might be exploited for criminal activities. Some criminals could take advantage of AI and machine learning to enhance cybercrime, automate fraud, or manipulate data, making it vital to take proactive measures. Legal and technology experts can assist in identifying new AI-related crimes, developing solutions to counter these threats, and

establishing safeguards to ensure AI does not pose a danger to society. By working together, we can prepare the legal framework to use AI wisely while also addressing and mitigating the potential negative impacts of its misuse.

Given all these points, it is clear that the careful integration of AI into the criminal justice system requires a balanced approach that considers innovation alongside caution. By focusing on ethical considerations, fostering interdisciplinary collaborations, and upholding legal principles of fairness and accountability, AI can become a powerful ally in the pursuit of justice. Through informed teamwork and proactive strategies, the legal system can leverage the benefits of AI while protecting against potential risks, ultimately leading to a more just, efficient, and resilient justice system.

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