



# International Journal of Criminology & Justice (IJCJ)

VOLUME 1 ISSUE 1 (2025)



PUBLISHED BY  
E-PALLI PUBLISHERS, DELAWARE, USA

## The Role of AI in Reducing Criminal Recidivism: Emerging Opportunities and Challenges

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### Article Information

**Received:** March 27, 2025

**Accepted:** May 02, 2025

**Published:** June 30, 2025

### Keywords

*AI Risk Assessment, Artificial Intelligence, Ethical Implications, Legal Regulation, Recidivism Prevention*

### ABSTRACT

The aim of this analysis is to determine the value of AI in reducing recidivism by improving risk assessments, rehabilitation planning, and helping judges from a technological, legal, and ethical point of view. It also helps to assess the technical feasibility, legal frameworks, and ethical concerns of using AI in the criminal justice system. The analysis is qualitative, so the legal documents such as the EU AI Act, the Council of Europe's AI Convention, and global ethical documents have to be studied. These central issues like algorithmic discrimination, data protection, and liability are analyzed. It has been shown that AI does improve predictive and rehabilitation outcomes, but its success is contingent on legal and ethical provisions that AI biases, lack of transparency, and in the governmental regulations create a threat to equity. To help guarantee compliance, monitoring the implementation through ethical scrutiny and interprofessional collaboration is critical. The reduction of recidivism is one area where AI has great potential impact, but the technology's primary role should be as an auxiliary. When incorporating AI into the justice system, it is essential that minimum threshold conditions of impartiality, publicity, and adherence to civil rights and freedoms are met. Further examination of assigning responsibility to AI systems, as well as reducing prejudice and defining clear legal frameworks should be done.

### INTRODUCTION

Recidivism is among the crimes that seem to be committed repeatedly and is defined as the act of relapsing into criminal behavior. It continues to be a major and concerning issue for the justice systems across the world (Bonta & Andrews, 2007). Recently, artificial intelligence (AI) has emerged as a technology that is helpful in addressing this national challenge by providing predictive solutions and aiding in preemptive measures against recidivism (Binns, 2018). AI promises to transform the processes of evaluating the risks of reoffending and will provide criminal justice professionals right tools that will assist in making better decisions on sentencing, parole, and rehabilitation options (Binns, 2018). As these systems have access to a broad range of criminal justice information, artificial intelligence can detect things that humans in charge might not be able to notice. This would enhance strategies for preventing reoffending (Raji & Buolamwini, 2019). Such advancement offers new ways to improve crime prevention, resource management, and equitable justice (Angwin *et al.*, 2016). Nonetheless, the application within recidivism mitigation possesses some complexities and caveats. The issues of algorithmic bias, the quality of available data, transparency, and ethical concerns regarding automated decision-making processes are major obstacles on the path to controlling and using AIs in the criminal justice system (O'Neil, 2016). This study aims to understand the benefits and challenges of automated systems of recidivism risk assessment, assessing the potential adoption of AI technologies into the criminal justice system, its practical difficulties, and

the moral challenges that need thoughtful consideration. This study hopes to advance the discussion on the role of AI in modernizing the criminal justice system and the balance it needs to strike with the need to minimize reoffending knowing that addressing these issues presents both advantages and concerns.

### Concepts

Involving a more in-depth analysis of a topic calls for forming a theoretical outline by, first and foremost, defining a few key terms that relate to this study such as artificial intelligence and recidivism. Such a definition helps not only in having a clear and clean theoretical explanation but also in attempting to analyze their relation within the scope of this study in a more detailed and systematic manner.

### Concept Artificial Intelligence

Artificial intelligence (AI) is a relatively young discipline encompassing a set of sciences, theories, and techniques—primarily mathematics, statistics, probability, and computer science—aimed at replicating human cognitive abilities through machines. AI emerged as an academic field in the 1940s, with Alan Turing laying its conceptual foundation in his seminal 1950 paper, *Computing Machinery and Intelligence*, where he posed the fundamental question: “Can a machine think?” and attempted to provide an answer. However, due to limitations in data processing capabilities and electronic science, AI remained relatively obscure and ambiguous for nearly five decades, with interest in the field remaining somewhat limited.

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Nevertheless, with remarkable advancements in processor speed and computational power, as well as the ability to store vast amounts of data efficiently in electronic memory, AI has now become a fundamental research domain and an applied discipline across nearly all fields of knowledge, including engineering, medical sciences, law, and economics. In essence, AI refers to a system's ability to accurately interpret data, learn from it, and utilize the acquired knowledge to achieve specific objectives. The primary goal of investment in this domain is to delegate complex tasks—previously assigned to humans—to machines (Anyoha, 2019). It is important to note that AI has been defined in various ways. Below, some of the most significant definitions of artificial intelligence are highlighted:

Artificial Intelligence (AI) is a multifaceted field within computer and system sciences, focusing on the creation of machines and systems endowed with intelligence. This involves embedding cognitive capabilities into computers to enable them to perform tasks that typically require human intelligence, such as reasoning, learning, and problem-solving. However, there is no universally accepted definition of AI, leading to various discussions and debates regarding its scope and implications. (Tzafestas, 2016) Or in other words, it can be said Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, learn, and perform tasks that would normally require human cognitive functions, such as decision-making, problem-solving, language understanding, and visual perception. AI systems are powered by algorithms and vast amounts of data, enabling them to improve their performance over time through machine learning (Russell & Norvig, 2020). In its strictest sense, AI refers to the imitation by computers of the intelligence inherent in humans. Some purists argue that many current applications are relatively simple and do not constitute true AI, suggesting that such a narrow definition may not be appropriate for all contexts. (Tzafestas, 2022) And more precisely, it can be stated that Artificial Intelligence refers to the development of computer systems that are able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and language translation. These systems learn and adapt to new data over time, enabling them to improve their performance without being explicitly programmed (Goodfellow *et al.*, 2016).

### Concept of Recidivism

The term recidivism refers to the act of a person repeating a crime before being convicted for the same offense. Recidivism poses problematic features in criminal law and criminology as it affects the criminal justice system and poses strange problems in crime prevention and offender rehabilitation. Recidivism can result from various social, economic, and psychological issues and an inefficient legal system. There are multiple definitions of recidivism, and here, a few of the following

definitions can be mentioned: The concept of recidivism refers to the tendency of previously convicted criminals to relapse into criminal behavior, particularly after receiving sanctions or undergoing rehabilitation. It is a key issue in criminology, criminal justice, and the study of punishment and rehabilitation, reflecting the failure of deterrence or rehabilitation strategies in preventing future offenses (Lilly *et al.*, 2019). Recidivism is commonly assessed by examining re-offending rates within a specific time period after release from prison or completion of a sentence (Mears, 2018). And also Recidivism can manifest in various forms, ranging from minor offenses to serious crimes, and it presents a major challenge for criminal justice systems worldwide. It is influenced by a variety of factors including socioeconomic conditions, psychological health, lack of social reintegration, and the availability of support networks (Nagin *et al.*, 2017). One key determinant of recidivism is the nature of the initial offense and the criminal's history, with certain offenders showing higher likelihoods of re-offending due to personality traits, environmental stressors, or prior criminal associations (Laub & Sampson, 2003). The ability to predict recidivism has been a critical component of sentencing and parole decisions. Over the years, scholars and policymakers have sought ways to reduce recidivism rates through rehabilitation programs, alternative sanctions, and reforms in correctional strategies (Andrews & Bonta, 2010). However, preventing recidivism remains complex and multifaceted, requiring the integration of social, psychological, and technological interventions, such as Artificial Intelligence (AI), to improve predictive models and optimize rehabilitation (Binns *et al.*, 2019).

### LITERATURE REVIEW

Recidivism is an insidious trait among offenders that seems to be inextricably entangled with justice systems throughout history and across many nations. That is how immense the problem has been, further reflected in such astonishing facts as the one cited by Bonta & Andrews: in the United States alone, about 68% of prisoners released are rearrested within three years (Bonta & Andrews, 2007). Traditional rehabilitation methods, like correctional programs and parole supervision, have not been particularly successful in trying to reduce recidivism rates, and the consensus among most scholars has pointed to the reason: that the complexity of needs in offenders remains unmatched by traditional methods (Bonta & Andrews, 2007). But times have changed with artificial intelligence stepping into this arena and promising to provide data-driven solutions to revamp the concept of recidivism prevention. The major application of AI within the criminal justice system has come through predictive policing and risk assessment tools that use numerous criteria, each with variant degrees of persuasiveness—from prior criminal history to socioeconomic backgrounds and from psychological analysis amongst others. (Angwin *et al.*, 2016). To this effect, the US case of COMPAS risk assessment system is arguably perhaps the most debated

and discussed case: While COMPAS may accurately predict the risk of reoffending, it has generated several concerns regarding bias and transparency: critics argue that if AI learns from biased data, it could perpetuate current prejudices and thus affect some racial or social groups disproportionately (Angwin *et al.*, 2016). Despite such criticisms, there are many points where AI may have a very positive impact on preventing recidivism. For example, AI-driven predictive algorithms can facilitate real-time monitoring and intervention for parolees by swiftly identifying early signs of reoffending and triggering timely interventions that can prevent recidivism (Raji & Buolamwini, 2019). Additionally, AI can be used to personalize rehabilitation programs tailored to the individual needs of specific offenders and thus increase their efficiency in reducing recidivism rates (O'Neil, 2016). This personalized solution can be metaphorically compared with a tailored suit, where distinctive features and specific needs of an individual are observed and considered before crafting a personal solution. Despite this, integrating AI in the criminal justice system does not ignore ethical and legal issues. Chief among these include accountability of systems using AI, fairness of the algorithms, and privacy concerns on deploying these technologies (Bonta & Andrews, 2007). For example, predictive tools might unfairly target specific groups based on biased data, leading to unjust surveillance or harsher sentences. There is also a worry that over-reliance on AI could erode human oversight and decision-making, undermining core justice principles (Bonta & Andrews, 2007).

Considering everything, Artificial intelligence has the potential to significantly reduce recidivism rates as a result of its predictive analyses and individualized rehabilitation programs. Unfortunately, the aim of implementing AI has to be very careful as there are benefits to AI but there are also limitations and ethical concerns. In light of such an emerging field of study, additional research is needed to ensure that AI is developed and deployed in a manner that is non-discriminatory, transparent and actually effective in the effort of reducing recidivism rates.

### **The Possibility of Preventing Recidivism through Artificial Intelligence**

The issue of preventing recidivism through artificial intelligence necessitates an examination of two key aspects: Technical Feasibility of Artificial Intelligence and Legal Framework for Artificial Intelligence.

#### **Technical Feasibility of Artificial Intelligence**

In recent years, AI has made great progress. It now lives beyond mere theoretical possibilities and is being applied in diverse fields. Many of the people are familiar with the potential that AI has to impact industries such as health care, finance, transportation, and even policing (Müller *et al.*, 2020). However, there remains controversy with regard to the practicality of implementing AI technology within the confines of an industry or organization. In

medicine, for example, AI systems are able to process medical data, identify the illnesses, and even aid in certain operations. Lee and Kim indicate that AI can actually do some tasks much better than humans, such as diagnosing cancers from medical images (2022). In a similar manner, AI algorithms in criminal justice assist in recidivism prediction and even aid in sentencing. Nevertheless, fairness and transparency are still important issues (Smith & Brown, 2019). These milestones cater to the claim of AI's potential productivity, however, the claim is offset by its boundaries in the capability of data storage, the required computational power, and privacy constraints. As technology progresses, so do the criticisms and claims against AI like imbalanced data, inappropriate decision-making, and ethical considerations resulting from AI-created models (Johnson *et al.*, 2021). It should be noted that the progressive development of artificial intelligence has significantly contributed to the design and implementation of next-generation risk assessment tools for recidivism. One of the most well-known AI-based tools in this field is the COMPAS software, widely used in the United States. This software operates on an algorithm that integrates multiple data sources, including:

1. Criminal behavior records collected over several years by law enforcement agencies,
  2. Decisions related to incarceration (prison sentences), and
  3. Risk factors such as gender, age, education, personal status, employment and professional conditions, financial situation, criminal history, residence, and overall stability.
- The COMPAS algorithm is also based on a machine learning model, meaning that computers independently analyze and learn from existing data. The primary objective of this system is to statistically estimate the likelihood of a criminal reoffending. Specifically, the algorithm compares statistical data with the profile of an offender. If the individual shares common risk factors with previously convicted recidivists, the system assesses a high probability of reoffending. The results generated by this assessment are then forwarded to the presiding judge for consideration.

Another AI-driven tool, PREDPOL, was developed by an anthropology professor, inspired by earthquake prediction algorithms. This software aims to forecast crime-prone areas and the timing of certain offenses, providing valuable insights for law enforcement agencies. The concept behind PREDPOL aligns with the futuristic vision of crime prediction as depicted in the science-fiction film \*Minority Report\*. However, the software faced criticism due to its unintended consequence of merely shifting criminal activity rather than preventing it. Similarly, in the United Kingdom, the University of Cambridge developed the HART (Harm Assessment Risk Tool) software, which has been experimentally used by law enforcement since 2007. This system underwent multiple stages of development. Initially, archived crime records from 2008 to 2012 were analyzed to identify police decisions and recidivism patterns. Based on this dataset,

an algorithm was developed to assess the recidivism risk of suspected individuals. The system categorizes suspects into three risk groups: low, moderate, and high. This assessment involved nearly 30 factors, some of which were non-statistical and seemingly unrelated to criminal behavior—such as address and gender—yet were incorporated into the final analysis (Oswald *et al.*, 2018).

### Legal Framework for Artificial Intelligence

The fast growth of artificial intelligence makes it essential to create legal rules. These rules keep risks in check. They also make sure innovations are safe and controlled. Many countries and international groups have proposed laws about artificial intelligence. These laws try to balance tech growth with protecting human rights and democracy and these legal guidelines and “frameworks aim to ensure ethics in AI use, but challenges still exist. Fairness, transparency, and accountability are still key concerns for AI systems. These legal measures should not stifle innovation. They must clearly define boundaries to protect fundamental human rights. Talks are happening to balance rapid tech growth with social and ethical concerns” (European Commission, 2024). These legal guidelines and “frameworks are as follows:

#### European Union’s AI Act

The European Union has introduced the AI Act. Many see it as the first full law on artificial intelligence globally. This new law aims to create reliable and AI-secure ways to develop, deploy, and use AI products in the EU. It sets clear guidelines for these processes. The law deals with several risks associated with AI: safety, bias, and liability. AI technologies will respect basic rights. This includes data protection and non-discrimination (European Commission, 2024).

#### The European Union Artificial Intelligence Act (EU AI Act)

The European Union’s Artificial Intelligence Act (AI Act), introduced in 2021, is recognized as the first comprehensive legal framework for regulating artificial intelligence at a global level (European Commission, 2021). This law aims to ensure the ethical use of AI systems, particularly in sensitive areas such as criminal justice. The law places significant emphasis on transparency and accountability, essential for preventing reoffending and evaluating risk factors related to criminal recidivism (Smuha *et al.*, 2021). Under this regulation, AI systems used for making judicial decisions must undergo strict scrutiny. Specifically, any decision based on algorithms and data in judicial processes must comply with clear regulations, including transparency and non-discrimination, to avoid negative consequences on individuals’ rights (European Commission, 2021). This becomes crucial in the context of preventing reoffending, as algorithmic decisions without proper oversight may inadvertently lead to unfair or biased judgments (Hacker, 2021). Studies indicate that while AI systems can play a pivotal role in predicting

recidivism, their effectiveness relies heavily on robust legal and ethical oversight (Li *et al.*, 2023). The EU AI Act emphasizes the importance of transparency in algorithmic decision-making to ensure that individual rights are protected and prevent unjust discrimination (European Commission, 2021). Specifically, the law mandates AI systems used in criminal justice settings to be regulated in a manner that ensures fairness and avoids discrimination based on gender, ethnicity, or social status (Hacker, 2021). By doing so, the Act enhances the potential of AI systems in preventing crime and reducing recidivism, while maintaining compliance with human rights principles (Lamberti, 2007).

#### The Council of Europe Artificial Intelligence Framework Convention

The Council of Europe’s Artificial Intelligence Framework Convention, adopted in September 2024, is an international agreement designed to align AI systems with human rights principles and legal and ethical standards (Council of Europe, 2024). This convention particularly focuses on safeguarding human dignity, equality, and non-discrimination in the deployment of AI systems in various fields, including criminal law (Rosati, 2019). The goal of this convention is to ensure that AI technologies are developed and used in ways that respect fundamental human rights and democratic values. The Convention also stresses the importance of transparency and accountability, which are key elements in the prevention of reoffending, particularly in the use of AI for risk assessment and recidivism prediction (Council of Europe, 2024). AI systems deployed in judicial processes must ensure the protection of individual rights and prevent discrimination based on gender, race, or social status (Hasisi *et al.*, 2016). The Convention emphasizes that AI systems must be subject to legal oversight to prevent human rights violations in judicial processes, allowing them to be effectively used in crime prevention (Smuha *et al.*, 2021). Research shows that when ethical and legal standards are adhered to, AI systems can be highly effective in predicting and reducing the likelihood of recidivism (Zheng & Chun, 2017). Particularly in the realm of criminal law, AI technologies can significantly improve the accuracy of predictions and help prevent discriminatory decisions (Haviv *et al.*, 2016).

#### Professional Code of Ethics in the Field of Artificial Intelligence

AI is now in many industries, but its use brings up several ethical issues. AI needs clear professional ethics to ensure fairness, accountability, and transparency. AI ethics stress responsible use. Development, deployment, and governance should focus on human well-being and reducing harm. Jobin, Ienca, and Vayena say that AI systems should respect human rights. They also emphasize the need for fairness and accountability. The authors warn that unregulated AI systems can perpetuate discrimination. They urge a professional code of ethics to prevent biased

outcomes (Jobin *et al.*, 2019). Developers must build AI to protect privacy and confidentiality. Include steps to stop unauthorized access to sensitive data (Dastin, 2020). Using AI in law, healthcare, and other important fields needs clear ethical rules. This helps keep public trust. When designing AI systems, we must consider ethical principles. Transparency, privacy, accountability, and fairness are key. These values help align AI with society's needs (Binns, 2018). For legal applications, the AI code of ethics must cover a few key points. It should cover liability, promote clear decision-making, and reduce bias in automated systems. A strong code of ethics can stop biased algorithms from causing harm. It ensures the safe use of AI by vulnerable groups (Sarker, 2021).

## MATERIALS AND METHODS

### Key Challenges and Barriers in the Implementation of AI for Preventing Recidivism

While the use of artificial intelligence (AI) in preventing recidivism has the potential to enhance judicial systems, it also presents significant challenges that must be carefully addressed. Below, the key challenges and related recommendations for integrating AI into crime prevention are discussed:

#### Algorithmic Bias

One of the fundamental challenges in AI-based systems is the risk of algorithmic bias. Algorithms that rely on historical data to predict criminal behavior may produce inaccurate results due to data deficiencies or existing social biases. Such biases can disproportionately impact minority groups or specific social communities, thereby compromising fairness in judicial decision-making (Johnson & Lee, 2023).

Studies have shown that AI-based systems may unintentionally reinforce racial, gender, or economic biases, leading to discriminatory outcomes (Martin, 2023). Given this concern, it is crucial to ensure that algorithms are designed with carefully selected data to minimize the risk of bias. Otherwise, the integrity of the criminal justice system may be significantly compromised, resulting in unfair sentencing and discriminatory decision-making. Despite AI's capability to process data-driven decisions rapidly, efforts to mitigate biases must remain a top priority. Algorithms should be trained on diverse and inclusive datasets, and models should be regularly audited to ensure fairness and transparency. This is essential for preventing systemic inequalities in criminal justice and ensuring that AI-driven decisions remain impartial and trustworthy. Establishing standardized guidelines for unbiased and equitable data in AI models is a necessary step toward achieving social justice and equality.

#### Transparency and Accountability

Another challenge in the use of Artificial Intelligence (AI) for preventing recidivism is the lack of transparency in the functioning of these systems. These systems often operate as a "black box," meaning that users

or decision-makers cannot fully understand why the system has reached specific conclusions. This can lead to a decrease in public trust and accountability for the decisions made (Davis, 2024). Research shows that even successful systems need transparency to make responsible decisions based on ethical assessments (Lukwich, 2025). In my view, transparency in AI models is crucial for accountability, especially in the legal domain. If an AI system makes a decision that leads to imprisonment or other legal consequences for an individual, the public must have access to the decision-making process. This transparency can be achieved through the development of explainable AI models, which not only strengthen trust but also provide a clear pathway to correct mistakes or biases. This will promote justice and accountability in the application of AI technology in law enforcement and criminal justice.

#### Privacy and Data Protection

Privacy and data protection are major concerns when it comes to the use of Artificial Intelligence (AI). AI systems require personal and sensitive data for training, which may be susceptible to security issues. Improper use of this data could lead to privacy violations and raise legal and ethical concerns (Smith, 2022). According to recent research, AI systems require stronger legal regulations to protect personal data (Kim, 2023). Additionally, Johnson (2021) has pointed out that one of the key challenges in using AI for crime prevention is the issue of preserving privacy. To ensure these systems use personal data correctly, technical and legal solutions are needed to maintain user privacy. Therefore, establishing global standards for data protection and guaranteeing privacy is essential to prevent the misuse and abuse of personal information (Johnson, 2021). In my view, protecting personal data is not just about complying with laws but also about maintaining the ethical integrity of AI systems. To prevent data breaches, strong encryption methods and secure data storage practices must be implemented. Furthermore, consent should be obtained from individuals before using their data for AI-based predictive models. These measures enhance privacy protection and foster trust in the AI technologies used within the criminal justice system.

#### Lack of Generalizability

Artificial Intelligence (AI) is generally trained on specific data, which may not work as effectively in different conditions or regions. This limitation in generalizability means that AI systems cannot be uniformly applied across all countries or states for predicting recidivism (Brown & Taylor, 2023). Studies have shown that improving generalizability requires collaboration between governments, universities, and legal organizations (Henry *et al.*, 2023). In my analysis, generalization is a key concern, especially when AI systems are applied in various legal domains and diverse populations. To improve the adaptability of AI models, developers must use diverse and representative datasets that reflect a wide range of

behaviors, demographics, and environments. Additionally, regular updates and monitoring of AI systems are essential to ensure that they perform accurately and fairly across different contexts.

### **Ethical Implications**

To avoid ethical conflicts, AI systems in criminal justice must be designed within a framework that encompasses human rights, justice, and transparency. The ethical integrity of AI models should be a top priority in their development and deployment. By doing so, we can prevent harmful consequences and ensure that AI positively contributes to the justice system while respecting individual rights. “The use of AI in predicting recidivism can create significant ethical challenges. For example, using AI systems to assess risk may conflict with ethical principles such as respect for human dignity and social justice. Additionally, AI-based decisions may unfairly harm individuals or groups who are already at social risk” (Miller, 2025). According to some studies, to ensure social acceptance, it is necessary to seriously consider ethical principles and human rights in the design of AI systems (Lorraine, 2024). In my view, to avoid ethical conflicts, AI systems in criminal justice must be designed with a framework that incorporates human rights, fairness, and transparency. The ethical integrity of AI models should be the primary focus in their development and implementation. By doing so, harmful outcomes can be prevented, and it can be ensured that AI positively contributes to the justice system while respecting individual rights.” The ethical implications of using artificial intelligence in reducing recidivism can be explained in the following areas: “The ethical implications of using artificial intelligence in reducing recidivism can be explained in the following areas: The implementation of artificial intelligence (AI) in criminal justice systems, particularly in reducing recidivism, presents numerous ethical challenges. While AI offers opportunities to improve accuracy and efficiency, it also raises concerns regarding privacy, bias, and social impact. These issues must be carefully addressed to ensure that AI solutions contribute positively without exacerbating existing inequalities or violating fundamental rights.

## **RESULTS AND DISCUSSION**

### **Privacy Concerns**

The use of AI in predicting criminal behavior requires the collection and analysis of large amounts of personal data. This raises significant privacy concerns, as individuals may be subjected to surveillance and data mining without their explicit consent. Furthermore, improper handling of this data could lead to breaches of privacy and security risks (Zeng *et al.*, 2021). AI systems could also inadvertently expose personal information, creating new vulnerabilities for individuals and communities.

### **Algorithmic Bias and Discrimination**

AI systems are often trained on historical data, which

can include biases that reflect societal inequalities, such as racial or socioeconomic bias. If AI models are trained on biased data, they may perpetuate these biases, resulting in unfair outcomes for marginalized groups. For instance, AI tools used to assess the risk of recidivism have been shown to disproportionately flag Black defendants as high-risk, even when they are less likely to reoffend than white defendants (Angwin *et al.*, 2016). This raises ethical concerns about fairness and the potential to reinforce discrimination in criminal justice.

### **Lack of Transparency in Decision-Making**

Many AI algorithms used in criminal justice are often “black boxes,” meaning their decision-making processes are not transparent. This lack of transparency makes it difficult for individuals to challenge decisions made by AI systems, thereby undermining accountability (O’Neil, 2016). When decisions about someone’s future are made by an opaque system, the potential for errors or biases to go unnoticed increases. This can result in severe consequences for individuals, particularly those from marginalized groups, without recourse or explanation.

### **Social and Human Impact**

The deployment of AI in criminal justice also raises concerns about the social implications of reducing human involvement in decision-making. As AI systems take on more responsibility in assessing individuals’ risks and predicting criminal behavior, the human element of empathy and understanding may be lost. This could lead to a dehumanization of individuals, reducing their opportunities for rehabilitation and reintegration into society (Zhao *et al.*, 2020). Moreover, the over-reliance on AI might lead to social stratification, as certain groups, especially those already disadvantaged, could be disproportionately affected by automated decisions.

### **Accountability and Responsibility**

AI systems may undermine accountability, especially when it comes to decisions regarding parole, sentencing, or probation. If an individual is wrongly convicted or their parole is denied based on an AI recommendation, determining who is responsible for the error becomes difficult. As AI takes on more decision-making power, questions about who is liable for mistakes—whether it be the developers, the government, or the AI itself—become crucial (Binns, 2018). Ensuring clear accountability structures is vital to maintaining justice and trust in the system.

### **Disproportionate Impact on Marginalized Groups**

AI tools, if not carefully designed and monitored, could further marginalize already vulnerable communities. Historically, people of color, immigrants, and economically disadvantaged groups have faced systemic inequalities in the criminal justice system. The introduction of AI tools that fail to account for these existing disparities could deepen societal divides, leading to a cycle of discrimination

and disadvantage. For example, algorithmic tools used in risk assessments may unfairly target minorities, leading to harsher sentences and reduced access to rehabilitation programs (Eubanks, 2018).

### Insufficient Scientific Validity

Although extensive research has been conducted in the field of artificial intelligence, its practical and scientific results in predicting recidivism have not yet been fully proven. Empirical evidence in this area is contradictory, and some researchers warn that these systems cannot be definitively applied in the judicial system without further research (Gray & Franklin, 2024). The existing shortcomings in the scientific validity of these systems may lead to uncertain or incorrect decisions in judicial systems (Cameron, 2024). In my view, one of the biggest challenges of using AI in judicial systems is the lack of valid scientific evidence to prove the effectiveness of these systems in preventing recidivism. While AI has been successful in some areas, such as data analysis and predicting potential criminal behavior, there is still insufficient empirical evidence to show that these systems are reliable and effective in preventing recidivism on a large scale. Many existing studies provide divergent empirical results, indicating the inability of these systems to predict accurately and reliably.

### Psychological Impacts

The use of AI systems in predicting recidivism can have negative effects on individuals. Those who are potentially identified by these systems as high-risk individuals may feel that they are automatically on a path to committing a crime. This situation can lead to psychological and social pressures that influence the individual's behavior (Morgan & Barnes, 2023). This issue is particularly concerning for individuals who are already exposed to judicial systems, as it may have even more severe negative impacts on them (Joel *et al.*, 2024). In my view, one of the lesser-discussed aspects of using artificial intelligence in crime prevention is its social and psychological impacts. Being identified as a potential criminal by AI systems can create feelings of shame, mistrust, and anxiety in individuals. These psychological effects can lead to social and mental health problems that may ultimately have a negative impact on the individual's behavior, potentially even pushing them toward criminal behavior. An individual who is identified by AI as a potential offender may feel that they are automatically on the path to committing a crime, which could increase the risk of reoffending.

### CONCLUSION

This investigation explores in detail how Artificial Intelligence could be utilized in managing recidivism, along with the difficulties it entails, examining various guides like a technical legal and ethical AI crown. These perspectives are aimed at elucidating both the possibility and restrictions that the use of AI would offer in this field.

### Technical Feasibilities of AI

A great challenge that lies ahead is that AI can add value in risk modeling and rehabilitation program development. In regards to criminal justice, this technology will only be useful if it is properly validated and its predictions are shown to be accurate and reliable. There are a host of concerns that accompany the use of technology, particularly in the formulation of algorithms that are appreciated at face value without context bound utility or attempting to apply them without proper scope delimitations.

### Legal Frameworks of AI

Concerning legal matters, international mandates like the EU AI Act and the Council of Europe's AI Framework Convention serve an important purpose to ensure the ethical and legal governance of the application of this technology. But, there is still great legal obstacles like no international statutes which provides enough attention to detail as well as appropriate preexisting legislation which may complement it within the legal system which are likely to make its application in the legal system ineffective.

### Challenges of Using AI in Preventing Recidivism

Overriding challenges include algorithmic discrimination, opacity and responsibility diffusion, data protection, and psychosocial impacts. These challenges can obstruct the achievement of justice and equality within a legal system. More specifically, the potential for discrimination is exacerbated through algorithms with in-built discrimination. Such inequality poses a great need for drastic preventive and corrective measures.

### Ethical and Social Aspects

The implications of AI technology on evaluating criminal justice systems is one that raises deep ethical concerns. Protecting individuals as well as ensuring ethical compliance within the scope of technologies is very important. To prevent these unfortunate consequences, clear ethical guidelines should be formulated and interdisciplinary collaboration should be encouraged.

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