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Artificial intelligence in the modern criminal justice system

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Abstract---Criminal justice is a fundamental pillar for ensuring the realization of justice. With the current technological advancements, particularly the emergence of artificial intelligence (AI) which simulates human intelligence, this technology can be integrated into all stages of the criminal justice process—before, during, and after trial. The aim is to enhance the effectiveness of the justice system and employ AI to achieve swift and efficient justice in our modern world. AI offers many advantages. With the increasing volume of legal cases and data, AI can analyze large sets of legal information using specialized algorithms. Furthermore, several advanced systems have been developed to support the work of judicial authorities. These tools aim to improve the modern criminal justice system. This raises a central question: To what extent is artificial intelligence effective and accurate in delivering criminal justice?.

Keywords---artificial intelligence, criminal justice, automated prediction.

INTRODUCTION

had attempted to assess the level of threat certain individuals posed to society. In general, crime prediction refers to identifying the likelihood of future criminal behavior in certain individuals. In the past, this relied on psychological analysis and criminological sociology. Today, this is increasingly carried out through AI applications. The intelligent crime prediction system is based on the analysis of vast amounts of big data, shared among various police departments. Its goal is to lower crime rates by forecasting where crimes are likely to occur and what types of crimes they might be.

For example, intelligent systems are integrated into surveillance cameras. These cameras can send alerts to law enforcement if they detect suspicious behavior—such as an individual loitering or acting strangely in a dark alley—indicating the possible intent to commit a crime (Al-Sharif, 2021).

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Subsection Two: The Legal Nature of Algorithmic Crime Prediction

Understanding the legal nature of algorithmic crime prediction requires examining various procedural steps that aim to prevent crimes before they occur. Through algorithmic prediction, legal systems aim to impose penalties preemptively as a form of deterrence. This approach supports self-restraint among individuals and reinforces public discipline to reduce crime. These predictive measures align with broader preventive strategies, intended not only to deter crime but also to reduce the chance of its occurrence.

However, this method does not fully eliminate crime. Criminal acts may still be committed, either by the same offender or others. As such, contemporary approaches have also focused on rehabilitating offenders. The aim is to transform them into responsible individuals and reintegrate them into society as productive members.

This approach reflects the positivist school in criminology, which emphasizes studying the criminal's personality. It proposes a range of preventive measures intended to reduce criminal risk and limit illegal activities (Al-Sharif, 2021).

Subsection Three: AI Techniques for Crime Prediction

Among the most advanced global technologies for crime prediction is Automatic Face Recognition (AFR). This system analyzes key facial features, creates a mathematical representation of them, and compares them to stored data in various security databases.

AI is also used in predictive policing strategies. For example, the police department in Chicago uses a data-driven approach that relies on artificial intelligence. It analyzes individuals who have been arrested, assessing their likelihood of committing crimes in the future (Al-Babli, 2019).

Section Two: Challenges in Using Artificial Intelligence Technologies in the Criminal Justice System

The use of artificial intelligence technologies plays a vital role in data analysis and in improving police performance. It also contributes to producing new forms of forensic evidence characterized by accuracy, objectivity, and reliability. These factors can significantly enhance the performance of the criminal justice system. However, the integration of such technologies into legal systems has not been free from challenges.

Subsection One: Challenges in Using Artificial Intelligence in Criminal Investigation Procedures

Despite the benefits of using artificial intelligence, it is necessary to ensure respect for basic human rights. There must also be safeguards for the security and integrity of data related to criminal justice. These technologies should be subject to effective judicial oversight. The risks involved in their application must be carefully assessed. These include their potential impact on the rights of the accused and the guarantee of the rule of law.

It is also essential to introduce legislative amendments to criminalize any violations that may result from implementing legal procedures using intelligent systems. These systems are directly linked to artificial intelligence applications. Their use must remain within a legal and legitimate framework. This ensures that they do not violate human rights or breach international or Islamic standards in the field of human rights, particularly in the context of criminal accusations.

The general principle remains: a defendant is presumed innocent until proven guilty of the crime in question (Sadat, 2021).

Subsection Two: Problems in the Use of Artificial Intelligence in Law Enforcement Operations
The use of artificial intelligence in criminal justice raises several legal concerns. For example, the police department in **New Orleans**—a major American city located in Louisiana along the Mississippi River—began collaborating with a Silicon Valley technology company to predict crimes before they occurred.

The company, Palantir Technologies, which provides various technological solutions, was seeking "free" opportunities to test and develop new tools. A figure named **Carville** acted as a liaison between the New Orleans Police Department and the tech companies offering predictive AI technologies. Their relationship was described as "informal and friendly," regardless of the legal requirements usually expected in partnerships between law enforcement agencies and private tech companies.

However, implementing and testing AI-based crime prediction tools in law enforcement requires general procedural review and careful consideration of human rights. Legal solutions must comply with applicable laws that respect these rights.

The use of such technology in criminal cases, whether during investigations or at trial, must be handled carefully. It would be a mistake to approach partnerships and collaborations in this field with a biased or simplistic view. The goal should be to implement AI in policing and justice enforcement in a comprehensive and legally sound manner (Ben Hashleef & Djilali, 2024).

Subsection Three: Artificial Intelligence in Criminal Investigation
It is undeniable that progress in artificial intelligence is advancing at an impressive and rapid pace. This development may lead to the disappearance of some jobs in the future. Machines and cognitive systems programmed with high precision do not tire, and their margin of error is minimal. They follow instructions in an organized and accurate manner.

What was once unimaginable has now become reality. Today, even the role of public prosecutors is facing potential threats from intelligent machines. Between 2015 and 2020, a system was developed using more than 17,000 criminal cases, according to published reports. The result was the creation of an artificial intelligence robot capable of accusing suspects using over 1,000 distinct features stored in its knowledge base. This robotic investigator operates using AI-based technologies.

Advanced AI programs can now be used to file charges in several common types of crimes, such as fraud, theft, dangerous driving, obstruction of justice, and illegal gambling (Al-Sha'er, 2020). The development team continues to enhance the program, aiming to enable it to handle more complex tasks. These include identifying sophisticated crimes and filing multiple charges against a single suspect.

With these capabilities, the intelligent investigator could fulfill the duties of a traditional investigator. This marks a significant step toward the efficient use of artificial intelligence in interrogating suspects. It also supports the protection of the rights of the accused, in line with the principles of justice and human rights (Al-Sha'er, 2020).

CONCLUSION

This paper addressed one of the most current and pressing topics in legal and technological discourse: the use of artificial intelligence (AI) in the criminal justice system. In light of the ongoing technological revolution, integrating AI in this system has become essential. The justice system seeks to uphold the rule of law, identify offenders, and protect individual rights and freedoms throughout all phases of criminal proceedings. AI contributes meaningfully to achieving these objectives.

Based on the analysis presented, the following key findings can be summarized:

1. Artificial intelligence has remarkable capabilities in detecting and analyzing various types of images. This can be used to monitor civilians or public areas to enhance and maintain public safety, without infringing on human rights or personal privacy.
2. There are numerous AI-based applications already integrated into the criminal justice system.
3. AI technologies have supported criminal justice agencies in predicting crimes more efficiently, especially when applied within the framework of the justice system.

Recommendations

1. States must develop legal frameworks to regulate the use of artificial intelligence within the judiciary. These frameworks should ensure the protection of personal freedoms and data privacy.
2. Predictive crime algorithms should be employed more widely in the justice system. They can help reduce the risk of criminal offenses by forecasting potential criminal behavior.
3. Existing algorithms used for crime prediction must be reviewed and updated regularly. This will ensure that law enforcement technologies remain effective, precise, and safe for long-term application.
4. Legal systems should evolve to formally recognize the role of artificial intelligence as an operational component within law enforcement. This includes allowing AI technologies to assist in crime prediction, suspect tracking, and apprehension of offenders.

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