Chapter 8
Exploring Dimensions of Artificial Intelligence in Criminal Investigations and Technological Aspects

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ABSTRACT

Everything in today's world is related to artificial intelligence. Criminals are becoming advanced and accessing artificial intelligence, causing crime. Hence, there is a strict need of artificial intelligence in crime investigation, too, because traditional ways can't find a criminal who is accessing technology to fulfill his desires. Numerous technical instruments support law enforcement in effectively apprehending offenders. Drones offer surveillance and crime scene views from the air. Surveillance and body-worn cameras both record evidence and improve accountability. Metal

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detectors assist in locating hidden weapons, and predictive analysis foresees and stops criminal activity. Forensic investigations are aided with lie detectors, DNA, and fingerprints. Although AI has shown promise in advancing justice in a number of situations, administration's lack of technical know-how prevents AI from reaching its full potential.

INTRODUCTION

AI is used in crime solving in a number of methods, including gunshot detection, DNA evidence analysis, and image and video analysis (Dunsin et al., 2024). For instance, AI-enhanced DNA analysis helps identify suspects from difficult samples, while CCTV software can uncover possible crimes by analyzing footage (Malatji & Tolah, 2024). Law enforcement is alerted and shooters can be located with the use of AI-powered gunshot detection devices (Mihna et al., 2024). With the analysis of forensic data such as fingerprints, facial recognition, toxicology reports, and digital evidence, ChatGPT-4, a sophisticated AI model, can also help solve crimes. It can help identify suspects by searching through text data for hints, analyze DNA, and determine the reasons of death. To guarantee the correctness, dependability, and moral use of AI in investigations, human oversight is essential (Farahani & Ghasemi, 2024). By working with human investigators, ChatGPT-4 can grow in experience and improve over time with input and confirmation from law enforcement. Also, AI has aided in the capture of criminals in a number of situations. For example, police were able to track down thieves by using the 'find my device' option on stolen phones. Once the offender's phone was inadvertently turned on, AI helped solve the murder of his girlfriend (Obreja et al., 2024). The identification of a victim's sibling through digital face formation resulted in the arrest of defendants in a murder case. Even though there are many different AI programs available, they all have flaws and limits (Smith & Fang, 2024). Thus, it is essential that AI technology is constantly improved upon in order to reduce risks and prevent unfavorable results. To make AI-generated evidence admissible in court, certain guidelines defining its use parameters and supporting primary evidence are also required (Zuwanda et al., 2024).

Utilizing AI algorithms, tools such as Veritone's compare booking photographs with supporting documentation to expedite case outcomes. A crucial component of AI, facial recognition, can locate possible matches in large datasets more quickly than humans, enhancing research. But it's crucial to apply AI morally. Future suspect identification techniques may be more accurate, efficient, and equitable if AI is used responsibly in conjunction with conventional techniques. Some critic stories often discuss how machines are taking over our lives and how our freedoms are in jeopardy. However, with proper application, AI can speed up the investigation of