

**APPLICATION OF ARTIFICIAL INTELLIGENCE IN ENSURING PUBLIC
SAFETY (EXPERIENCE OF FOREIGN COUNTRIES)**

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Abstract

Modern artificial intelligence technologies (hereinafter referred to as AI) are actively being introduced into various spheres of life, including public safety. This article explores key AI-based solutions implemented in foreign countries to enhance the effectiveness of security systems. It also analyzes current trends and prospects for the use of AI in law enforcement, transportation, emergency management, and counter-terrorism.

Keywords: Artificial intelligence, AI solutions, public safety, public security system, predictive analytics, Big Data, software, automation, ethics.

Introduction

Public safety systems around the world have traditionally relied on security forces, infrastructure, and response mechanisms. However, in recent decades, AI technologies have provided new opportunities to improve their efficiency, accuracy, and speed of decision-making. AI solutions play a key role in monitoring, predicting, and preventing public safety threats. President of the Republic of Uzbekistan Shavkat Miromonovich Mirziyoyev actively supports the development of artificial intelligence technologies in various sectors, including public safety. In his speeches and initiatives, he emphasizes the importance of implementing AI to improve the efficiency of public services and ensure citizen safety. In particular, the "Digital Uzbekistan — 2030" Strategy, approved by Presidential Decree dated October 5, 2020 [1], provides for the active integration of IT and AI in various sectors, including law enforcement. This aims to increase transparency and efficiency in law enforcement agencies and enhance data monitoring and analysis for public safety. Furthermore, in October 2024, the Strategy for the Development of Artificial Intelligence Technologies until 2030 [2] was adopted. It includes goals to create a legal framework for AI development, improve standards, and strengthen international cooperation. These measures aim to effectively apply AI in public safety and other priority areas in our country. To advance this direction domestically, it is necessary to be aware of the achievements of global leaders in the field. Therefore, the main areas of AI application in modern society are reviewed below. AI in Threat Monitoring and Prediction Systems. One of the earliest and most rapidly developing areas is the use of AI for public order monitoring and predictive crime analysis. For example, in the United States, the PredPol (Predictive Policing) system is widely used. It employs machine learning algorithms to forecast the time and location of potential crimes. The system analyzes historical crime data and helps law enforcement allocate resources more efficiently to prevent offenses. Similar

systems exist in the United Kingdom (e.g., Karma Police, software designed to collect and analyze internet metadata to profile users and identify potential threats) [3], and in other countries where algorithms monitor behavior in public spaces.

In China, facial recognition technology (Skynet) is actively used for this purpose. It helps track individuals in real time in public areas, identify suspicious persons, and issue alerts about potential threats. AI technologies play a crucial role in combating terrorism and preventing radicalization. Monitoring social media with AI enables the tracking and analysis of user behavior to detect signs of terrorist activity or propaganda. In Europe and the United States, systems have been introduced that use AI to analyze large volumes of text and video content (Big Data) online. These systems can automatically detect content related to terrorist groups and identify recruiters and potential radicals. An essential aspect is the use of AI to automatically analyze the behavior of individuals at borders, airports, and other strategic locations. Algorithms can efficiently identify suspicious behavior, speed up security screening, and reduce human error. AI technologies are actively applied in the field of transport safety to prevent traffic accidents and ensure passenger security. In countries with advanced infrastructure, such as Japan, South Korea, and the United States, systems are being developed and implemented that use AI to monitor road conditions, vehicles, and passengers. These systems can issue alerts about potential accidents based on sensor data, CCTV footage, and driver behavior analysis.

Additionally, AI systems assist in forecasting transport incidents, optimizing traffic flow, and enhancing emergency services during accidents. One of the significant areas of AI application is emergency and natural disaster management. For instance, in Australia and the USA, machine learning algorithms are used to predict and prevent wildfires, as well as monitor climate and geological activity. AI helps process massive datasets from sensors and satellites, forecasting potential threats and directing resources to mitigate them.

In Japan and other countries prone to earthquakes, AI systems are used to analyze seismic activity and warn the public about possible earthquakes.

In addition, various types of AI-powered software solutions for public safety can be identified (see Table 1).

Table 1. Leading AI-based software solutions for public safety in developed countries

No.	Purpose	Objectives	Examples
1.	Crime analysis and threat prediction	Identifying crime patterns, predicting potential crimes	PredPol (USA), Crime Mapping with AI (Sweden), KI-Polizei (Germany), Karma Police (UK)
2.	Video surveillance and facial recognition	Monitoring public spaces, identifying suspicious individuals and behavior	Skynet (China), AI-powered CCTV (South Korea), Facial Recognition in Public Safety (Australia)
3.	Investigative support and data analytics	Evidence analysis, investigation acceleration, detecting crime links	VALCRI (UK), GendNotes (France)
4.	Cybersecurity and digital threat mitigation	Protection against cyberattacks, fraud detection, control of illegal content	AI Cybercrime Detection (Australia), AI-enabled Border Security (Canada)
5.	Mass event and emergency management	Preventing stampedes, effective emergency response, coordination of security services	AI-enhanced Emergency Response (Sweden), CrowdAI (Singapore)
6.	Robotic and autonomous systems	Patrolling, access control, incident prevention without risk to humans	RoboCop (Dubai), Knightscope K5 (USA)
7.	Road safety management and accident prevention	Violation monitoring, traffic analysis, accident reduction	AI Traffic Management (China), ALPR (Canada)

Trends and Challenges in the Use of AI in Public Safety

Key trends in AI application in public safety include:

- Integration with existing security systems: Developing hybrid systems that combine AI with traditional security methods to enhance decision-making processes [4].
- Big Data utilization: Processing and analyzing large data volumes improves forecast accuracy and operational effectiveness [8].
- Automation: AI automates many processes such as monitoring, analysis, and threat response, reducing decision-making time and minimizing human errors.

Challenges include:

- Ethical and legal aspects: While many countries are developing legal frameworks for AI use in law enforcement, balancing technology effectiveness with human rights remains complex. Concerns include privacy violations, algorithmic bias, and the risk of wrongful decisions [5].
- Technical limitations: The effectiveness of AI depends on data quality. Flawed or biased data can result in inaccurate forecasts. AI systems are also vulnerable to cyberattacks, posing risks to data security and critical operations [9].
- Organizational complexity: Despite the availability of AI experts, integrating new technologies into established processes is difficult. Resistance to change and lack of interagency coordination slow implementation.
- Social and public risks: Public concerns about constant surveillance, facial recognition, and automated crime prediction reduce societal trust, which can limit data access or lead to political restrictions [5].
- Financial constraints: Although developed countries have more resources, AI implementation remains costly. It requires investments in software, hardware upgrades, personnel training, and cybersecurity.

Conclusion

Even in technologically advanced countries, artificial intelligence in public safety requires a comprehensive approach involving proper regulation, data protection, process adaptation, and public trust. AI technologies have tremendous potential to transform public safety. Their application in monitoring, forecasting, and emergency management significantly improves response efficiency and reduces risks. However, regulatory frameworks, human rights protection, and preventing technological misuse remain critical. AI's future in security will evolve alongside technological progress and the resolution of social, legal, and ethical challenges by governments and international organizations. The application of AI in various aspects of public safety is undoubtedly one of the most in-demand areas today, requiring further in-depth study at all levels.

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