

Developing Artificial Intelligence in Fighting, Preventing and Combating the Digital Business Crimes

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ABSTRACT: The Industrial Revolution 4.0 and (AI) are the key factors creating the emergence of high-tech crimes, including digital business crimes. In the article, the authors discussed the most general knowledge and the application of AI in the fight and prevention against crimes in digital business. The article also pointed out the role of AI application in combating and preventing various types of crime and initially pointed out the advantages and disadvantages of the application of AI in the fight, prevention, and combat against various types of crime. From there, the author gave some remarkable points in the development of AI in fighting and combating digital business crimes in Vietnam in the future.

Keywords: Artificial intelligence; AI; crime prevention; correctional crime; High-tech crime; digital business crime.

1 INTRODUCTION

1.1. Overview of Artificial Intelligence (AI)

Artificial intelligence (AI) is an industry in the field of computer science. A human-made intelligence created to help computers automate intelligent behaviors like humans. Specifically, AI helps computers gain human intelligence, such as thinking and reasoning to solve problems, communicating by understanding languages, voices, learning, and adapting themselves. AI includes the theoretical foundations and building programming of computer systems that can perform tasks, which often require human intelligence, such as visual perception, voice recognition, and making decisions and translation between languages (https://vi.wikipedia.org/wiki/Tr%C3%AD_tu%E1%BB%87_nh%C3%A2n_t%E1%BA%A1o#cite_note-:0-1)

AI develops and positively impacts many different sectors: for example, in the economic and financial sectors, a startup Sentient Technologies has spent more than ten years developing an analytical program to forecast market trends. Big companies like the Bridgewater investing fund has also spent

much money on developing AI to replace the transaction of a management computer network since the 1990s. There are still mixed views on the impact and influence of AI for human life. However, it is still necessary to acknowledge the significant contributions of AI in many sectors, such as Education, Health, Industry, Electricity, and Agriculture. These studies affect the development of society in general and influence the field of order and security, struggle, and prevention of digital business crimes in particular.

In the US, besides being equipped with leading technologies such as unmanned aircraft, Stingray - spy mobile phones, license plate database, and identification cards, police forces have used a new AI application called Dextro. Basically, Dextro is an analysis tool that helps identify objects appearing in videos. First developed in 2014, Dextro can quickly scan and identify objects that users are looking for, such as books, shoes, writing, or even guns. This AI can also recognize necessary actions such as shaking hands, punching, kicking, etc.

In Brazil, a team of eight researchers has developed AI robots that can detect corruption in the spending activities of elected representatives of this country. Brazilian law states that the budget allo-

cates a total of 33,000 real (about 10,500 USD) - 46,000 real (14,700 USD) to refund politicians for meals, air tickets, fuel costs, accommodation, and car rental. By analyzing about 1,500 daily refund requests and more than 20,000 monthly refund requests from MPs for quota expenses, a robot called Rosie can detect abnormal expenditures of parliamentarians.

The tools that the police use may be smarter, but do they really make people's lives safer? After all, tools are still tools. World security is in an extremely complex stage. The application of scientific and technological achievements is necessary, but the boundary between use and abuse is very fragile. Therefore, people with legal management activities are still the core force to maintain world order and security.

1.2. The role of the application of AI in the fight, prevention, and combat against digital business crimes

Artificial Intelligence will enhance the detection of crimes in the digital business field (1). According to SIME (Space Imaging Middle East) company, the software is an excellent aid to the police, being able to accurately identify patterns of criminal acts even if they are almost unrelated to events and then predict their recurrence. AI helps to make an accurate analysis. When combined with the knowledge and experience of the police forces, it will quickly find significant traces and clues of digital business crimes, significantly contribute to improving the working efficiency in the crime prevention and the violations of the law (<http://www.canhsatnhandan.vn/Home/Print/2544/Tri-thong-minh-nhan-tao-duoc-canh-sat-su-dung-trong-dau-tranh-phong-chong-toi-pham>)

Application of AI in criminal identification especially wanted criminals in the field of digital business (2). The DailyMail (UK) reported that a Cambridge University research group recently had introduced software that uses AI to recognize faces even when wearing a veil or glasses. This software promises to create a "revolution" in the prevention and combat against crime in the world (http://www.daibieunhandan.vn/ONA_BDT/NewsPrint.aspx?newsId=411629). Software called "Camouflage Facial Recognition System" (DFI) uses AI, analyzes images, sets up data, and identifies characters in photos. DFI is considered to create a "revolution" in the prevention and combat of crime, helping the authorities identify the criminals, protesters, or anyone hiding

their identities by covering faces with a mask, shawl, or sunglasses. (http://www.daibieunhandan.vn/ONA_BDT/NewsPrint.aspx?newsId=411629).

Application of AI in supporting criminal investigation activities in digital business (3). The researchers said that when investigators need to find information and evidence of alleged violations, technology can play a positive role in the investigation process. By filtering and processing vast amounts of information, AI can effectively scan and filter telephone messages, audio files, emails, and other unstructured data into easy-to-control data groups; identify potential links between the suspect parties and identify manifestations of frequency or time related to the case, thereby, AI can assist in the investigation. AI can accurately detect IDs, addresses of servers, and high-tech crime actors. Moreover, AI can attack directly with organized crime and high-tech crime.

2. DISCUSSIONS

2.1. Advantages and Disadvantages when applying Artificial Intelligence to the prevention and combat of digital business crimes

2.1.1. Advantages

AI is incapable of bribing, giving, or accepting bribes (1). By trying to eliminate psychological factors, human emotions in crime prevention related to investigating activities, and prosecution from criminal interaction can be minimized from bribery and corruption during the investigation. The creators of robots have developed many other programming methods to avoid corruption and petty corruption in the police force. This contributes to improving the efficiency of law enforcement and police force duties while also helps to reduce crime, avoid wrongdoing, neglect criminals, etc.

Strengthen monitoring ability (2). Robots and AI are capable of providing evidence, documents, and exhibits from criminals committing offenses to hide their offenses. With the application of AI, unusual behaviors and actions will be collected, gathered, and recorded as evidence to help accuse human crimes. Not only that, the AI helps the police force to monitor 24/7, regardless of Saturday, Sunday, holidays, ... without rest, to help optimally identify the object. This is hard for people to do.

Function, expressive ability (3). Instead of conventional machines, now, in the 4.0 technology stage, AI also has the same expression as humans. The fact that machines have an emotion that helps to influence the mind of the person leading to a change of behavior. All human moods will be recorded and analyzed, and bad attitudes will be prevented from detection. The people who create the robots will help people with bad behaviors to understand their necessary attitudes, thereby raising people's sense of self-compliance with laws, improving the effectiveness of the State management on security and order, the effectiveness of the police forces' struggle and crime prevention.

2.1.2. Disadvantages and limitations

Can be attacked backward (1). Humans are not completely excluded from the equation of the robot. People have a decisive role in handling and preventing criminal acts. Robots are tools that help people, limit, and eliminate crime completely. A robot can be a double-edged knife, used by humans for illegal acts of individuals and organizations. On the other hand, with the current development of malware, such as data-stealing software, spyware, and other cyber wares, national security is also challenged with the application of AI.

Challenges for programmers (2). The benefits are clearly visible if the State programmers are competent and good quality. However, if people or AI are not carefully tested and created by talented and competent people, it may be outdated compared to other dangerous crime devices, or create conditions for other criminals to interleave in the process of committing crimes. Not only that, it requires governments to change and reform long-term AI human resource development policies. Mechanisms to control the activities of the AI development team and the AI itself are built.

Require large financial resources (3). To realize China's AI development plan, in the early days of 2018, Beijing approved a project to develop an AI development technology institution in the suburbs of the capital worth US \$ 2 billion; The UK government announced a policy of associating with partners in Europe, the United States, and Japan to jointly sponsor £ 1 billion in AI research in the UK (of which the UK government invested £700 million and private invested £ 300 million); The European Commission said it expects the total of public and private investment to reach at least US \$ 24 billion (€ 20 billion) over the period of 2018-2020 for AI development to maintain competitiveness and avoid brain drain. France will invest 1.8 billion US \$ (1.5

billion Euros) for AI research by 2022; The Japanese government's 2018 budget for AI investment was 77.04 billion yen (more than US \$ 700 million); The Indian Government doubled the budget for 2018-2019 for the Digital India program of Rs 30.7 billion (US \$ 408 million, ...) Does Vietnam have enough financial and budgetary resources to invest in AI development?

2.1.3. Some notes when applying AI in fighting and preventing digital business crimes today

Firstly, the application of AI to crime prevention and combat is essential and an inevitable consequence of the industrial revolution 4.0 and police forces worldwide. The application of AI to the life and politics of each country will be indispensable as information technology development makes an important contribution to the industrialization and modernization of the country. Countries worldwide should take advantage of this moment to develop science and technology, especially AI, in order to detect, minimize, and limit to the maximum extent the increase in types of crime, especially high-tech and digital business crimes today.

Second, people cannot rely on technology, Artificial Intelligence. Governments need to ensure that human factors are strong because people are the most important factor. The tools used by law enforcement and police forces may be smarter, but will they really make people's lives safer? After all, tools are still tools. Security and order and criminal situations worldwide are in an extremely complex stage. The application of scientific and technological achievements and AI is necessary, but the boundary between the use and abuse is very fragile. Therefore, with crime prevention and control activities, people with law management activities and the core force are the police forces to maintain world stability and security and crime prevention and combat.

Third, enhancing propaganda, education that helps people understand high-tech crimes, conspiracy, methods, tricks, understand the industry revolution 4.0, and AI. The government should have measures to propagate, educate, and form a crime preventing attitude that is everyone's responsibility, not the responsibility of police force only. Furthermore, the government needs to help people raise their awareness about acts, tricks, and conspiracy to digital business crimes.

Fourth, personal privacy can be violated. For example, human face recognition software has caused controversy. Some scientists expressed concern that personal privacy will be violated when the software must continuously update the image of

people to have an analytical database in reality. Dr. Zeynep Tufekci, a sociologist at the University of North Carolina, posted an article on Twitter saying that DFI uses AI as "authoritarian". "Analyzing and recognizing faces when people cover their faces or wear glasses requires a huge database. This can seriously violate individual privacy," he said.

3. CONCLUSIONS

Artificial Intelligence is the "thinking" of machines in which devices will mimic the natural way of humans' thinking to solve problems. During the industrial revolution 4.0, AI is one of the key factors. From the concept of a distant thought, AI gradually comes to life, realizes the dream of machines with the ability to think like humans. In parallel with the positive changes that AI brings, experts are also concerned that it may grow in the wrong direction. The late Professor Stephen Hawking predicted that AI would soon reach a level that made it a new form of life that surpasses humans. He also warned that AI could threaten human survival. Billionaire Elon Musk also said that AI could lead to the birth of a dictatorial robot that dominates humanity forever. "At least, when there is an evil dictator, he will eventually die. However, Artificial Intelligence does not die; it will live forever. Then you have an immortal dictator that we can never escape. If Artificial Intelligence becomes smarter than humans, we may lose control of them," he said. (<https://vnexpress.net/longform/tri-tue-nhan-tao-lam-thay-doi-moi-mat-doi-song-con-nguoi-3806584.html>)

There are some notes when Vietnam wants to develop AI in the fight against crime by police forces. Based on its qualifications, capabilities, and circumstances, Vietnam develops AI development policies according to the roadmap, ensuring that it is suitable for the practical situation. However, there is also a need for a breakthrough policy in AI development in Vietnam in the future.

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